CONTEXTUALISING ENVIRONMENT AND HEALTH: A STUDY OF THE BOATMEN OF THE GANGA IN VARANASI

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DECLARATION

This is to certify that the thesis entitled **"Contextualising Environment and Health: A Study of the Boatmen of the Ganga in Varanasi"** is submitted for the award of Degree of Doctor of Philosophy of this University. This thesis has not been submitted for any other degree of this University or any other University and is my original work.

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Chhavi Sodhi

TABLE OF CONTENTS

ACRONYMS

AAY	Antodaya Anna Yojana
APL	Above Poverty Line
BHUIMS	Baranas Hindu University Institute of Medical Sciences
BOD	Biological Oxygen Demand
BPL	Below Poverty Line
CBO	Community Based Organisation
CBR	Crude Birth Rate
CDP	City Development Plan
CDR	Crude Death Rate
CMC	Citizens' Monitoring Committee
CPCB	Central Pollution Control Board
CSO	Civil Society Organisation
CVD	Cardio-vascular Disease
DO	Dissolved Oxygen
ETP	Effluent Treatment Plant
FC	Faecal Coliform
GAP	Ganga Action Plan
GoI	Government of India
JNNURM	Jawaharlal Nehru National Urban Renewal Mission
JP	Jal Police
JSV	Jal Shav Vahini
MDC	Mohalla Development Committee
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MGNSS	Maa Ganga Nishad Sewa Samiti
MLD	Million Litres per Day

MPN	Most Probable Number
MPS	Main Pumping Station
MSSS	Mallah Samuday Sangharsh Samiti
NCEUS	National Commission for Enterprises in the Unorganised Sector
NGO	Non Governmental Organization
NRCA	National River Conservation Authority
NRGBA	National Ganga River Basin Authority
NSS	National Social Service
NSSO	National Sample Survey Organisation
OBC	Other Backward Class
PAC	Provincial Armed Constabulary
PAPP	Public Awareness and Public Participation
PHC	Primary Health Centre
PM	Prime Minister
PMU	Project Management Unit
RMP	Rural Medical Practitioner
SC	Scheduled Caste
SDGs	Sustainable Development Goals
SEI	Socio-Economic Index
SMF	Sankat Mochan Foundation
SPCB	State Pollution Control Board
SPS	Sewage Pumping Station
ST	Scheduled Tribe
STP	Sewage Treatment Plant
SVRKSC	Swami Vivekanand Rajkiya Smarakiya Chikatsalaya
TB	Tuberculosis
TC	Total Coliform
UN	United Nations

UP	Uttar Pradesh
UPPCB	Uttar Pradesh Pollution Control Board
VDA	Varanasi Development Authority
VNN	Varanasi Nagar Nigam
VMC	Varanasi Municipal Corporation
VV	Van Vibhaag
WDC	Ward Development Committee
WPR	Workforce Participation Rate
WWF	World Wildlife Fund
ZDC	Zone Development Committee

LIST OF TABLES

Chapter 2

Chapter 4

Chapter 5

Chapter 6

Chapter 7

Chapter 8

LIST OF MAPS

Chapter 3

Chapter 4

Chapter 8

INTRODUCTION

The panoramic view of the historic Varanasi ghats situated along the banks of Ganga – is the image that perhaps best captures and evokes the other worldly ethos of this vibrant and ancient city. Never far away from this image is that of a serene *majhi* (boat-man) gliding away on his modest boat on the waters of this ethereal river into the distant horizon.

The imagery is captivating, yet belies the truth of the situation today at Varanasi. Ganga today is a shadow of itself, its flow and depth gravely reduced, its waters dark and murky, becoming more and more renowned with each passing day for engendering disease and ill-health in dependent population and perhaps more of a symbol today of ruinous state of the country's natural resources than anything else. This decline is perhaps best reflected in the populations directly drawing sustenance from the river in both their lives and livelihoods. The present research attempts to delve into the lives of one such community in Varanasi – the boatmen of the Ganges – and study their work, lives and environmental context to gain a better understanding of the present day circumstances and health and well-being of this community.

Boatmen perhaps represent a community which is closest to a river and a conceptual understanding of them is impossible without alluding to the river or for that matter, any other water body, which forms an inseparable part of the broader environmental context of the boating community anywhere in the world. Though the river is a part of our natural environment, yet it is important to realise the role of human factors in shaping its contours. As such our study thus aims to present as far as possible a wide-ranging environmental perspective, which takes into consideration the interplay of these factors in influencing the health of the boatmen community in Varanasi.

Boating in Varanasi is a gendered occupation with all boatmen being men and mainly from the Mallah caste group which has traditionally in northern India been associated with occupation of boating and fishing. Their association with the river is centuries old and guided by mores, values and traditional rules of their community and do not typically fall under the ambit of legal measures operational in this country. However, this has been changing in recent times. As man has found various uses for riverine resources, their exploitation has continued unbounded. Ganga today figures in amongst the most degraded and abstracted rivers of the world. Its waters have been used extensively in agricultural irrigation, industrial production and hydro-power

generation. As the river and its uses are increasingly being brought under state control, boatmen too find their relationship with the river being increasingly regulated.

Their environmental context is thus being subjected to change from various directions – beginning with a deteriorating state of Ganga, their most valuable resource base. This has seen a variety of responses to tackle the further downfall of the situation, as across the subcontinent, hundreds of millions of people are daily dependent upon the river for their meeting their essential requirements. The most notable of such initiatives is the federal government initiated Ganga Action Plan (GAP), in existence since 1985. Despite the programme, Ganga water seems as unwholesome as ever, yet the programme continues to progress forward. GAP has been buffered by other programmes and measures in hopes of providing a multi-pronged approach to arresting degradation of riverine resources from various channels. Varanasi has been a prominent centre of action, primarily because it is perhaps the most iconic religious and cultural centre of northern India and a major tourist and pilgrim destination. Civil society initiatives too have not been lacking in this regard. They have assiduously sought to bring into focus the unrelenting slide in the state of Ganga.

All of these factors have touched upon the lives of communities such as boatmen stationed on the *ghats* at the bank of the river Ganga at Varanasi. While the Ganga has been experiencing change, their relationship with her too has been under increasing scrutiny as the *ghats* have come under greater governmental management to ensure the success of pollution abatement strategies being implemented by the government. Here an attempt will be made to understand the role delineated for and performed by boatmen within these efforts and their perceptions of them, to improve the state of Ganga, whose healthy state is critical for the well-being of the community.

The present research thus aims to derive at an understanding of the environmental health context of the boatmen of Varanasi, by understanding both the actors and aspects which form the environmental context of this community and the ways in which they interact and influence their health.

The chapter plan for this study is as follows:

- Chapter 1 deals with the review of literature, including an examination of the concept of environment and the role of people in moulding their surroundings and influences people's access to different forms or shapes of the environment.

It further tries to breakdown an understanding of the concept of environment into living, working and socio-economic conditions and how these intersect to influence people's health conditions and their access to healthcare institutions present in their surroundings.

- Chapter 2 provides a background of the study, highlighting the backdrop of the environmental and in particular, the working conditions of the Varanasi boatmen.
- Chapter 3 provides the rationale for the study and contains an account of the methodology employed in this study.
- Chapter 4 relates to the findings of this study. It begins with a brief description of each of the sixteen sampled ghats or sites of this study, followed by an illustration of the socio-demographic, economic and living conditions of the sampled boatmen and highlights the differences in the conditions of different categories of boatmen.
- Chapter 5 presents an account of the differential working conditions of the different categories of boatmen and enunciates the spatial and temporal variations in their work.
- Chapter 6 focuses on the interface of the boatmen community with the various agencies of the government running programmes on the ghats of Varanasi in a bid to clean up this increasingly degraded and polluted river.

  Their experiences relating to Ganga Action Plan (GAP) and its constituent elements and their participation within government and civil society initiated programmes on Ganga cleaning form the crux of this chapter.
- Chapter 7 takes a look at the occupation-related health behaviour of the boatmen community and their health concerns, which they perceived were related to their working lives and the larger working environment.
- Chapter 8 looks at the health concerns reported by boatmen families and attempts to contextualise them within their larger environment housing and socio-economic conditions. Access of boatmen households to health service institutions in Varanasi is also dealt with in detail in this chapter.
- Chapter 9 presents the core findings of this study and concludes with a discussion on the future prospects of boatmen.

CHAPTER 1

REVIEW OF LITERATURE

1.1 Introduction

Environment comprises of everything that is external to the individual.[1]. Conditions that we live in, settings in which we work, circumstances in which we interact with our fellow-beings and other physical, biological and chemical compounds and situations which influence our interaction – all form part of our varied environments[2].

Though we all live on the same planet, yet environmental conditions differ exponentially between populations. Distinction is made between the various kinds of environments that exist, stretching from wilderness to more ordered, disciplined natural environments of rural countryside to the more completely synthetic ambience of modern urban spaces, which is where man's separation from nature is the greatest[3]. The built-up environs of our towns and cities is indicative of the control man has come to exercise over the natural world; increasingly being supported in this venture by sophisticated technological means at this disposal to harness and mould the environment wilfully. Luxurious extravagance, endless consumption and mass production are all aspects of today's urban environments, yet there exists another side of urbanism – overcrowded tenements, long and intense working hours for below subsistence incomes, rising pollution and waste levels and disease among populations[4].

The present study on the boatmen of Varanasi looks at the state of their environmental conditions and their influence on their health conditions. The boatmen community in Varanasi has lived on the banks of Ganga for centuries sharing a deep relationship with it. The riverine reserves do not only provide for their physical sustenance needs, but also serve as a source of their social and cultural identity. However, in recent years, with numerous changes being effected on the riverine ecosystem, their relationship with Ganga is facing new hitherto unexplored strains. Even their access to the river in Varanasi is being challenged, restricted and being brought under state surveillance in a myriad ways, in wake of changes in the form and stature of the river. The river's waters are in a pitiable state today - not only are they being carted away, but are also being used as an outlet for dumping of hazardous chemicals and effluents generated to sustain

1 Barry, J. (1999): *Environment and Social Theory.* London: Routledge, p. 13.
2 Moeller, D.W. (1992): *Environmental Health.* Cambridge: Harvard University Press, p. 1-7.
3 Barry, J. (1999), *op cit,* p. 22-7.
4 Moeller, D.W. (1992), *op cit,* p. 1-7.

growth-oriented activities in society – activities and processes, which Nayar refers to as 'anti-ecological[5].' The study aims to understand the ways in which manipulations in the form of Ganga have affected their living and working environment. The influence of environmental conditions on populations can best be gauged by their health status, with unequal and adverse nature of conditions sharing a strong relationship with ill-health and disease in populations.

This chapter attempts to set forth a broad-based political ecology framework for studying the changing patterns of relationship between the Ganga River and the Varanasi boatmen, in context of the increasing exploitation and degradation of the holy river. It begins with a look at the evolving nature of relationships between man and the environment, succeeded by a look at the meaning of political ecology, the mirage of sustainable development and understanding the contours of an alternative ecosocialist paradigm. It concludes with an understanding of the dimensions of people's environmental circumstances - living, working and socio-economic conditions - impinging upon their health.

1.2 Environment and People

The natural world, comprising of numerous ecosystems, is a highly dynamic and responsive system. All living beings act upon their environment in some way or the other, thereby altering them in some degree. The greatest of these transformations have undoubtedly been imposed by humans. The previous two centuries have inarguably witnessed such changes increase in frequency and scale. Growth of science and technology since mid-nineteenth century in Europe has facilitated this. Changing outlook towards the environment, wherein nature began to serve a mere 'instrumental' purpose – a resource for meeting man's needs facilitated such an approach. Such an anthropocentric view wherein all surroundings were seen as being for the benefit of human beings and to be appropriated and exploited by them for their benefit combined with man's increasing mastery and perceived distinctiveness from his natural surroundings increasingly gave rise to an ethic which legitimised large-scale exploitation of the material world. Attitudes towards the environment are a product of changing thought processes of the role of man within the physical world and as technological sophistication began to pace, man began to devise ways of extracting more and more from natural resources, even 'perfecting' it[6]. A

[5] Nayar, K.R. (1998): *Ecology and Health: A Systems Approach.* New Delhi: APH Publishing Corporation, p. 9.

[6] White, Jr., L. (1967): 'The Historical Roots of our Ecological Crisis,' *Science,* Vol. 155, No. 3767, pp. 1203-1207.

tangible portrayal of this transformation is vividly captured by Gilmartin (2008), in his work on changing conceptions of water use in colonial India in the nineteenth century India. Given the increasing anthropocentrism, rivers, instead of being viewed as forces of nature, began to be perceived a 'resource' to be 'harnessed' and 'developed' towards 'productive use' – in this case, irrigation. Developments in civil engineering complemented such an approach – propelling riverine waters towards their rightful 'duty' – irrigation of lands to make them fit for production – instead of allowing them to go 'waste'[7].

Technological developments have reached a climax in the twenty-first century. This has facilitated harnessing of ecological resources to the very hilt; the ill-effects of such an approach have come to the fore like never before. In this 'capitalisation of nature,' ecosystems have been ravaged, polluted and degraded and gradually the distinction between valid 'use' and wrongful 'abuse' has been blurred. Such disruptions have affected people unequally with local indigenous communities bearing the brunt of the damage[8]. In the following section, we outline the political ecology framework within which we attempt to place our analysis on Varanasi boatmen faced with degradation of Ganga.

1.3 Political Ecological Framework

Plainly put, political ecology is a "politicised study of human-environment relations and resource use[9]." Robbins (2004) refers to Watts (2000) in stating that it is an understanding of "the complex relations between nature and society through a careful analysis of …the forms of access and control over resources and their implications for environmental health and sustainable livelihoods[10]." The paradigm combines political economy and cultural ecology perspectives to study issues surrounding inequitable distribution and access to environmental resources and environmental change among people. It attempts to understand the role of regional, national and even global factors in affecting such change that intimately affect the lives and well-being of people at the local level[11].

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7 Gilmartin, D. (2008): 'Water and Waste: Nature, Productivity and Colonialism in the Indus Basin,' in A. Baviskar (ed.) *Contested Grounds: Essays on Nature, Culture, and Power.* New Delhi: Oxford University Press, Ch. 2, pp. 13-37.

8 Barry, J. (1999), *op cit*, pp. 42-43 & 168-170.

9 Hershkovitz, L. (1993): 'Political Ecology and Environmental Management in the Loess Plateau, China,' *Human Ecology*, Vol. 21, No. 4, pp. 327-353.

10 Robbins, P. (2004): *Political Ecology: A Critical Introduction.* Malden: Blackwell Publishing, p. 6-7.

11 *ibid.*

Proponents of this theory argue that current levels of ecological degradation are an outcome of excesses of capitalist modes of production and inequities produced and perpetuated by it. These inequities are just not confined to the distribution of resources, but also to ecological 'costs' or 'bads.' Environmental 'externalities' generated by the credo of unhindered economic expansion are shared inequitably among populations, with the most vulnerable communities, particularly in the global south, being exposed to the worst excesses[12].

Ever-expanding consumption levels among the affluent generated to feed rising production and profiteering of businesses is blamed for increasing denudation of our environmental cover. Undoubtedly, even the least affluent amongst us exploit the environment to further their interests, yet it must be realised that their raiding of environmental resources is driven by their basic survival needs. Thus though they contribute to the ravage around them, the goal is to meet subsistence[13]. Referring to the latter as ecosystem people and the former as 'omnivores,' Gadgil and Guha (1995) claim that the latter have to bear the costs of wastefulness of their more privileged counterparts, who with the resources at their disposal are able to command products from all corners of the world, limiting the opportunities available to them and leaving them with little choice but to raid resources in the immediate surroundings without consideration to the environment's capacity for regeneration[14]. While the omnivores enjoy the benefits of the system, working classes, who are consigned to bearing a major proportion of the burden of environmental degradation, often find themselves employed in hazardous industries. Yet their need to stay in employment and ensure a living wage for themselves and their families means that they are forced to accept the risks to their health and well-being and carry on with dangerous work. Absence of 'distributive justice' condemns them to higher environmental risk in an unequal social system[15].

Further indicted for their extreme indifference towards those environmental concerns which do not immediately affect them, these well-off population groups have been criticised for their

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12 Escobar, A. (2006): 'Difference and Conflict in the Struggle over Natural Resources: A Political Ecology Framework,' *Development*, Vol. 49, No. 3, pp. 6-13.

13 Barry, J. (1999), *op cit*, p. 161.

14 Gadgil, M. and Guha, R. (1995), *Ecology and Equity: The Use and Abuse of Nature in Contemporary India.* New Delhi: Penguin Books India (P) Ltd, pp. 1-5&108.

15 Douglas, M. (1986): *Risk Acceptability According to the Social Sciences.*London: Routledge and Kegan Paul, pp. 5-12.

failure to regard for interests of others and shamelessly court state support for their causes[16], including active collusion with governments to ensure maintenance of conditions beneficial to them, including perpetuation of socio-economic and resource inequalities[17]. Providing an example of the workings of such an alignment, Guha (1997) speaks of the elitist nature of conservation programmes – numerous wildlife sanctuaries have been erected in recent years with the professed goal of saving vanishing wildlife species. Using the 'science' of conservation biology to strengthen their argument, he claims that ruling elites, supported by wealthy wildlife tourists and other conservation enthusiasts have created a situation where local indigenous communities, residing for centuries within these environs, are being indicted for habitat destruction and their removal is being actively sought from these areas. Meanwhile, resorts and roads are being constructed within these surroundings so that the former can continue with their adventurous trysts with nature, giving no thought to their own resource intensive lifestyles which may bear greater responsibility for habitat destruction in the first place[18].

Robbins (2004) writes that another reason behind the eviction of indigenous communities from their traditional habitats rests in a widely predominant notion of a 'natural' environment which lacks in human presence. Such an idea of a landscape, which is almost Eden-like in its conception, is almost entirely without precedent and highly cosmetic. The continued viability of such a created landscape is also questionable[19]. As stated previously, nature and its various manifestations are dynamic systems in a state of constant evolution, with all aspects of the system impressing some form of change upon it. People have traditionally shared a symbiotic relationship with 'natural' environments, playing a role in maintaining their viability. To dismiss local communities and blame them for causing harm to the natural environment – violating the pristine state of nature – is founded on the misplaced assumption that these environments were free of people in the first place. A relevant example here is the potentially negative ecological and social consequences of enclosing previously open-access forests and depriving admission to

[16] Srinivasan, K. (1980): 'The Environmentalists: Another View,' *Economic and Political Weekly*, Vol. 15, No. 15, pp. 693-396.

[17] Chaplin, S. (1999): 'Cities, Sewers and Poverty: India's Politics of Sanitation,' *Environment and Urbanisation*, Vol. 11, No. 1, pp. 145-158; Mawdsley, E. (2004): 'India's Middle Classes and the Environment,' *Development and Change*, Vol. 35, No. 1, pp. 79-103; Baviskar, A. (2003): 'For a Cultural Politics of Natural Resources,' *Economic and Political Weekly*, Special Articles, pp. 5051-5055.

[18] Guha, R. (1997): 'The Authoritarian Biologist and the Arrogance of Anti-Humanism: Wildlife Conservation in the Third World,' *The Ecologist*, Vol. 27, No. 1, pp. 14-20.

[19] Robbins, P. (2004), *op cit*, p. 148-9.

local communities to pasture lands for cattle grazing in Rajasthan. This has resulted in increasing penetration of scrub-trees within these forests, eating into land for precious flora[20].

Another form of selfish championing of environmental causes, termed as 'bourgeois environmentalism[21],' is centred around urban spaces, focusing on the incongruities of demand of 'white-collar' classes for uniformly 'green,' 'clean,' 'ordered,' 'uncongested,' and 'unpolluted' environments with the livelihood, housing, sanitation and transport needs of working populations. Such an agenda supported by coercive governmental regulation and an insensitive judiciary has led to mass eviction and job-loss. The phenomenon came to the fore in Delhi in 1999 when the Supreme Court (SC) ordered a shut-down of all polluting units within the city precincts, throwing a massive two million people out of work. Little concern was demonstrated with the consequent livelihood loss experienced by such a staggering number of people[22], while the SC order was celebrated by the elite classes as a victory for a clean, beauteous and aesthetic environment and an invigorating city[23].

1.3.1 Role of governments

While attempting to balance their ecological, social and economic responsibilities, governments, in most countries, have tended to ally themselves to the maximisation of economic growth and capitalist profiteering without paying sufficient attention to the environmental and social costs of their policies. This has led to maintenance and even an increase in socio-economic disparities between people. A critique of the government is due here for failing to effect a vision for 'progress' separate from unending material prosperity for some, especially since such a course has been shown to be socially inequitable and ecologically unsustainable[24].

Pursuing such a growth-oriented policy has however not decreased the need for legitimacy on part of the government. The result has been to adopt a 'managerial' approach to environmental problems, characterised by regulatory and legal institutional frameworks for moderating the

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20 *ibid.*

21 Mawdsley, E. (2004), *op cit.*

22 Baviskar, A. (2002), *op cit.*

23 Baviskar, A. (2002): 'The Politics of the City,' *Seminar: A Symposium of the Changing Contours of Indian Environmentalism*, Vol. 516; Roy, D. (2002): 'Environmentalism and Political Economy,' *Seminar: A Symposium of the Changing Contours of Indian Environmentalism*, Vol. 516; Srivastava, S. (2011): 'Urban Spaces, Disney-Divinity and the Moral Middle Classes in Delhi in A. Baviskar and R. Ray (eds.) *Elite and Everyman: The Cultural Politics of the Indian Middle Classes*. New Delhi: Routledge, Ch. 14, pp. 364-390.

24 Barry, J. (1999), *op cit.*, pp. 224-235.

impact of potentially destructive paths[25]. Following a sectoral approach to ecological issues, it does not challenge the cause of problem – the content and framework of development. It is based on the premise that development needs to be 'guided' for balancing of essential social and ecological concerns. Indira Gandhi openly espoused such a path to 'progress;' it is visible even today, relying upon technological fixes to environmental problems. Importation of 'clean' and 'green' technologies to the country to solve problems generated by another variant of technological solutions is a key component of such an approach[26]. This is often done without adequately assessing suitability and replication of technology to local social and physical conditions, resulting in disastrous consequences. One consequence that emerges is that despite their failures, action-taken by governments serves as proof of their sincerity in governance and helps them gain moral legitimacy. An excellent example of such importation is the Green Revolution, which sought a technical solution to an essentially social problem (famine and widespread hunger and malnutrition). Through production was boosted to some extent, yet it can be classified as a failure since in its aftermath it has resulted in widespread damage to the environment. Subsequently the health of people too has suffered[27].

Barry (1999) refers to Dryzek (1987) in claiming that by treating environmental problems as isolated individual events, governments disregard the holistic nature of the issues at hand and rely upon technological and/or bureaucratic interventions to deal with situations. This merely deflects problems – for example, converting solid waste into river water pollution through discharge of untreated sewage and garbage – without providing lasting solutions. Faith in constant advancement of technical prescriptions sidetracks arriving at a pragmatic balance between concerns of ecology and economy[28]. Thakkar (2007) claims that the real problem arises in governmental commitment to promotion of economic growth- oriented policies and its role as a protector of environment. While the former is aggressively pursued by the government, the

[25] Krishna, S. (1996): *Environmental Politics: People's Lives and Development Choices.* New Delhi: Sage Publications, pp. 35-39 & 238-258.

[26] *ibid.*

[27] George, S. (1976): *How the Other Half Dies: The Real Reasons for World Hunger.* Middlesex, England: Penguin Books, pp. 89-112.

[28] Barry, J. (1999), *op cit*, pp. 224-227.

latter is marred by weak regulation and implementation. The latter loses out in this due to the conflicting interests that are still perceived between economic and environmental goals[29].

An increasingly popular stance of the government towards environmental issues lies in the domain of environmental economics, which seeks integration of environmental concerns within the current neo-classical economic paradigm through economisation of environmental resources. This 'environmental economics' paradigm works by assigning monetary values to environmental resources. It follows a rigorous valuation process and believes that disclosing the real value of these resources will prevent their unchecked abuse and help in maintaining or at least, prolonging their longevity. By 'internalising negative externalities' of production, through taxes, penalties and allocating ownership rights of resources, it holds that it can shape production to meet the needs of both economy and environment[30]. This approach however ignores the 'incommensurability' of fixing prices to natural resources – communities value resources for just more than their economic contributions and different communities associate differently with their natural surroundings, hence any such pricing is likely to involve questions relating to 'power' in determining these economic values[31]. Singh (1976) further critiques its erroneous basis. While taxation may work in singular instances, but if used to cover the entire gamut of production in the economy in the hope of ending pollution, it would only work if the government insisted upon adding 'persistent surpluses' to its coffers, which would bring production to a standstill – a course it would never pursue while remaining within the current neoliberal setup.[32]

1.3.2 Sustainable development

Given this background, it is perhaps not surprising that governments, including India's, has in the past quarter century embraced the 'idea' of 'sustainable development' and incorporated it into its policy statements at all levels. Sustainable development, as defined by the World Commission on Environment and Development (WCED) and cited by Nayar (1994), refers to "development that meets the needs of the present without compromising the ability of future

[29] Thakkar, H. (2007): 'Water Pollution Control: Role of Community and Public Action,' in Mahesh Rangarajan (ed.) *Environmental Issues in India: A Reader.* New Delhi: Dorling Kindersley (India) Pvt. Ltd., Ch. 15, pp. 247-274.

[30] Escobar, A. (2006), *op cit.*

[31] *ibid.*

[32] Singh, N. (1976): *Economics and the Crisis of Ecology.* Delhi: Oxford University Press, p. 28.

generations to meet their own needs[33].” Government endorsement of this concept has been criticised as ‘rhetoric,’ given the continuation of the same policies of unhindered economic growth as before and in some ways, these have become even more insidious[34].

Sustainable development has been criticised on various grounds. The first point of complaint against this concept is the haziness surrounding the term ‘sustainable’ – questions like what should be sustained and for what duration and whom to sustain it for remain mired in lack of clarity. Is the concept of sustainability here concerned with our future descendants or does it refer to wildlife or biodiversity conservation or with the promotion of well-being and health of all people or meeting all their basic needs – these questions are left unanswered. Nor does it distinguish between economic and social sustainability as its aim or does it aim at a combination of both or does it even endorse the relevance of social conditions mediating upon the state of the environment and ensuring its sustainability[35].

Of particular relevance is the primary objective of sustainable development – that of ‘reviving growth,’ followed by “changing the quality of growth” and later on, “ensuring a sustainable level of population.” Though the third aim of this concept is stated as “meeting essential needs for jobs, food, energy, water and sanitation,” yet, as is clearly visible, its first priority remains in subscribing to the ‘economic growth’ model of development[36]. It pins its hopes on it to alleviate poverty (which it blames for being harmful to the environment). What is ignored here is that this is precisely the approach whose abject failure in the 1970s to bring about a ‘trickle-down’ of wealth led to its being replaced by the more equitable ‘basic needs approach[37].’ Yet sustainable development harks back to the same redundant approach and merely pleas for a tinkering with the quality of growth. It does not question the high demand and consumption models and resource-intensive nature of lives of the rich, particularly in the global North. Rather it reverts to the debunked argument of higher population numbers in the south causing ecological destruction[38]. Despite such criticism, the idea of sustainable development continues to hold its charm among governments. It received further impetus in 2015 when the United Nations (UN)

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33 Nayar, K.R. (1994): ‘Politics of ‘Sustainable Development,’’ *Economic and Political Weekly,* Vol. 29, No. 22, pp. 1327-1329.

34 Krishna, S. (1996), *op cit*, p. 38.

35 Lele, S. (1991): ‘Sustainable Development: A Critical Review,’ *World Development,* Vol. 19, No. 6, pp. 607-621.

36 *ibid.*

37 *ibid.*

38 Nayar, K.R. (1994), *op cit.*

proposed a resolution of 17 Sustainable Development Goals (SDGs), which were adopted by 193 countries at the 2015 UN Sustainable Development Summit. Though the SDGs stated as one of their goals, "endeavour to decouple economic growth from environmental degradation," yet by explicitly supporting a growth-laden path to development, once again their commitment to long term environmental sustainability is questioned. Furthermore, these SDGs without questioning the content of economic growth pursued by countries or even the relevance of aiming for further growth for the already developed world and at the same time, holding back from outlining a broad strategy as to ways in which economic growth can be promoted without affecting the environment, the SDGs do not inspire confidence in their ability to halt or even slow down the ravaging of our ecological resources[39]

Ever since the first endorsement to sustainable development has taken place, the consequences of such a policy for numerous countries has been promotion of 'techno-bureaucratic' control over environmental issues, giving rise to a new 'expertocracy,' where expert scientific opinions are being employed increasingly to replace public representation in such issues[40]. In cases of failure of such an approach, the political class has been observed to resort to a handy excuse – failings or deficiencies of science[41].

The question that arises here is that if sustainable development is not the answer, then wherein lays the future. Different paths have been proposed, including a reversion to earlier pre-colonial forms of production. Such traditional revivalism is posited on the belief that the practices of traditional agricultural societies were 'ecologically sustainable,' emanating from a profound 'ecological rationality' which ensured their 'harmonious' co-existence with the environment. However, the flaws of seeking solace in traditional agricultural societies as they present an appearance of contrast to current economic growth models are immense. These societies may not be as ecologically 'benign' as previously thought and any plea for a return to such systems

[39] Stewart, F. (2015): 'The Sustainable Development Goals,' *Journal of Global Ethics,* Vol.1, No.3, pp. 288-293.

[40] Barry, J. (1999), *op cit*

[41] Rayner, S. (2008): 'Who's in Charge? Reflections on the Worldwide Displacement of Democratic Judgement by Expert Assessments,' in Amita Baviskar (ed.) *Contested Grounds: Essays on Nature, Culture, and Power.* New Delhi: Oxford University Press, Ch. 9, pp. 174-192.

should be preceded by a thorough analysis for what they really are and not just out of a romantic yearning for past revivalism[42].

1.3.3 Ecosocialism

The path towards change is located in the present. Kovel (1998) writes, "the belief that there can be no alternative to capital is ubiquitous . . . That, however, does not keep it from being nonsense . . . Of course it could be the case that the job of changing it is too hard and . . . only inertia, fear of change or opportunism can explain the belief in so shabby an idea as that there can be no alternative to capital for organising society[43]." Evidently then any change that is brought in has to end the 'self-exciting' nature of capitalist production cycles based on endless exploitation of natural resources. Natural limits to production have to be given imminent recognition. Production to feed a small troupe of hyper-consumers which overlooks meeting the requirements of essential needs of the remaining humanity must change[44]. Production should then be legitimised only if it meets the requisite of providing for the essential needs of all people, thus allowing largely use-value production[45]. These beliefs are encompassed with the paradigm of 'ecosocialism.' It disputes the notion that avarice is innate to human nature, instead endorsing the idea that such nature is refined by the socio-economic realities of our present consumerist society and is amenable to change[46]. In this regard, Kovel writes that everyday acts of resistance by even the tiniest of 'ensembles' or units of people anywhere across the world protesting against destructive capitalism have, what he terms, 'activating' potential to usher others into joining the 'negation' of the anti-ecological developments of our societies[47]. Such a society, it is hoped, will gradually be more 'ecologically consciousness' and democratic. Though not assured of being ecologically rational, it is hoped that enough checks and balances exist in the democratic decision-making process to deflect the hedonism that is such a prominent feature of present societies[48].

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42 Sinha, S., Gururani, S. and Greenberg, B. (1997): 'The New 'Traditionalist' Discourse of Indian Environmentalism,' *The Journal of Peasant Studies*, Vol. 24, No. 3, pp. 65-99.

43 Kovel, J. (1998): 'Ecosocialism,' in John S. Dryzek and David Schlosberg (eds.) *Debating the Earth: The Environmental Politics Reader.* Oxford: Oxford University Press, Ch. 29, pp. 408-425.

44 Singh, N. (1976), *op cit.*

45 Lowy, M. (2005): 'What is Ecosocialism?' *Capitalism Nature Socialism*, Vol. 16, No. 2, pp. 15-24.

46 Pepper, D. (1993): *Eco-Socialism: From Deep Ecology to Social Justice.* London: Routledge, pp. 218.

47 Kovel, J. (1998), *op cit.*

48 Lowy, M. (1998): 'Eco-socialism and Democratic Planning,' in Leo Panitch and Colin Leys (eds.) *Coming to Terms with Nature.* New Delhi: Leftword Books, Ch. 15, pp. 294-309.

Social equality is an ultimate feature of the ecosocialist society. The nature and organisation of work and technology are central to ensuring the viability of this feature. While this setup is not antithetical to technology per se, it subordinates its use to fulfilment of basic human needs. Any technology that as a corollary deprives people of their means of subsistence and work and destructs nature would have little space. Similarly technological use to feed into output addition of goods which have little use-value or are ecologically harmful (armaments, nuclear production and products using or producing hazardous wastes) too would be curtailed[49].

An ecosocialist society may not be a reality now, but unless aspired to, we may never know if it is possible. In the meantime, we bumble towards ever higher levels of ecological degradation, social inequity, declining livelihood opportunities and poor health outcomes.

1.4 Health

The following section briefly traces historical developments in the understanding of health, before finally concluding with an environmentally-based social understanding of the concept.

Health is essentially a social concept and the notion of it has historically been subjected to varying interpretations. The earliest societies associated ill-health and disease with supernatural occurrences, followed by a gradual acceptance of environmental paradigm of health and disease. Hippocrates in his seminal text, '*Airs, Waters and Places*,' establishes a causal relationship between the state of environment and health in a society. This understanding remained paramount for the next two millennia[50], till until the nineteenth century when the miasmatic theory began to take over societal understanding, locating disease in the noxious or stench-laden contaminated air that persisted in the environment in the post-industrial revolution phase in western Europe [51]. However, all of these models were supplanted by the 'germ theory' of disease which took precedence over them by the end of the nineteenth century[52]. Led by the discoveries of Robert Koch and Louis Pasteur in bacteriology and immunology, respectively the era of assigning a single causative factor to disease had begun. Soon the disease-causing organisms and

[49] Singh, N. (1976), *op cit*, pp.

[50] Rosen, G. (1958): *A History of Public Health.* New York: MD Publications, Inc., Ch.1&2, pp.5-9.

[51] Turshen, M. (1989): *The Politics of Public Health.* London: Zed Books Ltd., Ch. 6, p. 127.

[52] Rosen, G. (1971): 'Historical Trends and Future Prospects in Public Health,' in G. McLachlan and T. *McKeown* (ed.): *Medical History and Medical Care: A Symposium of Perspectives.* London: Oxford University Press, pp. 63-67.

insect vectors of all major killers were found. This was followed by the development of new treatment and prevention regimes, which laid the foundations of the medical era[53].

This model of health sheared away the role of any environmental factors in locating disease and health in populations, locating disease within the body of the individual man and thereby localising the unit of treatment as well. Inspired by the Cartesian perspective, the human body, instead of being seen as a whole, is viewed as the mere total of its parts, analogous to a machine. While the salience of this model in present times is undoubted, it has faced criticism primarily for failing to account for the wide-ranging basis of health[54]. Exposed by Thomas McKeown and his colleagues, who through a comprehensive analysis of the data on mortality rates of England and Wales in the 19th century, pitched for the role of non-biomedical factors particularly improved nutritional and sanitary standards in improving the health of the population[55]. Turshen (1989) asserts that though clinical medicine may have been successful in eradicating diseases from the world, yet it has not helped to improve health in developing countries, citing high mortality rates among the populations there as proof. In fact, infant mortality is on the rise in these countries over the past few years, despite newer discoveries in clinical medicine[56].

This clinical paradigm has been followed by a host of theories, including genetic, lifestyle and psychosocial theories trying to explain health[57]. The latter focuses upon 'social environment' in as the basis of people's health. A positive 'psychosocial environment,' replete with enabling structures that facilitates achievement of set targets and positive reinforcements that rewards them, is considered beneficial to people's long-term health. A negative psychosocial environment – unequal social structures, hierarchal and prejudicial relationships, insecure work environments, among others are psychosocial factors that produce an adverse effect on health[58]. In this paradigm, the role of relative deprivation and relative income levels is considered more important in fostering ill-health than absolute material deprivation[59]. Remedy is proposed in

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53 Rosen, G. (1958), *op cit*, pp. 287-291.

54 Qadeer, I. (1985): 'Health Services System in India: An Expression of Socio-Economic Inequalities,' *Social Action*, Vol. 35, pp.199-223.

55 McKeown, T., Brown, R.G. and Record, R.G. (1972): 'An Interpretation of the Modern Rise of Population,' *Population Studies*, Vol. 26, No.3, pp.345-372.

56 Turshen, M. (1989), *op cit*, pp.19-24.

57 *ibid*

58 Siegrist, J. and Marmot, M. (2004): 'Health Inequalities and the Psychosocial Environment – Two Scientific Challenges,' *Social Science and Medicine*, Vol.58, pp.1463-1473;

59 MacIntyre, S. (1997): 'The Black Report and beyond what are the Issues?' *Social Science and Medicine*, Vol. 44, No. 6, pp.723-745.

developing 'psychosocial assets' – fostering greater unity and bonds that binds communities – in cushioning the effects of an adverse environment. This theory does accept the role of broader social factors in influencing health, yet it does not question the causes behind the unequal distribution of the psychosocial environment[60], instead holding socially disadvantaged sections responsible for their weak social ties being unable to intercept stress[61].

All of the above perspectives on health do further our understanding of this concept, yet fail to provide a complete understanding of health of populations. A holistic environmental notion of health accepts the biological component along with the interplay of the environmental, social, economic and political components in influencing it. Such an approach does not compartmentalise the concept nor does not it straitjacket it as either the opposite of disease or a function of lifestyle of individuals. It does not discard the role of the health service system in influencing health, but sees it as more than a function of curative measures in alleviating illness[62]. In general, an environmental understanding of health incorporates all features in our environment including human actors present within it that impinge upon the health of populations. Social conditions mediate our experience of environmental conditions[63].

Environmental concerns are not uniform for all people. Distinction is made between urban and rural environments. The former are typically characterised by dense and overcrowded conditions, with relatively higher levels of environmental stress and basic aspects of environmental conditions – pollution-free air, uncontaminated food and water, garbage-free neighbourhoods and non-hazardous injury-free working conditions – being poorer than the latter. Rising scale and intensity of these stressors have increased hazards to health[64]. Environmental concerns and well-being of population has been superseded by the desire for continual economic growth, resulting in widespread pollution, displacement, poverty and ill-health[65]. This is perhaps best illustrated in the nineteenth century writings of Engels on the environmental basis of health, where he writes

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60 Krieger, N. (2001): 'Theories for Social Epidemiology in the 21st Century: an Ecosocial Perspective,' International Journal of Epidemiology, Vol. 30, pp.668-677.

61 Lynch, J.W., Davey Smith, G., Kaplan, G.A. and House, J.S. (2000): 'Income Inequality and Mortality: Importance to Health of Individual Income, Psychosocial Environment, or Material Conditions,' *BMJ*, Vol.320, pp. 1200-1204.

62 Braveman, P. and Gruskin, S. (2003): 'Defining Equity in Health,' *Journal of Epidemiology and Community Health*, Vol. 57, pp. 254-258.

63 Purdom, P.W. (1980): 'Environment and Health,' in P. Walton Purdom (ed.) *Environmental Health.* New York: Academic Press, Ch. 1, p. 6.

64 *ibid*

65 Moeller, D.W. (1992): *Environmental Health.* Cambridge: Harvard University Press, pp. 8-10.

extensively about degenerative urban environmental conditions fostering ill-health among working class populations. He blamed accumulative processes of the capitalist system, which subordinated even humanity in pursuit of profit for such deterioration and claimed that working classes in such conditions:

> "can neither retain health not live long; that it undermines the vital force of these workers gradually, little by little, and so hurries them to the grave before their time . . . society knows how injurious such conditions are to the health and life of the workers, and yet does nothing to improve these conditions . . .[66]"

Engels provides a haunting description of the pallid faces and gaunt frames of the working classes in those times, the stench-ridden air of narrow alleyways filled with rotting garbage and excrement. Cramped buildings with damp cellars, in which as many as twenty people were squeezed, with dogs, chickens, donkeys and even pigs sometimes sharing the same quarters. Without the luxury of beds, warm clothing and a proper diet, the question he thus poses is:

> "How is it possible, under such conditions, for the lower class to be healthy and long lived? What else can be expected than an excessive mortality, an unbroken series of epidemics, a progressive deterioration in the physique of the working population[67]?"

Engels' findings were soon substantiated by Edwin Chadwick. In 1842, the latter released the government-sponsored, "Report on an Inquiry into the Sanitary Conditions of the Labouring Population of Great Britain," which too held liable the dirty state of the environment for engendering disease among working classes. His work facilitated the sanitary reform movement in England, resulting in spectacular mortality declines among the population, particularly due to declining incidence of cholera and typhoid, among others[68].

In more recent times, the publication of the Black Report on health inequalities in England in 1980 too has pointed to social class factors influencing the health status of people. It talks about a 'class gradient' in health and mortality, with the two lowest social class groups (IV and V) having the highest morbidity and mortality rates amongst all groups. Yet they have the least access to health services[69]. Similarly the 2008 report of the WHO instituted Commission on the

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66 Engels, F. (1892): *The Condition of the Working-class in England in 1844*, trans. F. Wischnewetzky. London: George Allen and Unwin Ltd., pp. 95-99.

67 *ibid.*

68 Ross, E. (1994): 'The Origin of Public Health: Concepts and Contradictions,' in P. Draper (ed.) *Health through Public Policy: the Greening of Public Health*. London, Green Print, pp. 26-40.

69 MacIntyre, S. (1997), *op cit*.

Social Determinants of Health has indicted large-scale social inequities, including unequal educational, living and working conditions and the state of people's natural environment, in giving rise to health inequities among populations. The report advocates a change in those societal structures which promote unfair resource distribution within a population[70].

Thus it can be said that equating health with medicine does great disservice to populations. Conceiving of health as being limited to the absence of disease and illness is a limited concept, which reduces health to the individual level while mostly dismissing population level and political economic factors which result in the creation and distribution of ill-health in a population. Health can only be understood by placing it within the larger environments of people and concomitantly the larger development paradigms which operate in the society.

The present study adheres to this notion of health, while attempting to understand the environmental circumstances of the boatmen of Varanasi. Accordingly, the following sections will examine in greater detail the role of socio-economic, living and working factors, which make up the environmental conditions of people.

1.4.1 Socio-economic factors

Socio-economic inequalities, including a highly stratified and unequal society, divided on the lines of class, caste, gender, rural-urban and geographic differentials, with great differences in social advantage among them, is reflective of highly inequitable health outcomes as well[71].

It has generally been accepted in that absolute material deprivation in terms of access to basic amenities such clean drinking water, sanitation, adequate diet and shelter, among others invariably has a negative impact upon health outcomes[72]. Population groups with lower levels of income suffer from higher rates of illness and mortality as well as suffer more acutely after the onset of disease[73]. The correlation between such social class gradients in health and the role of income inequalities in fostering health inequities is well-established. Income-related factors are considered crucial because of the facilitative role they play in gaining access to environmental

70 *ibid.*

71 Bajpai, V. and Saraya, A. (2012): 'Relationship of Socioeconomic Inequalities to Health Outcomes in India,' *The National Medical Journal of India,* Vol. 25, No. 1, pp. 294-299.

72 Braveman, P., Egerter, S. and Williams, D.R. (2011): 'The Social Determinants of Health: Coming of Age,' *Annual Review of Public Health,* Vol. 32, pp. 381-398; Wilkinson, R.G. (1997): 'Health Inequalities: Relative or Absolute Material Standards,' *BMJ*, Vol. 314, pp.591-595.

73 KNHS (2007): *Challenging Inequity through Health Systems.* Final Report of the Knowledge Network on Health Systems of the Commission on the Social Determinants of Health. Geneva: World Health Organisation; Turshen, M. (1989), *op cit.*

amenities and also healthcare services. This is especially important in a space where increasingly the public nature of goods such as health and education is rapidly being eroded[74]. Yet exceptions exist. Despite low income levels, Cuba, Costa Rica and China and Kerala in India have managed to post health parameters that rival that of the affluent countries[75]. For example, infant mortality rate (IMR), considered to be particularly sensitive to changes in socio-economic status of population groups, is 15.3 in Kerala compared to the national average of 57 in 2005-06[76]. Numerous reasons have been put forth to explain this anomaly – sustained effort of the government to strengthen public provisioning of goods such as housing, education and primary healthcare, including provisioning of preventive medicine and land reforms initiated to reduce glaring inequalities within the population, among others factors, are considered crucial[77].

Thus it may be said that income levels gain in importance in influencing health-inequities when coupled with the undermining effects of "systematic underinvestment across a wide range of human, physical, health and social infrastructure[78]." The post-1990s Indian economic scenario is illustrative of rising socio-economic differentials manifesting themselves in greater health inequities in a population. In 1991, with the adoption of the Structural Reform Programmes, investments in social sector, including the health sector has declined. During this period, both economic prosperity and health inequities have risen due to the concentration of growth-benefits in a few elite[79]. An examination of the under-five child mortality rates during this period shows the increasing 'health gap' between SCs and STs (among the poorest communities in the country) and the rest of the population[80].

Thus in conclusion, it may be said that health in a population should be located within the larger socio-economic inequalities prevailing in society and socio-political forces influencing such realities.

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74 Rabbani, A. (2012): Inequalities in Access to and Utilisation of Health Care Services In Uttar Pradesh: A Temporal Analysis across Different Social Groups. Unpublished M.Phil Dissertation, Jawaharlal Nehru University.

75 Braveman, P., Egerter, S. and Williams, D.R. (2011), *op cit.*

76 International Institute for Population Sciences and Macro International (2007): *National Family Health Survey 3, 2005-06: India: Volume 1*. Mumbai, IIPS, p. 187.

77 Braveman, P., Egerter, S. and Williams, D.R. (2011), *op cit*; Nayar, K.R. (1997): Housing Amenities and Health Improvement: Some Findings, *Economic and Political Weekly*, Vol. 32, No. 22, Pp. 1275-1279.

78 Lynch, J.W., Davey Smith, G., Kaplan, G.A. and House, J.S. (2000), *op cit.*

79 Rao, M. and Loewenson, R. (2000): 'The Political Economy of Assault on Health,' *People's Health Assembly: Background Papers*, pp. 1-9.

80 Baru, R., Acharya, A., Acharya, S., Shiva Kumar, A.K. and Nagaraj, K. (2010): 'Inequities in Access to Health Services in India: Caste, Class and Region,' *Economic and Political Weekly*, Vol. XLV, No.38, pp.49-58.

1.4.2 Living conditions

People's living environments and access to various environmental resources, including the natural world, are mediated by prevailing socio-economic and political conditions that exist in society, with their environmental conditions including both the built-up and natural 'life-space' which span our surroundings[81].

The current section focuses on urban environment and living conditions, given that our study area is urban Varanasi. We thus examine the role of living and housing conditions influencing health.

The conditions and surroundings in which people live play an important part in shaping their access to essential quality products, services and physical resources, such as fresh food supplies, education, healthcare, public transport, sanitation, garbage disposal, piped water supply and even work avenues. Even exposure to pollution – air, water and noise – is mediated by their place of living. By influencing availability of resources, people's surroundings are able to generate or bolster unequal socio-economic conditions between communities[82].

The role played by living environment in affecting health is best exemplified again by Engels (1892), who stated that the poorest colonies were often located near dumping grounds or rivers, into which all waste and effluent of the city's residences and industries was discharged. These colonies were thus often the first ones to experience the ravages of flooding and over-clogged drains, resulting in widespread disease. He further stated that environmental factors were decidedly better in the localities of the rich,[83] who were able to migrate to outer suburbs of the cities, leaving congested and polluted inner-city spaces to the labouring classes[84]. Their access to private transport facilities facilitated this outward migration.

As far as housing conditions are concerned, they are considered critical in promoting health and work productivity of populations. They constitute the nearest environment for people and thus determine the pathway for proximate causes of disease in people[85]. Household level factors can

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81 WHO (2008), *op cit*, pp. 71.

82 Krieger, J. and Higgins, D.L. (2002): 'Housing and Health: Time Again for Public Health Action,' *American Journal of Public Health*, Vol. 92, No. 5, pp. 758-768; WHO (1989): *Health Principles of Housing.* Geneva: World Health Organisation, pp. viii.

83 Engels, F. (1892), *op cit*, pp. 35-41 & 70-71.

84 Rosen, G. (1958), *op cit*, pp. 178-181.

85 Agha, S. (2000): 'The Determinants of Infant Mortality in Pakistan,' *Social Science and Medicine*, Vol. 51, pp. 199-208.

be understood as – infrastructure or structural concerns, access to certain facilities and crowding. Facilities alludes to housing conditions such as adequate ventilation, lighting, cracks and/or leaking walls or roof, dampness in the floor and rodent infestation. Crowding or overcrowding is essentially subjective. Infrastructural issues include electricity, clean water supply, connection to drainage and sewage systems and garbage-disposal mechanisms[86].

A number of studies have related these different aspects of housing with health indicators. Housing conditions typically share a complex relationship with health, yet amongst them all, presence of sanitary facilities is considered to have the most important bearing on health of people. Agha (2000) reports the presence of sanitary facilities linked with an underground sewerage system, greatly reduces the risk of infant mortality in a household[87]. Nayar too while attempting to establish a relationship between housing conditions and health, by assessing data from the National Sample Survey (NSS), 44th round reports a strong negative correlation between availability of a latrine within the household premises and levels of IMR, crude birth rate (CBR) and crude death rate (CDR) in the population[88].

Apart from access to sanitary conditions, poor quality of housing may contribute to higher threat from injury due to existence of slippery floors, broken windows and poor lighting. Lack of safe drinking water may give rise to water-borne infections and cracked walls or ceiling may give to leaks contributing to flooding. Here it is important to realise that such conditions exist most frequently in lower income households, as they usually lack the resources for regular maintenance and upgrading their housing facilities[89].

In conclusion, it must be said that the relationship between living and housing conditions is quite complex. Mere presence of a house does not automatically guarantee good health, but quality of dwelling and it's positioning within a city all play a crucial role in influencing health.

1.4.3 Working conditions

The following section traces the relationship between work and health, focusing particularly on working conditions of urban informal workers. Before proceeding further, it must be mentioned

[86] Habib, R.R., Z. Mahfoud, M. Fawaz, S.H. Basma and J.S. Yeretzian (2009): 'Housing Quality and Ill Health in a Disadvantaged Urban Community,' *Public Health,* Vol. 123, No. 2, pp. 174–181; Navarro, C., Luis Ayala and José M. Labeaga (2005): 'Housing Deprivation and Health Status: Evidence from Spain,' *Empirical Economics,* Vol. 38, pp. 555-582.

[87] Agha, S. (2000), *op cit.*

[88] Nayar, K.R. (1997), *op cit.*

[89] Krieger, J. and Higgins, D.L. (2002), *op cit.*

that today substantial evidence exists of work-health linkages, with Encyclopaedia of Occupational Health and Safety defining work-related diseases as those having "multiple causal agents, where factors in the work environment may play a role, together with other risk factors, in the development of such diseases, which have a complex aetiology[90]."

Working and employment conditions are not universal. Place in work hierarchy, type, nature and location of work and employment arrangements are all aspects of differential conditions. Within these variable working conditions, it is informal economic sector which is seen as the greatest bearer of ill-health, due to hardships and insecurities associated with work here.

The unorganised or informal sector is defined by the National Commission for Enterprises in the Unorganised Sector (NCEUS) as "all incorporated private enterprises owned by individuals or households engaged in the sale and production of goods and services operated on a proprietary or partnership basis and with less than ten total workers[91]." Its features include – diminutive size of concern, low levels of capital investment, use of rudimentary labour-intensive technology, low levels of unionisation, absence of job-tenure, work and social security and sporadic nature of employment [92]. Set-ups in this sector mostly lie outside the scope of any governmental regulation on maintenance of certain basic standards of work and occupational health and safety norms, despite prevalence of hazardous working conditions[93]. Employment here is often considered to be fraught with 'precariousness,' as it is tinged with insecurity, lack of governmental protection, low wage levels that commonly fall below sustainability and absence of unionisation among large percentages of workers[94].

Employment arrangements in this sector are heterogeneous, with workers working either full-time or part-time or being wage-dependent or self-employed. Within these variable employment arrangements, the condition of self-employed workers, particularly own-account workers, is

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90 Lesage, M. (2011): 'Work-related Diseases and Occupational Diseases: The ILO International List,' in Michel Lesage and Paule Rey (eds.) *Encyclopedia of Occupational Health and Safety*, Ch. 26.

91 National Commission for Enterprises in the Unorganised Sector (2007): *Report on Conditions of Work and Promotion of Livelihoods in the Unorganised Sector* (Chairman: Arjun Sengupta). New Delhi: Dolphin Printo Graphics, p.3.

92 National Commission on Labour (2002): *The National Commission on Labour Report.* (Chairman: Ravindra Varma). New Delhi: Ministry of Labour and Employment, Ch. 7, pp. 597-605.

93 EMCONET (2007): *Employment Conditions and Health Inequalities.* Final Report of the Employment Conditions Knowledge Network to the Commission on the Social Determinants of Health. Geneva: World Health Organisation, p.62.

94 *ibid,* p. 55-8.

considered to be especially vulnerable. Deprived of access to regular income, they have to rely completely upon their own profits or support of their family members for sustenance. They are thus faced with the maximum amount of insecurity in their work[95].

Examining the predicaments of the self-employed in the informal sector, report of the NCEUS (2007) emphasises the 'tiny' size of the establishments and the essentially survival-driven purpose of these units, with conditions of 'self-exploitation' being widely prevalent as workers strive to ensure continuous sustainability[96]. Street vendors and rickshaw-pullers are prominent examples of self-employed workers in the urban informal sector. The precarious state of their existence and working conditions is exacerbated by the often fraught relationship which they share with local civic authorities, who frequently harass them and serve to restrict their functioning[97]. A study on street vendors in Mumbai city illustrates the vulnerability experienced by the hawkers who ply their trade on the streets. Continuous harassment and the perpetual fear of evictions and confiscations by local authorities told on their health and well-being, with multiple respondents reporting stress and anxiety arising from the state of their work[98].

Such conditions of work, mired in insecurity and vulnerability, have been shown to adversely influence workers' health. A number of studies have established linkages between insecure working conditions and poor psychological health among workers[99]. Artazcoz et al (2005)[100], Ferrie et al (2002)[101] and Stansfeld and Candy (2006) [102] are among those stating that poor working environments including perceived lack of job security affects health adversely, with 'stress' being an important mediating factor in generating ill-health.

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95 International Labour Organisation (2002), *op cit*, pp. 29-30.

96 National Commission for Enterprises in the Unorganised Sector (2007), *op cit*, pp. 52-56.

97 *ibid;* International Labour Organisation (2002), *op cit*, pp. 49-50.

98 Anjaria, J.S. (2006): 'Street Hawkers and Public Space in Mumbai,' *Economic and Political Weekly*, Vol. 41, No.21, pp. 2140-2146.

99 Benach, J., Benavides, G.F., Platt, S., Diez-Roux, A. and Muntaner, C. (2000): 'The Health-Damaging Potential of New Types of Flexible Employment: A Challenge for Public Health Researchers,' *American Journal of Public Health*, Vol. 90, No. 8, pp. 1316-1317.

100 Artazcoz, L., Benach, J., Borrell, C. and Cortes, I. (2005): 'Social Inequalities in the Impact of Flexible Employment on Different Domains of Psychosocial Health,' *Journal of Epidemiology and Community Health*, Vol. 59, pp. 761-767.

101 Ferrie, J.E., Shipley, M.J., Stansfeld, S.A. and Marmot, M.G. (2002): 'Effects of Chronic Job Insecurity and Change in Job Security on Self Reported Health, Minor Psychiatric Morbidity, Physiological Measures, and Health Related Behaviours in British Civil Servants: the Whitehall II Study,' *Journal of Epidemiology and* Community *Health*, Vol. 56, pp. 450-454.

102 Stansfeld, S. and Candy, B. (2006): 'Psychosocial Work Environment and Mental Health – A Meta-analytic Review,' *Scandinavian Journal of Work, Environment and Health*, Vol. 32, No. 6, pp. 443-462.

Poor and hazardous working conditions also manifest themselves in physical harm and injury to workers engaged in such work. Examining the Indian scenario, Qadeer and Roy (1989) state that though industrial and economic activity has increased substantially since independence, yet there has not been a commensurate increase in the skill or training levels of workers and an increase in their use of protective-kits, which has adverse consequences for their health[103].

Poor health outcomes for certain classes of workers generated by their working environment need to be understood in context of disparate access of certain socio-economic groups to unsafe and hazardous working conditions. It is now generally accepted that precarious informal work is more likely to be hazardous in nature and performed by temporary or contractual labour, who are the ones least likely able to refuse or challenge such work precisely due to their lack of bargaining power brought on by their absence of permanent working status. These are the people who are engaged in the most strenuous physical labour directly exposed to harsh weather conditions, dust, pollution and toxic chemicals and have the worst health parameters[104]. In the case of India, Qadeer and Roy (1989) report on the substantial disparities in wages of permanent skilled and semi-skilled workers (occupied by upper and middle class and caste groups) and unskilled casual and temporary labour. Low wages of the latter groups exacerbate their social deprivation and impinge upon their access to decent housing conditions, nutrition, sanitary and water supply needs, education and basic health facilities, which work to the further detriment of their health outcomes. Yet it is only their need to attain subsistence that prolongs their existence in such exacting environments. As they continue to work in these jobs, their health is further blighted by injuries and illnesses adding on to their already disadvantaged status in the existing hierarchy and forcing them to further take up the most vulnerable jobs again despite its attendant health hazards. Ill-health in such circumstances is not simply a matter of recuperation, but needs to be understood from the point of view of loss of earning capacity for the corresponding period of absence, often compelling them to rush back to their work, irrespective of the long-term health consequences of foregoing adequate rest and treatment for ailments suffered[105].

The link between work and health in the informal sector needs to be seen in the light of intersecting realities of poor living and socio-economic correlates of the workforce employed in this sector to gain a holistic view of the working of such linkages.

[103] Qadeer, I. and Roy, D. (1989), *op cit.*
[104] ILO (2002), *op cit.*
[105] Qadeer, I. and Roy, D. (1989), *op cit.*

1.5 Conclusion

The relationship between man and environment has evolved over the course of various millennia, with man finally being able to claim technological mastery over the environment which nourished and sustained him for centuries. This mastery over nature has ostensibly been sought for the purpose of harnessing and improving environment for human use, yet the results have not been as benevolent as expected. Degradation, ravage, inequality, poverty, exclusion and marginalisation are some of the consequences of such a state of affairs, while technological sophistication and resource appropriation by a few gathers pace. Efforts for a more equitable and sustainable approach to the environment and populations deriving sustenance from them have been insincere at best. Perhaps the best estimate of the deteriorating state of environmental conditions, particularly in urban areas, is the state of health of populations living there. Health is intrinsically associated with surrounding environmental conditions, including living, working and socio-economic conditions and factors influencing them.

CHAPTER 2

BACKGROUND TO THE STUDY

2.1 Introduction

The following chapter presents a background of the environmental conditions of the boating community in north India, laying particular emphasis on Varanasi boatmen. It delineates their socio-economic, living, working and health conditions. The second part of the chapter focuses on the denuded condition of River Ganga today. Pollution and pollution-abatement strategies in the form of Ganga Action Plan (GAP) have been given special focus as they not only inform the working conditions of the Varanasi boatmen, but its functioning influences their larger milieu.

2.2 Boats and boatmen

Rivers are among the most dynamic and bountiful of nature's resources, laden with vast reserves, transporting them across enormous distances and breathing life and respite to teeming populations dependent upon its magnificent waters for their being[106]. Paean, sonnets, prayer-verses and treatises have all been written as odes to the power and virtue of rivers.

Despite being among the most mobile and energy-laden of resources, the ingenuous nature of human beings has been successful in bringing under its control this vibrant natural resource. Barrages, dams, hydro-electric plants and embankments have all curtailed its flow. The origins of this conquest were however much humbler. The story began with a much simpler technology at the helm of man's efforts - the unassuming 'boat.'

The story of this simplest of technologies stretches back to nearly four thousand years. The earliest references to boats were found at the sites of the Indus Valley civilisation, where crude drawings of a boat being manoeuvred by boatmen were found etched on a pottery piece. As time progressed, this simple technology gained in technical sophistication, dictated by the needs of increasing maritime trading activities and expanding empires. The lasting usefulness of boats however can be best understood by the fact that until recently, before vast bridges were erected

[106] Krishna Murti, C.K. (1991): 'Rivers and their Environmental Significance,' in C.R. Krishna Murti, K.S. Bilgrami, T.M. Das and R.P. Mathur, (eds.) *The Ganga - A Scientific Study*. New Delhi: Northern Book Centre, Ch. 3, pp. 10-18.

spanning the breadth of rivers, transportation by boat remained the only option available to travel across a river[107].

2.3 History of the boatmen community in India

Long the central mode of transportation across the vast expanses of the Indian subcontinent, boats were especially indispensable during wars – manufacturing orders for additional war-boats were given for facilitating the movement of almost entire armies during wars – as was the case of Mahmud of Ghaznavi whose entire army was transported to Punjab through a fleet of fourteen hundred boats, built exclusively for this purpose[108].

With the arrival of the British in India, dependence upon boatmen for ferrying of man and material over long distances increased. Travelling across the long and meandering river routes, boatmen spent weeks and months away on their journey, labouring for as much as twelve to fourteen hours a day, steering *nav* (boat) of all shapes and sizes in the unrelenting heat of the subcontinent. Their deep knowledge of the river transport system made them indispensable to the British. By providing transportation channels across rivers, boatmen helped safeguard British ruling and trading interests in the country[109].

Despite their contribution to facilitating British travel in India, they were viewed with great suspicion, primarily due to the roving nature of their work and were implicated in numerous thefts that transpired on the riverine front. This led to increased policing of the river navigation routes by the British and closer monitoring of their movements. As riverine robberies continued, boatmen began to be deemed as being inherently predisposed to delinquency. The consequence of this was the inclusion of the community in the Criminal Tribes Act of 1871, which labelled all boatmen and their future generations as 'criminal'[110].

Doron (2008) claims that in doing so, the colonial power was guided both by the traditional caste considerations that existed in India and notions of criminality that existed in their own society. Within the caste system, boatmen have traditionally occupied a low rung on account of the perceived degrading nature of their work. Under the latter, criminal behaviour was seen to go

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[107] Bernstein, H.T. (1960): *Steamboats on the Ganges: An Exploration in the History of India's Modernisation through Science and Technology.* Calcutta: Orient Longmans Private Limited, pp. 4-12.

[108] *ibid.*

[109] *ibid.*

[110] Jassal, S.T. (2001): 'Caste and the Colonial State: Mallahs in the Census,' *Contributions to Indian Sociology*, Vol. 35, pp. 319-354.

hand-in-hand with a nomadic lifestyle, poverty, illiteracy and alcohol consumption – all features associated with them. Writings of colonialists on Mallah sub-castes bear testimony to the disdain of the former on the rituals, customs and lifestyle of the latter – 'poor' dietary habits, thievery among Chainis and the practice of 'human sacrifice' among Mallahs[111].

2.4 Origins and meaning of the *Mallah* identity

The first census exercise undertaken by the government of India (published in 1871) played an important role in the emergence of a uniform 'Mallah' identity among the boatmen community. During this exercise, classification of the population was sought to be done by the colonial government via the caste system. Under this, they sought to portray social caste groups as pan-Indian entities and in the process, disassociated them from their distinctive regional identities. As a further means of organising data, numerical strength of caste groups was emphasised upon – thus numerous smaller sub-castes were subsumed under broader categories, as happened in the case of boating and fishing castes. They were coalesced under the umbrella term of 'Mallah' or 'Nishad.' This method, though simplified enumeration for the colonial rulers, had its problems. Each caste group was marked with a set of standard homogenous characteristics – thus Mallahs were associated in terms of their occupation of boating and fishing and the wide occupational diversity of this caste group was ignored. This was despite the fact that by 1911 only 11 per cent of the Mallahs of United Provinces (now Uttar Pradesh) were engaged in fishing and boating or allied occupations[112].

According to Crooke, the word *Mallah* has Arabic origins[113]. He contends that the term has occupational connotations and is an over-arching name used to refer to a widespread group of castes engaged in profession of boating, ferrying or fishing[114]. Another version states that in previous centuries when boats were the sole means for transportation of goods, boatmen were referred to as '*Mal-la*' or people who bring forth '*mal'* (goods). Yet another account mentions that it was derived from the term, *'mall,'* meaning a powerful person. The word *Mallah* was coined for boatmen in deference to the power of a man named Bali, who was so strong that he

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111 Doron, A. (2008): *Caste, Occupation and Politics on the Ganges: Passages of Resistance.* Surrey: Ashgate.

112 Jassal, S.T. (2001), *op cit.*

113 Crooke, W. 1975 (1896): *The Tribes and Castes of North Western Province and Oudh, Vol. III.* New Delhi: Cosmo Publications, p. 460-7.

114 *ibid.*

could hold still a boat with the mere strength of his arms[115]. Ancient Indian texts such as the Mahabharata and the Ramayana too contain references of this community. According to the Mahabharata, the original member of this caste group was the off-spring of a Brahmin man and a Shudra lady[116].

In present times, the word Mallah is considered synonymous with the names Kewat, Majhi, Jalehar, Tiyar, Bind, Pandubi, Surahiya, Kahar, Dhimar, Chain, Kashyap, Muriyari, Bathawa or Badhariya and Kulwant, among others. Yet some of them are not just replaceable terms for the Mallah identity, but in reality denote sub-castes within the over-arching Mallah identity. A number of these sub-castes may even have different distinct origins, histories and mores[117].

Despite the wide-ranging array of nomenclatures that exist for this community, it has been observed that the term 'Nishad' is the one most commonly preferred by the community itself, especially in present times. The reason behind this is not simply to emphasise the occupational commonality of the larger group, but also for its symbolic value, with the strong, thriving and affluent Nishad kingdom existing in the Vindhya mountain range ruled by the powerful Nishad ruler, Nala, as mentioned in the Mahabharata, occupying a pride of place in the community's history, serving as a reminder of their proud heritage[118].

A recent study on the Mallah community in Delhi revealed that the term 'Kewat' is increasingly gaining popularity among Mallahs who have taken it up to distinguish themselves from those assimilated into the rather diffused Mallah category due to their participation in the occupation of boating[119]. In this regard, the choice of the word, 'Kewat' seems to be an interesting one, particularly given the historical significance attached with it. The word has been mentioned in Ramayana, where there is a particularly famous episode of a Kewat's interaction with Lord Rama, his wife Sita and younger brother, Lakshmana. The former transported the trio across a river and refused money for his services, claiming that both he and Lord Rama were brethren, as he transported people across rivers and the latter into the next life. This made appropriation of

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115 Office of the Registrar General, India (1961): *Census of India, 1961: Vol.1, Monograph Series, Part V-B (iv): Mallah of Delhi.* New Delhi: Ministry of Home Affairs, p. 1.

116 Mishra, J. (1982): *Prachin Bharat ka Samajik Itihasa.* Patna: Bihar Hindi Granth Academy,

117 Doron, A. (2006): 'The Needle and the Sword: Boatmen, Priests and the Ritual Economy of Varanasi,' *South Asia: Journal of South Asian Studies*, Vol. 29, No. 3, pp. 345-367.

118 Jassal, S. T. (2001), *op cit.*

119 Office of the Registrar General, India (1961), *op cit*, p. 2.

fees from his fellow-caste man an illegitimate practice, leading to the widespread claim – "Mallah second only to Allah[120]".

The use and meaning of these terms by the Mallahs reflects the desire to challenge the low caste status and the mark of criminality imposed by British. In challenging the latter, Jassal (2001) recounts assertions by members of the Mallah caste group of their bravery and cooperation with the mutineers in their fight against the imperialists during the 1857 war of independence. These instances have been sidelined in popular narratives, they complain, but are proudly uttered by them in a bid to challenge mainstream narratives of degeneracy and criminal predispositions prevalent in their caste[121].

2.5 Status of the Mallah community after independence

After the attainment of independence by in 1947, though the official tag of criminality was removed from them, yet the boatmen have, in fact, experienced a downturn in fortunes since independence. Ecological degradation of their main resource base – the river – has shrunk up their already limited economic opportunities, especially in the arena of fishing. Lack of access to productive economic resources, including land, has ensured that the community remains backward, though survival has dictated that they engage in a range of diverse occupations including agriculture (primarily as agricultural labourers) and in the informal sector of the economy in both urban and rural areas[122].

The poor socio-economic status of the community was recognised by the Indian Government soon after independence. The 1955 report of the government instituted First Backward Classes Commission under Mr. Kaka Kalekar's chairmanship included Mallahs among the list of "most backward" castes in the country[123].

In the state of Uttar Pradesh, the Mallahs today comprise a part of the Other Backward Class (OBC) group. Probably the first official acknowledgement of the 'backward class' context of this caste in the United Provinces of Agra and Oudh (Uttar Pradesh in current times) came through the 1931 Census of India. Though still recognised as a criminal tribe, the census document

[120] Doron, A. (2009): 'Ferrying the Gods: Myth, Performance and the Question of 'Invented Traditions' in the City of Banaras,' *Sites: New Series,* Vol. 6, No. 1, pp. 1-22.
[121] Jassal, S. T. (2001), *op cit.*
[122] *ibid.*
[123] Ramaiah, A. (1992): 'Identifying the Other Backward Classes,' *Economic and Political Weekly,* Vol. 27, No. 23, pp. 1203-1207.

accepted the backwardness plaguing members of the Mallah and Kewat caste groups, with literacy levels among their male members being below 10 per cent[124].

Moving on to more recent times – in 2001, the state government instituted a Social Justice Committee, headed by Hukum Singh, formulated to investigate the state of dissemination of welfare provisions among Scheduled Castes (SCs), Scheduled Tribes (STs) and OBCs through various schemes that had been introduced for their economic and social betterment. Within the OBC category, the committee noted lack of a uniform spread of benefits among all constituents. It identified sub-groups within OBCs, with Mallahs and Kewats included in Part C (lowest category) for being the most deprived among the OBC members in terms of their share in government jobs reserved for these groups. The committee expounded a separate reservation quota of 14 per cent for Part C members within their larger sub-group. Its provisions were not implemented[125].

In 2013, the government of UP sought to include a number of Mallah sub-castes – Majhi, Bind, Mallah, Kewat, Kashyap, Nishad, Dhimar, Tura and Machua – within the list of SCs. It passed a circular to this effect in March, 2013, based on recognition of the extreme backwardness of this group. The proposal is pending with the central government[126].

2.6 Varanasi city and its boatmen community

The following section focuses on the boatmen community in Varanasi. Since Varanasi city forms the backdrop of our study, the section begins with a brief look at the city followed by a look at the boatmen community here.

Varanasi is one of the oldest inhabited existing cities in the world. It is the city most revered by the Hindus; Lord Shiva's abode and the foremost Hindu pilgrimage centre in the world. Reverence for the city is further enhanced by the presence of the divine waters of the river Ganga on its eastern border. Ganga is the holiest river in Hindu mythology, with a dip in it being capable of purging one of all of one's past sins[127]. The city caters to millions of visitors each

[124] Waheed, A. (2011): 'Scheduling the OBCs among the Muslims in Uttar Pradesh: Discrepancies and Irregularities,' *Islam and Muslim Societies: A Social Science Journal.* Vol. 4, No. 1,

[125] Verma, A.K. (2001): 'UP: BJP's Caste Card,' *Economic and Political Weekly,* Vol. 36, No. 48, pp. 4452-4455.

[126] The Times of India (2013): 'Uttar Pradesh Plans Scheduled Caste Status for 17 OBC Sub-castes,' 9 April.

[127] Eck, D. L. (1983): *Banaras: City of Light.* New Delhi: Penguin Books India Pvt. Ltd.

year. For almost each of these millions of people, a visit to the *ghats* (steps along the side of the riverbank) and a boat-ride on Ganges is a mandatory feature of their journey. The eighty-four *ghats* of the city stretch from its northern limit to its southern most point – a distance of 6.8 kilometres[128]. The entire length of the city's *ghats* is lined with approximately fifteen hundred boats of all shapes and sizes, with hundreds more boatmen being an integral part of the river-based economy in Banaras[129].

All of the boatmen of Varanasi are from the Mallah community (belonging to one of the various constitutive sub-castes of the broader Mallah identity), however the not all of the Mallahs in the city are engaged in boating. The total population of Mallahs in the city is approximately 50,000[130].

In the city of Varanasi, the booming tourism industry has strongly influenced the nature of their work. Due to a higher level of profitability associated with ferrying of pilgrims and tourists, a large part of the trade is focused on catering to them. Trade is especially brisk for those whose boats are anchored onto the main tourist *ghats* – Dashashwamedh, Raj and Assi – and those adjoining them. In recent years, *ghats* have witnessed greater proliferation of motor-boats to cater to tourist demand. For other boatmen, fishing, building and repairing of boats, fish-nets, diving, sand-mining and agriculture on the eastern banks of the Ganges are other activities they engage in. Frequently for the tourists, the boatmen also double up as 'guides' and assist in sight-seeing activities in the city, while for pilgrims, they perform a few religious rituals. These proffer them with opportunities to substantially add to their daily incomes and imbursements from them is often much higher[131].

A number of boatmen also participate in fishing activities. Those boatmen, who ply their trade on the less frequented ghats, are the ones primarily engaged in fishing. However, their occupation has come under increasing threat in recent times, not just from river-water degradation, but also from the restrictions imposed by governmental authorities. Under the aegis

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[128] Singh, R.P.B., Dar, V. and Rana, P.S. (2001): 'Rationales for Including Varanasi as Heritage City in the UNESCO World Heritage List,' *National Geographical Journal of India*, Vol. 47, pp. 177-200.

[129] Ministry of Urban Development (2015): *City Development Plan for Varanasi, 2041 (Final City Development Plan).* New Delhi: Ministry of Urban Development, Government of India and the World Bank, pp. 170-182.

[130] Wood, J.M.F. (2010): *'White-collar Agitation, No-collar Compliance: The Privilege of Protest in Varanasi, India.'* Available at: http://repositories.lib.utexas.edu/bitstream/handle/2152/ETD-UT-2010-08-1591/WOOD-DISSERTATION.pdf?sequence=1, accessed on 24th July, 2012, pp. 8-12.

[131] Doron, A. (2006), *op cit.*

of the Ganga Action Plan, launched in 1985, to reduce Ganga water pollution, fishing is banned in the seven kilometre stretch of the river adjacent to the city of Varanasi, with the corresponding area being designated a wildlife sanctuary in 2006. The reason is the 'Scavenger Turtle Scheme,' under which since 1989 the Uttar Pradesh Forest Department gradually began to release a particular species of turtles in the river here, which purportedly feeds on carcasses dumped into Ganga. While the traditional occupational activities of the boatmen were curtailed by GAP, no attempt was made to either monitor the presence of these turtles within this stretch or seriously prevent dumping of carcasses into the river[132].

Today hardly any turtles are visible in this patch of the river adjoining Varanasi city, yet the government persists with the imposition of the wildlife sanctuary. The act is often haphazardly implemented. Though the local administration is aware of supposedly clandestine fishing activities undertaken by the boatmen, they often turn the other way. Yet fishing in Varanasi remains a grey area[133].

Under GAP, a ban on motor-boats, sand-mining and agricultural farming on the eastern banks of the river too was imposed. Though the latter activity continues in decreased measure, yet this has gravely hurt the livelihood prospects of a number of boatmen families, who used to depend upon these activities for meeting their subsistence needs[134]. As regards the ban on motor-boats in Varanasi, a state of limbo seems to persist as the matter is pending in court, with the Varanasi Nagar Nigam (VNN) refusing to grant them licenses. Even the hand-oared boats are not universally licensed, with just four hundred and thirty-eight being legally certified, while the rest operate illegitimately[135].

Responding to perceived threats to their occupational existence, in 2008 Varanasi boatmen openly resorted to mass contentious action. In lieu of the designation of the area as a wildlife sanctuary in 2006, the Forest Department gave out a circular, stating that from 15th January, 2008 onwards all licenses for plying of boats in the area would be handed out by them. Simultaneously morbidly high rates for annual registration were announced, with every river sojourn too being brought under tax ambit. The aim behind such a move, as perceived by the boatmen, was to

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132 *ibid.*
133 Doron, A. (2008), *op cit*, p. 73-8.
134 *ibid.*
135 The Times of India (2013): 'Illegally Operating Motorboats Threaten Ecology, Human Health,' 17 February.

curtail river-boat traffic in the city. However, the boatmen held out in strike till the administration was compelled to stay its implementation[136]. These instances highlight their vulnerability to a whimsical administration. As boating and fishing are informal sector activities, wages earned are a function of daily work performed, any leave resulting in corresponding loss of earnings making working conditions precarious[137].

2.6.1 Socio-economic condition of Varanasi boatmen

The nature of the work of these boatmen and their close association with the river has resulted in this community living in areas adjacent to the river-front. In Varanasi district, boatmen tend to remain clustered in areas adjoining the river. In fact, a majority of the boatmen live near the *ghat*, on which they ply their boat, as gathered during the researcher's preliminary field visit.

Hamner et al (2006) reporting on the living conditions of communities, including boatmen families, living adjacent to *ghats* at Varanasi, finds a high level of dependence upon Ganga waters for meeting the daily basic needs of these families. Almost 60 per cent of the 104 respondent families washed their clothes using river water, while 16.35 per cent depended upon it for cleaning their utensils. Among other extensive uses of Ganga waters are bathing and brushing[138].

Ram-Nishad (n.d.) writing on the boatmen in Sarai Mohana village adjacent to the Sarai Mohana *ghat* in the city states that they mostly live in small houses, with often a large number of people fitting in a single room. Level of education among them is quite low. The elder boatmen are virtually all illiterate, while the most of the younger ones have at least, studied until the primary level and can be said to be functionally literate[139].

Most of the boatmen are able to earn only a very basic income, which is, in some cases, not even enough to sustain their families. In order to cope with such meagre income levels, women of these families too work to substantiate household income. They work primarily as domestic helps or cooks, while others engage themselves in the occupation of vending. In a number of instances, children too help out. A few of them work as daily wage earners in construction

[136] Wood, J.M.F. (2010), *op cit*, p. 10-11.
[137] NCEUS (2007), *op cit.*
[138] Hamner, S., Tripathi, A., Mishra, R.K., Bouskill, N., Broadaway, S.C., Pyle, B.H. and Ford, T.E. (2006): 'The Role of Water Use Patterns and Sewage Pollution Incidence of Water-borne/Enteric Diseases along the Ganges River in Varanasi, India,' *International Journal of Environmental Health Research*, Vol. 16, No. 2, pp. 113-132.
[139] Prakash-Nishad, A. (n.d.), *op cit.*

activities in the city and in sand-mining pits on the eastern bank of the river, while others have taken to fishing and diving, in the hope of earning a paltry sum. In some instances, they participate in reservoir fishing as well – hired by contractors, they are taken away for 3-4 months each year and paid daily wages for their work. Indebtedness is high among the boatmen community as a number of them have resorted to taking heavy loans from local *mahajan* (money-lenders). Steeped in debt, many end up working as daily wage labourers[140].

In this context, it may be mentioned that similar findings on the socio-economic status of boatmen of Kashmir were reported by Sanyal (1979). Poverty and illiteracy (40 per cent of her informants were totally illiterate) were rampant. Within her sample-size of a hundred boatmen respondents, half were under debt. A quarter of these had taken loans due to treatment for health-related concerns. Health concerns were exacerbated, she claims, by lack of access to clean water, not only for drinking purpose but also other day to day needs. Being dependent upon the polluted water of the lake was responsible for giving rise to diseases such as cholera and small-pox, among others, within their families. Her study emphasises upon the subsistence existence of the boatmen, with most frequently slipping even below[141].

Though corresponding poor socio-economic conditions with a single instance of inland boatmen in India is gravely insufficient for generalising, yet parallels between the two give us some measure of the hardships that maybe shared by other inland boating communities in India.

2.6.2 Working conditions

Conditions of work are not uniform for all boatmen engaged in this work. Heuze (2012) claims that differences exist among boatmen involved in ferrying of pilgrims (*malla*) and fishermen (*machua*). In context of boatmen in Kanpur, he mentions that while *mallas* typically own large boats for ferrying, *machua* usually have smaller boat. He also refers to the existence of a social hierarchy within the community corresponding to the nature of their occupation, with fishermen being considered inferior due to the more menial and less socially progressive nature of their

[140] *ibid.*
[141] Sanyal, S. (1979): *The Boats and the Boatmen of Kashmir.* New Delhi: Sagar Publications, pp. 57-71.

work. Some boatmen also goods, including wood, stones, sand and grass sometimes even across distances of over two hundred kilometres (as far as Allahabad) [142].

In 1896, writing on the working patterns of the boatmen of then United Provinces, William Crooke had spoken of the tendency of the more affluent members of the community hiring poorer fellow caste-men for plying and ferrying their boats[143]. Doron (2008) reiterates this hierarchy in employment conditions of boatmen in present times, further providing a description of the nuances that have crept into their working patterns. This is done by making a distinction between resident and non-resident boatmen on various *ghats*, referred to as '*ghatwars'* and *'mallahis,'* respectively. Only the former have the right to moor their boats on to a particular *ghat* and solicit customers there, though they may hire the latter to ply their boats for ferrying of customers. Each *ghat* has a resident Mallah community and only boatmen from them have the right to anchor their boats there. He asserts that though such a system ensures a more or less even distribution of boats across the river-front, it maintains an economic gap among resident boatmen of different *ghats*. For example, *ghats* such as Assi, Raj and Dashashwamedh Ghat and a few others are able to secure a lopsided proportion of the total visitor influx on the river-front due to their favourable location and easy accessibility. This results in them cornering a heavier proportion of the income accruing to the boating industry in the city, than others[144].

At remote *ghats*, ferrying passengers alone does not ensure subsistence. Boatmen here have had to diversify their sources of income – fishing and cultivation on the eastern banks of Ganga being the most popular alternatives. However, in recent years, increasing degradation of Ganga has affected availability of fish in the river stream[145]. Other avenues available to them include informal sector jobs in the city or the ones available on the riverscape itself, including vending. The primary business hours of boatmen – mornings and evenings – also gives them an opportunity to work simultaneously in another occupation[146].

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142 Heuze, D. (2012): 'Nishad of the Ganga: Playing with the Notions of Margin and Centre,' in M. Carrin and L. Guzy (eds.) *Voices from the Periphery: Subalternity and Empowerment in India.* New Delhi: Routledge, Ch. 1, pp. 19-47.

143 Crooke, W. (1975), *op cit,* p. 460-7.

144 Doron, A. (2008), *op cit,* p.84-5.

145 Jassal, S.T. (2001), *op cit.*

146 Vidyarthi, L.P., Jha, M., Saraswati, B.N. (1979): *The Sacred Complex of Kashi: A Microcosm of Indian Society*. Delhi: Concept Publishing Company, pp. 293-4.

The situation has become such that while a section of the community strives for subsistence, another have been increasingly affluent over the years. Each boat is usually operated by around one to three workers and half of the earnings of each boat-ride are held by the *ghatwar* and the remaining fifty per cent is distributed amongst worker boatmen[147].

Though a number of associations to propagate the interests of this community exist in Varanasi, yet their base is quite limited. The oldest is Mallah Samuday Sangharsh Samiti (Mallah Community Struggle Committee or MSSS), founded in 1976[148].

Another aspect of the occupation of the boatmen of Varanasi is diving or *'gotakhori.'* Vidyarthi claims that '*gotakhors'* (divers) typically belong to the Dom caste and are split into master and wage-earner families[149], while Doron however states that they belong to Mallah caste. Usually it is the poorest and weakest members of the boatmen community who take up diving due to its demeaning and 'ritually polluting' nature – retrieving corpses[150]. They are largely concentrated near Raj Ghat, where visitors coming to Varanasi often throw coins from the overhead bridge and railway lines. Their expertise at diving has made them the target of the administration, which often uses their services for the purpose of removing from Ganga decaying bodies, including animal remains. They often do not get paid for such services (sometimes fatal) rendered, but as they have no official recourse to lodge their grievances, they cede to such requests[151].

Boating and fishing activities in Varanasi are not perennial activities. The annual monsoon months bring forth with them constraints on the occupational activities of these workers. Apart from the fact that there are few boat rides to offer to the dwindling number of tourists to the city, the administration also imposes curbs on their functioning. The licensing system for boats, introduced by the British in 1916, reduced the number of passengers boatmen could carry on their boat during monsoons due to threat of heavy currents. During periods of heavy flooding, the administration even issues a blanket-ban on boating. All of these factors affect the earnings of boatmen and fuse together in triggering a sort of tiny migration of workers away from this

147 *ibid.*
148 Wood, J.M.F. (2010), *op cit.*
149 Vidyarthi, L.P. et al (1979), *op cit,* p. 104-5.
150 Doron, A. (2011): 'The Intoxicated Poor: Alcohol, Morality and Power among the Boatmen of Banaras,' in A. Doron and A. Broom (eds.) *Health, Culture and Religion in South Asia: Critical Perspectives.* London: Routledge.
151 Doron, A. (2008), *op cit,* p. 53-6.

industry, during this time of the year. A number of them work as daily wage labourers, while others turn to their savings gathered throughout the year[152].

Another important facet in the working conditions of the boatmen relates to the cyclical nature of their work. For those ferrying passengers, ebbs and flows in tourist influx affect profitability. Varanasi being a city of immense religious importance, festival days signify hyper-business for them. One such event that is of special significance is the Kumbh *Mela* (festival), held after every few years in Allahabad. A few of the Varanasi boatmen travel as far as Allahabad (130 kilometres away) to partake of the business opportunities there. As part of her reconnaissance for her field study, the researcher travelled to Allahabad for witnessing the activity of boatmen in the *Mela*. During her interaction, she was informed that boatmen from as far as Varanasi had come to the city in hope of substantiating their wages for the period of the *Mela*. Upon interacting with a couple of such boatmen, she was informed that their earnings peaked during the main festival days of the *Mela*. They received license for the event through their *thakedar* (middle-man) and for the main festival days, they had to pay five thousand rupees from their earnings to him. Furthermore, they stated that throughout the festival, the boat served as their home. They lived, eat and slept there, after which they would be rowing back home. Interactions with another local boatman revealed another aspect of boatmen's lives. He revealed to us that he had been working for the *Jal* Police during the *Mela*. This had been arranged by a local *thakedar*, who paid him five thousand rupees per month for his services.

Erratic nature of working conditions results in irregular earnings of boatmen. Furthermore, they do not even fall under the purview of the Minimum Wages Act, 1948 and their informal sector status means that they lie outside the range of protective governmental legislation. In context of Kashmiri boatmen, who too depend upon the state's tourism industry, Sanyal (1979) claims that the dormant nature of the tourism industry in winters causes severe hardships to boatmen. At this time, several seek work in other informal sector avenues as casual wage-earners to attain sustenance. As in Varanasi, she too discovers the presence of a social hierarchy within the boatmen, based upon occupational specialisation – catering to tourists, fishing, lugging and

[152] *ibid*, pp. 15-45.

picking of water-chestnuts (*singhara*) from the lake waters. While the initial category is best-off, further down hardships increase as wages decrease and work becomes more precarious[153].

Though boatmen are seen as an inseparable part of the river landscape, yet it has been noticed that they frequently share a tenuous relationship with local administrative authorities. For example, house-boat owners in Jhelum River have been sought to be evicted from the river by local authorities, with boats being implicated for wanton pollution of the river's waters[154]. Similar is the situation with motor-boats in Varanasi with the administration seeking to ban their use within the city precincts and also attempting to stymie the functioning of hand-oared boats through complex licensing and taxation procedures. Such measures were defeated in face of protest measures by the united boatmen community in the city.

As regards their employment in the formal sector, Mallah representation here is quite low. This is depicted in the fact that though they contributed 4.33 per cent to the total OBC population in UP in 2001, their share in government jobs was substantially lower at 1.36 per cent, which is amongst the lowest of all OBC caste groups in the state. This is as per the own admission of the state government revealed through the 'Social Justice Committee' report of 2001[155]. Their low educational attainment is cited as a potential cause for this, but Heuze (2012) also makes mention of the community's scorn for the mundane nature of organised sector employment relative to the persevering, temperamental and exciting image of their current occupation that they cherish. They view their uncontested supremacy over Ganga as a matter of honour[156].

2.7 Health and Ganges River water pollution

As the above section shows, Ganges is weighed down by pollutants throughout its seven km stretch in Varanasi, which increase in measure as the river courses its way forward. 37 open drains, poorly functioning Sewage Treatment Plants (STPs) and Main Pumping Stations (MPSs), open defecation and ash, flower and plastic dumped into the river all make its waters unfit for

[153] Sanyal, S. (1979), *op cit.*
[154] Daily Post (2012): Jhelum Lake Dwellers Protest against Eviction Orders, 19th March.
[155] Verma, A.K. (2001), *op cit.*
[156] Heuze, D. (2012), *op cit*, pp. 32-33.

both drinking (even with treatment) and bathing[157]. The water has been infiltrated so much by both pathogenic and non-pathogenic bacteria that it is not even fit for bathing of cattle[158].

A State of the Environment report for UP suggests that about 9-12 per cent of the entire disease burden in the state can be traced back to the high pollution levels in Ganga[159]. Varanasi contributes a fair share. The 2013 City Development Plan states that 240 million litres per day (MLD) of waste is generated in the city and only 90 MLD is treated. The rest is deposited untreated into Ganga and Varuna through open drains[160].

Varanasi ranks an abysmal 331 out of 423 cities on the basis of its sanitation. Categorised in the red zone, the draft Jawaharlal Nehru National Urban Renewal Mission (JNNURM) report, released in 2015, states that the city requires urgent corrective action to ward off a future public health disaster. The health condition of the people threatened by a decrepit sanitation network is exacerbated by the inadequate water supply network. Only 46 per cent of the city's households have access to piped water connections, while only 26 per cent of the city's slum population are fully covered by the water supply network. Nearly two-fifth of the city's water supply is met by Ganga. The poor quality of the river's waters and contamination of supply water lines with sewage waters result in a high number of water borne diseases in the city's population[161].

A 2005 study examining the relationship between Ganga pollution and enteric diseases in the city revealed that the largest concentration of people with these diseases lived near the river. Nearness of location, old and leaking pipelines supplying water and the level of pollution in Ganga were deemed to be factors influencing occurrence of enteric disease in the population[162].

Living near the banks of the highly polluted Ganges increases the potential for water-borne diseases as factors apart from direct usage come into play. Such diseases have the capacity to be transmitted from human to human contact and faecal-oral route as well, endangering the health

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157 Das, S. (2011): 'Cleaning of the Ganga,' *Journal of the Geological Society of India,* Vol. 78, pp. 124-130.

158 Bilgrami, K.S. and Kumar, S. (1998): 'Bacterial Contamination in Water of the River Ganga and its Risk to Human Health,' *International Journal of Environmental Health Research,* Vol. 8, No. 1, pp. 5-13.

159 The Hindu (2003): Pollution Levels in Ganga Alarming, 15th September, p. 5.

160 Municipal Corporation, Varanasi (2006): *City Development Plan for Varanasi (Jawaharlal Nehru National Urban Renewal Mission).* Available at: http://jnnurm.nic.in/nurmudweb/toolkit/VaranasiCdp/PART1.pdf, accessed on 15th April, 2011, p. 71.

161 Ministry of Urban Development (2015), *op cit,* pp. 144-152.

162 Pandey, M., Dixit, V.K., Katiyar, G.P., Nath, G., Sundaram, S.M., Chandra, N., Shomvansi, A.K., Kar, S. and Upadhay, V.K. (2005): 'Ganga Water Pollution and Occurrence of Enteric Water Diseases in Varanasi City,' *Indian Journal of Community Medicine*, Vol. 30, No. 4, pp. 115-120.

status of nearby residents. A 2006 study conducted on regular bathers and water users of the Ganges at four sites in Varanasi, where respondents were necessarily from neighbourhoods situated near Ganga *ghats,* and also included boatmen, revealed a high level of enteric diseases affecting respondents and their families. The study also revealed a higher association of disease occurrence with higher levels of river-water use for basic personal needs, lack of access to sewerage facilities and low income levels. The incidence of disease was double in downstream users, where pollution is substantially higher (a number of sewage discharge points are located near Varuna-Ganga confluence). In these localities, though residents depended upon other water sources such as bore-wells and hand-pumps, disease burden remained high. This was attributed to possibility of recharge of these water-sources from the nearby river[163].

The situation regards pollution is such that an examination of fish in Hooghly River revealed them to be loaded with toxic metals, including zinc and mercury, which if consumed by humans would pose significant threat to their health. Pollution in Ganges and its tributaries has thus not spared the health of fauna plying in it[164]. Another study on fish species in Ganges water revealed that near Haridwar fish have high levels of DDT in their bodies, due to waste discharge of several DDT manufacturers in that area. Throughout the river-course, carnivorous fish species have recorded higher levels of contaminants in their system[165].

Wohl (2011) states that high levels of contamination with harmful compounds have been found in the tissues of animals, including wildlife creatures, fish and human beings in India. Once these contaminants enter the body, they have a tendency to stay there for long durations and reach cumulatively higher levels. Based upon this reasoning, it may be said that living and working in close contact with effluent filled Ganga water would constitute a significant threat to people's health[166].

The present research aims to develop an understanding of the health conditions experienced by the boatmen community across the Ganga river channel in Varanasi, in context of not only their

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163 Hamner, S. (2006), *op cit.*

164 Kumra, V. (1995): 'Water Quality in the River Ganges,' in G.P. Chapman and M. Thompson (eds.): *Water and the Quest for Sustainable Development in the Ganges Valley*. London: Mansell, Ch. 8, pp. 130-140.

165 Wohl, E. (2011): *A World of Rivers: Environmental Change on Ten of the World's Great Rivers.* Chicago: The University of Chicago Press, p. 160-1.

166 *ibid.*

working conditions, but also based upon their dependence of the river's waters in meeting their daily needs – in other words, their larger environmental context.

2.8 Ganga River and its degradation

India has traditionally been blessed with an abundance of fresh water resources. Among the numerous rivers dotting the landscape of this sub-continental mass, River Ganga is the undisputed queen.

The mainstream Ganga River is 2525km long; along with its tributaries, it contains one-fourth of the country's water resources, irrigating around 43 per cent of the total irrigated area in the country[167] and sustaining over five hundred million people living in its basin[168]. Despite its significance, the river is in a highly degraded state and poses a significant threat to both riparian and human health. Relentless pressure on her limited resources has reduced Ganga to being among the ten most threatened rivers in the world[169]. The following section takes a look at the various forms of degradation afflicting it.

The greatest threat facing the perennially flowing Ganga River today is one of intense damming. It is among the most regulated rivers in the world. Dammed and impounded at frequent intervals to meet the growing developmental needs of people across its vast basin, this dynamic water resource has been literally reduced to a watercourse tottering from one reservoir to another. In recent years, the situation has come to such a pass that during the summer or 'lean' months of its course, its outflow to the Bay of Bengal is virtually nought[170].

The story of its impoundment begins as soon as it reaches the upper Gangetic plains at Haridwar, where the Upper Ganga Canal, followed by the *Madhya* (middle) Ganga Canal at Bijnore and Lower Ganga Canal at Narora, end up diverting almost 60 per cent of its total water capacity mainly for catering to the requirements of water-intensive agricultural systems in neighbouring states[171]. Downstream barrages too affect upstream riverine systems by barricading movement of

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167 Ahmed, S. (1990): 'Cleaning the River Ganga: Rhetoric and Reality,' *Ambio*, Vol. 19, No.1, pp. 42-45.

168 Wohl, E. (2011): *A World of Rivers: Environmental Change on Ten of the World's Great Rivers.* Chicago: The University of Chicago Press, p. 159.

169 Wong, C.M., Williams, C.E., Pittock, J., Collier, U. and Schelle, P. (2007): *World's Top 10 Rivers at Risk.* Gland, Switzerland: World Wildlife Fund, p. 4.

170 *ibid*, p. 22.

171 National Ganga River Basin Authority (2011): *Environmental and Social Management Framework, Vol.1 – Environmental and Social Analysis.* New Delhi: Ministry of Environment and Forests, Government of India, p. 36.

fish upstream. Farakka Barrage, erected in 1975, serves as a prime example, resulting in a 99 per cent decline in numbers of the anadromous Hilsa fish[172].

Decommissioning of hydro-electric power plants too has played a part in reducing downstream water availability. A recent example is the Tehri Dam on Bhagirathi River (a tributary of Ganga) which became operational in the year 2006. The supposed aim was to provide drinking water supply to neighbouring Delhi and generate electricity to meet the energy requirements of an increasingly energy-hungry industrialised urban landscape to the detriment of downstream water-users[173]. This can also been seen as a violation of the riparian rights of downstream users or communities of users who, it can be said, are being deprived of their legitimate apportionment of river water through such diversion[174].

By creating 'artificial demarcations' on a river, dams profoundly influence existing ecosystems. Not only do they significantly reduce the flow rates of water, but also influence sediment load, siltation rates, turbidity, temperature of water, and pollution rates, among others. In present times, as sewage influx into its body is increasing while flow is simultaneously curtailed, the river, particularly in some patches, has started to resemble a drain[175].

Barrages are not its only bane. De-forestation and soil erosion in its upper reaches, increased commercial and agricultural activity on its banks and rise in concrete structures alongside the river's length have destroyed traditional embankments and cut them off from a number of rivulets and springs, which earlier formed natural breeding channels for riverine fauna[176].

A decline in fisheries has been recorded as a result of such activity. Das, Samanta and Saha (2007) write that between the period of 1959 and 2004, the total average fish landing in the river basin decreased from 85.21 tonnes to 62.48 tonnes[177]. All these factors directly impinge on riverine fishing communities who directly rely on fish catches from these fresh water systems to earn their livelihood. The fact that major carps and in particular, the Hilsa fish were

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172 Wohl, E. (2011), *op cit.*

173 NGRBA (2011), *op cit,* p. 38.

174 Iyer, R.R. (2003): *Water: Perspectives, Issues and Concerns.* New Delhi: Sage Publications, pp. 82-83.

175 Payne, A.I., Sinha, R., Sinha, H.R. and Huq, S. (2004): 'A Review of the Ganges Basin, Its Fishes and Fisheries,' in Robin L. Welcomme and T. Petr (eds.) *Proceedings of the 2nd International Symposium on the Management of Large Rivers for Fisheries Volume 1.* Bangkok, Thailand: Food and Agriculture Organization Regional Office for Asia and the Pacific. RAP Publication, 2004/16, pp. 229-252.

176 *ibid,* p. 81.

177 Das, M.K., Samanta, S. and Saha, P.K. (2007): *Riverine Health and Impact on Fisheries in India.* Policy Paper No. 01, Central Inland Fisheries Research Institute. Kolkata: CIFRI, p. 1.

commercially viable species further adds to their woes. In a number of instances, fish kills too have been reported due to the severe degradation of the Gangetic ecosystem[178].

A depleted catch does not only directly impinge upon the livelihoods of fisher-folk, but also their food security. The community, by the very nature of its close association with the river-front, has an economical and inexpensive diet regimen high in fish intake, which contributes to the bulk of their body's protein requirements. Diminishing range and quantity of fish in Ganga has a negative bearing upon their health[179]. Apart from the problem of falling fish production levels in the Ganges River, the increasing shallowness of the water system at a number of places (at Varanasi, the depth has reduced to just thirty metres), due to over-extraction of its water resources, tends to result in loss of employment for the larger boatmen community as well[180]. These processes do not bring about direct physical dislocation, yet result in some 'livelihood displacement.' For this community, a river and its vast array of resources form their primary production base and its degradation adversely impacts their livelihood and their social life[181].

A paradoxical situation that presents itself in relation to Indian inland fisheries is that fish yields on inland waters have registered an increase. From 1960s onwards till about the beginning of the new millennium, inland fishery produce rose eight-fold. Yet this hardly benefits fishermen plying their trade on the riverine water-front, of which there are about 7,610 in the state of Uttar Pradesh[182].

In conclusion, it may be said that the state of the Gangetic basin is reflective of the lopsided nature of such development[183]. Iyer (2003) asserts that while ill-effects of development are rationalised as necessary evils in society's march towards progress, yet obligating certain communities to bear the costs of such development while others enjoy the benefits of their forced 'sacrifice' is profoundly unfair[184]. This accompanied with gross undervaluation of natural

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178 *ibid.*

179 World Commission on Dams (2004), *op cit*, p. 112-3.

180 Wong, C.M., Williams, C.E., Pittock, J., Collier, U. and Schelle, P. (2007): *World's Top 10 Rivers at Risk.* Gland: Switzerland, WWF International, p. 17.

181 World Commission on Dams (2004), *op cit*, pp. 103-130.

182 Down to Earth (2002): 'Orphans of the River,' 15th February.

183 Hirsch, P. (1987): 'Dammed or Damned?' in workshop on *People and Dams.* New Delhi: Society for Participatory Research in Asia, p. 10.

184 Iyer, R.R. (2003), *op cit*, pp. 87-89.

resources and heavy subsidisation of their use for consumption by 'omnivores' has only hastened environmental destruction[185].

2.8.1 Ganges Water Pollution

High pollution content in Ganga's waters is among the main problems dogging the river today. The following section discusses the nature of pollution in the river, particularly at Varanasi and the reasons for it.

One of the largest concentrations of human populations in the world resides in the Ganga river basin. Not only do they extract and use its waters for domestic, agricultural and industrial purposes, but all outflow generated from these sources is inevitably poured into it. Throughout its course, from Gaumukh to the point where it submerges into the Bay of Bengal, Ganga passes through 29 Class I cities, 23 Class II cities and 48 towns, apart from innumerable other villages, all of whom discharge their effluents into her waters[186].

The story of its polluted waters begins primarily at Rishikesh and Haridwar, before which she retains her relatively pure form. At Kanpur, Uttar Pradesh's largest industrial hub, the river faces a veritable ambush. The leather capital of India is responsible for discharge of 15 MLD of highly toxic industrial effluents from its 354 tanneries[187] and another 387 MLD (of which 292 MLD is untreated) of domestic sewage effluent[188]. After Kanpur, the river reaches Allahabad, where the largely untreated 210 MLD of domestic sewage (2002 figures) is being released into the river daily[189]. The river next reaches Varanasi. Pollution levels here are only next to Kanpur, with Varanasi being designated as a pollution 'hot-spot.' The city discharges 150 MLD of untreated domestic sewage into the Ganga and its tributary Varuna.[190].

Forms of pollution in Varanasi are varied. The oldest living city in the world is also the holiest city for Hindus and the *ghats* of the *uttarvahini* (north-bound) Ganga draw thousands of pilgrims and worshippers to its shores each year. Submersion of flowers, ashes and half-cremated or un-

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185 Gadgil, M. and Guha, R. (1995), *op cit.*

186 Public Accounts Committee, 2003- '04 (2004): *Sixty Second Report Public Accounts Committee - Ganga Action Plan.* New Delhi: Ministry of Environment and Forests (MoEF), p. 1.

187 *ibid,* p. 120.

188 Jaiswal, R. (2007): *Ganga Action Plan – A Critical Analysis.* Available at: http://www.ecofriends.org/main/eGanga/images/criticalanalysisofGAP.pdf, accessed on 18th July, 2012.

189 PAC (2004), *op cit,* p. 121.

190 Mishra, V.B. (2005): 'The Ganga at Varanasi and a Travail to Stop her Abuse,' *Current Science,* Vol. 89, No. 5, pp. 755-763.

cremated dead bodies here, each numbering in thousands, significantly adds to pollution levels[191]. Thus today her ritual sacredness and religious purity play a role in polluting her waters.

This saga of pollution continues throughout the downstream course of the river till it enters the Bay of Bengal. She merges into the sea in a highly degraded state. Though three-quarters of the pollution is caused by municipal sewage, with industrial effluents constituting about 20 per cent of the polluted waters discharged into her body, yet the higher levels of toxicity and pollutant concentration of industrial waste-waters makes them more hazardous[192]. The river is home to chemicals such as chromium, arsenic, neurotoxic cadmium, nickel, mercury, phosphorus, lead, zinc and mercury. They are capable of wreaking immense havoc with both aquatic biota and human beings who come in close contact with her heavily polluted waters[193].

Large-scale water abstraction adds to pollution levels. Inadequate flow as well as quantity of water in the river has the effect of accumulating pollutants on its bed, thereby causing serious harm to its aquatic life. The pollution load inevitably gets exaggerated during the summer months when the water level in the river registers a further decline[194].

Such runaway levels of degradation and pollution content in the river have not gone unnoticed by the people as well as the government. Governmental efforts to improve the situation have taken the form of the Ganga Action Plan, discussed in the next section.

2.9 Ganga Action Plan

In the year 1985, the Ganga Action Plan (GAP) was formalised by the government and the following year it was launched by the then Prime Minister, Rajiv Gandhi.

GAP was launched with the objective of reducing the pollution load in Ganga and improving her water quality. Its 'core schemes' included establishment of Sewage Treatment Plants (STPs) for intercepting domestic sewage and treating it before discharging it into the river. As regards

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191 Ahmed, S. (1990), *op cit.*

192 National River Conservation Directorate (2009): *Status Paper on River Ganga: State of Environment and Water Quality.* Roorkee: National River Conservation Directorate, Ministry of Environment and Forests, Government of India. Available at: http://ahec.org.in/Status%20paper%20on%20River%20Ganga%202009.pdf, accessed on 26th August, 2012, p. 12.

193 Wohl, E. (2011), *op cit*, pp. 158-165.

194 Kumra, V. (1995), *op cit.*

polluting industries, they were instructed to establish both in-house and common Effluent Treatment Plants (ETPs) for waste-water treatment[195].

TABLE 2.1: Class 'B' or 'bathing class' water quality standards

1.	Biochemical Oxygen Demand (BOD)	3 mg/l or less
2.	Dissolved Oxygen (DO)	5 mg/litre or more
3.	Faecal Coliform	500 (as most probable number or MPN) per 100ml
4.	Total Coliform	2500 MPN per 100ml (maximum permissible)
5.	pH	6.5 – 8.5

Source: National River Conservation Directorate (NRCD), 2009, p.9.

'Non-core schemes' included establishment of an electric crematorium on the Ganga's banks (to decrease instances of direct dumping of un-cremated remains into the river), provision of inexpensive sanitation facilities near its banks, river-front development, public and community participation in efforts to clean the Ganga and prevention of solid waste and garbage disposal into it. Regular monitoring of water quality and undertaking of research projects to help build upon existing structures were also a part of non-core schemes[196].

As GAP I neared conclusion, GAP II was launched in a staggered manner from 1993 to 1996. The programme was extended to 59 towns, aiming to extend installed sewage treatment capacity to 1912 MLD[197].

2.9.1 Failure of Ganga Action Plan

GAP I was officially closed in March 2000. Though delayed by about ten years, it did not fully attain its goals. Even GAP II has been significantly delayed; it is still underway[198].

195 Tare, V. et al (2011), *op cit,* p. 10-1.
196 Jaiswal, R. (2007), *op cit.*
197 PAC (2004), *op cit,* p. 10-1.
198 NRCD (2009), *op cit,* p. 11.

Though agreement on its failure is unanimous, yet disagreement persists about the extent of its failure. The most optimistic perceive it to be a 'partial success' while others rate it as an utter failure. Jaiswal (2007) states that clogging of Ganga banks by garbage, plastic and decaying human and animal remains, the blackened hue of the river in places, particularly Kanpur, make its failure amply evident to every discerning eye[199]. However, government figures on pollution in Ganga paint a less negative picture (see Table 2.2).

Table 2.2: Water Quality of River Ganga in 1986 and 2008

Location	**1986**		**2008**		**Standard Values**	
	DO (mg/l)	**BOD (mg/l)**	**DO (mg/l)**	**BOD (mg/l)**	**DO (mg/l)**	**BOD (mg/l)**
Haridwar downstream	8.1	1.8	7.9	1.4	5.0	3.0
Kanpur upstream	7.2	7.2	4.9	3.4	5.0	3.0
Kanpur downstream	6.7	8.6	6.0	4.0	5.0	3.0
Varanasi upstream	5.6	10.1	7.5	2.2	5.0	3.0
Varanasi downstream	5.9	10.6	7.3	3.0	5.0	3.0
Patna upstream	8.4	2.0	6.0	1.7	5.0	3.0
Patna downstream	8.1	2.2	5.9	2.4	5.0	3.0
Ulberia	5.8	1.1	5.3	3.6	5.0	3.0

Source: Adapted from the NRCD, 2009, p.29.

[199] Jaiswal, R. (2007), *op cit.*

As depicted in Table 2.2, dissolved oxygen (DO) levels have been maintained above the threshold limit of 5.0mg/l, except at Kanpur and have even improved in Varanasi since 1986. DO is important as this parameter imparts Ganga's water with its crucial self-purifying qualities. While DO levels have been maintained, that biological oxygen demand (BOD) levels have fallen from 1986 levels in a number of places, including Varanasi.

These figures are disputed by 2008 Central Pollution Control Board (CPCB) figures on water quality. Mean BOD figures recorded for Kanpur and Varanasi were 8.3 mg/l and 10.5 mg/l, while mean faecal coliform content (FCC) parameters for these two cities were 16,818 MPN/100mL and 4500 MPN/100mL, respectively. Mean total coliform (TC) recorded in the Ganges at Kanpur was 94,250 MPN/100mL and at Varanasi at 144,833 MPN/100mL. These figures point to significant deterioration from pre-GAP levels[200]. Furthermore, the difference in data-sets brings into question the repute of governmental monitoring systems itself.

Thus, though over two decades passed and till date 30/09/2009, an expenditure of over Rs.2064 crore incurred, mandated levels of water quality have not been attained[201].

2.9.2 Reasons behind Failure of GAP

The current section attempts to outline the reasons for such poor performance of the programme, with particular emphasis on Varanasi.

The centrally funded GAP is essentially a technology-centred programme, based on creation of technological assets (sewage treatment plants) for managing pollution content in Ganga. Dutch aid ensured the nature of intervention into the problem, with assets being created by central authorities with Dutch technology[202]. Management of these assets was vested with the local municipal authorities, without assessing the ability of local engineers and authorities to manage them. Further high operational costs (requiring Rs.7.5 crore annually in Varanasi) have led to an ill-repaired state of STPs[203]. Massive power failures, stretching to more than six hours a day, too have resulted in poor performance, including at Varanasi[204]. Thus not only were actual ground

[200] NRCD (2009), *op cit*, p. 28.
[201] PAC (2004), *op cit*, p. 10.
[202] Menon, U. (1988): 'Technology and Development Aid: The Case of the Ganga Action Plan,' *Economic and Political Weekly*, Vol. 23, No. 23, pp. 1693-1701.
[203] PAC (2004), *op cit*, p. 123-5.
[204] Mishra, V.B. (2005), *op cit.*

conditions not weighed in before initiation, the differing needs of the different cities too were bypassed in this programme – Rishikesh, Varanasi and Kolkata all have similar set-ups[205].

Such a centralised approach to planning, coupled with the singular focus on decreasing anointed targets, meant that attention to the nature and state of the river as a whole was never at stake. A holistic river-basin approach was the need of the hour, but it was never forthcoming. Thus though localised improvements have taken place in a number of places, the river as a whole continues to be degraded and is under threat from increasing abstraction of its water resources[206]. Even the set targets, such as measurement of FCC, TC, BOD and DO are limited, since they fail to capture the presence of chemicals such as arsenic, chromium and mercury, among others in Ganga waters[207]. Even the implementation of the programme has suffered from governmental apathy. Since its constitution, the Nation River Conservation Authority (NRCA) has met only twice in 1994 and 1997[208]. The situation is even direr at lower levels, with instances discovered of officials tampering with equipment to make money on finances released for renovation of machinery. Even State Pollution Control Boards (SPCBs) have failed to effectively discharge their duty and ensure compliance to mandated norms[209].

Other facets of the programme too suffer from neglect. In Varanasi, for example, electric crematoria erected suffer from lack of regular electricity supply. Bodies continue being dumped into the river and pollution continues[210].

2.10 Participatory Content of GAP

Launching GAP at Varanasi in 1986, then Prime Minister Rajiv Gandhi referred to it as "a plan for all the people of India; one in which they can come forward and participate…[211]"

Despite governmental efforts to rally people in the cause of physically cleansing Ganga from dirt and pollution and restoring its 'purity,' the river continues to be polluted. Belief in her unremitting ability to purify all dirt leads believers to continue depositing ash, flowers and un-

[205] Tare, V. et al (2011), *op cit,* p. 14-5.
[206] Dharmadhikary, S. (2011): *Grand Plans for the Ganga*. Available at: http://www.indiatogether.org/2011/feb/env-Ganga.htm, accessed on 25th August, 2012.
[207] PAC (2004), *op cit,* p. 102-4.
[208] PAC (2004), *op cit,* p. 5-8.
[209] Divan, S. (1995): 'Cleaning the Ganga,' *Economic and Political Weekly*, Vol. 30, No. 26, p. 1557-8.
[210] Ahmed, S. (1990), *op cit.*
[211] Alley, K.D. (2002): *On the Banks of the Ganga: When Wastewater Meets a Sacred River.* University of Michigan: Ann Arbor, pp. 12.

cremated remains into the river. Clearly then the government's plans to appeal to the religious sensibilities of people in cause of their revered river failed to win over their allegiance to the pollution abatement programme[212].

Other ways in which the programme envisioned people's participation included formation of Citizens' Monitoring Committees (CMCs) in all cities in which the programme was implemented, for regular monitoring of programme performance. CMCs though formed (including at Varanasi), met infrequently, failing to meet the purpose for which they were constituted. In the few instances in which they did meet, the technical nature of the issues at hand deterred further participation[213]. Yet even here representation of local communities working on *ghats* within CMCs was notably absent[214].

In Varanasi, the administration has helped organise river and river-front cleaning initiatives by enrolling student National Social Service (NSS) volunteers from all over the country in its participation initiatives. Sloganeering and tree-planting drives were also a part of such efforts. The seriousness accorded to participation can be gauged from the fact that from 1995-2000, the UP government spent a measly Rs.38.60 lakh on awareness generation[215]. Ahmed (1994) refers to them as predominantly showy initiatives and criticises local civic authorities for not moving beyond them[216].

Though beautification of *ghats* in Varanasi, as elsewhere, is an important part of GAP's efforts, yet administrative laxity is visible even here. Though Varanasi Nagar Nigam (VNN) has put up hoardings near popular tourist *ghats* on the need to abstain from dirtying riverine surroundings, yet they have forgotten to equip these locales with dust-bins for people. Similarly, though toilets have been constructed at numerous locations on the *ghats*, cleanliness has not been maintained.

To ensure compliance, a river police-force, *Jal* Police (JP), has been posted for patrolling *ghats*. Radhakrishna (2009) writes that extending state control to resources previously managed by communities puts an end to people's concept of self-reliance and results in gradual dismantling

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212 EPW (1985): 'Not Just a River,' *Economic and Political Weekly*, Vol. 20, No. 9, p. 335.

213 Tare, V. et al (2011), *op cit*, p. 22-25.

214 Ahmed, S. (1994): 'The Rhetoric of Participation Re-examined: the State, NGOs and Water Users at Varanasi, Uttar Pradesh, India,' *The Environmentalist*, Vol. 14, No. 1, pp. 3-16.

215 CAG (2000): *Report by Comptroller and Auditor General of India on Ganga Action Plan.* Available at: http://www.cag.gov.in/reports/scientific/2000_book2/gangaactionplan.htm, accessed on 12th August, 2012.

216 *ibid.*

of conservation strategies built by them over time to ensure protection of their resources. As dependence on state is nurtured, it leads to loss of moral obligation on part of communities to facilitate their maintenance[217]. In the current context, Ahmed (1995) mentions complaints being registered by local *ghat* priests against the corrupt nature of police personnel for allowing dumping of dead bodies into river in exchange for bribe and refusing to take responsibility if a body was discovered in their jurisdiction, instead prodding it further to the next police outpost. Such behaviour has begun to undermine the cause itself, she asserts[218].

Such lax attitudes have not deterred the administration from persecuting local communities operating on the *ghats* in a bid to show ground results. The programme, which in its design had not given a thought to local communities deriving sustenance from river, now sought to harass them. Ahmed cites the example of *dhobis* (washer-folk), ordered to move away from the *ghats* ostensibly to curtail river pollution. New locations were demarcated away from the main city, without consideration given to aspects like physical accessibility to these locations. Only after protests took place were alternatives arrived at. By attempting to deem illegitimate livelihood earning attempts of communities working on the riverfront, the administration sowed in the minds of these people a deep-rooted distrust of state-sponsored attempts to clean the river[219].

Similar to the experiences of *dhobis* were those of the boatmen community. In 2006, the seven kilometre stretch of Ganga in Varanasi was designated as a turtle sanctuary[220]. Turtles were introduced with the purpose of feeding on the remains of the decaying corpses dumped into the river to bring down its organic pollution load. However, no mechanism was devised to monitor the progress of these turtle within this stretch. Meanwhile fishing was banned here, along with sand-mining and cultivation on the eastern bank of the river (as turtles nested there) and motor-boat operation. All these regulations impinged upon the livelihood of the boatmen community. While the ban on motor-boats is currently pending in High Court, it has left the community at the mercy of the JP, who frequently extort bribes from them given the insecure nature of their work. They have little choice but to cede to the demands of the administration, which frequently

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[217] Radhakrishna, B.P. (2009): ''Water Wisdom,' will it ever Dawn on us?' *Journal of the Geological Society of India*, Vol. 73, pp. 599-605.

[218] Ahmed, S. (1995): 'Whose Concept of Participation? State-Society Dynamics in the Cleaning of the Ganges at Varanasi,' in G.P. Chapman and M. Thompson (eds.): *Water and the Quest for Sustainable Development in the Ganges Valley*. London: Mansell, Ch. 9, pp. 141-160.

[219] *ibid.*

[220] NGBRA (2011), *op cit.*

extends to diving in the river for corpse retrieval, despite any abhorrence they may have for the task being proposed. On occasion, however, they have united to protest against perceived administrative injustices, example 2008, when in response to the Forest Department's call for mammoth hiking of boat licence fee and reduced licences for motor-boats they resorted to mass contentious action, until their demands were met[221].

While local riverfront communities may serve as convenient targets for blame, the real reason for pinning blame on them for the deteriorating situation of Ganga lies in the failure of administrative authorities to achieve GAP targets[222].

Thus though deemed to be a 'people's programme,' GAP focuses a major proportion of its energies on technical aspects of pollution reduction, expecting imported scientific technology to rid Ganga of its physical impurities, leaving people 'functionally invisible' in the process[223]. It is important to give people and groups of communities who share a deep and abiding relationship with the river and its importance a space in river conservation and pollution abatement strategies. Their deep knowledge of their ecosystem would be beneficial in both programme formulation and implementation. Merely promoting a technological solution, without contextualising technology to its local environment has not only failed to yield positive results in pollution mitigation of Ganga, but also has important consequences for communities such as boatmen, whose lives are closely entwined with the riverine ecosystem.

2.11 Conclusion

Ganga is gradually being converted into a degraded miasma associated with disease and pollution. Human activity, technical and scientific manipulations of its stream and discharge of toxins into its waters are literally ruining the river that is powerless against the scale and intensity of abuse she is being subjected to. Government initiated measures to apprehend declining quality of the river's waters are limited in their scope. The failure of GAP has been mired primarily in lack of a holistic river-basin approach, in which pollution abatement should be linked with issues of water abstraction and changing land-use patterns alongside river basins. Pollution mitigation strategies cannot be obfuscated from the ever-higher exploitation of the river system.

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221 Wood, J.M.F. (2010), *op cit*, pp. 150-9.
222 Ahmed, S. (1994), *op cit.*
223 George, S. (1976), *op cit*, p. 112.

Given the half-baked nature of the programme, even its planning and implementation has failed to inspire confidence. Its exclusion and even marginalisation of local communities from the programme and bureaucratic failure are particularly pernicious aspects of the programme. This failure has an important effect on communities such as boatmen working on the river's *ghats*. Predatory nature of state policies towards them has increased vulnerability in their working conditions, as they also face deteriorating environmental conditions.

CHAPTER 3

METHODOLOGY

3.1 Rationale for the Study

Health of populations is inseparable from the broader environment that people live and work in, as well as being influenced by socio-economic factors such as income, access to education, housing, sanitation and clean drinking water, among others. It is a composite of biological factors interacting with the wider social, economic and political systems of the community[224]. The current study attempts to study the health of the boatmen of Varanasi from such a holistic environmental perspective.

In this context, the very nature of occupation of boating, a part of the informal sector of the Indian economy (characterised by its low wages, low wage security and lack of social security) and working beside the highly polluted waters of the Ganges at Varanasi under constant threat of harassment by the various administrative officials – a precarious working environment – has a significant bearing on the health of this community.

The River Ganga has been increasingly degraded in the last few decades due to a number of large scale engineering projects effected onto her body. The diversion of her waters for meeting irrigation needs and for feeding the rising material consumption needs of India's urban centres have not only left the river in a severely depleted state, but has also affected the quality of her riverine life. The decrease in the flow and volume of her waters has impacted the ability of the river to dilute the mounting levels of domestic and industrial waste waters dumped into her. Dams and barrages on the body of Ganga have further restricted the movement of fishes throughout her course. This has contributed to a decline in fish catch and has limited the livelihood earning opportunities of boatmen and fishermen communities working on the river, resulting in their economic displacement.

Working and living beside the riverfront and depending upon its waters for their daily needs and potentially even daily dipping into the pollutant laden water, constitutes a significant exposure to toxic chemicals and bacteria contained in the river. Boatmen communities are situated adjacent to the *ghat*s in most cases and thus share a close relationship with the river's water for a number

[224] Qadeer, I. and Roy, D. (1989), *op cit.*

of their daily needs. Even those relying on wells and pumps in their localities are not spared as nearby ground-water recharge levels are re-charged by the Ganges river water. The deteriorating condition of the river thus has an impact not only on their working conditions but also on their living and health conditions.

Rivers are the life-force of an ecosystem. A dam or reservoir constructed on any part of the river has repercussions for thousands of kilometres upstream and downstream, which lays the boatmen community exposed to changes effected in the riverine ecosystem far beyond their control and vision. The present research thus attempts to try and understand the influence of such developmental activities or as Nayar (1998) puts it, an anti-ecological approach[225] on the lives of boatmen and fishermen plying in the waters of Ganga in Varanasi, as one of its aims.

Damming up of the river and diversion of its waters are among the prime factors responsible for deterioration of the river and its larger ecosystem. Instead of dealing with the root causes of degradation, efforts at cleaning up have been channelled towards reducing the amount of toxins released into the river by treating the domestic and industrial sewage before they are deposited into the river. This has been done under the ambit of GAP I and II. Programmatic failure has however resulted in local communities such as those based on the *ghat*s at Varanasi being harassed by officials in the process. The need to show results to gain greater control over the environment and beautify for visual consumption of the incoming tourists, without caring for the livelihood concerns of the poor, threatens the future of the boating community.

The present research thus aims to study the multiplicity of factors impinging upon the environment and health of these boatmen and tries to place their working conditions, dependent upon a highly-exploited resource base – the Ganga River – within the broader context of the anti-ecological approach to the environment.

3.2 Motivation for the Study

While a tremendous body of literature has been published on interface of the Ganga River at Varanasi, much of the material has focused either on the religious and cultural significance of this holy intersection or as in recent times, on the physical degradation of this once renowned 'forest of bliss' situated at the banks of the pure and pristine Ganga. Where focus has been

[225] Nayar, K.R. (1998), *op cit.*

extended to the ritual economy accruing from the holy nature of their background setting, it has tended to bypass the boatmen and concentrate more on ritual specialists involved in the trade.

While recent years have witnessed some proliferation of literature on Varanasi boatmen, the fact still remains that this is a highly neglected community with much potential for further research on various facets of their lives and well-being. Even this recent literature has tended to ignore the environmental health conditions of this occupational group in Varanasi.

In context of GAP, while numerous analyses have been performed on its performance and effect on physical quality of Ganga waters, including at Varanasi, yet hardly any studies have been undertaken on the role of local communities based on the *ghat*s of the river, their interface and participation within GAP and the effects of GAP on their working and living conditions. Even where action has been taken by civil society actors on the issue of Ganga water deterioration in Varanasi, the conditions of boatmen and environmental and livelihood issues pertaining to their well-being appear to be particularly absent from their debates.

The present study on the boatmen community in Varanasi attempts to fill some of the literature gap on the boatmen community in Varanasi. It cases their health conditions in their environmental context – their living, working and socio-economic conditions. By throwing light on the different aspects of their life, the research intended to fill not only the prior gap in literature but also aimed to conclude with relevant suggestions for ways in which their environmental situation and consequently their health status can be improved.

3.3 Objectives

The following section contains the objectives of the current study.

3.3.1 Broad objective

- To examine the symbiotic relationship between Ganga and the boatmen with respect to their association, it's changing manifestations and future prospects, with special reference to their health.

3.3.2 Objectives of the study

- To develop an understanding of the social, economic and occupational life of the boatmen of Varanasi city.

- To elucidate the relationship of the boatmen with the river Ganga in Varanasi city, with special reference to issues related to Ganga degeneration, performance of the Ganga Action Plan and its influence on their health.
- To investigate the interface between the boatmen and governmental and civil society initiatives to preserve the Ganga.
- To develop an understanding of their health conditions with reference to the above and the ways by which the community addresses them in relation with the existing health service facilities.

3.4 Operational Definitions

- **Boatman –** A boatman is defined as any person who has operated a boat (irrespective of whether it is operated manually or through a motor) for at least thirty days in the past one year or has earned some income from the operation of a boat for at least thirty days in the past one year.
- **Boatman household –** A household refers to "a group of persons normally living together and taking food from a common kitchen[226]."

  Stemming from this, a boatman household would be identified as one in which at least one member of that unit operated boats for thirty days or more in the last one year or earned some proportion of his income from the operation of a boat for at least thirty days in the past one year.
- **Self-employed persons –** Individuals who manage their own enterprise, working alone in their venture or along with a small number of partners to run the organisation. 'Autonomy' and 'economic independence' are essential features of the self-employed status. Own-account workers, employers and unpaid family labour are all categories of self-employed workers[227].
- **Wage-earner –** A wage-earner is a person who is employed on another person's economic enterprise and works there in lieu of a wage payment. A distinction is made

[226] Ministry of Statistics and Programme Implementation (2004-05): 'Introduction: Concepts, Definitions and Procedures,' *Instructions to Field Staff, Vol. 1: NSS 66th Round.* New Delhi: Department of Statistics.

[227] *ibid.*

between a salaried employee and a casual wage-labourer on the basis of the mechanism for wage-payment. If such a payment is received on a 'regular' basis, the person is deemed as a 'salaried employee' and in case the payment is made on the basis of only a 'daily or periodic work contract' the person concerned is regarded as a casual wage-labourer[228].

3.5 Research Design

3.5.1 Study Area

The present study on the boatmen was conducted in Varanasi city and was largely concentrated in and around the 84 *ghats* on the left banks of the river Ganga in the city. The following section begins with a brief history of Varanasi, the study area for this research, followed by a section on the current situation of the city.

3.5.1.1 History of Varanasi - Varanasi is one of the oldest continuously inhabited cities in the world, along with Jerusalem, Aleppo and Damascus, among others. Its recorded history stretches back to nearly 3000 years. Eck (1983) renders a detailed account of this city stating that the earliest reference to Varanasi dates back to the closing of the second millennium B.C., when the Aryans ventured deeper into the Indian sub-continent and subsequently, established a new outpost in the Gangetic plains of north India, calling it 'Kashis'[229].

While the favourable geographical location of Varanasi, along the banks of the mighty Ganga, benefited the city and helped it become an important commercial centre of northern India[230], from its very beginning, the place was renowned more for being a centre of spiritual and cultural learning than a political and commercial entity.

In Hindu mythology, Varanasi is known as the dwelling place of Lord Shiva on earth. It is said that he was so captivated by the beauty of this "Forest of Bliss' that he decided to make this place his eternal earthly abode. Varanasi is thus known as the place that Shiva never forsakes and is amongst the holiest sites in Hindu religion. It is considered to be so pure that it has the capacity to purge oneself of all their worldly sins and free them from the cycle of birth and death,

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228 *ibid.*
229 Eck, D. (1983): *Banaras: City of Light.* Princeton: Princeton University Press.
230 Du Bois, E. (1981): 'Banares Brocade' in *Ars Textrina,* Vol.3, p.209.

whereby they can attain '*moksha'* or salvation[231]. Resting on the banks of the *uttarvahini* (northward-flowing) Ganga further cements the holy stature of Varanasi among devout Hindus. Ganga which flows in a south-east direction through the majority of its course turns back upwards to flow in a northern direction in Varanasi before it changes course again to progress further south as it leaves the city. A dip in the holy waters of Ganga in Varanasi is an essential religious ritual for all devout Hindus visiting the city.

Varanasi is revered not only by Hindus, but is also one of the sacred '*tirthas'* (sites) in Jain religion, two of whose *tirtankars* were born in this city and even, Mahavira, the last '*jina,'* came here on his forty-second year of travelling life. Buddhism also occupies a central place in the history of the city, with Gautam Buddha delivering his first sermon at Sarnath (a suburb in Varanasi) in 6th century BC after attaining enlightenment at Bodh Gaya[232].

The great tradition of learning and imparting wisdom that had been personified by Buddha was continued in Varanasi after his life. The city was filled with *ashrams* (schools), where seekers of knowledge from far-off areas of India came to gain Vedic knowledge and attain truth and enlightenment, as gods had done before them. The celebrated Chinese traveller Hiuen Tsang visited Varanasi in the 7th century AD and a Hindu pilgrim, Pantha, who came here in 8th century AD both testified to the culture of learning and religion that pervaded this area[233].

From as early as 2nd century BC, prominent Sanskrit language writer Patanjali, followed by the eminent philosopher Shankara in 8th century AD, Ramanuja in the 11th century, Kabir in the 15th century AD and finally, Tulsi Das (author of Ramcharitmanas) have made Varanasi or Kashi, as it was then known, as their home. In the British era, the legacy of learning was continued by the establishment of the Sanskrit College (now known as Sampurnanand Sanskrit University) in 1791 and the Banaras Hindu University (BHU) by Pandit Madan Mohan Malviya in 1916[234].

The religious, spiritual and cultural significance of the place, apart from its manifold architectural beauties lend it an other-worldly charm that is arguably unmatched in India. Pilgrims, sages, *sanyasis* (people who have renounced worldly pleasures), scholars, widows, the elderly and tourists – have flocked here since centuries and continue to come here to partake in

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231 Bigger, S. (1990): *Hinduism.* Available at: http://eprints.worc.ac.uk/962/1/HINDUISM.pdf, accessed on 4th May, 2011.

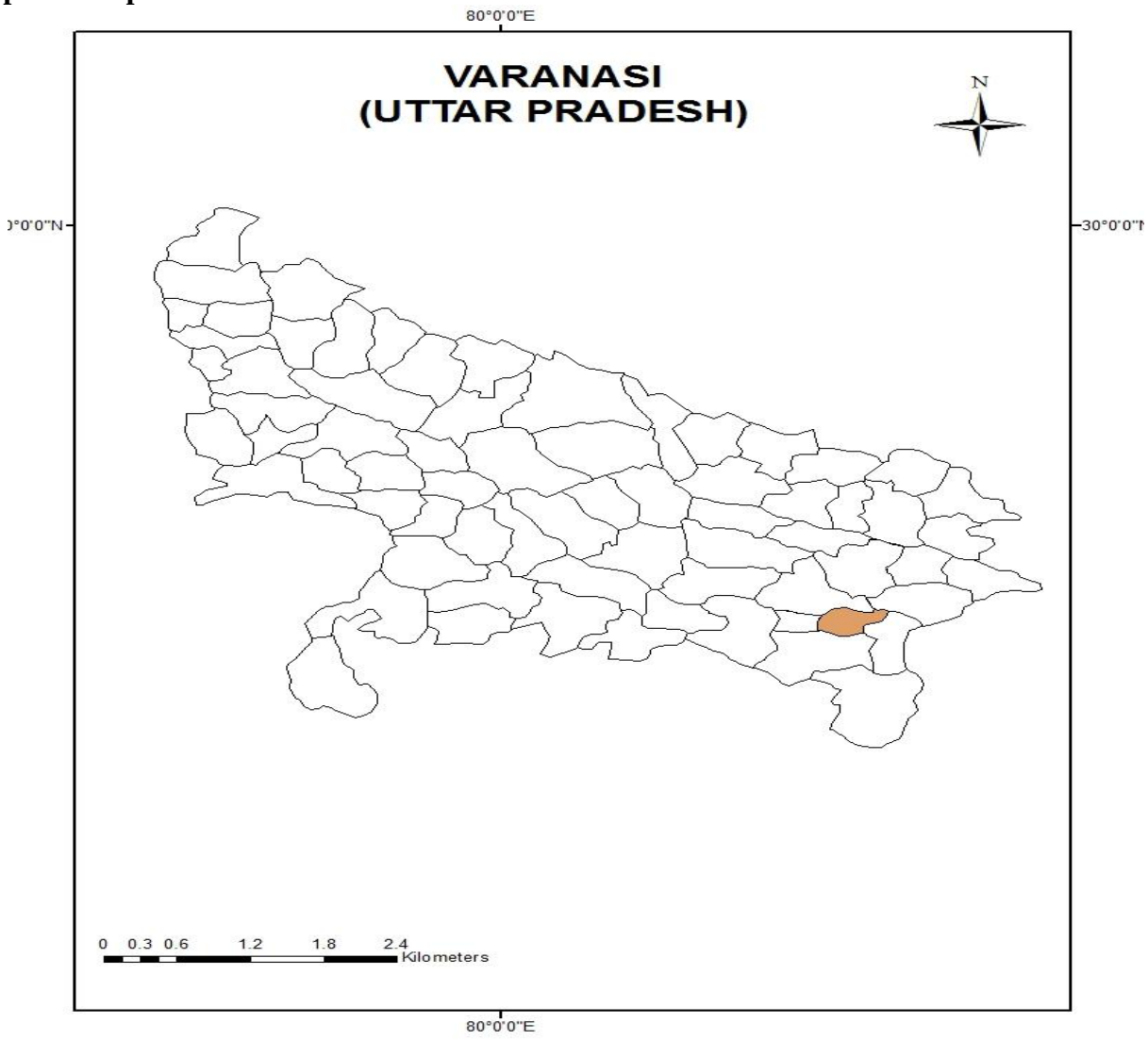
232 Eck, D (1983), *op cit.*, pp. 55-56.

233 *ibid*

234 *ibid*, pp. 57-93.

the holiness and spirit of this city, which lies on the western bank of the divine waters of the river Ganges.

Map 3.1: Map of Varanasi



3.5.1.2 Present situation – In current times, the city of Varanasi, located in the Northern Indian state of Uttar Pradesh (UP), serves as the administrative headquarters of Varanasi district[235]. The city is spread across an area of 112.26 sq. kilometers and is bounded by rivers on three sides – Varuna River in the north, Asi in the south and Ganga towards its left[236]. Asi however is a minor

[235] Urban Health Initiative (nd): *Varanasi City: Expanding Contraceptive Use in Urban UP – Varanasi City Profile.* Available at: http://www.uhi-india.org/Varanasi city profile, February, 2010, accessed on 7th May, 2011.

[236] Government of Uttar Pradesh: *Varanasi*. Available at: http://www.uponline.in , accessed on 8th May, 2011.

river, which only briefly comes alive during the rainy season[237], while the Varuna today is little more than a drain discharging its sewage-laden waters into Ganga.

Table 3.1: Demographic details of Varanasi district

Indicator	**2001**	**2011**
Population	3,138,671	3,676,841
Male	1,649,187 (52.54)	1,921,857 (52.27)
Female	1,489,484 (47.46)	1,749,984 (47.59)
Urban	256,278 (40.16)	1,597,051 (43.44)
Rural	174,373 (59.51)	2,079,790 (56.56)
Literacy rate	66.12	75.60
Population density (per sq. km)	2045	2395

Source: Census 2001, Government of India; Census 2011, Government of India.
Note: Figures in parenthesis signify percentages of the total population

3.5.1.3 Demographics Details of Varanasi - Varanasi is today a booming city and an important commercial and educational centre of eastern UP. The total population of the district of Varanasi, as per the 2011 Census of India, was 3,676,841 – a growth of 17.15 per cent over 2001. In 2011, 1,597,051 persons (43.44 per cent) lived in urban areas and the remaining 2,079,790 persons (56.56 per cent) were settled in the rural areas (Table 3.1)[238].

The city area under Varanasi Municipal Corporation (VMC) had a total population of 1,198,491 in 2011, with 635,140 males and 563,351 females (Table 3.2). VMC city contributes about 75 per cent of the district's urban population. The total number of households in this area was 190,835 in 2011,

[237] Eck, D. (1983): 'Banaras: City of Light,' New Delhi: Penguin Books India Pvt. Ltd., pp. 26-27.
[238] Census 2011, Government of India. Available at: http://www.census2011.co.in/census/district/568-varanasi.html, accessed on 23rd March, 2016.

with an average household size of 6.3 persons per household, which is higher than the state average of 6 persons per household and the Indian average of 4.9 persons per household[239].

Table 3.2: Demographic details of Varanasi Municipal Corporation (VMC) city

Indicator	**2001**	**2011**
VMC population	1,100,748	1,198,491
Number of households	149,93	190,835
Average household size	-	6.3
Population density (per sq. km)	13,300	14,598
Scheduled Caste	78,426	82,190 (6.86)
Scheduled Tribe	483	6,595 (0.55)
Total Workers	320,871	402,122
Main workers	314,933	339,305
Marginal workers	5,938	62,817
Work Participation Rate	29.15	33.55

Source: Census 2001, Government of India; Census 2011, Government of India.

Hindusim is the predominant religion of the area with 84.52 per cent of the population being Hindus, followed by Islam (14.88 per cent) and Christianity (0.21 per cent). The total Scheduled Caste (SC) population of VMC city was 82,190, constituting 6.86 per cent of Varanasi's total population, while the Scheduled Tribe (ST) population was a relatively small 6,595 persons, comprising 0.55 per cent of the total population[240].

[239] Ministry of Urban Development (2015): *City Development Plan for Varanasi, 2041 (Final City Development Plan).* New Delhi: Ministry of Urban Development, Government of India and The World Bank, pp. 33-37

[240] Census 2011, Government of India. Available at: http://www.census2011.co.in/census/state/uttar+pradesh.html, accessed on 23rd March, 2016.

The district had a density rate (number of people per sq. kilometre) of 2395 persons in 2011; the same figure for 2001 was 2045 persons[241]. This is significantly higher than the state (Uttar Pradesh) average of 829 people per sq. kilometre and is, in fact, the highest density rate among all the other districts in UP. The density rate of VMC area in 2011 was markedly higher at 14,598 persons, up from 13,300 people per sq. kilometre in 2001[242]. This high figure is also indicative of the intense pressure on local land and water resources in Varanasi.

The high population density has placed a high demand on access to basic amenities and urban housing infrastructure, yet urban Varanasi lags behind on these parameters. Only 69 per cent of the population has legitimate water supply connections and only 42 per cent of the city's slum population have water connections. Lack of maintenance of the century old water distribution network results in 61 per cent loss of water during supply[243]. For drinking water, 63.67 per cent of the urban population in Varanasi block of district Varanasi receive tap water from a treated source, while 20.98 per cent depend upon a tube-well and 0.05 per cent rely upon Ganga waters for their drinking water needs[244].

The distribution of the sewage network is even worse, with approximately one-third of the population being connected to the system and 18 per cent having no access to any toilet network (private or common). Consequently 15 per cent of the population defecate in the open. Most households are connected to a septic tank (17.51 per cent) or have a soak pit, while in a small number of cases, night soil is directly discharged into open drains (0.43 per cent) or collected by a manual scavenger (0.11 per cent)[245]. Of the 423 cities in India ranked on the basis of their sanitary conditions, Varanasi stands at 311. Immediate corrective action is needed to rectify the poor state of provisioning of basic household amenities if the public health situation in the city is to be improved[246].

The city has a high slum population; 407,036 people from 78,253 households live in one of the 210 odd slum settlements in 2014. They comprise approximately 30 per cent of the city's population. A number of these slums (12 per cent) lie alongside or near the Ganga riverfront as well, with Prahladh Ghat, Raj

241 Census 2011, Government of India. Available at: http://www.census2011.co.in/census/district/568-varanasi.html, accessed on 23rd March, 2016.
242 Ministry of Urban Development (2015), *op cit,* p. 36.
243 *Ibid,* p. 84.
244 Directorate of Census Operations (2011): *District Census Handbook Varanasi – Village and Town Wise Primary Census Abstract (PCA).* Lucknow: Directorate of Census Operations, Government of Uttar Pradesh, p. 334-335.
245 *Ibid,* p. 337.
246 Ministry of Urban Development (2015), *op cit,* pp. 93.

Ghat, Shivala, Manikarnika and Bhadaini having moderate to small populations of the Nishad community. The provisioning of civic amenities is decidedly worse off in the city's slum areas[247].

The total working population in VMC area was 402,122 in 2011. This population is divided into 339,305 main and 62,817 marginal workers. The total Workforce Participation Rate (WPR) is 33.55 per cent (depicted in Table 3.2). The WPR for males in the area is higher and stands at 51.16 per cent. The tertiary sector in Varanasi provides employment to approximately 45 per cent of the city's working class population. The high tourist inflow on account of its standing as an important religious and cultural centre of India means that the tourism sector substantially dominates the economy of this city. A wide-range of service providers including commercial shop-keepers, retailers, hoteliers, restaurateurs, tour operators and *pandas* (religious priests) and boatmen at the *ghats* all profit from this lucrative economy[248].

In the year 2013, 64.5 lakh tourists visited this city, with 5.37 lakhs arriving every month on an average. Winter months witness the maximum arrival of tourists. The *ghats* are an essential destination for tourists visiting Varanasi, not just devotees wishing to bathe in the Ganga, but for the visual spectacle which they present. Of the 84 *ghats* built on the riverfront, 14 are over 350 years old[249] and the sturdy and elegant steps on the vast expanse of the Ganga in Varanasi provide a welcome relief from the crowded by-lanes of the city's other tourist mainstays. Furthermore in recent years, the development of important religious rituals such as the daily Ganga *aarti* (prayer-ceremony) on the main *ghats* of Varanasi (Dashashwamedh and Dr. Rajendra Prasad) and the annual festival of Dev Deepawali has proven to be a major attraction for tourists and pilgrims alike to the *ghats*.

With around 1500 boats moored across the 84 *ghats*, the tourist influx, which has increased at the rate of nine per cent per annum between 2003 and 2012, presents a steady and profitable earning opportunity for the boatmen community, particularly on the main *ghats*[250].

3.5.2 Nature of the Study

The present research study is largely descriptive in nature, interspersed with elements of the exploratory design. This research makes use of a mixed-method design in meeting its objectives,

[247] *Ibid*, pp. 96-143.
[248] *Ibid*, pp. 55-57.
[249] *Ibid*, pp. 170-182
[250] *Ibid*, pp. 170-182.

triangulating both quantitative and qualitative methods to gain a more well-rounded understanding of the lives of the Varanasi boatmen.

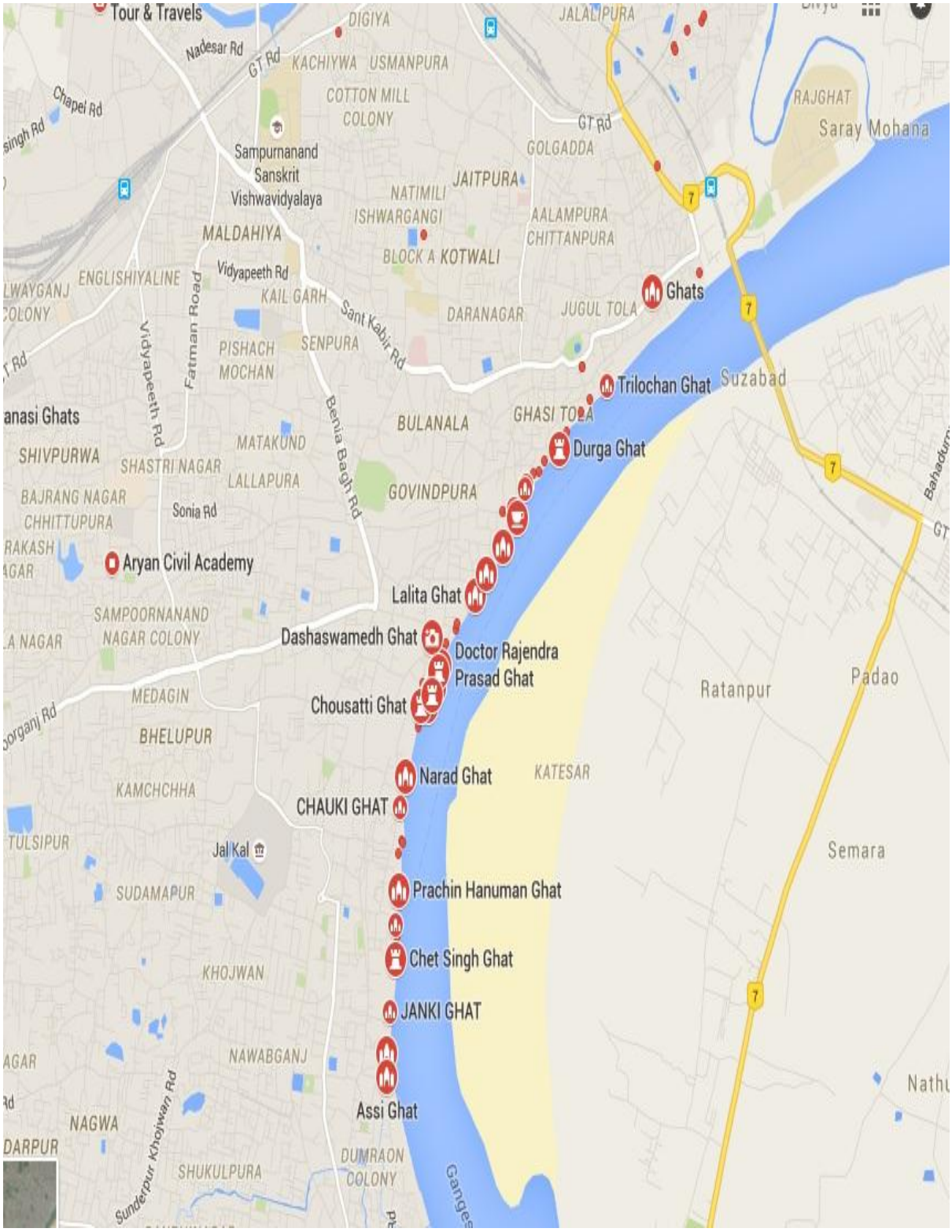
The study deals with gaining an understanding of the health and well-being of boatmen workers' in the backdrop of their broader environmental circumstances, including their socio-economic, living and working conditions as well as the physical condition of the Ganga which forms an inescapable part of their environment. The larger governmental policies which affect the state of Ganga and boatmen's access to their traditional resource base, which have implications for their economic and social well-being and their health, too were considered in the study. In order to study these diverse aspects of the boatmen's lives, both quantitative and qualitative data was collected by the researcher. While the quantitative data helped in finding out heterogeneities in living and employment arrangements of the boatmen and the patterning of such differences, the use of qualitative research methods supplemented this initial data set by understanding the differential perceptions, motivations and experiences of the different categories of boatmen living and working in these conditions and daily coping with them.

3.6 Sampling

The sampling frame for the study included boatmen working across the contiguously-placed 84 *ghats* on the left bank of Ganga River in Varanasi city. In addition, officials of the Varanasi Municipal Corporation, *Jal* Police and Uttar Pradesh Forest Department, members of the National Ganga River Basin Authority (NGRBA), civil society organisations working on issues relating to Ganga River degeneration in Varanasi and health service providers sharing an interface with the boatmen community in Varanasi all constituted a part of the study universe.

The procedure for collection of the sample was finalised by the researcher after reading up the available literature on the lives of the Varanasi boatmen and conducting basic conversations with boatmen and other stakeholders intimately connected with the *ghat* economy in the city, including hotel owners and local vendors based on the *ghats*, during the pre-pilot and pilot phase of her study. Through these exercises, she was able to gain a greater understanding of the nuances of the boating community in the city and the differences between the boatmen based on boat ownership, type of boat owned, size of boat and their place of work. Armed with this knowledge, a sampling design was devised using the place of work and availability of boatmen as the parameters for sample selection.

Map 3.2: *Ghats* of Varanasi



Source: Google Maps

For selecting the sample of boatmen, the study utilised a multi-stage sampling design, using quantitative and qualitative research methods for data collection.

The initial phase of such a sampling design involved listing of all of the *ghat*s in Varanasi city in descending order. The sampling process then began with the selection of a certain number of *ghat*s for survey, chosen by the systematic sampling method – 15 per cent of the total listed *ghats* were chosen and two *ghats* were added at a later stage as a number of sampled sites were sparsely population and had barely any boatmen. All boatmen working and available at the selected *ghats* were approached for the survey round. A total of 143 boatmen respondents from 16 *ghats* were interviewed during this phase of the study. 14 boatmen refused to be a part of this study and 2 respondents withdrew their consent mid-way during the survey process.

In the absence of reliable comprehensive data on the total number of boatmen in Varanasi and the variations in their working conditions, this data collected was treated as being representative of the larger boatmen community in the city. It served to identify not only the heterogeneity in employment arrangements within this population, but also helped in pointing out the approximate numbers of boatmen within these varying categories – owners, wage-earners, hand-oared boats and motor-boats, among others and their spread across the different *ghats*.

While administering the close-ended interview schedule to the boatmen during the initial round of data collection, the researcher used this opportunity to probe in greater detail some respondents about their daily work experiences on the *ghats* and their perception of government schemes, relating to Ganga water cleaning, that were functioning on the river-front. Their role within these schemes too was probed in an in-depth manner during this interaction. She was thus able to simultaneously conduct 20 such in-depth interviews during the first phase.

The second stage of this sampling procedure commenced after the quantitative data on the socio-economic, working and health conditions of 143 boatmen respondents collected in the first round had been tabulated and the qualitative data collected had been transcribed and preliminary analysis of the work had begun. The latter was able to help the researcher identify the gaps in information during the first round of her field-study. She thus proceeded to visit her field to gather further information on these matters, largely pertaining to the diverse nature of their working conditions and their influence on their health status. For example, during the initial phase of her study, work related hazards and stresses of the category of *gotakhors* (divers) had

not been fully captured by the researcher. A major reason for this was that most of these *gotakhors* are concentrated on or near Raj Ghat, which was not included in the list of her sampled sites. However further assessment of data revealed them to be an important and particularly vulnerable category of workers belonging to the larger boatmen community. Based on their availability at Raj Ghat at the time of the study, the researcher conducted seven in-depth interviews with this category of boatmen.

Furthermore, in order to gain more in-depth understanding of the housing, living and health conditions of boatmen respondents and their families, the researcher decided to visit main boatmen colonies in the city and interview women of the household. Free-flowing conversational interviews were held with 11 women respondents.

Furthermore key informant interviews were conducted with boatmen leaders, activists working alongside the boatmen community, activists based in Varanasi working on the issue of Ganga water cleaning, CSOs engaged on the issue of cleaning the ghats in Varanasi, including one which had been contracted by the Varanasi Nagar Nigam (VNN) for the purpose of generating awareness on Ganga pollution among *ghat* based communities in Varanasi for the year 2013-‘14, government officials including officials of the VNN and two public members of the National Ganga River Basin Authority (NGRBA), regarding their perceptions of the reasons behind Ganga water pollution and the role of local communities, especially the boatmen, in contributing to the matter as well as their possible role in its cleaning.

Interviews were also conducted with six health service providers in Varanasi, including two government and two charitable hospitals and two private practitioners working near the *ghat*s. These health providers were purposively selected after tabulating the responses of the boatmen respondents to identify those practitioners which were most commonly accessed by the families of the respondents during episodes of illness. One private doctor refused to participate in this study and was hence replaced by a doctor practicing at a nearby clinic.

All the interviews conducted during the course of this study were recorded on paper in the regional dialect. These were later translated for the benefit of this thesis.

3.7 Sources of Data Collection

Both primary and secondary sources of data collection were relied upon for data collection.

3.7.1 Primary sources – includes that data which is collected first-hand by the researcher. The researcher used multiple tools for primary data collection (outlined below). Triangulating or using a variety of primary data collecting techniques ensures the greater comprehensiveness of the data collected. This process is also referred to as a 'multi-method research[251].'

The study utilised both qualitative and quantitative data for developing a clearer understanding of the socio-economic indicators, living conditions and employment arrangements of the boatmen community at Varanasi. Thus using both 'across-method' and 'within-method' triangulation helped to improve upon the quality and validity of the data collected[252].

The proposed research instruments thus included:

- **Observation checklist** – The researcher was a non-participant observer of the daily lives, housing and working conditions of the boatmen. Direct observation of the respondents in their daily real-life environment helps us to see, perceive and record situations as they occur in the natural progression[253].

  For this purpose, an observation checklist was created by the researcher to guide her in the process of observation during her field-study and enhance her understanding of the environmental conditions of the community being researched. Observation categories included living and housing conditions, sanitary conditions on the *ghats*, the rush of tourists and pilgrims at each site (which influences the nature of their work and income levels), timings of work and other aspects related to the physical conditions of work.

- **Close-ended interview schedule** – A structured close-ended interview schedule, in the form of a quantitative survey tool, was formulated for eliciting information from the boatmen regarding their employment arrangements and conditions, socio-economic situation and housing, living and health conditions, among others.

  As stated by Smith (1975), close-ended questions are most suited when the purpose of the interviewer (among other factors) is to gain an understanding of certain basic

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[251] Fetterman, D.M. (1998): *Ethnography: Step by Step (Applied Social Research Methods).* California: Sage Publications, Inc., p. 93-94.

[252] Casey, D. and Murphy, K. (2009): 'Issues in Using Methodological Triangulation in Research,' *Nurse Researcher*, Vol. 16, No. 4, pp. 40-55.

[253] Majumdar, P.K. (2005): *Research Methods in Social Science.* New Delhi: Viva Books Private Limited, pp. 218-227.

characteristics of the proposed informants of a study and use the gathered information for the purpose of classification[254]. In this study, the purpose of this exercise was to gain a basic understanding of the boatmen community in Varanasi and the variable working and employment conditions of the boatmen. The latter information was useful for the purpose of delineating categories among the boatmen, about which limited prior information exists.

- **In-depth interview schedule** – While a close-ended interview schedule might be best suited for collecting quantitative data, an open-ended interview format is the preferred format for collecting more in-depth data from prospective respondents. Such a tool better serves the purpose of obtaining more extensive information on the opinions, thoughts and perceptions of the respondents. Additionally this is the preferred mode of data collection when the information being sought cannot be reduced to pre-fixed categories that exist in the close-ended interview format as "information in the working universe may be extremely variable or unknown . . .[255]"

  A qualitative semi-structured interview schedule, comprising a sequenced set of open-ended questions, was constructed for soliciting detailed accounts from boatmen on their environmental conditions, including living and working arrangements, health conditions and interface with GAP, among others.

- **Interview guide** – An open-ended interview guide was created for obtaining comprehensive information on the association of boatmen and their families with Ganga and the state of the river influencing their working, living and health conditions. It also contained pointers on various dimensions of their family's access to the healthcare system.

  The guide differs from the above semi-structured interview schedule in the sense that such an interview was more conversational and less directional than the latter, aiming to elicit detailed narratives or event histories from the selected sample respondents on certain critical aspects of research. Unlike the schedule, the guide comprised of certain broad pointers in the form of important themes. Such a guide was used for interviewing women of boatmen households on their family's relationship with the river, the state of their immediate environment and its relationship to their health. Though themes were

[254] Smith, H. W. (1975): *Strategies of Social Research: The Methodological Imagination.* New Jersey: Prentice-Hall, Inc., Englewood Cliffs, p. 172-3.

[255] *ibid.*

interspersed with probing questions, they were only utilised to guide responses for maintaining the direction of research[256].

For conducting key informant interviews, including with government officials, CSO members, boatmen leaders and health practitioners, an interview guide was formulated. It sought information on their perceptions and opinions on boatmen's relationship with Ganga and their scope for inclusion with Ganga cleaning initiatives, among others.

3.7.2 Secondary sources – comprises that data which is not collected first-hand by the researcher, but constitutes an invaluable part of the information gathering exercise undertaken in any research. In this study, secondary sources relied upon for data collection include census data gathered by the Government of India, governmental reports including census studies on the Mallah community, status reports on the state of the Ganga and the progress of GAP by the National Ganga River Basin Authority and reports by the Public Accounts' Committee, Inter Ministerial Group on Ganga and the Consortium of seven Indian Institute of Technology (IIT), among others. In addition, reports of civil society organisations, including by Sankat Mochan Foundation (SMF), journal and newspaper articles and other studies and publications amassed which throw light on the area under study.

3.8 Ethical issues

The research followed certain ethical principles which are considered to be paramount in the conduct of any field-based research.

Free and informed consent of the informants is an overriding principle of ethics in research[257] and this was adhered to in this study at all times. Operationalisation of this principle was done by the following means – each tool used by the researcher for data collection contained a prepared statement on the background initials of the researcher, her motivations for conducting the research and soliciting respondent participation, expected level of participation or input sought from the concerned person, maintaining the confidentiality of their responses.

Any discomfort to the respondent before engaging them in an interview was sought to be minimised by making it clear at the outset the expected amount of time that would be required of them if they would give their permission to participate in the concerned study. Their right to

[256] Padgett, D.K. (2012): *Qualitative and Mixed Methods in Public Health.* Los Angeles: Sage Publications, Inc., pp. 126-137.

[257] Bowling, A. (2002): *Research Methods in Health – Investigating Health and Health Services.* Buckingham: Open University Press, pp. 156-158.

refuse to answer any question pertaining to any aspect of the study was respected and they retained the freedom to withdraw their participation at any stage of the interview process, despite consenting to it in the beginning. Furthermore, it was made clear that there should be absolutely no expectation of any quid pro quo arising from their agreement to participate in the study.

All these instructions were read out to every prospective respondent as the researcher solicited their participation. Any additional questions pertaining to the study and posed to the researcher by the prospective respondents were fully entertained by her.

Maintaining confidentiality and anonymity of the respondent is a central tenet of ethics in social science research[258]. While this research included collecting personal details of the respondent, the data has not been shared with anyone nor will such personal details of respondents be divulged to any other person at a later stage also. Personal identifiers too have been removed from the report to prevent any breach of confidentiality[259].

The identity of all respondents interviewed in this study has thus been kept confidential. The study does not name any of the respondents who participated in the process of data collection, except where explicit written consent has been obtained from the participants themselves who have agreed to allow their names to be mentioned.

3.9 Process of data collection

The process of data collection for this study was conducted in four phases. Field work began in August, 2013 and lasted till April, 2015, spanning a period of 18 months. The researcher made several medium duration visits to the field during this period for collecting data. The field-study began with an initial reconnaissance visit, followed by a visit for pilot-testing and then for two stages of field work.

The process of data collection and the time schedule for field work has been delineated below:

- **Pre-pilot visit** – The first visit to the city of Varanasi was undertaken by the researcher in the month of August in 2013. The *ghat*s and other adjoining areas were submerged under water at this time as the river was in a spate. The purpose of this visit was to gain

[258] National Committee for Ethics in Social Science Research in Health (2000): 'Ethics in Social Sciences and Health Research: Draft Code of Conduct,' *Economic and Political Weekly*, Vol. 35, No. 12, pp. 987-991.

[259] Kaiser, K. (2009): 'Protecting Respondent Confidentiality in Qualitative Research,' *Qualitative Health Research*, Vol. 19, No. 11, pp. 1632-1641.

familiarity with the field and develop a basic understanding of the work and work-related processes of the city's boatman community.

The flooded state of the river offered her an insight into the potentially perilous nature of work of the boatmen (including their participation in relief and rescue missions to neighbouring villages flooded by the overflowing Ganga) and made her aware of the temporal nature of their work and the alternatives sought by most members of the community during such periods when boating in the river was banned due to the hazard it posed. During this period, she was able to also engage in informal interactions with a small number of boatmen who happened to be on the *ghat* at that time.

The insight gained during this visit proved valuable in the conduct of her future research and helped in preparation of her survey tool for interviewing the boatmen.

- **Pilot Study** – The second series of visits to the city were held in subsequent months, from the end of September till November, 2013. These visits gave her the opportunity to observe the working lives and environment of the boatmen across the different *ghat*s during the peak tourist season in the city and were useful to her in the preparation of an observation checklist, which was used in her future field visits.

  These visits were also used to conduct a pilot study with the close-ended interview schedule prepared for the survey round. Six such interviews were conducted. The timing, sequencing and wording of the questions was checked during the conduct of the pilot interviews and accordingly changes were made.

  At this time, a number of CSOs based in Varanasi and working on the issue of Ganga cleaning were identified and a couple of them were contacted by the researcher for gathering information pertaining to their role in Ganga cleaning and their interaction and engagement with and perception of the boatmen based on the river-front in Varanasi. A semi-structured interview schedule had been prepared by the researcher for conducting these interviews.

- **Final field study (Survey round) –** The first phase of data collection for the survey round commenced in February, 2014 and lasted till April, 2014. 14 *ghats* had been identified for data collection using the systematic sampling method. However, in view

of a number of sampled *ghats* being sparsely populated, the researcher decided to add two additional *ghats* to her list of sampled sites. Dashashwamedh and Chausatti lie adjacent to Shitala and Digpatiya Ghat respectively and have a high number of boatmen stationed there. Though Shitala Ghat is well-populated by boatmen, yet Dashashwamedh was purposively selected due to it being the primary *ghat* of Varanasi. Apart from its historical significance, it is directly connected with the main market of the city, it is also the venue of the evening Ganga *aarti* (prayer) and has a *Jal* (Water) Police outpost is located here. It was anticipated that boatmen working on this *ghat* would offer a unique insight of their working lives, which may not be similar to the findings of the other areas. Hence it was purposively selected.

Furthermore, a few respondents from beyond the 16 selected sites too were included in the interview process. Due to the geographic contiguity of the *ghats* and the seamless blending in of different *ghats*, it was difficult for the researcher to maintain strict compliance with the selection process of participants from the selected sites. In a few instances, where boundaries between the *ghats* were particularly difficult to demarcate, there was some spill-over in the selection of respondents from an adjoining area. The researcher attempted to minimise such spill-over by eliminating such respondents as far as possible, but in a few such cases where they were included in the interview process, these respondents have been included in data analysis as well. Meer Ghat and Tulsi Ghat were the sites which presented the researcher with the greatest problems and it was herein that boatmen from the adjacent Tripura Bhairavi and Rewa Ghat, respectively were included.

In the months of November and December of 2014, the researcher completed this phase of field work by conducting key informant interviews with VNN officials, CSOs contracted by VNN to work on the *ghats* and engage with local communities and with health service providers that were popular among the boatmen respondents of this study.

- **Final field study (In-depth interviewing round) –** Finally the second stage of her multi-stage sampling was held in the months of March and April, 2015. Divers based at Raj Ghat and women members of the boatmen household were contacted during this

phase since their voices and concerns were deemed to have been missing from the earlier round of data collected.

In addition, boatmen based at Nishad Raj and Harishchandra Ghat were also further interviewed by the researcher on various matters relating to their work including the changing nature of their working conditions as a slew of new policies had been initiated in Varanasi in past few months by the newly elected government, whose leader, the Prime Minister of the country, Narendra Modi, is the elected representative of Varanasi. The boatmen's perception of the changing scenarios was gauged in these interviews, including through their detailed narratives of the celebration of the annual Nishad Raj Jayanti, an event which culminated at Nishad Raj Ghat.

3.10 Data Analysis

The quantitative data collected in this study was first tabulated in MS Excel and then analysed using the STATA 13.0 software. The statistical technique of 'factor analysis' was utilised for attaining a greater understanding of the socio-economic differentials between the different types of boatmen and for bringing out the factors which played the greatest role in influencing the socio-economic standing of these boatmen.

An in-depth scrutiny of the data also aided in classification of boatmen respondents in various categories. The process of identifying the classes was as follows – given the variations in the socio-economic, working and employment conditions of the boatmen, it would have been a mistake to construe them as a homogenous occupational group. While some owned boats, others worked for wages on the boats of owners. The boats being plied in Varanasi too were diverse. While many boatmen continued to ply hand-oared boats, in recent years, there has been an increasingly gradual shift towards motor-boats by some of the more affluent members of the community. This was observed particularly on those *ghats* which witnessed a higher footfall of pilgrims and tourists.

For the purpose of this study, boatmen were thus classified into the following groups – workers, hand-oared boat owners, motor-boat owners and boatmen owning both hand-oared and machine-operated boats. The categorisation intends to represent an income and economic gradient within the wider community of boatmen working on the *ghat*s of Varanasi. This was based upon an examination of the quantitative data collected as well as the observations of the researcher and

her interactions with boatmen across various *ghats*, wherein she deduced that earning opportunities were influenced by geographical location, owning a boat, the number of boats owned and also by motor-boats since they accommodated more passengers and were more capable of undertaking numerous journeys than their non-mechanised counterparts. Furthermore it was observed that the conversion of hand-oared to motor-boats was in maximum instances done where there was a possibility of steady income from regular ferrying of a relatively large group of passengers. Thus this division was conceptualised by the researcher since it was expected to represent differential levels of income and economic status of boatmen. Also the cost of assembling a motor-boat is higher than a hand-oared boat thus illustrating the higher purchasing power ability of those owning a motor-boat.

After deciding upon the classification of the boatmen, the rest of the data was analysed using bi-variate cross tabulations to depict socio-economic, living and working conditions of different categories of boatmen. Furthermore, in keeping with the objectives of the study, a number of analytical themes were identified for systematic assessment of the collected data.

3.11 Limitations

A number of limitations must be acknowledged in the research study. They are as follows:-

- The boatmen working on the *ghats* of Varanasi largely constitute a floating population. The informal nature of their occupation and the power to regulate their work days and hours influences the availability of these workers on the *ghats* at all times. Since the researcher was able to spend only a few days per *ghat* during the survey round, in numerous instances, she was not able to contact all the boatmen from a particular location. This affected the size of the sample in her study.
- The sample of 143 boatmen respondents was spread across 16 *ghats*. At least six of the sampled *ghats* had five or less respondents and 9 of these sites had less than ten respondents per location. The relatively thin spread of respondents across these *ghats*, though reflective of the lopsided *ghat* economy, affected the size of the sample collected. This also resulted in negating the possibility of analysing the data based on the participants' geographic location.
- The field survey, which included questions on the living and socio-economic conditions

of the boatmen, was conducted at their place of work. For most boatmen, it was not possible to visit the workers' at their households. In areas with large boatmen colonies such as Nishad Raj, Shivala and Raj Ghat, the researcher went to the households during the in-depth interview round, however this was not possible for all boatmen colonies.

- The present study on the environmental health concerns of the boatmen takes into consideration self-reported illness episodes by the respondents and their perceptions about the relationship between their working and living conditions and the illnesses afflicting them. A detailed epidemiological study has the potential to further strengthen the association between self-reported health and its environmental linkages.

CHAPTER 4

SOCIO-ECONOMIC PROFILE AND HOUSING AND LIVING CONDITIONS OF THE BOATMEN OF VARANASI

4.1 Introduction

Tourism is the mainstay of Varanasi's economy. Visitors from all across the world converge in Varanasi based on its standing as a city of unparalleled religious significance within the Hindu religion. The *ghats* of Varanasi form the focal points of the city's tourism industry. Not only do they constitute some of the holiest sites within the Hindu religion, but also draw in scores of visitors who wish to partake of the tremendous mystical aura of this place. These *ghats* thus function as prime locations for economic activity; boating is one such livelihood activity.

While boating in north India has traditionally been the preserve of the Mallah community[260], not all Mallahs are boatmen. The riverfront is spatially limited and thus unable to accommodate a huge number of boat-owners and consequently a large number of boatmen. Both boat-owners and workers co-exist in this milieu. In this chapter, we discuss the living, socio-demographic and economic conditions of the different categories of boatmen in Varanasi.

The chapter begins with a brief description of each of the sampled *ghats,* followed by a look at the socio-demographic characteristics of the respondents and their housing and living conditions. It concludes with the creation of a socio-economic index of the various boatmen respondents to understand the heterogeneity in the socio-economic conditions of the boatmen of Varanasi.

4.2 *Ghats*

The following section contains an account of the 16 *ghats* of Varanasi which served as the research sites for the survey round of the current research study. A description of each *ghat* has been made from the point of view of the boatmen who work in these areas and the livelihood earning opportunities which present themselves to those plying their boats here. The narration is based on a review of literature as well the observations of the researcher and her interactions with boatmen and other *ghat* inhabitants.

[260] Jassal, S.T. (2001): 'Caste and the Colonial State: Mallahs in the Census,' *Contributions to Indian Sociology,* Vol. 35, pp. 319-354.

1. **Tulsi Ghat –** is located in the vicinity of Assi Ghat (a culturally and spiritually significant *ghat* that further gains in prominence due to its direct connectivity with the city's road major network). It is named after the famous ancient Indian writer, Tulsidas, who penned 'Ramcharit Manas'. This is the place where the famous non-governmental organisation (NGO) Sankat Mochan Foundation (renowned for promoting the cause of a clean and pollution-free Ganga) founded by the late V.B. Misra is located. The positioning of this *ghat* near Assi Ghat results in a fairly high footfall of tourists at this place.

2. **Nishad Raj Ghat –** is a relatively new *ghat* in Varanasi, which gets its name from the renowned Nishad king mentioned in the epic Ramayana, Nishad Raj. Above this *ghat* exists a large colony of boatmen. This is the second biggest settlement of Mallahs in Varanasi[261].

   Situated just south of Prabhu Ghat, which is particularly unhygienic and garbage strewn (with people defecating on this *ghat)* and not having any historical significance of its own, Nishad Raj Ghat is not particularly appealing to tourists and pilgrims. It has a relatively low influx of people seeking to use the services of boatmen working here. Fishing is among the major livelihood generating activities of boatmen of this area.

3. **Shivala Ghat –** Flanked by a historic fort on one side, which once served as the abode of Maharaja of Banaras[262], Shivala Ghat is in present times famous for a major open *naala* (drain) flowing directly into the river.

   Located above the *ghat*, on one side of the road, are numerous medium-range hotels and guest houses, which provide frequent business to the boatmen. On the other side, exists a large colony of Mallahs. Not all of them ply their boats or work at this *ghat*, but they serve to swell the ranks of boatmen working in other major *ghats* of the city.

   Shivala *ghat* is also fairly well-connected to the main road in Varanasi and receives a decent amount of visitors. The researcher was also informed that during the time of Kumbh Mela, this relatively vast and evenly built area served as the encampment site

[261] Doron, A. (2013): *Life on the Ganga: Boatmen and the Ritual Economy of Banaras.* New Delhi: Cambridge University Press India Pvt. Ltd., p. 107.

[262] *Ibid*, p. 122.

for the significant entourage of *sadhus* (priests) and *aghoris* (religious men) visiting Varanasi after completing their stay at Allahabad, thus presenting the boatmen working here with significant opportunities to enhance their earnings.

4. **Harishchandra Ghat –** The *ghat* receives its name from the mythical Raja Harishchandra, who is said to have piously served here, at the second of the city's burning *ghats*, during his lifetime[263].

   Though an electric crematorium was installed above this *ghat* by the Government of India (GoI) under the aegis of GAP, the popularity of this place remains undimmed. This can be partly accounted for by the poor working of the crematorium and partly due to the deeply entrenched religious beliefs of the Hindus.

   A wide cemented-road connects this *ghat* to the main road in Varanasi and this is lined with multiple upscale hotels which offer tourists a glimpse into the morbid death landscape engulfing this area. Similarly, pilgrims from all over the country converge on this *ghat* to perform religious rituals here and frequently use the services of boats parked here. Boatmen working on this *ghat* are also frequently hired by mourners for submerging the bodies of those deceased relatives, who according to the Hindu religion, cannot be cremated.

5. **Mansarovar Ghat –** is a religiously significant *ghat* and is well-frequented by pilgrims. A large number of people, particularly pilgrims from south India, reside in the numerous hotels located in the by-lanes above this *ghat* and they use the services of boats parked here to perform religious ablutions and also to take a ride in Ganga.

   This large *ghat* is clean and well-maintained and also comprises a Sewage Treatment Plant (STP) installed by the government.

6. **Digpatiya Ghat –** is located at a slightly lower level than the other *ghats* and it is not a fully concretised *ghat*. Though it is placed on the way from Dashashwamedh to Assi, a relatively few number of passengers are seen hiring a boat from here. Only a few boats are anchored here and occasionally even these boats were found lying vacant or with just a solitary boatmen.

[263] Eck, D. (1983): *Banaras: City of Light.* New Delhi: Penguin Books Pvt. Ltd., p. 48.

Map 4.1: List of selected *ghats*

Source: Google Earth

7. **Chausatti Ghat –** Located relatively close to Dashashwamedh, Chausatti is a bustling *ghat*. The *ghat* derives its name from a Chausatti Devi temple situated just above it. A number of small-scale and inexpensive guest houses and hotels have opened up in the colonies above this *ghat.* Tourists stepping down from these guest houses frequently

use the services of the boatmen working here. In addition to this, this *ghat* is located just adjacent to the picturesque Rana Mahal Ghat, which has been beautified by locals, including a few boatmen, to attract more visitors. They have planted a few shrubs and painted its walls which have enhanced the aesthetic appeal of this area.

8. **Shitala Ghat –** is situated in the immediate vicinity of Dashashwamedh Ghat. The place derives its name from a Shitala Mata Temple built here. Shitala is considered to be the 'Goddess of Small-pox' in Hindu mythology[264]. This popular temple daily witnesses a heavy rush of worshippers, which makes it one of the more popular *ghats* of the city. This factor, along with its nearness to the famous Dashashwamedh Ghat means that the boatmen working here are kept fairly busy by a steady stream of passengers. During the time of evening Ganga *aarti*, the boatmen here were often seen being engaged by pilgrims and tourists alike who preferred to view the performance of the *aarti* from the river-side.

9. **Dashashwamedh Ghat –** is the central *ghat* in Varanasi. It is directly connected with the city's main road intersection (Gowdolia Chowk), which also serves as the most bustling market of Varanasi. By virtue of its prime location, it is also the most popular *ghat.* Hordes of pilgrims and tourists, from all the country and across the world, are seen assembling here at all times of the day.

   Dashashwamedh Ghat also has great religious significance. It is the place where King Divodasa performed the 'ten horse sacrifice' and has been mentioned along with Assi, Manikarnika, Panchganga and Adi Keshav Ghat as the five most religiously important *ghats* along the banks of Ganga in Varanasi. Thus pilgrims are often seen performing simple religious ceremonies here. It is also the place where the celebrated evening Ganga *aarti* is daily performed, which attracts hundreds and perhaps even thousands of tourists.

   The high number of footfalls and the almost constant presence of pilgrims, tourists and even locals on this *ghat* make it a lucrative place for conducting business.

[264] Havell, E.B. (1905): *Benaras The Sacred City: Sketches of Hindu Life and Religion.* London: W. Thacker and Co., pp. 113.

Dashashwamedh can thus also be called the central point of the river economy in Varanasi and it is thus not surprising to see a high concentration of boats here.

10. **Mir Ghat –** is situated to the north of Dr. Rajendra Prasad Ghat. It is one of the prominent central *ghats* of the city. A number of guest houses are located atop the steps of this *ghat* which result in a steady stream of pilgrims and visitors here. The location of this ghat – near the prominent Dr. Rajendra Prasad Ghat has meant that cleanliness is maintained here and facilities for resting of incoming tourists such as benches and umbrellas are also available. These facilities make the *ghat* attractive for visitors.

    The abundant opportunities available here for ferrying passengers has resulted in this place teeming with boatmen. Many boats are parked here and boatmen workers from other areas too come to work here to take advantage of its flourishing tourist economy.

11. **Khidki Ghat –** is located adjacent to the revered Manikarnika Ghat in Varanasi. The latter is the most prominent burning *ghat* of Varanasi and is one of the holiest sites for pilgrims visiting the city[265].

    The word '*khidki,'* translated into English, means a window. The *ghat* thus represents a window into the macabre landscape of death and mourning at Manikarnika[266]. The relatively small Khidki Ghat, in present times, is considered to be an extension of Manikarnika Ghat. For boatmen working here, Khidki Ghat is particularly fortuitous since it allows them to benefit from the flourishing business of death that takes place here. The place is frequented not just by mourners and pilgrims but also curious travellers visiting the site.

    Since the *ghat* is located next to Manikarnika, boatmen plying here are expected to abide by the norms and mores governing seeking of passengers that are followed at Manikarnika (discussed in Chapter 5).

12. **Gularia Ghat –** A luxurious hotel was recently established here in a heritage building. The precincts of the hotel stretch across the entire *ghat* and offer a panoramic view of the river. The hotel is solely navigable by the river-front and had four of its own boats

[265] Parry, J. (1994): *Death in Banaras.* Cambridge: Cambridge University Press, p. 13.

[266] Ghats in Varanasi. Available at: http://varanasi.nic.in/ghat/ghat61-84.html, accessed on 22nd January, 2015.

anchored on the ghat (one motor-boat and three hand-oared boats). It had hired three boatmen for ferrying its passengers to and fro from the hotel. These boatmen were given monthly wages for their work.

It had come to acquire an informal monopoly on the *ghat* and no other boatman was allowed to anchor their boat onto this particular site.

13. **Mangala Gauri Ghat –** The *ghat*, built in the early eighteenth century[267], receives its name from the Mangala Gauri Temple which is located there. A relatively narrow *ghat*, this serene area does not witness much tourist activity.

14. **Adi Shitala Ghat –** is located on the way from Manikarnika to Raj Ghat in northern Varanasi. A temple dedicated to Goddess Shitala Mata is situated on this *ghat*, which has given the *ghat* its name. However unlike its namesake, this *area* does not witness anywhere near the same amount of rush. Its location among a series of *ghats* of relatively lesser significance means that opportunities for earning a livelihood from boating here are fairly limited. In fact, boatmen from the colonies located above this *ghat* were found to be working at other *ghats* in hopes of earning a better livelihood.

15. **Gola Ghat –** This *ghat* constitutes one of the lesser important *ghats* of Varanasi. Devoid of any religious or substantial historical significance, this location attracts the attention of a relatively lesser number of tourists and even fewer pilgrims. However, the clean surroundings of this spacious *ghat* give it a pleasant ambience. This had succeeded in attracting the attention of some cinema makers, who used this and nearby locales as their shooting site, as happened during a part of the time of the researcher's stay in this area.

    Despite such instances, however, the range of opportunities for earning a livelihood by plying boats remained limited here, as testified by the presence of very few boatmen.

16. **Prahladh Ghat –** This is located near Raj Ghat (situated near Kashi railway station) and lies near the northern limit of this city. Tourists alighting from Kashi railway station usually prefer hiring boat services at Raj Ghat, which is the area located nearest to the station. However a few visitors filter over to this area as well. The limited

[267] Ghats in Varanasi. Available at: http://varanasi.nic.in/ghat/ghat61-84.html, accessed on 22nd January, 2015.

number of visitors visible here is insufficient in meeting the sustenance needs of the boatmen working on this *ghat*, hence most of them are also engaged in other income generating activities. Relatively few boatmen workers were present at this site.

Each *ghat* in Varanasi has its own unique characteristics and offers different income-earning opportunities for boatmen. While some are imbued with a rich religious, spiritual and cultural narrative which made working there lucrative for the boatmen, others benefited from their easy accessibility to the city's main road intersections. However those deprived of either of these features seemed to suffer from a dearth of earnings from transporting passengers and thus witnessed a greater range of activities to substantiate their income-earning opportunities. Respondents from areas such as Gola, Prahladh, Adi Shitala, Nishad Raj and Mangala Gauri had to engage in alternative occupations to compensate for the relatively fewer number of tourists frequenting these locales.

4.3 Socio-demographic profile of the respondents

The following section delineates the socio-demographic profile of the boatmen respondents in this study. The difference in the livelihood earning opportunities available to boatmen from different *ghats* has an influence on their social status.

The table below illustrates the basic social and demographic features of the respondents of this study. In the present research study, all of the boatmen respondents were Hindus (see Table 4.1), with an overwhelming majority (90.21 per cent) belonging to the Mallah caste group. Boating has traditionally been a caste-based occupation in Uttar Pradesh (UP), associated with the Mallahs[268]. The boatmen however did not uniformly address themselves as Mallahs. They referred to themselves as Sahnis, Nishads, Kewats, Kashyaps or Majhis – terms, which in present times, are considered to be synonymous with a Mallah identity. A boatman respondent explained the reason behind the wide range of titles adopted by members of their community. He stated that the bravery displayed by boatmen during the independence struggle, wherein they would deliberately crash and drown British boats and then escape was the reason for this. In order to escape being caught, these boatmen often took up different titles, which, over the course of time, merged into their community's identity. While the mark of criminality has been an inherent part of the lives of the members of the Nishad community with colonial writers highlighting the

[268] Jassal, S.T. (2001), *op cit*

community's penchant for thievery and petty crime and even labelling it as a Criminal Tribe, Jasssal (2001) writes such narratives, which seek to highlight the positive role of the community during the freedom movement, are an important source of Mallah pride in their community's history and an attempt to decry the stamp of criminality imposed upon them by colonial powers[269]. Furthermore, 95.8 per cent of our sample belonged to the Other Backward Class (OBC) group. Mallahs in UP have been classified under the OBC category on account of the historic social and economically backward status of this community.

Among the other caste groups featuring in the study sample, a couple of the respondents belonged to the Dom caste, with another two respondents belonging to the Yadav caste group. Both of the communities, by virtue of their caste status, enjoy a presence on the *ghats.* While Doms have been traditionally associated with the work of assisting in the cremation of dead bodies, the Yadavs residing near the *ghats* of Varanasi have usually been engaged in the work of buffalo herding and frequent the river bank for bathing their animals. These respondents stated that the occupation of boating held greater appeal to them and the ability to earn a decent income from it meant that they had continued their association with it.

However members of other caste groups working as boatmen were only engaged as workers within the boating business in Varanasi. None of them owned a boat. This was due to the fact that since boating was the traditional preserve of the Mallahs in Varanasi, only members of the community had the prerogative to ply their own boat. Though workers from other communities were accepted in some instances, boatmen were very guarded about 'outsiders' owning boats and thus hurting their livelihood interests. This was made clear to the researcher by the narration of a boatman working for a hotel at Gularia Ghat:

> "The hotel has given me *theka* (contract) for managing the boating services here. I am responsible for pick and drop of all guests here via a boat. Initially when the hotel started, they had planned to manage boating services on their own. However this went against the customary practice followed at the *ghat.* Since the hotel was just coming up in Varanasi the owners did not want any trouble. Therefore they gave me a *theka* to manage boating services for them and this quelled any potential misgivings that boatmen may have had."

The domain of boating in Varanasi has thus remained within the control of the Mallah community and till the time of the study, they had by and large, managed to ward off the entry of

[269] Jassal, S.T. (2001), *op cit.*

people from other communities into their area of operation. Though a few boatmen lamented the increasing threats to livelihood of the community from people who wished to take over their trade, the researcher did not come across any boat owner (apart from government owned boats) who was from outside the larger community of Nishads during her field-work.

Table 4.1: Religious and caste affiliations of the boatmen respondents

	Workers	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Religion					
Hindu	69 (100)	46 (100)	5 (100)	23 (100)	143 (100)
Caste distribution					
General	3 (4.35)	-	-	-	3 (2.1)
OBCs	63 (91.3)	46 (100)	5 (100)	23 (100)	137 (95.8)
SCs	2 (2.9)	-	-	-	2 (1.4)
STs	1 (1.45)	-	-	-	1 (0.7)
Name of Caste					
Mallah	56 (81.16)	45 (97.83)	5 (100)	23 (100)	129 (90.21)
Others	13 (18.84)	1 (2.17)	-	-	14 (9.79)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

4.3 Age Distribution of the Boatmen Respondents

The age-wise distribution of the sample has been depicted in Table 4.2. There is a preponderance of boatmen in the 15-25 years age group (34.27 per cent); this is particularly evident in the category of workers – 44.93 per cent of boatmen workers fell into this age category. Within the

total sample, 26.57 per cent respondents were between the ages of 26-40 years, while 23.78 per cent of the total sample was between 41-55 years of age and 15.38 per cent were above the age of fifty-six years. The relatively less number of boatmen in the higher age categories can be explained by the high level of physical exertion and the stamina that is required in plying boats over long distances.

The average age of respondents in the current sample was 37.13 years, thus further highlighting the relatively younger age profile of respondents in this study.

4.4 Family

Boatmen households in Varanasi were generally characterised by a medium family size, with both joint and nuclear family systems prevailing almost in equal measure. The median family size of boatmen respondents in this study was 8.08 people. Additionally, more than half (55.94 per cent) of the respondents were married, with the rest either unmarried or widower. However, 85.71 per cent in the age group 15-25 years stated that they were unmarried, thus signifying the high age of marriage prevalent among men in the boatmen community of Varanasi (Table 4.2).

Though endogamy is common within the larger Mallah community and most of the respondents stated that they married within the community itself or among the various Mallah/Nishad sub-castes, in recent times, with the burgeoning number of visitors coming to the city, some changes in trend have been observed. There had been instances of boatmen marrying foreign tourists and then settling abroad. Though such cases were few and far between, the trend had broad acceptance within the community.

An additional trait that was observed among some Mallah respondents was the unique and unconventional naming of their children. Upon being queried about the meaning of their names, a couple of respondents reiterated that they had deliberately been given such '*kharaab* (poor)' names because there had existed a tendency in the past for high child mortality rates among their neighbours and members of the community. Thus some families went out of the way to give their children awkward or bad names to avoid anybody casting an evil eye on them and consequently any bad omen befalling them, respondents stated.

Table 4.2: General information of the boatmen respondents

	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Age distribution					
15 – 25 yrs	31 (44.93)	9 (19.57)	3 (60)	6 (26.09)	49 (34.27)
26 – 40 yrs	18 (26.09)	12 (26.09)	-	8 (34.78)	38 (26.57)
41 – 55 yrs	14 (20.29)	13 (28.26)	2 (40)	5 (21.74)	32 (23.78)
56 yrs & above	6 (8.70)	12 (26.09)	-	4 (17.39)	22 (15.38)
Marital Status					
Married	35 (50.72)	28 (60.87)	3 (60)	14 (60.87)	80 (55.94)
Unmarried	29 (42.03)	12 (26.09)	2 (40)	9 (39.13)	52 (36.36)
Widower	5 (7.25)	6 (13.04)	-	-	11 (7.69)
Type of household					
Nuclear	36 (52.17)	28 (60.87)	3 (60)	10 (43.48)	77 (53.85)
Joint	33 (47.83)	18 (39.13)	2 (40)	13 (56.52)	66 (46.15)
Family size					
1-5 members	22 (31.88)	12 (26.09)	1 (20)	4 (17.39)	39 (27.27)
6-10 members	36 (52.17)	25 (54.35)	3 (60)	14 (60.87)	78 (54.55)
11 and above	11 (15.94)	9 (19.57)	1 (20)	5 (21.74)	26 (18.18)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

4.6 Schooling among Boatmen

The education level of boatmen respondents was quite low. More than a quarter of the participants had had no schooling, while another 38.46 per cent had attended school up till primary level. Among the different categories of boatmen, workers had the highest percentage of respondents who had never attended a school. In contrast, among boatmen owners – be it hand-oared boat owners or those owning motor-boats or both, the percentage of those who had never received any schooling was substantially lower at 19.57 per cent, 20 per cent and 17.39 per cent, respectively (see Table 4.3).

Table 4.3: Literacy among boatmen

Schooling among Boatmen	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Not studied	26 (37.68)	9 (19.57)	1 (20)	4 (17.39)	40 (27.97)
Primary	22 (31.88)	23 (50)	2 (40)	8 (34.68)	55 (38.46)
Secondary	18 (26.09)	12 (26.09)	2 (40)	9 (39.13)	41 (28.67)
Senior Secondary	2 (2.9)	1 (2.17)	-	-	3 (2.1)
Graduate	1 (1.45)	1 (2.17)	-	2 (8.7)	4 (2.8)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

The lack of emphasis on education is evident since less than five percent of the total sample had completed twelve or more years of schooling. Early entry into boating was given as a reason by a number of boatmen for not continuing with their education. One 21 year old worker boatman, who had studied up till the secondary level stated:

> "Today I regret leaving my education mid-way. I wish I could go back and complete it, but now it is no longer possible. I left it because very early on as I

> started to operate a boat and ferry passengers and earn my own money, my mind started to shift from my studies. I realise my mistake now."

However, there was a growing realisation on the importance of education among boatmen in present times. This was evident in the fact that educational attainment levels were higher for boatmen belonging to lower age categories. 22.45 per cent of those between the ages of 15 – 25 years had not been to a school, while the same for boatmen above the age of 56 years was 36.36 per cent. A number of the youngest respondents were studying and simultaneously working and while some claimed to be studying under parental pressure, other first generation learners claimed to recognise the importance of education in their future lives.

An improvement in the knowledge and literacy levels of the boatmen had been effected by the proliferation of modern technological gadgets – including mobile-phones and computers. This had helped a few of the younger generation boatmen with their literacy skills. A case in point was a nineteen year old boatman from a central *ghat*, who had only studied up to primary level. Despite his limited education, he was able to frequently interact with tourists that he had befriended during their visit to Varanasi not only through his mobile phone but also through latest web-based video-conferencing programmes, which he largely operated on his own, after learning the skill at a nearby cyber-cafe.

Despite low levels of formal educational attainment among respondents, a large number of them were well-versed in a number of languages. While most boatmen were fluent in English, a number of them could also understand and interact in languages as diverse as Telugu, Bengali, Tamil, Kannada, Spanish, Japanese and Korean. Their language skills primarily depended upon the background characteristics of the visitors who frequented their *ghats*. The researcher observed that younger boatmen were more advanced in their knowledge of foreign languages relative to the more aged boatmen.

Education is an important asset, since it enables workers to move beyond manual work to managerial level work and also to more permanent jobs in the formal sector of the economy[270]. In the same vein, lack of educational qualifications serves as a significant barrier in the effort of a community to improve their socio-economic status. Recognising the importance of education, a boatman narrated his sense of hopelessness at his daughter being unable to clear her class X

[270] Sengupta, A. (2007), *op cit*, p.36.

examinations. He alleged that she had always been a bright student who cleared all tests with good grades, yet her teacher had failed her when it counted the most when he saw that she was a Mallah by caste. Though he had protested with the school authorities and even visited the principal in this regard, nothing came out of it. His daughter thus became a victim of discrimination, despite his best efforts to arm her with an educational degree. The respondent's anger boiled over as he recounted the unfortunate sequence of events. This was also the first time in her study that the researcher openly encountered a sense of discrimination perceived by a member of the boatman community. The angst against the social system which would not let him progress, due to him being a member of a lower-caste group highlights the social insecurity that they face in their daily lives and the oppressiveness of the caste order as experienced by those who fall at the bottom of the social hierarchy. He stressed the matter had left him disoriented for days on end and seeing his daughter's grief-stricken face had caused him endless trauma.

4.7 Ration card

A vast majority of the respondents in this study possessed an above poverty line (APL) ration card. On the other hand, nearly ten per cent of the study respondents did not own a ration card, while another 9.79 per cent respondents stated that they had a below poverty line (BPL) card (Table 4.4). Half of the respondents who owned a BPL card worked and lived at Nishad Raj Ghat. This was one of the lesser frequented *ghats* in this study and thus presented boatmen working there with limited opportunities for earning a living from ferrying passengers.

The highest percentage of those without an APL card belonged to the category of boat workers and hand-oared owners, thus highlighting the relatively low economic status of these workers. In contrast, 100 per cent of motor-boat owners and 91.3 per cent of those owning both motor and hand operated boats owned an APL card, thus reflecting their relatively higher socio-economic status.

4.8 Bank Account and Insurance

Almost half of the boatmen (48.95 per cent) surveyed in the present study owned a bank account. In this regard, as is evident from Table 4.4, boatmen workers were the worse off, with less than a third of them having a bank account. While owning a bank account in itself is not an indicator of the socio-economic status of a person, yet it may be said that those who possess such an account have potential access to the formal credit system.

Table 4.4: Ration card, bank account and insurance access

	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Ration Card					
No ration card	10 (14.49)	4 (8.7)	-	-	14 (9.79)
Antodaya	1 (1.45)	-	-	-	1 (0.7)
BPL	5 (7.25)	7 (15.22)	-	2 (8.7)	14 (9.79)
APL	53 (76.81)	35 (76.09)	5 (100)	21 (91.3)	114 (79.72)
Bank Account					
No account	47 (68.12)	18 (39.13)	1 (20)	7 (30.43)	73 (51.05)
Bank Account	22 (31.88)	28 (60.87)	4 (80)	16 (69.57)	70 (48.95)
Insurance					
None	57 (82.61)	32 (69.57)	2 (40)	13 (56.52)	104 (72.73)
Life Insurance	10 (14.4)	13 (28.26)	3 (60)	9 (39.13)	35 (24.48)
Health Insurance	2 (2.9)	1 (2.17)	-	1 (4.35)	4 (2.8)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatman survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Similar is the case with owning an insurance policy. While 72.73 per cent of the total sample did not own any policy, the highest percentages of those without a policy were boatmen workers at 82.61 per cent, followed by hand-boat owners at 69.57 per cent. Nearly a quarter of the respondents (24.48 per cent) owned a life insurance policy, while only 2.8 per cent of the total sample possessed health insurance.

With increased reliance on a private healthcare delivery setup among populations in India, the absence of health insurance plays an important role in influencing access since it directly impacts healthcare affordability and also influences economic sustainability of households[271].

4.9 Housing Conditions

Housing conditions are a key indicator of the socio-economic status of people. They constitute the immediate physical setting of people and are considered to be among their proximate determinants of health. Apart from providing shelter to people, the state of housing is considered to be a key variable in influencing the quality of life and well-being of people. Access to housing amenities such as electricity supply, source for clean drinking water and the presence of proper sanitation facilities are considered to be important markers in health promotion. The following section takes a look at the housing conditions of the Varanasi boatmen.

Boatmen communities in Varanasi, by virtue of their occupation, are settled in and around the areas bordering the banks of Ganga. The areas near Raj Ghat, Prahladh Ghat, Shivala Ghat and Nishad Raj Ghat are the main neighbourhoods of the community in Varanasi. All of these areas have been designated as slum colonies by the government under the 2015 draft report of the Jawaharlal Nehru National Urban Renewal Mission[272].

Table 4.5, dealing with the housing conditions of the boatmen, shows that 69.93 per cent of the total sample owns a house or live in their family house. Among the remaining respondents, 27.27 per cent live in a rented accommodation, while two of the study respondents stated that they had no house and lived on their boats and the *ghats* on which they worked. One such respondent was an employee of Varanasi Nagar Nigam (VNN), who had been engaged to clean up the physical garbage that collected in the river daily. Belonging to a neighbouring district, the worker had no home in Varanasi. His monthly earnings were repatriated to his village household. The other respondent who lived on the *ghats* stated that he was a widower and had left his house after his wife had died many years back and since then he lived on his boat. Two other respondents mentioned that they lived on encroached *ghat* space, which they had used to build a tenement for themselves. During the monsoon months, they often found their house partially submerged and unliveable and thus had to move in with their relatives further beyond the *ghats.*

[271] Braveman, P., Cubbin, C., Egerter, S., Williams, D.R. and Pamuk, E. (2010): 'Socioeconomic Disparities in Health in the United States: What the Pattern Tells Us,' *American Journal of Public Health*, Vol. 100, No. 1, pp. S186-S196.

[272] Ministry of Urban development (2015), *op cit*, p. 370-376.

Table 4.5: Housing conditions of boatmen

	Workers	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
House Ownership					
No house	2 (2.9)	-	-	-	2 (1.4)
Rented	24 (34.78)	6 (13.04)	2 (40)	7 (30.43)	39 (27.27)
Own/ Family	43 (62.32)	39 (84.78)	3 (60)	2 (65.22)	100 (69.93)
Other	-	1 (2.17)	-	1 (4.35)	2 (1.4)
Type of House					
No house	2 (2.9)	-	-	-	2 (1.4)
Kachcha	-	2 (4.35)	-	-	2 (1.4)
Semi-pucca	21 (30.43)	8 (17.39)	-	5 (21.74)	34 (23.78)
Pucca	46 (66.67)	36 (78.26)	5 (100)	18 (78.26)	105 (73.43)
Number of Rooms					
0	2 (2.9)	-	-	-	2 (1.4)
1 - 2 rooms	46 (66.67)	22 (47.83)	2 (40)	10 (43.48)	80 (55.94)
3 - 4 rooms	12 (17.39)	15 (32.61)	1 (20)	11 (47.83)	39 (27.27)
5 - 6 rooms	6 (8.7)	5 (10.87)	1 (20)	2 (8.7)	14 (9.79)
Above 6 rooms	3 (4.35)	4 (8.7)	1 (20)	-	8 (5.59)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Nearly three-quarters of the respondents owned a pucca house, with 23.78 per cent owning a semi-pucca house. Boatmen workers had the highest percentage of respondents who lived in a semi-pucca house at 30.43 per cent. The size of house owned of most boatmen was generally small. 55.94 per cent stated that they lived in a 1-2 room houses. Overcrowded living conditions were common. Given that the median family size of respondent households was 8.08 people, it is apparent that most boatmen lived in congested and cramped quarters. The limited availability of space available within the homes of most boatmen meant that, in many instances, the same room served as the sleeping area and the sitting area. Some houses lacked even a bed due to the limited floor space. In addition, among the poorest households, the kitchen too was located within the same room in which the family slept. Living in overcrowded conditions tends to increase the risk of infection, particularly from communicable diseases.

In order to deal with the expanding size of households, there had been some vertical densification in boatmen localities. Furthermore a number of the younger and unmarried boatmen across the different *ghats* stated that due to the cramped living space at home, they often preferred to sleep on their boats at night. This has also been noted in Doron (2011)[273]. This was particularly so in the summer months, when the cool breeze during the night-time made sleeping on the boat a pleasant proposition.

Another feature of the housing conditions of the boatmen community in Varanasi was the almost universal access to electricity. However all households did not possess a legal electricity connection. Of the total sample, 21.68 per cent participants admitted that they had illegal connections, while 8.39 per cent lived without electricity (Table 4.6). Most of those living without electricity belonged to the category of boatmen workers.

Another parameter used for gauging the housing conditions of boatmen was the primary source of drinking water for households. In this study, 38.49 per cent respondents (including almost half of hand-oared boat owners) reported that they had to depend upon a water source located outside their household premises for meeting their family's drinking water needs. Depending upon an external source for drinking water supply frequently results in households experiencing shortage in their critical water needs and is thus considered to be detrimental to the family's well-being. The risk is even greater if the same is a surface water source, since the possibility of the

[273] Doron, A. (2011), *op cit*, p. 36.

water being unclean is greater due to lack of maintenance[274]. In the present study, the percentage of people relying upon a piped source of water was quite high at 78.32 per cent.

For those reliant upon an external piped source, respondents stated that they received water from either a government tap or through a common boring connection located in the vicinity of their houses. They however criticised the the quality of water coming through the government taps. One female respondent from a boatman household in Shivala stated:

> "Dirty water comes from the government tap. Only for the first 5 minutes clean water comes. Earlier I used to put *fitkari* (alum) in the water or boil it in order to kill the germs.*"*

She complained that the sewage line in their area was damaged, which often contaminated the drinking water supply. Often a foul smell emanated from this water. She further went on to state that her family had no option but to continue using this water, since she could not afford to buy mineral water. However, in the past one year, a local leader had installed a submersible water connection in their colony and now even women from nearby localities came there to take water from it, she stated. Though this water was clean, her brother-in-law (also a boatman) still insisted on boiling water and then drinking it to avoid any aches in the stomach, which were a common occurrence earlier. She further went on to say that in present times, if there was any '*halka-phulka dard* (mild pain in the stomach),' they would just ignore it.

A wife of a boatman at Avadh Gardi reported too complained about the quality of water from her personal connection. She stated that though the water was initially '*matmaela* (muddy),' but after a while, the quality improved and this was directly used for drinking purposes. The initial muddy water was used for washing clothes and utensils in their household.

At Nishad Raj, another lady respondent interviewed for this study stated that while water from the nearby government tap (located at a distance of 200m from her house) was generally clean, problems were experienced during the monsoon season. In those months, they preferred getting water from a boring tap, which was located a short distance away. Further they always boiled water during the monsoon season before drinking it as a preventive measure. She further stated that for the past two years, her family had been taking medicines (prescribed by a doctor) to prevent filariasis during the rainy season since there had been a spread of this disease in their

[274] WHO (1989): *Health Principles of Housing.* Geneva: World Health Organisation, p. 3.

area a few years back. On occasion, when the taps run dry, her family fell back on Ganga as a source of drinking water. She had no complaints against the river water's quality, stating, "*Shuru se aadat hai, toh humein kuch nahi hota* (from the beginning we are accustomed to it, so nothing happens to us). Some people face problems, but not us."

Apart from a piped source of water supply, 15.38 per cent boatmen respondents stated that they used a hand-pump, while 3.5 per cent relied on Ganga's waters. Furthermore, even though a high percentage of boatmen families depended upon an outside water source for their drinking water provisions, by and large, the consensus was that the source was located in the vicinity of the house itself (see Table 4.6).

The access to drinking water supply was not even across all *ghats*. Nishad Raj, Digpatiya, Mangala Gauri, Prahladh, Shivala and Shitala Ghat are the areas where a majority of the respondents had to rely upon an outside source for meeting their drinking water needs. Within these aforementioned *ghats*, the respondents at Shitala Ghat came to work here from other areas of Varanasi, including Prahladh and Shivala Ghat. Mapping the area wise reliance upon different types of source for obtaining water for drinking purposes, from Table 4.7 it becomes clear that while a majority of respondents across all *ghats* availed water from a piped source, a substantial number at Nishad Raj, Khidki, Gola, Harishchandra and Shivala Ghat used a hand-pump as their primary source. Furthermore at Nishad Raj Ghat, 20 per cent respondents also claimed to be dependent upon Ganga water, thus highlighting the lack of facilities made available for safe drinking water within these areas.

Another important fact that needs to be reiterated here is that the areas adjacent Nishad Raj and Shivala Ghat contain among the biggest settlements of the Mallah community in Varanasi and it is herein that the access to safe drinking water made available within the premises of the household is the among the lowest, thus highlighting the inconsistency in the provisioning of civic amenities.

Table 4.6: Access to household amenities

	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Electricity					
No electricity	8 (11.59)	3 (6.52)	-	1 (4.35)	12 (8.39)
Illegal Connection	16 (23.19)	13 (28.26)	1 (20)	1 (4.35)	31 (21.68)
Legal Connection	45 (65.22)	30 (65.22)	4 (80)	21 (91.3)	100 (69.93)
Primary source of drinking water					
Outside premises	27 (39.13)	22 (47.83)	2 (40)	4 (17.39)	55 (38.49)
Within premises	42 (60.87)	24 (52.17)	3 (60)	19 (82.61)	88 (61.54)
Type of source					
River water	1 (1.45)	3 (6.52)	-	1 (4.35)	5 (3.5)
Hand-pump	10 (14.49)	9 (19.57)	1 (20)	2 (8.7)	22 (15.38)
Piped	56 (81.16)	32 (69.57)	4 (80)	20 (86.96)	112 (78.32)
Others (specify)	2 (2.9)	2 (4.35)	-	-	4 (2.8)
Toilet facilities					
Open defecation	2 (2.9)	5 (10.87)	-	2 (8.7)	9 (6.29)
Public toilet, dry	2 (2.9)	-	-	1 (4.35)	3 (2.1)
Private dry toilet	3 (4.35)	1 (2.17)	1 (20)	1 (4.35)	6 (4.2)
Public water-based	11 (15.94)	5 (10.87)	1 (20)	3 (13.04)	20 (13.99)
Pvt water-based	51 (73.91)	35 (76.09)	3 (60)	16 (69.57)	105 (73.43)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Regarding the state of sanitation among the boatmen households, nearly three-quarters stated that they had a water-based toilet located inside their homes, while another 13.99 per cent used similar toilets located in their neighbourhoods. 6.29 per cent had to take recourse to open defecation since they did not have any other usable toilet facilities located either in their homes or in the vicinity of their houses. Further, another 6.3 per cent of the sample stated that they used dry toilets, either located within their homes (2.1 per cent) or outside (4.2 per cent). The latter stated that night-soil workers periodically came to the maintain cleanliness in these toilets.

Similar to water supply, having a private toilet, in particular a private water-based (flush) toilet connected to a functional sewer system is considered more effectual in promoting health of populations since having a toilet within the household aids its maintenance. Proper sanitation facilities greatly aid in fending off bacterial infections among household members, whereas the both a dry toilet and the absence of a toilet have been demonstrated to have a negative effect on the health of populations. Agha (2000) establishes the effect of poor sanitation facilities on infant mortality, thus highlighting the importance of this variable in influencing the health of populations[275].

During the researcher's time spent at the *ghats*, she was able to identify a number of less prominent *ghats* (including Prabhu, Jain, Telianala, Bhonsale Ghat) as points of open defecation used by the population residing nearby. Workers plying on these and adjacent *ghats* and also regularly passing these areas are also exposed to the risk of infection from poor sanitation, which in turn affects their health and also that of their families. Furthermore the cattle and stray dogs that inhabit these *ghats* too defecate here. Shivala Ghat is an example of one such *ghat* included in this study, where some of the steps were covered with the physical dirt from the buffaloes that were frequently brought to this area.

Though the government has initiated a *ghat* beautification programme, yet they have focused only on socially and culturally significant areas (including Dashashwamedh, Dr. Rajendra Prasad, Meer, Assi, Shitala, Manikarnika and Gaai Ghat, among others), leaving such sites of poor sanitation on the river front intact.

[275] Agha, S. (2000): 'The Determinants of Infant Mortality in Pakistan,' *Social Science and Medicine,* Vol. 51, pp. 199-208.

Table 4.7: Area-wise depiction of access to drinking water

Name of Ghat	Primary Drinking Water Source (per cent)		Type of source (per cent)				
	Outside Premises	Within Premises	River water	Well	Hand-pump	Piped	Others
Adi Shitala	-	1 (100)	-	-	1 (100)	-	-
Gularia	-	3 (100)	-	-	-	3 (100)	-
Chausatti	2 (33.33)	4 (66.67)	-	-	-	6 (100)	-
Dashashwamedh	2 (28.57)	5 (71.43)	-	-	-	7 (100)	-
Digpatiya	4 (80)	1 (20)	-	-	1 (20)	4 (80)	-
Gola	-	3 (100)	-	-	1 (33.33)	2 (66.67)	-
Harishchandra	7 (29.17)	17 (70.83)	-	-	6 (25)	18 (75)	-
Khidki	2 (40)	3 (60)	-	-	2 (40)	3 (60)	-
Mangala Gauri	3 (75)	1 (25)	1 (25)	-	-	3 (75)	-
Mansarovar	2 (16.67)	10 (83.33)	-	-	1 (8.33)	11 (91.67)	-
Meer	3 (30)	7 (70)	-	-	1 (10)	9 (90)	-
Nishad Raj	12 (80)	3 (20)	3 (20)	1 (6.67)	5 (33.33)	4 (26.67)	2 (13.33)
Shitala	4 (40)	6 (60)	-	-	1 (10)	9 (90)	-
Shivala	6 (35.29)	11 (64.71)	1 (5.88)	1 (5.88)	3 (17.65)	12 (70.59)	-
Prahladh	5 (41.67)	7 (58.33)	-	-	-	12	-
Tulsi	3 (33.33)	6 (66.67)	-	-	-	9 (100)	-
Total	**55 (38.46)**	**88 (61.54)**	**5 (3.5)**	**2 (1.4)**	**22 (15.38)**	**112 (78.32)**	**2 (1.4)**

Source: Boatmen Survey

Note – Figures in parenthesis indicate percentages of the sample population from each *ghat* row wise in each cell.

Within the boatmen colonies adjoining the *ghats*, sanitation was a problem since garbage often lay littered on the narrow streets. Though garbage collection was regular, yet absence of proper garbage disposal facilities and dustbins resulted in people dumping their waste onto the open roads. This was exacerbated by the dirt from the cattle that were often reared nearby, as in the case of the Mansarovar and Shivala Ghat. In many other areas, including the colonies above Chausatti, Digpatiya and Manikarnika Ghat, the constant flow of visitors passing these areas results in these places being further subject to dirt being carelessly strewn around by passersby. Similar is the case with river Ganga. Flowers, clothes, *diya* (mud lamps), plastic wrappers and all kinds of garbage are daily disposed off into the river at various *ghats.* Some are immersed in the name of religious rituals, while at other times, garbage dumped onto the *ghats* is then pushed into the river in the name of *ghat* cleaning. Though the Varanasi Municipal Corporation (VMC) has appointed boatmen for cleaning the physical garbage disposed into the river on a daily basis, the de facto responsibility of such workers is to clean the garbage clinging onto the lower steps of the *ghat* and deposit it on the opposite bank of the river (which then frequently drifted back into the river as the water level advanced). The same was acknowledged by officials of VMC. Their defence of this practice was the presence of steep and uneven steps on the *ghat*, which made it physically difficult to carry up the garbage, thereby hindering its proper disposal. Though proposals had been put forward for finding rectifying the problem, not much of note had materialised, stated VNN officials.

For those residing near the banks of the river, including the boatmen, the environmental conditions are made even more risky by the extensive number of drains that open into the left bank of the river. Thirty-eight such drains (primarily carrying untreated domestic sewage) are at present directly flowing into the river [276]. Even the main *ghats* including Assi and Dashashwamedh were not spared the shame. While the river Assi has transformed into the much maligned Nagwa Naala, boatmen at Dashashwamedh stated that though there existing a Sewage Pumping Station (SPS) at the adjacent Dr. Rajendra Prasad Ghat, its functioning remained a problem. While water from this *naala* leaked throughout the day, during early morning hours, there was untreated sewage water gushed out from the drain beneath the *ghat* which considerably fouled the river's waters near their bank, they stated. A CSO employee, working on the *ghats*,

[276] Sankat Mochan Foundation (2015): VNN-SMP Plan for GAP-II Varanasi: List of Point Sources. Available at: http://www.swatchaganga.com/Point_sources.htm, accessed on 7th February, 2015.

also pointed out the feeble state of this underground *naala*, alleging that it was only a matter of time before the pipe burst. He blamed the government for not paying attention to this issue. The noxious fumes and the dirty water posed a threat to the health of those working here, he alleged.

The situation of the river often became even worse during the monsoon months. The old and debilitating sewage system in Varanasi, unable to take the load of rain water, frequently gets clogged causing direct run-off of the city's overflowing drains into the river. The flood of 2013, which younger boatmen informed the researcher was the worst in their living memory in Varanasi, made evident the deficiency in the city's sewage network. Right from the main city centre at Gowdolia (leading to Dashashwamedh Ghat) to Manikarnika and Raj Ghat in the north and to a smaller extent, near Assi Ghat in southern Varanasi, drain water had spilled onto the roads and directly discharged into the river. The brownish hue of the river's waters at this time was testified to the dirty state of Ganga in Varanasi.

For boatmen, the rising waters of the river not only interfered with their trade, but also with their living conditions. For a few of them, whose houses had been constructed on the *ghat* steps itself; their homes were partially submerged and they found themselves temporarily displaced. One such boatman owner on Nishad Raj Ghat stated:

> "My family and I had to move further above and rent a house for over a month. It was very problematic as a number of our important belongings remained in our house, which was mostly under water."

Another boatman stated that he considered himself and his family lucky since he just had to shift to the second floor of his house, which too was built on the *ghat*. Since the furniture had to be moved within the same house, not much damage was caused to his belongings. However another respondent who lived at Rajmandir on the banks of the river was not so lucky. He claimed:

> *"Ghar doob gaya tha iss saal* (house drowned this year) and I faced losses too. A wall collapsed and then I had to shift to a house further up the *ghats.* For three months, I was without a house. I took loans, sold household assets in order to manage expenses . . . . I received no governmental help."

Other boatmen found themselves affected by the river's floods in different ways. During the day to day routine of their lives, they depended upon Ganga's waters for meeting a number of their general needs (see Table 4.8). While almost all boatmen stated that they bathed in the river (93.01 per cent), about half of the respondents stated that they simultaneously washed their clothes in the river while bathing (49.65 per cent) and 75.52 per cent claimed that they frequently

drank the river's mid-stream waters. This happened while they were plying their boats and would drink from the river to quench their thirst. While the boatmen acknowledged that the left banks of the river were unclean, they felt that her mid-stream waters were relatively cleaner. Despite acknowledging deterioration in the state of the river, boatmen stated that regular and sustained use of the river's waters had habituated them to her degraded state, hence the high levels of pollution in her waters did not pose a threat to them.

Finally 11.19 per cent and 15.38 per cent stated that they used the river's waters for washing utensils and for cooking food, respectively (see Appendix 4.1 for *ghat* wise dependence upon Ganga water among Varanasi boatmen). Almost all of the latter respondents mentioned that for cooking and washing of utensils, they resorted to using her waters only in case of water shortages in their colony or if the quality of government supplied water were poor. At Nishad Raj Ghat, such reliance was the highest – 33.33 per cent boatmen here frequently used Ganga's waters for washing utensils and 46.67 per cent for cooking.

The rainy season however often disrupted their dependence upon the river; bathing and washing of clothes was fraught with risks during this time and water quality too deteriorated then. Yet as observed by the researcher, a few boatmen at Raj Ghat continued to bathe in the river despite the high water levels and the ensuing risks to their health and well-being.

Also it is important to note here, that ground water recharge in the areas bordering the river relies significantly upon Ganga. Pollutants in river water have a tendency to accumulate onto the base of the river, thereby affecting the quality of these underground aquifers. The risks to human health arising from dependence upon poor quality of water are well-documented. Wu *et al* (1999) establishes the presence of high rates of cancer, anaemia and birth defects within a population, brought on by water pollution[277]. The National Cancer Registry Programme too shows that the Ganga river basin has amongst the highest cases of cancer in the world. The ravaged ecology of the region and the poor quality of Ganga waters have been identified as reasons for the high cancer rates in the area[278].

[277] Wu, C., Maurer, C., Wang, Y., Xue, S. and Davis, D.L. (1999) 'Water Pollution and Human Health in China,' *Environmental Health Perspectives,* Vol. 107, No. 4, pp. 251-256.

[278] Krishna (2012): 'Polluted Ganga a Major Source of Cancer in India,' *Toxics Watch Alliance.* Available at: http://www.toxicswatch.org/2012/11/polluted-ganga-major-source-of-cancer.html, accessed on 9th February, 2015.

Table 4.8: Dependence upon the Ganga River for meeting general household needs

Dependence upon the river's waters for meeting their general household needs	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Cooking Food	9 (13.04)	10 (21.74)	1 (20)	2 (8.7)	22 (15.38)
Washing Utensils	8 (11.59)	5 (10.87)	1 (20)	2 (8.7)	16 (11.19)
Bathing	66 (95.65)	41 (89.13)	4 (80)	22 (95.65)	133 (93.01)
Washing Clothes	34 (49.28)	24 (52.17)	1 (20)	12 (52.17)	71 (49.65)
Brushing Teeth	17 (24.64)	21 (45.65)	1 (20)	7 (30.43)	46 (32.17)
Drinking Water	55 (79.71)	32 (69.57)	3 (60)	18 (78.26)	108 (75.52)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) Multiple responses (on dependence on river in their daily lives) were elicited from each respondent, therefore the percentages do not tally up to a 100 per cent.

Environmental conditions of populations thus play an important role in influencing the health status of people. Environmental degradation in Varanasi in the past few years can be gauged from the words of an elderly hand-oared boat owner from Nishad Raj Ghat, who stated that due to increased levels of '*pradushan* (pollution),' vultures (from 1998), followed by the house-sparrow (since 2005) and even crows from 2010 onwards had become increasingly sparse on the *ghats* of Varanasi. He was also critical of the Tehri dam, for the poor state of Ganga, referring to it as a '*rakshas* (monster).' He claimed that ever since this dam had become functional, "*paani ne ghat chhoda aur aur neeche ho gaya* (water has left the *ghat* and levels have fallen further)."

The effect of large-scale damming of Ganga was further condemned by a local activist, who proclaimed, "*Agar nadi hi jal-heen ho jaaye, toh pradushan phaelega hi . . . Jal-heen nadi ek mrityu hai* (if a river is left without water, then pollution will grow . . . a river without water is death itself)."

All of these factors affected the boatmen, who displayed high levels of dependence upon the river in their personal lives.

4.10 Income

Income is an important indicator of the socio-economic status of a household. Income not only affects the standard of living and housing conditions of people, but it also influences their ability to access and afford better amenities, including improved housing and neighbourhood conditions, among other environmental amenities.

Table 4.9: Monthly income levels of boatmen respondents

Monthly income (Rs.)	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
1-2500	24 (35.29)	22 (50)	-	3 (15)	49 (36.57)
2501-5000	26 (38.24)	11 (25)	1 (50)	9 (45)	47 (35.07)
5001 & above	16 (23.53)	9 (20.45)	-	4 (20)	29 (21.64)
10001 & above	2 (2.94)	2 (4.55)	1 (50)	4 (20)	9 (6.72)
Total*	**68 (100)**	**44 (100)**	**2 (100)**	**20 (100)**	**134 (100)**
Median income (Rs.)	3462.54	2501	-	4445.44	3458. 45

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population (134 respondents) column wise in each cell.

Table 4.9 illustrates the monthly income earned by the respondents. Nine of the 143 respondents in this study did not divulge information on their monthly income levels. Of the 134 respondents who answered this question, 36.57 per cent earned below Rs.2500 a month, 35.07 per cent made between Rs.2501 to Rs.5000 a month and 21.64 per cent netted over Rs.5001 but less than Rs.10,000 per month. There was great variation in earnings among boatmen, with 6.72 per cent of the sample stating that they were able to earn over Rs.10,000 a month and in some instances,

even about Rs.20,000 per month in the normal routine of their business. Ownership of both motor and hand-operated boat and the location of the boatman along the river front were important parameters in influencing income.

The median monthly income levels for the various categories of respondents were as follows: hand-oared boat owners earned the lowest at Rs. 2501, followed by boatmen workers (Rs. 3462.54), while those owning both hand-oared and motor-operated boats had the highest monthly median income at Rs. 4445.44 a month. For motor-boat owners, the sample size was not substantial enough to derive a median value (see Table 4.9).

From the above table, it is clear that over seventy percent of the sample earns less than Rs. 5000 a month from their work. The low income levels are reflective of the poor socio-economic conditions of most boatmen surveyed in the present study. In order to substantiate the low earning levels from boating, over half of the total sample (51.82 per cent) surveyed in this study stated that they also engaged in other work simultaneously to enhance their monthly earnings. The range of occupations were diverse and included agriculture, box designing, embroidery work, watchman, porter in the hotel industry, assisting in the burning of bodies, mechanic, shop-keeping and electrician, among others. For 16.08 per cent of these respondents, boating served as their secondary occupation, while they held regular jobs elsewhere. Boating was done in the after work hours and on holidays. However, for most respondents, boating was their primary means of earning a livelihood.

For some boatmen, instead of relying upon secondary occupations to help improve income levels, they informally pursued the business of travel guides. They stated that they frequently befriended tourists and received substantial amounts of money for taking tourist troupes around for sight-seeing activity. They had over the years built a steady network by which they sometimes received customers for such work, thus significantly adding to their earnings. In alternate instances, some such boatmen could frequently be seen at various points on the *ghat* front offering their services to visitors. If need be, while guiding such groups, they also plied a boat for them. Thus though boating was their primary occupation, but such income earned (which they considered to be an extension of the sight-seeing services they provided while

rowing a boat for tourists) substantially enhanced the earnings of these boatmen. Doron (2013) too refers to such boatmen working as unlicensed guides in Varanasi[279].

The occupation of boating also experienced temporal variations. During the summer season, on a number of *ghats*, visitors were sparse and hence meant lesser business. Similarly during the monsoon season, as water levels often rose above danger levels and the administration imposed curbs on the plying of boats, a number of boatmen migrated to other occupations altogether. This was done since relying upon savings and paltry earnings from the lean months was not feasible for these boatmen and income was needed in order to sustain their families during this period. While most worked as construction workers, a number of others were engaged as salespersons in nearby shops including those selling the famous Banarasi saris and finally others were engaged in miscellaneous other informal sector trades including cooking, photography, in the wedding business or even in house-painting.

Over a quarter of the respondents (25.17 per cent) also had male family members who were also employed in the boating business, not merely plying boats, but also engaged in the repairing and painting of boats. While the latter is performed by people belonging to the Mallah community in Varanasi, as the researcher discovered, such tasks related to the boat were not carried out by the boatmen themselves. There existed separate specialised workers who executed such work. Numerous respondents also stated that their family owned a shop in and around the *ghats* (including a *paan* shop or a tea stall) and thus one or another member of their household was always responsible for taking care of that joint household asset. Other respondents mentioned that their household members often worked on the *ghats* as photographers or guide book sellers among other things. Thus it can be said that though the Mallah community is typically identified with the trade of boating and fishing, but in present times, members of that community have diversified their livelihood sources to take advantage of the increasingly beneficial *ghat* economy of Varanasi.

In a number of boatmen families, female members of the household too had entered into the workforce (11.19 per cent). This had been done in a variety of cases to boost the limited income earned from boating. Such chores were performed by the women of the household in addition to managing their typical household responsibilities. While some women worked as domestic

[279] Doron, A. (2013), *op cit*

workers in nearby localities, a larger number were engaged in the business of vending – selling *malas* (garlands), jewellery or *diyas*, among other things and others were engaged in home-based work such as *bindi*-cutting and jewellery box-decorating. Most earned barely a pittance from their exertions. Earnings ranged from Rs.300 to Rs.1500 a month for these women. In five instances (3.5 per cent), women worked as cooks in nearby hotel and sweet shops. Their earnings were substantially higher and in the range of Rs.4000 to Rs.6000 a month. Though the earnings of women of boatmen households were typically low, yet these were valuable additions to the household budget of poor boatmen families. For instance, at Shivala, a wife of a hand-oared boar owner, who earned Rs.1000 a month as a domestic worker, stated that it was her mother-in-law (who also worked as a domestic helper) and her earnings that sustained household expenses. Her husband barely contributed at home as he spent most of his daily earnings on alcohol. The little that both her mother-in-law and she earned, maintained their monthly expenditure. In another instance, at nearby Shurda, a lady respondent, who had recently purchased a sewing machine and had started her own tailoring business, stated that though she earned a miniscule amount from her work, it was essential for their household since her husband's meagre earnings (Rs.3000 a month) were insufficient in meeting their needs. She stitched clothes for her children and herself from the machine since she expressed her inability to buy new clothes with her husband's income. The limited amount that she saved from her work too went towards funding her two daughter's education-related expenses. Though in these instances, the income of women was not substantial enough to change the socio-economic status of their family, yet the low earnings levels of the male members of their household necessitated their entry into the workforce. In these working poor households, their income was essential for the economic sustenance of their families.

Thus significant diversification of income-earning opportunities among boatmen families is evident from the above data. Inability to make ends meet from the earnings derived from boating activities for these working poor, resulted in such a move. The discrepancy between the differences in the earning capacity is highlighted by the data above – whereas some families stated that they relied on earnings made through peak boating season to tide through the lean months, during which they were virtually unemployed, others had to turn to other forms of informal labour to ensure that subsistence was maintained. Even the women of the household had to be drawn into the workforce in the latter instances to help maintain household earnings.

Given that boating is an informal sector enterprise, the absence of any social security available to boatmen families necessitated the entry of a large number of members of their household into the workforce.

Low levels of income have not only augmented labour force participation of more members of boatmen families, but have also influenced the access of these households to basic amenities. By and large, boatmen households belong to a lower socio-economic category. This enhances their dependence upon riverine resources to compensate for the uneven distribution and poor quality of basic amenities to their households such as clean drinking water and toilet facility. They do not have means to attain access to these amenities, thus necessitating their dependence upon the river in multiple instances. This has lead to a poor quality of life for the worse off among them.

4.11 Construction of a Socio-Economic Index (SEI) of Boatmen Respondents

The above depiction of their housing and living circumstances and their economic plight gives an understanding of the differences in the socio-economic (SE) status of different boatmen. In order to further understand the distinctions in the SE standing of different categories of boatmen, the researcher made use of the statistical technique of 'factor analysis.'

Factor analysis is a mathematical tool which helps in assessing the correlations within a set of given variables and then deduces their relationship to a 'latent (unknown) variable' (in this case, the SE standing of boatmen). It presumes that a linear association exists between variables (which are correlated to each other) and it uses such correlation between these indicator variables to create an index for the 'latent' factor. Further the latent factor is held liable for some of the correlations between the observed variables and thus helps in understanding the inter-relationships that may exist in any given data set[280].

In the present study, this technique helped us to utilise a diverse set of variables (ranging from housing conditions, ownership and access to basic household amenities to ownership of productive occupational assets) and devise their relationship to an unknown variable – the SE status of boatmen respondents. Understanding and identifying the differences in the SE

[280] Hofstetter, H., Dusseldorp, E., van Empelen, P. and Paulussen, T.W.G.M. (2014): 'A Primer on the Use of Cluster Analysis or Factor Analysis to Assess Co-occurrence of Risk Behaviours,' *Preventive Medicine*, Vol. 67, pp. 141-146; Krishnan, V. (2010): 'Constructing an Area-based Socio-economic Index: A Principal Components Analysis Approach,' *Early Child Development Mapping Project, Community-University Project*. Alberta: University of Alberta.

ranking of different boatmen helped in creating an index of respondents. This technique also helped in singling out the extent to which various indicator variables impacted the latent factor that is the SE standing of boatmen respondents. In other words, the total amount of variation in the latent variable produced by the various indicator variables can also be known through this technique. In this research, this characteristic of factor analysis helped the researcher to identify the asset and/or amenity, which accounted for the maximum differences in their SE standing and thus emerged as the most relevant in determining their SE status.

The first step of the process for construction a socio-economic index (SEI) of boatmen using factor analysis was the identification of variables that contribute to the SE standing of the respondents. In the present study, the indicator variables selected were as follows – education, ration card, insurance, house, type of house, number of rooms in the house, electricity, toilet facility that household has access to, primary source of drinking water of household, type of source, boat ownership and the number of boats owned, size of the boat owned (small, medium and/or large) and last of all, type of boat owned (hand-oared, motor and/or both hand-oared and motor-operated boat).

With the use of these 16 variables, a SEI of the boatmen was constructed. The statistical software STATA 13.0 was utilised for the purpose. A SEI was formulated depicting the mean socio-economic score for each respondent. The standard formula for factor analysis is:

$$FA(i) = K_{11}X_1 + K_{12}X_2 + K_{13}X_3 + \ldots\ldots\ldots + K_{1n}X_n$$

$$FA(m) = K_{m1}X_1 + K_{m2}X_2 + K_{m3}X_3 + \ldots\ldots\ldots + K_{mn}X_n$$

In the above formula, X denotes the list of indicator variables, with N being the total number of variables. The total number of indicator variables thus extends from X_1 to X_N. K_m refers to the correlation coefficient or the factor score of the indicator variables[281].

The formula for calculation of the socio-economic index in this study was as follows:

[281] Moser, C. And Felton, A. (2007): 'The Construction of an Asset Index Measuring Asset Accumulation in Ecuador,' *CPRC Working Paper 87.* Washington DC: Global Economy and Development, The Brookings Institution; Turanli, M., Cengiz, D.T, Turanli, R. and Akdal, S. (2015): 'Effect of Female Education and Labour Force Ratio in Economic Development,' *Educational Sciences: Theory and Practice,* Vol. 15, No. 2, pp. 387-396;

$$SEI = X_{i1}F_{i1} + X_{i2}F_{i2} + X_{i3}F_{i3} + \ldots\ldots\ldots + X_{in}F_{in} \ldots\ldots$$

In the above formula, X_{i1} to X_{in} are the indicator variables, with n equalling the total number of variables. F_i denotes the factor loading of each indicator variable. Factor loadings depict the correlation coefficient between the indicator variables and the latent factor.

The index thus created was then converted onto a scale of 0-100 to facilitate interpretation of the data. The formula used in re-scaling was:

$$(X-\min(x))/ (\max(x) - \min(x)) * 100$$

Each respondent was thus ranked on a scale of 0 to 100 (where 0 is the lowest value and 100 depicts the maximum value – in other words, the higher the value on the index, better is the SE status).

In the formulation of SEI, productive occupational assets of the boatmen (including ownership of boats, type, size and number of boats owned) were deemed to be the most important factor in influencing the SE standing of boatmen, followed by the household infrastructure, including the type of house – katcha or pucca – state of electricity, toilet and primary drinking water facility utilised by the household. While the former component accounted for 26.51 per cent of the total variation in the SEI, household infrastructure was liable for 13.83 per cent of the variation. Together they accounted for around 40 per cent of the total change in the SEI.

The table below (Table 4.10) depicts the results of the above exercise. It portrays the mean socio-economic score of respondents, separated by each *ghat.*

From the table below, it is evident that Dashashwamedh Ghat, Adi Shitala and Gola Ghat were the worst performing areas. While the relative unimportance of Adi Shitala and Gola Ghat within the economic landscape of the river economy of Varanasi makes the poor performance of these *ghats* understandable, the performance of Dashashwamedh Ghat comes as a surprise. This can be explained by the fact that within the assets listed above to gauge the SE condition of the boatmen, none of the respondents at Dashashwamedh owned a boat. All of them were worker boatmen who came from distant areas to ply here. Further the presence of a large number of boatmen here meant that there was greater competitiveness among them to earn a living and the earnings made here had not only to be shared between the large number of boatmen who worked here, but were also divided between boat owner and worker.

Table 4.10: *Ghat*-wise depiction of the socio-economic standing of boatmen

Name of *ghat*	Mean socio-economic score of *ghat*
Adi Shitala Ghat	30.04(--)
Chausatti Ghat	45.45 (23.06-67.84)
Dashashwamedh Ghat	18.54 (14.56-22.52)
Digpatiya Ghat	34.66 (10.67-58.64)
Gola Ghat	25.42 (-1.76-52.60)
Gularia Ghat	35.30 (-33.5 -104.1)
Harishchandra Ghat	30.86 (21.79-39.93)
Khidki Ghat	45.09 (16.68-73.49)
Mangala Gauri Ghat	50.98 (47.79-54.17)
Mansarovar Ghat	35.52 (16.41-54.63)
Meer Ghat	45.71 (29.75-61.66)
Nishad Raj Ghat	35.33 (28.26-42.39)
Shitala Ghat	33.63 (16.45-50.82)
Shivala Ghat	42.58 (30.39-54.77)
Prahladh Ghat	45.68 (32.35-59.02)
Tulsi Ghat	46.71 (24.81-68.60)

Source: Boatmen Survey
Note: Figures in the parenthesis are 95 per cent confidence intervals.

In contrast, boatmen at the following *ghats* – Mangala Gauri, Meer, Khidki, Tulsi, Chausatti and Prahladh – scored the highest on the SEI, indicating the relatively higher standing of boatmen working at these locations. While Meer, Tulsi and Khidki Ghats are prime *ghats*, Chausatti Ghat too is bursting with activity and passersby frequently use boatmen services at these locations. Among the other two *ghats*, Prahladh and Mangala Gauri, high income diversification was observed with boatmen themselves on these *ghats* having branched out to other trades, including agriculture, construction work, regular service and home-based work, to augment earnings from

boating related activities. Furthermore, Prahladh Ghat also had a decent amount of customers seeking boating services due to its proximity to Raj Ghat and Kashi railway station.

Table 4.11: SEI for various categories of boatmen

Categories of boatmen	Mean socio-economic score
Type of boat owned	
Workers	18.15 (16.87-19.42)
Hand-oared boats	48.96 (45.75-52.17)
Motor-boats	54.96 (44.22-65.71)
Both hand and motor	70.48 (65.29-75.68)
Number of boats owned	
Workers	18.15 (16.87-19.42)
1-2 boats owned	48.63 (45.71-51.54)
3-4 boats owned	66.61 (63.66-69.56)
5 and above	86.61 (72.30-100.92)
Age distribution (Yrs.)	
15-25	32.54 (26.99-38.09)
26-40	40.40 (31.28-49.53)
41-55	39.06 (32.05-46.08)
56 and above	42.62 (34.45-50.78)
Education	
Not studied	28.41 (22.45-34.36)
Primary	40.19 (34.70-45.68)
Secondary	42.82 (35.12-50.53)
Senior Secondary and above	48.51 (20.13-76.88)

Source: Boatmen Survey
Note: Figures in the parenthesis are 95 per cent confidence intervals

As Table 4.11 depicts, SE status of a boatman was positively associated with both ownership of boats and the type of boat owned. Thus owning a motor-boat reflected the improved SE standing of a boatman, while those who owned both hand-oared and motor-boats scored substantially higher on the index. Similarly the higher the number of boats owned the better was the SE status of the concerned boatmen.

Regarding the association between the age of respondents and their SE position, the above table shows that boatmen belonging to age category 15-25 years were the lowest placed, while those above 56 years had the highest SE standing of respondents. There was not much significant difference between the boatmen of age-groups 26-40 years and 41-55 years. However, in general a trend can be deduced, higher age category of boatmen have a higher SE standing than the younger entrants into the trade of boating. Similar was the case of education. Higher educational attainment was associated with a higher SE status among boatmen respondents.

In conclusion, it must be said ownership of boats corresponded to a higher level of SE status of the boatmen. Higher the number of boats owned and possession of a motor-boat too translated into a higher rank on the SEI of boatmen respondents. Boatmen workers have thus performed the worst in this index and this is visible in the poor mean SE score of areas such as Dashashwamedh, Harishchandra, Mansarovar and Shitala Ghat, which have a predominance of workers.

4.12 Conclusion

The *ghat* economy of Varanasi accommodates a large number of boatmen who ply boats here to meet their livelihood needs. The unevenness of the *ghat* front, however, in terms of providing economic opportunities to the boatmen working across various locations has meant that there are significant variations in their earnings and SE conditions. Over seventy percent of the total sample in the study earned Rs.5000 or less, thus highlighting the limited income earning opportunities available to most boatmen. Only a limited number of *ghats* provide boatmen with generous prospects for earning a decent income. Income diversification and entry of multiple members of the household, including female members, into the workforce was a strategy adopted by various respondent families as a means of ensuring sustenance.

SE conditions of people also play their part in determining the living and housing conditions in which they live. Poor SE conditions of these boatmen, including their low income earning capacity, influences their ability to access and afford better amenities and decent housing conditions, which in turn influences not only their health status but also their access to the health service system. In the current research, though most boatmen owned a pucca or semi-pucca house, yet the small space available for living in context of the large family size of the respondents made housing conditions over-crowded and congested. Though a large percentage had access to basic amenities such as a piped source of drinking water connection and a flush-based toilet, yet high dependence of the boatmen was recorded on the waters of the Ganga River for meeting their daily needs. This was despite the high pollution content of the river which was recognised by the boatmen.

CHAPTER 5

WORKING CONDITIONS AND WORKING ENVIRONMENT OF THE BOATMEN OF THE GANGA IN VARANASI

5.1 Introduction

The occupation of boating in Varanasi city is extremely diverse in nature. The boatmen display divergence not only in the range of activities performed within the wider ambit of their occupation, but differences were also witnessed in the working relations of this occupational community. The following chapter deals with an understanding of the different categories of workers that exist in Varanasi, their spread across the *ghats* and the variations in their working and employment relations. Their income earning patterns and interface with the administrative authorities in the city as encountered during their work and its consequences for their well-being are also discussed in the latter stages of this chapter.

5.2 Spatial distribution of the Boatmen across the Sampled *Ghats*

This section begins with a look at the distribution of boatmen across the sampled *ghats*, followed by an understanding of the distinction between the boat owners and workers and their right to ply at different locales.

Table 5.1 illustrates the spatial distribution of boatmen respondents across the various *ghats* of Varanasi. In the present study, maximum numbers of respondents were from Harishchandra Ghat, followed by Shivala and Nishad Raj Ghat. The least numbers of respondents were from Adi Shitala, Gola, Gularia and Mangala Gauri Ghat. While the sample of respondents generally corresponded with the concentration of workers in each locale, the one chief exception to this was Dashashwamedh Ghat. It was also herein that the researcher encountered the maximum number of refusals to participate in the research study (eight boatmen refused), thus leading to a lower number of participants from this area.

From Table 5.1, it is evident that Dashashwamedh, Harishchandra, Mansarovar and Shitala Ghat have a preponderance of boatmen workers. The highly profitable commercial economy of these *ghats* results in workers from other areas gravitating here to partake of the benefits that plying here entails. Furthermore Shivala, Prahladh, Mansarovar and Dashashwamedh Ghat had the highest conversion rate from hand-oared to motor-boats. In this case too, apart from Prahladh

Ghat, the other three areas had a thriving tourist economy which not only provided steady earnings to the boatmen working here, but also enabled them to make the switch from a hand-oared boat to a motor-boat.

Table 5.1: Distribution of boatmen respondents across the sampled *ghats*

Name of Ghats	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Adi Shitala Ghat	-	1 (2.17)	-	-	1 (0.7)
Chausatti Ghat	2 (2.9)	4 (8.7)	-	-	6 (4.2)
Dashashwamedh	7 (10.14)	-	-	-	7 (4.9)
Digpatiya Ghat	2 (2.9)	3 (6.52)	-	-	5 (3.5)
Gola Ghat	2 (2.9)	1 (2.17)	-	-	3 (2.1)
Gularia Ghat	2 (2.9)	-	-	1 (4.35)	3 (2.1)
Harishchandra	16 (23.19)	6 (13.04)	1 (20)	1 (4.35)	24 (16.78)
Khidki Ghat	1 (1.45)	3 (6.52)	-	1 (4.35)	5 (3.5)
Mangala Gauri	-	4 (8.7)	-	-	4 (2.8)
Mansarovar Ghat	9 (13.04)	1 (2.17)	-	2 (8.7)	12 (8.39)
Meer Ghat	4 (5.8)	4 (8.7)	-	2 (8.7)	10 (6.99)
Nishad Raj Ghat	4 (5.8)	9 (19.57)	1 (20)	1 (4.35)	15 (10.49)
Shitala Ghat	7 (10.14)	3 (6.52)	-	-	10 (6.99)
Shivala Ghat	6 (8.7)	2 (4.35)	3 (60)	6 (26.09)	17 (11.89)
Prahladh Ghat	4 (5.8)	3 (6.52)	-	5 (21.74)	12 (8.39)
Tulsi Ghat	3 (4.35)	2 (4.35)	-	4 (17.39)	9 (6.29)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Apart from a couple of exceptions, each *ghat* was punctuated with both boat-owners and workers. Though the boat workers were often from areas/colonies adjoining the *ghats*, in frequent instances, they come from other areas of the city as well. Boatmen owners however typically belonged to the *ghat* itself. Within the informal rules of the community, only those boatmen from the Mallah community had the right to ply their boats from a particular *ghat* who traditionally belonged to that area. Thus only owner families held sole rights to moor and operate their boats as well as solicit customers from that area. *Ghats* were thus reserved for them.

If a boatmen from a non-owner family living adjacent to a particular *ghat* attempted to build or purchase his own boat and ply from that *ghat*, then it would be considered to be an illegitimate act according to the norms abided to by the boatmen community in Varanasi. Doron (2008) provides a detailed account of the distinction between the rights of the resident (*ghatwars)* and non-resident boatmen families (*mallahis)* of any particular *ghat*[282].

These norms were strictly abided by all the members of the boatmen community. The fear of falling foul of the lucrative position that a select few members of the trade enjoyed by virtue of being the resident boatmen at a significant *ghat* was articulated by a hand-oared boat owner. He had broken his leg in an accident that occurred at the *ghats* and had been incapacitated for the past 3 months from the time of the interview. In order to maintain his presence as well as his income on the *ghat*, he had employed a worker for rowing his boat, while his son had been entrusted with the responsibility of keeping an eye on the said worker. The injured boat-owner thus stated that doing this meant that he would be able to come back and resume work any time without facing opposition from the other boatmen owner families at the *ghat*, who he felt may otherwise have tried to eject him from his privileged position. This instance thus highlighted the divisiveness that was at play within the apparently cohesive and harmonious community of boatmen on the *ghats* of Varanasi.

The feudal nature of the occupation, evident in the pattern of ownership of occupational assets, has brought in an economic demarcation within the boating community in Varanasi and ensured that economic power remains concentrated in the hands of a few within the community. This lopsided system of ownership of the means of production enhances not only the economic power, but also the social status and prestige of a few select boatmen who have attained the right

[282] Doron (2008), *op cit*.

to ply from a select few important *ghats* in Varanasi. These boatmen owners profit to the maximum from the asymmetrical *ghat* economy while boat owners and workers from the lesser celebrated areas suffer from a distinct lack of economic opportunities from ferrying of passengers. The system also allows the former category of owners to add immeasurably to their fleet of boats and take advantage of the steadily increasing crowds at their *ghats*, thus adding further to their earnings. Boatmen workers too swarm to these locales to take advantage of the greater opportunities available there (Table 5.1). The system has thus been structured in such a way so as to maintain the unequal relations of production among the boatmen of Varanasi and it thus comes as no surprise that the most influential boatman of the community is the owner of a large fleet of boats from Dashashwamedh Ghat (see Section 5.8).

Table 5.2: Number and size of boats owned

Boat Ownership	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
1 – 2 boats	32 (69.57)	4 (80)	10 (43.48)	46 (62.16)
3 – 4 boats	13 (28.26)	1 (20)	9 (39.13)	23 (31.08)
5 boats & above	1 (2.17)	-	4 (17.39)	5 (6.76)
Total	**46 (100)**	**5 (100)**	**23 (100)**	**74 (100)**
Size of boat				
Small	35 (76.09)	1 (20)	21 (91.30)	57 (77.03)
Medium	24 (52.17)	4 (80)	13 (56.52)	41 (55.41)
Large	11 (23.91)	2 (40)	11 (47.83)	24 (32.43)
Total*	**46 (100)**	**5 (100)**	**23 (100)**	**74 (100)**

Source: Boatmen survey

Note – (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.

(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

The disparity within the boatmen community – in particular boat owners is evident from Table 5.2. As seen from the table, 62.16 per cent of the total boat-owners owned just 1- 2 boats, while just 6.76 per cent of the total number of owners possessed a fleet of over 5 boats. These five boat-owners belonged to Shitala, Mansarovar, Manikarnika and Tulsi (bordering Assi) Ghat (see Annexure 3) – all renowned *ghats* with an almost ubiquitous presence of customers. Similarly it was boat owners at precisely these same *ghats* (and one more prosperous area, Meer Ghat) that claimed to have the maximum number of employees (5 and above) working for them. One such owner at Manikarnika Ghat stated that he had over 10 boatmen workers who worked for him. Comparable patterns were observed in the distribution of boats by size across the various *ghats*. These examples thus highlight the consolidation of capital at the significant *ghats*, to the detriment of those working in peripheral or relatively unimportant areas.

Size of boat can also be considered to be an indicator of the unequal economic status of boatmen due to the substantially higher costs incurred in making a large boat relative to a small size one – while a small boat apparently cost Rs.70,000 to make, the cost of the larger one was about two lakh rupees and that of a medium size boat was one and a half lakh rupees, respondents informed. Usually large-sized boats were found in the main areas, with secluded *ghats* having a greater percentage of smaller and medium size boats. Apart from the financial status of boatmen, the nature of tourist economy at a *ghat* played an important role in commissioning of a larger boat.

Furthermore among those owners who owned the highest number of boats (Table 5.2), four of them (80 per cent) owned both hand-oared and motor-operated boats, which is indicative of the higher economic status of these boatmen. Their concentration in particular areas is indicative of the economic centralisation of resources at these *ghat* metropoles in Varanasi. The use of exclusionary means to bar other individuals from sharing their benefits has helped to build up economic inequality between the boatmen of Varanasi.

5.3 Nature and Conditions of Work

The occupation of boating in Varanasi, a part of the city's informal economy, is largely a service industry which caters to the large mass of visitors which descend upon the city every year. Spread across the 84 *ghats* of the city and even beyond, the boatmen community is fragmented into a large number of boat owners (who mostly operate on a small-scale) and workers.

The skilled nature of work (oaring, navigating and manoeuvring a boat) and the heavy physicality associated with this occupation meant that young men (boating is a gendered occupation) could only enter the trade at around the age of 15 years. In the present sample too, the youngest boatman interviewed for this study was 15 years old. Though the researcher witnessed younger boys, some as young as 12 years of age, operating boats, they did not ferry passengers and were in a way young apprentices perfecting the craft till they made their entry into the occupation.

Though boating was an informal occupation, wherein entry was easily facilitated, the emphasis on the need for personal contacts to gain an entry was frequently needed. For example, at Manikarnika (adjacent to Khidki Ghat), there existed a boatman *chaudhary* (headman), who was the unofficial head of all boatmen from Dattatreya Ghat in the north to Lalita Ghat in the south. He had inherited this post from his '*dada-pardada* (forefathers)' and claimed that one of his responsibilities was to keep a watchful eye on all boatmen plying in his area. He thus declared, "Every new boatman hired on Mankarnika – I will be told first. I will be informed as to how he was hired and where does he come from."

The above example thus highlighted not only the customary leadership structures that existed within the boating community of Varanasi, but also made evident the paternalism that was displayed by these feudal leaders lording over their constituencies.

Not only did the boatman have to comply with such traditional leaders within the community, but they also had to bow down before the vagaries of the river, which sustained their trade. The rising river waters during the monsoon months made the continuance of their trade during such periods untenable for most workers. Boating, hence, was not a perennial occupation for a large percentage of the respondents of this study. As seen in Table 5.3, only about a fifth (21.68 per cent) of the respondents stated that they toiled at this trade throughout the year.

Among those who worked throughout the year were boatmen from the city's two burning *ghats*. Their livelihood was intimately connected with the death economy prevalent at these two locales and thus continued all-year round, largely irrespective of the state of the river. For another, albeit a smaller set of respondents, rise in the level of water resulted in a change of setting for the boatmen. They found themselves being hired by *thekedaar* (contractor) who made use of their expertise at fishing, albeit at a different location from the Ganga. As one respondent stated:

> "When water rose, three of us went to Varuna. We went for a month and they took my boat. We worked there from 6 a.m. to 8 p.m. daily, catching fishes. We were paid Rs.250 per person a day and from our earnings only we had to eat. We had taken bedding from our houses."

Some other respondents too had reported similar experiences of being employed by contractors to carry out fishing during lean months in nearby *pokhras* (lakes). One boatman however recounted his experience at fishing at a *pokhra* with some bitterness. He stated:

> "I went to Sundar Baghiya *pokhra*. The *thekedaar* told us not to make noise while catching fish. Then we realised that is being done illegally and he had no *thekaa* (contract) to catch fish here. *Chori se machchhli humse pakadaayein* (he made us stealthily catch fish)."

The steady wage earned from this venture (irrespective of the haul of fish) served as an important factor in a number of boatmen agreeing to such work.

The majority of the workers were however non-perennial. They worked between eight to ten months of the year depending upon the state of rainfall and the rise in the level of Ganga during monsoons. As one respondent stated, "*jab barsaat ka paani ghatta hai tab shuru karte hain* (when the water levels fall, then our work begins)." The city administration too invariably curtailed the operation of boats, including limiting the number of passengers seated in each boat and frequently even invoked a ban on plying of boats altogether to prevent any loss of life to passengers during such periods of high risks.

The flood of 2013 in Varanasi, the worst the city had experienced since 1978, was however an anomaly. The high waters of the river, which almost reached the top step of each *ghat*, curtailed the trade for nearly four to five months that year, thus limiting the income earning potential of boatmen. Even during this time, however, certain boatmen continued to ply their boats. The high waters of the flood had completely blocked off access to nearby low-lying villages[283]. Traversing by river remained the only way of connecting with the villagers trapped during these floods. The boatmen were thus not only especially employed by the city administration to provide relief materials to the suffering population, but also organised, largely through their own initiative, distribution of food and other relief material (after collecting '*chanda'* or donation from local people), among the afflicted population residing near Nagwa and Nakki in Varanasi. The latter operations, though conducted with the knowledge of the administration, were however not

[283] Kumar, S. (2013): 'Varanasi Floods 2013,' *Water and Megacities*. Available at: http://www.waterandmegacities.org/varanasi-floods-2013/, accessed on 14th September, 2014.

supported by the government. No safety gear or an oxygen tank was forthcoming to these workers by them, who operated their boats on their own risk. The potentially unsafe and perilous working environment of the boatmen was thus highlighted during these floods. Though no accidents occurred during the distribution of relief material, yet the risk to the life and safety of the working population cannot be underscored. The lack of social security among a large percentage of the workers further exacerbates the precarious existence of boatmen households.

Table 5.3: Temporal variations in the occupation of boating

Seasonality of work	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Perennial	12 (17.39)	13 (28.26)	-	6 (26.09)	31 (21.68)
Non-perennial	57 (82.61)	33 (71.74)	5 (100)	17 (73.91)	112 (78.32)
No. of months worked a year					
1-3 months	3 (4.35)	1 (2.17)	1 (20)	-	5 (3.5)
3-6 months	6 (8.7)	4 (8.7)	1 (20)	-	11 (7.69)
6-9 months	36 (52.17)	23 (50)	3 (60)	15 (65.22)	77 (53.85)
9-11 months	12 (17.39)	5 (10.87)	0 (0)	2 (8.7)	19 (13.29)
Perennial	12 (17.39)	13 (28.26)	0 (0)	6 (26.09)	31 (21.68)
Employment characteristic					
Full-time	41 (59.42)	27 (58.7)	3 (60)	17 (73.91)	88 (61.54)
Part-time	28 (40.58)	19 (41.3)	2 (40)	6 (26.09)	55 (38.46)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen Survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Workers hired by the administration for distributing flood-relief materials too were not in a much better situation. They emphasised upon the absence of safety gear provided to them by the administration during their visits to the inundated areas. They further complained about the behaviour of these officials. One such boatman recounted his experience:

> "The policeman took me to Lanka and promised to give me Rs. 1000 per day for this work. We went to villages to save people who were trapped. We worked from morning to night each day, but people there blamed us only saying *ki hum chori karne aaye the* (that we had come to steal their belongings). Later I, along with another boatman worker, went to the police station and did some *likha-padhi* (writing), but did not get money. I went again to inquire about my money, but was told that I will be informed when the money comes. I have not received it till now."

When probed further by the researcher as to the contents of the documents that he received at the police-station, he stated that he was unaware of what was mentioned in them since he had not had any schooling. 6 months had passed from the time he had participated in relief disbursement efforts to the time of the interview and the boatman had not received his dues in the intervening period and had also lost hope of receiving any money in future. He claimed that this had occurred in previous instances too with other boatmen, which was the reason that most of the workers did not prefer to work for the government.

Though monsoons constituted the off season for most boatmen (many of whom used this period to temporarily migrate to other occupations in a bid to maintain household earnings), it is a mistake to assume that monsoon time was the only period of lull faced by the boatmen in their occupation. Even during the rest of the year, they underwent variations in their earnings depending upon the seasonal ebb and flow of tourists who frequented their *ghats*. This variation was however not common across all sampled *ghats*. In some areas, where a majority of the tourists were from foreign countries, a decline in earnings was experienced during the summer months when the numbers of these tourists coming to the city dipped. In contrast on *ghats* where the visitors were mostly from south India, the yearly slump in earnings was experienced during fall season when the number of such visitors declined, the respondents reported. Apart from the temporal variations observed in the occupation of boating, there existed differences in the employment characteristics of the boatmen as well. 38.46 per cent of the sample stated that they were only engaged in the occupation as part-time workers. However boating was not necessarily the secondary occupation for all of these part-time workers. A boatman at Dashashwamedh Ghat

stated that post the Varanasi blasts that had taken place at the time of the Ganga *aarti* at Dashashwamedh, he had curtailed his working hours. Though this was a unique case, but there were other participants too who worked a limited number of hours only. Half of the respondents above the age of 56 years stated that they worked on a part-time basis since they lacked the stamina required for full-time work. A number of the youngest respondents of the study also stated that they studied alongside their work, hence could pursue boating only part-time.

Interestingly a majority of the boatmen at *ghats* – Nishad Raj, Prahladh, Mangala Gauri, Chausatti and all boatmen at Gola Ghat worked only on a part-time basis. None of these are among the major *ghats* of Varanasi and almost all of them, except for Chausatti Ghat, suffer from a dearth of regular customers, thus necessitating the need to adopt an alternative occupation to boost earnings from boating.

5.4 Work schedules and different working arrangements across the various *ghats*

The current segment traces the weekly and daily work schedules of Varanasi's boatmen community. Being engaged in an informal occupation, where personal relations played an important role in facilitating entry into the trade, the researcher felt that the boatmen enjoyed a relatively greater degree of freedom in regulating their work timings. However the intense competition between both boatmen owners and workers for their chance to ply meant that if a boatman was particularly lax, the loss would only be incurred by him. This resulted in full-time workers being fairly well-regulated in maintaining their work schedules at the *ghats.*

Table 5.4 depicts the work schedules of the boatmen respondents of this study. The average number of hours worked each day varied across the different categories of boatmen, with owners of both hand-oared and motor boats reporting the highest average daily number of hours worked at 9.5 hours, while boatmen workers worked the lowest at 7.97 hours. Hand-oared boat owners worked 8.91 hours a day on an average.

The working hours of the boatmen were not fixed, given the informal nature of their enterprise. They depended upon the variability of weather. For example, in summers, boatmen would arrive at their *ghat* early in the morning and would stay there till around noon. They would then come back by 4 p.m. – when the first horde of visitors began to enter the *ghats* after the intense heat of the mid-day sun had worn off.

Table 5.4: Working schedules of the boatmen

No. of days worked in a week	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
1 – 3 days	10 (14.49)	3 (6.52)	0 (0)	4 (17.39)	17 (11.89)
4 – 5 days	6 (8.7)	2 (4.35)	0 (0)	0 (0)	8 (5.59)
6 days	2 (2.9)	2 (4.35)	0 (0)	1 (4.35)	5 (3.5)
7 days	51 (73.91)	39 (84.78)	5 (100)	18 (78.26)	113 (79.02)
No of hours worked in a day					
5 hours or less	19 (27.54)	7 (15.22)	2 (40)	3 (13.04)	31 (21.68)
6 – 9 hours	21 (30.43)	15 (32.61)	3 (60)	6 (26.09)	45 (31.47)
9 – 12 hours	20 (28.99)	17 (36.96)	0	9 (39.13)	46 (32.17)
12 – 16 hours	9 (13.04)	7 (15.22)	0	5 (21.74)	21 (14.69)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Average hours worked in a day	7.97	8.91	5.7	9.5	8.44

Source: Boatmen Survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

At Dashashwamedh, these timings would be followed more intensely than elsewhere, since here landed the greatest horde of visitors, including a large number of local Banarsis who came to enjoy a boat-ride. However visitors here often did not hire an entire boat for themselves, but enjoyed a shared ride à la a shared public transport. Whereas at other locales, the entire boat would be chartered for a significant amount, here each seat on the boat was charged – at Rs.20. As darkness would descend, these shared rides would give way to boats being hired to view the Ganga *aarti* which took place at Dashashwamedh. At Shitala and Dashashwamedh, people

booked boats to view the *aarti* from the riverine side. Boatmen here were just required to slightly navigate their boats in order to ensure a better view for their customers. The boatmen of these *ghats* were hence almost perpetually engaged. The completion of the evening *aarti* signalled the end of the working day of most boatmen.

In winters, boatmen usually stayed on the *ghats* during afternoon times, except for taking a small lunch break, since customers were omnipresent during such hours. During these times too, key locations such as Dashashwamedh and Manikarnika, among others, were never completely devoid of boatmen. A few workers lurking around the boats could always be seen in these areas, since the possibility of some stray customers here was relatively higher. The early onset of evenings in winters meant that the day ended much earlier than in the summers.

Similar to the freedom enjoyed by the boatmen in regulating their daily working hours, they were at liberty to decide the number of days that they worked in a week. In the present study, 79.02 per cent stated that they stayed and worked on the *ghats* 7 days a week in order to maximise their income. The situation however differed at a couple of *ghats.* At Mansarovar, where there existed a couple of boat-owner families, there was an informal agreement between them regarding their work schedules. As a member of one boat-owner family explained, "*hamari paari har doosre din aati hai* (our chance to work comes every alternate day)." This had been done to avoid any conflicts in seeking customers who came to their area. Similar was the case at Prahladh Ghat, where there existed four owner families. Each family had been given the right to ply their boats in a cyclical manner, hence limiting the number of days worked by boatmen employed here.

At Prahladh Ghat, though boat-owners plied their boats only on a limited number of days, yet the workers working on this *ghat* were by and large common. The same was not the case at Mansarovar Ghat. Unlike other *ghats,* the set of workers working for both boat-owners were separate, hence restricting the number of days of almost all boatmen working here. This influenced the income earning opportunity of these boatmen and meant that they relied on additional sources of work to attain sustenance.

The busy work schedules of the boatmen wherein most work seven days a week without taking any leave is illustrative of the demanding working conditions of these workers. The fact is that most boatmen cannot afford to take rest given the relatively low wages they earn from their work. Those who are forced by circumstances to work less than seven days a week have

generally secured an alternative livelihood option to make up for the shortfall in wages that they are forced to incur. As mentioned previously, the occupations that they were alternatively engaged in too belonged to the sphere of informal sector work, including construction work, daily wage labour and salesmanship, among others, where they were engaged as either temporary or casual labourers. Their lack of human capital acted as a barrier to them securing high wage white-collar jobs.

5.5 Occupational diversity of the boatmen of Varanasi

Varanasi is an important tourist destination in north India. Though in the past, the city may have been the haunt of pilgrims, in current times, the number of pilgrims is rivalled by the constant flow of tourists who daily arrive into this city. The increasing popularity of Varanasi among tourists has effected changes into the working lives of boatmen working here. An elderly boatmen, aged 73 years, acknowledged this change, by stating, "*Ab hamaara pesha badal gaya hai. Ab hum naanvik ho gaye hain* (now our occupation has changed. We have become boatmen),*"* whereas earlier they used to be primarily fishermen.

The following section contains in detail the various work-related tasks performed by boatmen in Varanasi, including that of ferrying and fishing.

5.5.1 Ferrying passengers – Ferrying of passengers was the prime work-related activity of boatmen. 97.2 per cent of the total respondents (see Table 5.5), including all motor-boat owners and those who owned both hand-oared and motor-operated boats, stated that they had transported passengers on their boats in the past one year and earned money for this work.

Some respondents further stated that even though earnings from ferrying people may be scanty due to a lack of customers present on their respective *ghats,* if the opportunity arose, they never refused a potential customer, since the money earned was a substantial boost to their income.

Ferrying passengers may thus be termed as the key activity of the boatmen who worked in Varanasi. The importance of this may be underscored by the fact that of the four boatmen who stated that they had not ferried passengers in the past year, one was a VNN employee and was responsible for cleaning the banks of the river, another had leased his boat to a local CSO which ran an informal school for young children on that boat. Another such boatman was an elderly hand-oared boat owner from Nishad Raj Ghat who stated, "*pichhle* 9-10 *saalon se himmat*

gavaai de gayi hai (in the past 9-10 years I have lost my physical strength)." He only utilised his boat for fishing purposes, which was much less physically demanding since it did not require him to traverse the entire length of the river in Varanasi, instead his boat would be at a standstill for long periods while he cast his net.

Table 5.5: Remunerative activities performed within the realm of boating

	Workers	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Ferrying passengers	67 (97.1)	44 (95.65)	5 (100)	23 (100)	139 (97.2)
Fishing	15 (21.74)	20 (43.48)	1 (20)	2 (8.7)	38 (26.57)
Ritual activities	45 (65.22)	31 (67.39)	3 (60)	16 (69.57)	95 (66.43)
Tourist guide	10 (14.49)	6 (13.04)	-	4 (17.39)	20 (13.99)
Diving	20 (28.99)	11 (23.91)	1 (20)	4 (17.39)	36 (25.17)
Others	4 (5.8)	3 (6.52)	-	2 (8.7)	9 (6.29)
Total*	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatmen survey

Note – (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

While for most boatmen ferrying of passengers would entail hours of standing on the *ghats* scouting for customers, beseeching them for a boat-ride and finally negotiating an appropriate amount for the ride, a number of them had instead made direct arrangements with local guest houses to take their customers for a daily ride on their boats. This practice was quite common on the highly commercialised *ghats* of the city. Not only was it a means of securing a guaranteed income all-year round by these boatmen, but it was also a convenient way of undercutting competition in seeking of customers by the more influential members of the community.

They were paid a fixed monthly amount for this work, irrespective of the number of customers that sought their service. In such cases, they stated that the arrangement usually entailed an hour's boat-ride each morning and if the customer was further interested and then anything above the hour was charged directly to the customer for additional services rendered. Similarly at religious *ghats*, boatmen reported that they had entered into agreements with local *pandas* (priests) for their customers. Thus wherever the opportunity presented itself to the boatmen, they sought to take advantage of the means of regularising their income to overcome the pall of uncertainty that accrued from the normal routine of their profession.

From the above examples, it is thus clear that the boatmen's dependence on the tourist economy of the city and the demarcation on the right of boatmen to ply within certain areas has perpetuated and in recent times, with increasing commercialisation of certain pockets on the banks of the river, has even accentuated the economic inequality between different members of the community. Furthermore, it has limited the entrepreneurial nature of those boatmen working in peripheral areas since it has not allowed them to gain access to hotels and guest houses which are concentrated in the more central areas.

The only times perhaps that such boatmen profit hugely from tourism is during the festive season. The highlight of the year is undoubtedly the festival of Dev Deepawali (held on the occasion of Kartik Purnima). A massive celebration is organised on the *ghats* of the Ganga on this day and boats are in great demand among tourists and locals alike who swarm to the banks of the river in great numbers to view the festivities. Once again, celebrated locales such as Assi and Dashashwamedh are at the centre-stage, but even boatmen stationed at the distant Prahladh Ghat stated that their boats were hired in advance for this particular occasion. Each boatman received a minimum of Rs.2000-3000, while those situated at the major *ghats* received higher amounts. Bigger boats commanded a higher price relative to smaller boats due to their capacity to accommodate more passengers. One respondent stated that sometimes the rush was so extreme that boatmen had to rent boats from those located outside of Varanasi to meet the requirement.

Interacting with a few boatmen on the opposite banks of the Ganga in Varanasi (during the initial phase of her fieldwork), the researcher discovered that such was the clamour for boats that even these boatmen plied their boats to the city *ghats* and easily found customers on this day. The widespread availability of *grahak* (customers) on the occasion of Dev Deepawali and the

inability of outsider Mallah boatmen to hurt the commercial interests of the existing boat-owners (most of whose boats were booked in advance on this day), meant that such intrusion was not disbarred. In other words, every boatman was allowed to have a piece of the profit since such magnanimity did not have any negative impact on the profiteering intentions of the most influential members of the community. Only a few of the unlucky ones were left out each year and they admitted it was their bad luck to not have earned more on this day.

Despite the financial benefit reaped from such celebrations, some respondents made evident their disdain towards such financial exploitation of the River Ganga. They explained that occasions such as Dev Deepawali and Ganga Aarti (performed at Dashashwamedh and Rajendra Prasad Ghat) had been devised only in the past 15-20 years and served as a means for people to extract further profits in the name of Ganga. The actual state of the river was ignored despite her widespread felicitation. In fact, the river was made dirtier as a result of these events, which it could have done without. It was felt that greater good would be done if such occasions were used to broadcast messages to the people requesting them to avoid contributing to the dirt and pollution of the river and its *ghats*, including desist from leaving *diyas* (mud-lights) and garlands into the water. Such voices were however in an extreme minority among the respondents.

5.5.2 Other activities accruing from the tourist economy – The centrality of the tourist economy in the working lives of the boatmen can be further gauged by the fact that 66.43 per cent of the respondents were reported to have ferried passengers specifically for performing religious and cultural rituals and another 13.99 per cent (mostly from the younger age groups) claimed to have made money from the business of guiding tourists who daily landed on the *ghats* of this city. The latter was a particularly profitable activity since a single day's or week's work for a mid to large foreign entourage could potentially earn them in thousands. Even in these cases however, the dependence on tourists meant that earnings here too were more or less skewed in favour of *ghats* which were renowned for their religious and spiritual significance.

On *ghats* like Harishchandra and Khidki, where there was almost a continuous flow of mourners and people arriving to cremate bodies of their relatives, the earnings of boatmen were substantiated by people seeking to use boats for conducting post-death religious rituals. Within the Hindu religion, boatmen asserted that all bodies were not cremated. In some cases such as the death of a young child or a pregnant lady or a person dying from a snake-bite or a person with

leucoderma, as the boatman informed the researcher, the body should be allowed to sink into the river. In these instances, the boatmen participated in the process of immersing the body under water, often by tying it with a heavy rock and dropping it in the middle of the river. At Harishchandra Ghat, there was a *paari* (rotation) system in place for dealing with such customers. One of the respondents on this *ghat* informed:

> "There are 6 *maalik* on Harishchandra Ghat. Each has a *paari* for 10 days for *laash doobana* (submerging the dead body). There are no fixed rates that we charge for this. We take money depending upon the economic status of person."

The river front thus provided a range of opportunities to earn a living to the numerous boatmen that worked at these *ghats.*

5.5.3 Fishing – was a means of income generation for 26.57 per cent of the total sample (Table 5.5). The fish caught by the boatmen was sold mainly at Dashashwamedh to retailers, who sold them on to customers.

Fishing as an economic activity was most commonly practised on *ghats* such as Adi Shitala, Digpatiya, Mangala Gauri and Nishad Raj. At the latter *ghat,* 86.67 per cent of respondents reported fishing to be a source of income. The above mentioned areas were amongst the least frequented *ghats* in Varanasi. The respondents who practised fishing here admitted that this was essential for them in a bid to attain sustenance since, as one respondent stated, "*koi aamdani ka zariya nahi hai iss ghat ka* (there are no earning opportunities at this *ghat*)*,"* since '*sawaari* (passengers)' here were quite infrequent.

However as admitted by an older respondent working on one of these *ghats,* the changing nature of their occupation and increasing emphasis ferrying had meant:

> "*Macchuare badal gaye hain* (fishermen have changed). For fishing, you need to be prepared. You require big nets and tools which we do not have. Beyond Raj Ghat and on the other side of Ganga-ji, more fishing is done."

This statement thus highlighted the decline of expert fishing among the Varanasi city boatmen. The degradation effected in the river from years of domestic and industrial sewage flows and the indiscriminate construction of dams on the river too has contributed to a decline in fishing.

The changing face of Ganga has led to changes in the types of fish found in Ganga. Elderly respondents stated that earlier their catch was richer and more varied. Fishes such as Hilsa, Pyasi, Masaar, Singhda/Singhi and Jhingaa were all available in the river. With the passage of time,

however, their availability declined and in present times, they complained that, "*koi achchhi prajaati ki machchhli nahi* (no good species of fish are available)." Almost unanimously, they blamed the commissioning of the Farakka Barrage in 1975 for finishing the original fishes of Ganga River, since it blocked the upward passage of these fishes from the Bay of Bengal. One boatman bemoaned this transformation in the fish profile of Ganga at Varanasi, stating that while earlier his father had managed to construct a house with the income he earned from fishing, he was facing difficulties in getting his daughter married from within his present income.

The loss of indigenous fish species also influenced the nutritional intake of boatmen families, as noted by a few of the respondents themselves. Both Hilsa and Pyasi were especially singled out for praise by boatmen for their nutritional value, which the present fish did not offer in the same quantity, they claimed.

The most commonly available fish in the river at the time of the study were 'carpio' and 'tilapia'. Carpio was also referred to as the Raja Bhaiyya Machchhli (it was named after the former UP minister Raja Bhaiyya, respondents stated, since the fishes were released from his pond into Ganga waters by his political adversary and former UP Chief Minister, Mayawati, in an act of revenge). Elderly boatmen lamented this change for the worse, as they perceived it, since the decrease in the range and quality of fish species limited their income earning ability. Furthermore the haul of fishes was often erratic. Sometimes they went for days on end without a substantial fish catch, which negatively influenced their household budget. Thus 63.16 per cent of such respondents stated that they worked in other sectors as well to substantiate earnings.

Thus while the majority of the boatmen at the central *ghats* of the city had prospered from the growing commercialisation of Ganga's banks, these boatmen seemed to suffer a decline as their earnings dipped due to the increasing degradation of Ganga. Fishermen were among the economically and socially weakest members of the boatmen community in Varanasi and had little means of turning their economic situation around while maintaining their dependence on the river, since the norms of the trade that they followed debarred their entry into the profitable *ghats* of the city. The latter thus suffered not only from the deteriorating physical state of the river, but also from the disparate and unfair traditions that governed their trade. The poor state of

fishermen was thus reflective of the unequal distribution of environmental 'bads,' which were felt most acutely by the poorest sections[284].

Further adding to the deprivation of these fishermen were laws effected by the Uttar Pradesh Forest Department (UPFD) banning fishing in Ganga at Varanasi. This section of the river had been declared a turtle sanctuary in 2006 and to protect the population of the turtles periodically discharged into the river by UPFD, fishing had been outlawed. Sand-mining and agriculture on the opposite bank of Ganga, which had been among the staple economic activities of these boatmen, too had been banned by the government to avoid harm to the turtles.

An official of the Turtle Sanctuary, situated at Sarnath stated,

> "We have tried very hard that this practice comes to an end. Mallah try to do agriculture clandestinely. 2 years back, one person was doing agriculture, so we stopped him and still do so. We arrested him and then they stopped. Even now, if we stop people, then people nearby heckle and abuse us."

Yet he proudly claimed that the efforts of the department in recent times had paid off and agricultural activities had been greatly reduced. In doing so, the effect on the lives of the affected people was barely paid heed to by the government officials.

The same was evident to the researcher who was able to witness first-hand the decline in agricultural activities on the opposite bank of the river. While in 2012, a substantial portion of the tract opposite Nishad Raj and Shivala *ghats* was cultivated, in 2015, the area under cropping had been significantly reduced. Thus an essential economic activity of these fishermen had been curtailed by UPFD without any alternative arrangements for livelihood being made for them.

Though the administration had succeeded in obliterating sand-mining and almost ending agriculture as well (only 4.9 per cent of the participants – notably from Nishad Raj, Magala Gauri and Prahladh Ghat – stated that they had indulged in agricultural activities, see Table 5), yet they had not been successful in stifling fishing activities conducted by the boatmen. While an official of Jal Police (JP) flatly denied the prevalence of fishing in Varanasi, stating the practice existed only beyond the precincts of the city, a majority of the respondents who took their boats out for fishing stated that this activity was usually performed late at night and continued till early morning to escape administrative action. Furthermore they generally ventured to the opposite banks of the river to avoid more apparent detection by the JP.

[284] Escobar, A. (2006), *op cit.*

The respondents, already saddled with poverty and unequal economic structures, stated that they had no option but to continue fishing in the cover of the dark since they lacked alternate options for livelihood generation. Devoid of any other specialist skills which would be useful in the job market, they preferred to continue fishing despite the risks involved. Instead they questioned the legitimacy and practicability of the turtle sanctuary in Varanasi and condemned the government for bypassing the livelihood concerns of their community in a bid to keep Ganga clean when, they felt, that the major sources of Ganga pollution and degradation lay elsewhere.

Though it may be said that the fishing community in Varanasi too contributed to denuding the river of one of its vital resources – its fishes and aquatic life – yet there is a marked difference in exploiting resources to attain subsistence levels and over-using them to feed endless consumption levels and the extravagant lifestyles by the economically well-off living in the country's metropoles[285]. These fishermen noted their dependence on the river and its resources, yet they defended their trade as one which had existed for centuries without really harming the river or causing its degradation and thus resented their traditional occupational activity falling foul of governmental legislation.

Environmental degradation, coupled with resource diminution, had thus curtailed the access of these fishermen to the river Ganga, through no fault of their own. Their problems were compounded by increased governmental regulation of the *ghats* and river in Varanasi. This further minimised their access to the river, which has served to sustain them for centuries. Ironically the decline of river fishing has been accompanied by a rise in inland aquaculture (over 75 per cent of the fish catch is attained from captive water bodies), which has emerged as an important source of commerce for the government. Though dedicated fisheries departments and boards existing across the country, the plight of the fishermen who still plod away in degraded rivers has been ignored by successive governments[286].

5.5.4 Diving (*gotakhori*) – All boatmen are not divers. *Gotakhors* (divers) formed a smaller sub-division within the larger category of boatmen[287]. Though these *gotakhors* also plied boats, yet during instances of drowning of individuals in the river, they were called upon for providing rescue services.

[285] Gadgil, M. and Guha, R. (1995), *op cit,* p. 1-5.
[286] Down to Earth (2002), *op cit*
[287] Doron, A. (2011), *op cit*.

From among the areas surveyed, these *gotakhors* were present mostly at Dashashwamedh Ghat (around 8-10 such divers worked here). There also existed an outpost of Jal Police (JP) at this *ghat*. Though the JP has been instituted in Varanasi with the explicit purpose of providing protection to the thousands of visitors that frequent the *ghats* each day, yet this high-risk job of rescuing people from the water is inevitably performed by *gotakhors.*

An official of the JP lamented the absence of a *gotakhor* in their ranks and mentioned the role of the "*swayam sevi* (self-serving) *gotakhor"* in helping people. In these cases, for their services rendered, they were paid by the people whom they had rescued. In the "*vishesh paristhithi* (extreme circumstances)," that the JP sought their help, the official claimed that though they were given money for their exertions, but no such definitive amount had been fixed for them.

The validity of the claims made by the JP official is however in doubt if the accounts of the boatmen and *gotakhors* are to be believed. Numerous boatmen across the *ghats* insisted that during such instances of people drowning, the JP often approached these *gotakhors* first and sometimes even '*jabri* (forcibly)' compelled them to be a part of the rescue effort. A *gotakhor* at Dashashwamedh confessed to the researcher that he often drank alcohol before diving, which he stated was a common practice among boatmen. This was done to remove fear from their mind that diving deep into the river and staying underwater evoked and the JP too provided them with alcohol before they went into the water. He further went on to state:

> "Government should think about and recognise the inherent danger that exists in diving. There is so much danger, yet we dive. We have no insurance, we are also family people. Why does our need not get recognised by the government? Every 5 years, the government including the Mulayam Singh Yadav government, appoint 40-50,000 people in government, then why do they not give appointment to people like us."

His statement thus went on to highlight the insecurity a *gotakhor* faced in his work. The lack of governmental support extended to them was a cause for complaint among many of the boatmen and divers. The adverse role of the JP too was criticised by respondents who stated they shirked their responsibility to save people, which ultimately fell upon them and they could not even refuse the JP officials who, they claimed, had the power to harass them in their work. One diver complained that often the JP took them to distant areas, including as far as Ramnagar, for rescue missions. He was frequently not paid for this work and the time lost in this task resulted in taking time away from seeking customers for ferrying. The risks to his life were additional.

The threat to their physical safety as a result of the dangerous nature of their occupation is evident from the above account. The respondents also unanimously stated the administration did not provide them with any safety gear, apart from a rope in some cases and neither were they paid for their efforts. Sometimes it was admitted that as a reward for their efforts, the JP gave them some alcohol or money, yet these were felt to be incommensurate with their efforts.

Thus appointment of *gotakhors* in the ranks of the government was one of the abiding demands of this community and was an issue of much grief amongst the boatmen. A former gotakhor respondent at Raj Ghat even blamed the government's discriminatory attitude towards their caste as being one of the reasons that they were not instituted into the force, stating, "Thakur-Sharma *sab ko mila, lekin* Majhi *log ko kabhi nahi mila* [Thakur-Sharma received, but Majhi people never got (job appointment)]." His views were echoed by a small number of other boatmen respondents also.

The work of the boatmen in Varanasi is thus marked by a wide-ranging occupational diversity. As depicted in the present sample, their work ranged from ferrying of passengers to assisting in the conduct of religious rituals to fishing and diving. The occupational activity that they primarily engage in plays an important role in mediating their experiences with the government officials on the *ghats* and also influences the health and well-being of these workers.

5.6 Income

As evident in the previous segments, income earned by the boatmen was not solely a factor of their enterprising nature or the number of hours spent working on the *ghats.* Income levels were also a function of the location of the *ghat,* its religious and cultural significance and also size and type of boat.

Ferrying of passengers was undoubtedly the prime economic activity of the boatmen and while most earned on a per-ride basis, in some cases, the boatmen received a monthly wage from hotels or guest houses situated on the *ghats*. This was done in lieu of daily services provided by these boatmen to guests staying at these hotels. Payments were modest in most cases, but they were accepted by these boatmen, since they helped tide over the uncertainty that was intrinsically associated with their occupation. In one case, a boatman owner admitted that the guest house paid him all year round, irrespective of the state of the river or the flooding in it. This was however not the case with the rest of the boat-owners.

In some instances, boatmen owners had tie-ups with hotels for customers with payments being made on a ride by ride basis. The rates were fixed in advance for these rides. For example, a boatman worker stated that his owner, who had an arrangement with a five-star hotel in Varanasi, received about Rs.1000 for a large group. In this case however, unlike the previous example, the service provided by the boatmen was neither time-bound nor a daily feature; rather it depended upon the availability of customers.

Further delineating upon the payment system for these arrangements, another respondent explained that boat owners did not receive payments from hotels immediately. Instead they received a slip which indicated the amount of payment due for that particular ride. After some time, these boat owners would take all pending slips to the hotel and cash them. This amount was largely retained by the owner, while the workers had to make do with the tips that they received from customers in such cases. A few workers however alleged that their boss (boat-owner) took away half of the tip that they received from the passengers.

While in the above mentioned cases, hotel income was combined with other regular ferrying of passengers, in the case of the boatmen at Gularia Ghat, their only monthly source of income was from the hotel. The three boatmen working at this *ghat* were exclusively employed by the hotel that existed on this *ghat* and the monthly wage that they received formed their only source of income. The tips that they received from guests augmented their earnings.

A number of boatmen also reported agreements with *pandas*, tourist guides and even local ashrams, wherein the former kept half of the total amount paid for a boat-ride as commission fees for securing a customer, while the rest was shared between the boat owner and worker.

The distribution of income between owners and workers was similar across the sampled *ghats*. 40 per cent to 50 per cent of the income earned from plying a hand-oared boat was handed over to the worker or workers (as the case may be). In a couple of cases (Harishchandra and Shivala Ghat), respondents claimed that they received only a third of the total earnings from boating. For plying a motor-boat, the cut of the worker was significantly less. This was due to the fact, as one respondent explained, not only was the effort required in operating a motor-boat much less, but also a part of the earnings were kept aside by the owner for re-filling diesel in the boat. Thus as workers from different *ghats* stated, their cut ranged from approximately 15 per cent to 25 per cent of the total earnings per ride.

At almost every *ghat*, workers stated that they worked for all the boatmen owners who had anchored their boats onto that particular area. The limited physical confines of each *ghat* meant that each person working in that area was familiar to all other boatmen working there. The relatively close-knit nature of the boatman community in Varanasi meant that boat-owners to did not object to workers being engaged in plying boats of other boat-owners. Furthermore, since most negotiations regarding payment (there existed no fixed rates for plying customers) were done by the boatman owner and usually conducted in the open, there was little to no scope of deception as regards payment, felt the researcher. Thus the worker and owner both knew their share from earnings beforehand.

Only in a few instances were workers limited to plying the boats of a particular owner. This was the case at Mansarovar Ghat and also at Dashashwamedh Ghat. In the latter instance, a boatman stated that his owner had approximately 20 boats, which meant that there was little scope for operating another owner's boat at the *ghat.*

While earning from ferrying of passengers was the most consistent opportunity available to the boatmen of Varanasi, fishing and diving too provided them with means for substantiating their earnings. Though, as Doron (2008) mentions that diving for coins (thrown into the water by incoming pilgrims arriving on train from the historic Malviya Bridge) was primarily the prerogative of boatmen working at Raj Ghat (located below the Malviya Bridge) [288], in the current study too the researcher came across some boatmen from different *ghats* who claimed to dive into the water for locating valuables thrown by pilgrims. This was more commonly reported at oft-frequented *ghats*, where pilgrims dropped into the water money, valuables and even clothes. However, such diving, unlike at Raj Ghat, was only meant to supplement their income and did not form a major constituent of the daily money earned. Diving deep into the water in the search for valuables was not a regular feature of the lives of these respondents, who reported that they only occasionally discovered such items in the water.

Income earned from fishing too was erratic, since not only did it depend upon the daily fish catch but also upon the seasonal availability of the fish. Generally fishermen stated that they avoided fishing in the monsoon season as this was also the breeding time of fish. During winters too the catch was relatively low. The Tehri Dam (functional since 2006) had exacerbated the problem of reduced flow of the river, opined participants. They also realised that their situation was unlikely

[288] Doron (2008), *op cit*.

to change in the near future. In some pockets of the river, particularly the Varuna-Ganga confluence, the river was resembled an open sewer, as observed by the researcher, which made fishing at these sites an almost untenable situation.

The poor condition of the river coupled with the governmental ban on their occupation made the situation of this section of workers precarious. Though defiant, as one boatman emphatically claimed, *"Machhuare ki aulaad hain, machhli toh marenge* (we are children of fishermen and we will fish)*,"* yet the fear of government action played on their minds. A respondent recounted the JP arresting him last year as he was fishing in the waters near the Assi confluence and only let him go after taking away not only his earnings but also Rs.1000-2000 extra from him. He thus claimed, *"JP ka yahi karobaar hai. Note aap khaiye, maar hum khayenge* (JP have this work only. They take money and hand us beatings)."

These episodes though uncommon illustrate the dent in the earnings that were occasionally suffered by the respondents, but were considered necessary to fend off the threat of eviction or arrest by the officials-in-charge. As such, these payments are 'survival-mechanisms' employed by workers, who function in a legal grey-area[289]. Similarly the reliance of a few of these respondents on agriculture (mainly those on the peripheral *ghats,* including Nishad Raj Ghat) too had been affected by the UPFD due to their persistence on implementing the rules of the Turtle Sanctuary. Agriculture provided a relatively small but an important means of livelihood and supplemented the relatively low earnings of the boatmen who engaged in this activity.

Some members of the Mallah community were also engaged in repairing boats along the *ghats* – but these were specialised workers who were hired specifically for the task of repairing or rebuilding a boat alongside the owner. They did not engage in typical boating activities such as plying a boat and ferrying passengers or fishing.

Thus to conclude, it might be said that though the nature of the trade made earnings from boating erratic, yet the favourable location and inventive nature of some boatmen owners brought some measure of steadiness and dependability in their earnings, through their arrangements made with nearby hotel/guest houses for regular ferrying of their customers. These deals benefited some boatmen, but only served to further exacerbate the economic difference between these well-off respondents and those on the relatively desolate *ghats,* who largely relied on fishing and other boating related activities to earn their living. The changing river ecology and the unfavourable

[289] Anjaria, J.S. (2006), *op cit.*

governmental attitude towards the livelihood activities of the latter had an adverse influence on the earnings of these respondents.

5.7 Boat registration

In Varanasi, licenses for boats are issued by the Varanasi Municipal Corporation (VMC). These licenses are renewed each year and though boats are given a license, the boatmen operating these vehicles are not registered. As per reports, about 15 per cent or 496 of the 2500 odd boats in Varanasi were registered with the VNN in 2014[290].

Table 5.6: Boat licenses, motor-boats and Ganga pollution

Ownership of Boat License	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Own License	26 (56.52)	4 (80)	2 (8.7)	32 (43.24)
No License	15 (32.61)	1 (20)	-	16 (21.62)
Only Hand-boats, not motorboats	-	-	19 (82.61)	19 (25.68)
Do not remember	5 (10.87)	-	2 (8.7)	7 (9.46)
Total	**46 (100)**	**5 (100)**	**23 (100)**	**74 (100)**

Source: Boatmen survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

In contrast in the present study, 43.24 per cent of the respondents stated that they owned a boat license, while 21.62 per cent acknowledged that that their boats were unlicensed (see Table 5.6). The reason most commonly given by hand-oared boat owners for not registering their boats was that the officials had not yet come for issuing licenses for the forthcoming year. A few respondents, including a boatman leader, even railed against the concept of registration itself, questioning the purpose of getting a license made when their earnings were not sufficient in even meeting their day-to-day sustenance needs. An elderly boatman from Shivala pointed out the

[290] Diskshit, R. (2014): 'Joyride in Ganga Risky with Unfit Boats,' *The Times of India*, 8th August.

practice of even the more affluent boat-owners from central *ghats* avoiding getting licenses made for their boats, which only strengthened his resolve to sidestep the registration of his boat.

In the current sample though 80 per cent of the motor-boat owners stated that their vehicles were registered, this was a mis-representation since motor-boats are technically not allowed to operate in the Ganges in Varanasi and their boats were as such illegal. At the time of the study, VNN only issued licenses for hand-boats. Motor-boats were excluded since they have been banned by the UPFD for disturbing the river's aquatic life in Varanasi and for causing pollution in the river. The matter is currently pending in the state High Court.

The official of the JP admitted that only the JP motor-boat plying in Ganga at Varanasi was legal, while the rest were unlicensed and as such not legally entitled to traverse the river in Varanasi, yet he remained silent on the issue of administrative action on these boats. Instead he defended their right to ply by disagreeing with the official notion of these boats contributing to river water pollution. In contrast, VMC officials negated the very existence of motor-boats in Varanasi, claiming, "Motor-boats *toh ginti ki hain....ek do baar jaise ki* Chhath *ki bheed hoti hai, tab dikhti hain* (the number of motor-boats is limited....on one or two occasions, such as during the Chhath festival, they are seen)."

While the status of motor-boats in Varanasi remains in a legal limbo, these boats have substantially increased in number. However operating in a legal grey area has increased the vulnerability of these boatmen vis-à-vis the local administration, who they claimed harassed them sometimes for operating these boats. The incidence of these episodes had however decreased in recent times, as stated by the respondents.

5.8 Workers' organisation

The present section deals with the leadership structures existing among the boatmen of Varanasi and also the role of workers' organisations in articulating the concerns of the boatmen community.

The boatmen of the Ganga in Varanasi did not have any formal trade union. Though the researcher came across a few traditional leadership structures within the community, the influence of these bodies was fairly limited. One such organisation existed at Prahladh Ghat, wherein a monthly *panchayat* (gathering) meeting of boatmen was held. Any concerns, issues or

petty disputes regarding the working conditions of the boatmen were brought up and attempted to be resolved by the elderly boatmen of the *ghat*, who presided over these meetings.

Similarly at Manikarnika Ghat (as previously mentioned), there existed the post of a boatman *choudhary*. This hereditary leader maintained knowledge of all boatmen at this *ghat* and all new workers recruited in his area of influence first had to be introduced to him before they could commence work. In lieu for his privileges, the *choudhary* stated that he was responsible for the safety and protection of all boatmen there and was responsible for mediating disputes regarding work. In order to maintain a peaceful and incident-free work environment, he further stated that he conducted a *puja* (prayer) dedicated to Mashan Baba each year and also organised after every 3 years, a Sat Narayan Katha, apart from performing a host of other religious rituals.

Apart from these traditional leadership structures, there also existed a few formal organisations of boatmen in Varanasi. In the present study (see Table 5.7), 49.65 per cent of the respondents stated that they were members of a local workers' organisation, while 48.25 per cent stated that they did not remember if they had registered with any boatmen's organisation. Most of the latter respondents were aware of such organisations functioning in their midst and some even claimed to have attended a few of their meetings informally over the years. They however were unable to give a definitive answer as to their membership of these bodies.

Of the respondents who were members of a workers' organisation, over four-fifth (81.69 per cent) claimed to be members of the Maa Ganga Nishadraj Sewa Samiti (MGNSS), headed by a boatman based at Dashashwamedh Ghat. Formed in 2008, its leader claimed to have played an important role in boatmen protests of the same year when UPFD introduced a huge levy on boatmen plying in the Ganga as well as taxing every passenger seeking a boat-ride[291]. Foreseeing the inevitable death of their trade from such a measure, the community united in an almost unprecedented manner to stand firm against the administration. They went on a 15 day mass strike, holding *dharnas* and demonstrations against the perceived tyranny of state action. They argued that since the state did not provide them with any work-benefits, such as insuring their boats, they were not justified in imposing such a heavy tax on them. The Forest Department ultimately withdrew the legislation, thus handing a major victory to the community.

[291] The same administrative order introduced a uniform fare structure for all boatmen and sought to remove *ghat* distinctions in the plying of boats by initiating a number system under which each boatman would get an equal opportunity to secure customers. These details were however skirted by the boatman leader. See Doron (2009) for further details.

Table 5.7: Membership in boatmen workers' organisation

Membership in Workers' Organisation	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	29 (42.03)	27 (58.7)	3 (60)	12 (52.17)	71 (49.65)
No	2 (2.9)	1 (2.17)	-	1 (4.35)	4 (2.8)
Do not remember	38 (55.07)	18 (39.13)	2 (40)	10 (43.48)	68 (47.55)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Name of Organisation					
MGNSS	24 (82.76)	22 (81.48)	3 (100)	9 (75)	58 (81.69)
MSSS	1 (3.45)	1 (3.7)	-	-	2 (2.82)
Gotakhor Sanstha	-	-	-	1 (8.33)	1 (1.41)
Others	6 (20.69)	4 (14.81)	1 (33.33)	2 (12.5)	13 (18.31)
Total*	29 (100)	27 (100)	3 (100)	12 (100)	71 (100)

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

Since that episode, the president of the organisation claimed, it had played a major role in promoting the collective interests of the Varanasi boatmen often by leading protests and orchestrating strikes against episodes of administrative high-handedness. It had about 700-800 boatmen as its members and organised periodic meetings at Dashashwamedh, wherein mainly issues relating to the boatmen's occupation were discussed. Also the role of the community in contributing to a cleaner Ganga was deliberated upon at these meetings, including the role of boatmen in advising the general public visiting the *ghats* on refraining from disposing of their garbage in the river.

These meetings were also used as occasions, its leader declared, for discussing the state of the river beyond Varanasi. Thus the impact of the Tehri Dam on reducing the flow of the river and its role in decreasing both the '*gahrai* (depth)' and '*chaudai* (width)' of Ganga were also brought up, since these had a direct role in affecting the livelihood status of the fisherman community. Thus though this local level organisation showed remarkable awareness of the factors that have played a role in degrading Ganga, yet it stopped short of propagating the riparian rights of fishing communities downstream who are arguably the most affected by this degradation. Relentless damming of the river has not only affected the river's flow but has also served as a barricade to the passage of fish (upstream as well as downstream) thus contributing to the problem of dwindling fish stocks within the river.

Though MGNSS professed to speak on behalf of the fishermen as well as the *gotakhors* within the boating community of Varanasi, yet some respondents stated that they felt that not much prominence was given to their issues within the organisation and they lacked a cohesive and strong body of their own to vocalise their separate concerns. This was reflected in the fact that just a single respondent in the study claimed to be a member of the organisation, Gotakhor Sanstha (see Table 5.7), while there existed no such institution solely dedicated to promoting the cause of fishermen. Their issues were brought to the fore within the larger occupational group often when a case of a particular case of police or administrative brutality occurred.

However given the structure of MGNSS this was not surprising. Apart from the leadership provided by its president (which appeared to be under some strain at the time of the study with a few respondents declaring allegiance to another boatman owner at Dashashwamedh/Rajendra Prasad Ghat after expressing dissatisfaction with MGNSS), the organisation was also sustained by the support of boat owners from *ghats* as far and wide as Shivala and Manikarnika. During her study, the researcher did not come across a boatman worker or fisherman or *gotakhor* who was a core member of the organisation. Furthermore, the absence of internal democracy within MGNSS meant that despite claiming to be representative of the interests of the entire community, it could not be truly classified as such. Thus despite appearing to be for all intents

and purposes an inclusive forum, the organisation had ultimately come to replicate the unequal power relations which persisted within the community of boatmen[292].

This thus reflected the political marginalisation of the fisherman and diving community of Varanasi. Not only were they marginalised within the larger community of boatmen, but also faced the greatest brunt of the ecological degradation of the river and economic and financial centralisation of the *ghat* economy, in which customers and service-provision were concentrated at a few locales. Accordingly they constituted the weakest members of the community, with little economic and political power and opportunities to bring their issues to the centre-stage and seek redress for their plight. Meanwhile the economic interests of the community's leaders did not sufficiently align with these members to give them centre-stage within their organisation. The vested interests of these bodies was evident in the fact that not one word was uttered against the unfair feudal order that governed the working relations of the boatmen community of Varanasi nor were ways to redress the inequitable nature of the trade articulated by its leaders. Furthermore the ban on motor-boats, which was central to the livelihood earnings of boatmen at central *ghats*, had been legally challenged by these boatmen and the matter was (at the time of writing) pending in the court. Though in a legal limbo, yet the legal stay on this ban protected these boatmen from the pressures of persecution which plagued the city's fishermen community, who lacked the resources and ability to organise themselves to challenge the administrative order illegitimating their livelihood activities.

Thus though a workers' organisation existed among the boatmen community of Varanasi, its reach and agenda was limited. Though its preferred means of protest included social action methods such as strikes, rallies, and demonstrations, yet these took place only in fits and starts in response to state aggression. The general tone of their demands was aimed at gaining concessions from the state. Understanding this from a Gramscian perspective, it can be stated that the organisation in itself lacked a general direction and a cohesive policy. Their actions with regard to the uplift of the community and overturning the unjust nature of state policy, as they

[292] Harriss, J. (2002): *Depoliticizing Development: The World Bank and Social Capital.* London: Anthem Press, p. 9.

perceived it, were thus doomed to be unsuccessful since their mobilisation was largely rooted within the current political and social set-up[293].

However, it would be wrong to label them as being redundant since on various occasions, their mobilisation of the community members had proved vital in ensuring that administrative action against vulnerable sections such as fishermen, those pursuing agriculture on the opposite bank of the Ganga in Varanasi and motor-boat operators was checked.

Another observation that emerges from an examination of the demands and role of MGNSS in workers' lives was that their demands and subsequently actions were limited to the economic sphere, rather than the social sphere. In recent times, an attempt has been made by leaders among the boatmen community to celebrate the 'glorious' history of their caste (a particularly popular anecdote is the story of a Kewat ancestor, Guha, helping Ram, Sita and Lakshman cross River Ganga during their period in exile without charging them for services provided. He stated that Ram was his brethren since he too as involved in the work of ferrying people, albeit from this earth onto their next life). The event further highlights the recent success achieved by community members in the social realm. The state government even declared 5 April as a state holiday in celebration of the Nishad Raj Jayanti in 2012 (a sign of the increasing visibility and social assertion of the members of this lower caste). This event is annually held on this date at Nishad Raj Ghat in Varanasi. Mallah caste members from neighbouring areas too, converge here for the celebration of this occasion and some even address this gathering of community members.

5.9 Working Environment and Workplace Facilities of the Boatmen

The following section deals with the physical environment of work of the Varanasi boatmen. The River Ganga forms a central part of the physical backdrop of the boatmen, both in their personal and working lives. The segment thus deals with their interaction with the river in their working capacity as well as basic workplace facilities available to them.

As previously stated, boatmen in Varanasi are a decentralised and fragmented occupational group. Numerous family-owned small-scale or single unit enterprises exist across the 84 *ghats* of the city. Very few respondents owned a large fleet of boats and had a large number of boatmen workers working for them. These workers however were casually employed and received no

[293] Femia, J.V. (1981): *Gramsci's Political Thought: Hegemony, Consciousness and the Revolutionary Process.* Oxford: Oxford University Press, pp.35-44.

social security or work and employment benefits from their employers, irrespective of the scale of enterprise.

The physical conditions of work of the respondents too were not much better. Their workplace suffered from a dearth of basic facilities such as the absence of adequate provisioning for clean drinking water and toilet facilities. Despite the apparent popularity of the place and the frequent visits of government ministers and officials and various civil society organisations (CSOs) on the *ghats*, these basic amenities remained under-supplied. Though there were a few urinals on select *ghats* such as the Rana Mahal Ghat and Raj Ghat, these were grossly insufficient to meet the needs of the people at the *ghats*. Open defecation too was routine on almost all *ghats* (though this activity was limited to the mornings), with only Durga Ghat being absolutely free of this scourge, as observed by the researcher.

Though the VNN had planned awareness activities aimed at inducing "behavioural changes in the target audience[294]" to tackle with the problem of people defecating and relieving themselves on the river-bank, yet within the duration of her field-work, the researcher was not able to discern any improvements in the sanitary conditions of the *ghats* as a whole. The lack of success in changing the behaviours of the target population may be attributed to the fact that little visible measure had been undertaken during this period for improving the toilet and sanitary facilities on the *ghats* as well as in the areas above them.

Similar was the case with drinking water facilities. Though some *ghats* such as Shivala, Mansarovar, Rana Mahal, Chauki Ghat had taps (*soti*) installed and Raj Ghat had a hand-pump, the same was not the case universally. Either some boatmen carried water or drank from the river or moved above, beyond the *ghat,* to drink from the various tea-vendors, eateries or common taps or hand-pumps that were located above, since no facilities existed nearby. Even these facilities were not guaranteed to be clean.

Furthermore the work of the boatmen was largely performed in the open. A major portion of their work hours was taken up in the scouting of customers, which was carried on at the *ghats.* Though the major *ghats* included in the sample such as Shitala, Dashashwamedh and Meer had large overhead umbrellas erected to provide shade, the same cover was not available to boatmen

[294] VNN (nd): *Public Awareness and Public Participation.* Varanasi: Varanasi Nagar Nigam, JICA Project Management Unit, p. 2-3.

in other places. Workers in the latter areas thus had no shield to protect them from nature's elements. The summer months proved particularly unbearable. While some of the larger boats had a roof constructed to provide workers with some relief, the same was not the case elsewhere. Most workers' thus took the afternoon off in such circumstances to afford themselves some measure of protection, where none other existed.

Apart from the summer season, working on the *ghats* was generally a pleasant experience for them since the vast open expanse of the river on one side afforded a pleasant landscape to these workers. The same was not the case however for workers at the two burning *ghats*, Harishchandra and Khirki (adjacent to Manikarnika). The smoke and the soot from the constantly burning pyres was not only hazardous to the health of those working here but also particularly stifling to bear. This was especially true for Khirki Ghat (and also Manikarnika). While Harishchandra was open, spacious and covered a large area and thus gave some relief to the boatmen (who parked their boats at some distance from the funeral pyres), Manikarnika was closed and claustrophobic. The uneven steps, the huge pile of logs and the historical temples and the constant overflow of public, animals, vendors and mourners in this limited space resulted in overcrowding. Plus clothes and un-burnt remains of the dead were thrown in the same area where boats were tied and boatmen frequently took a bath. The unkempt environment of this particular locale was not conducive for the health of those working here despite them having become accustomed to the chaos.

Thus engaged in a physically rigorous occupation which was performed under the open sun without sufficient provision for shelter and drinking water, toilet and sanitation facilities, the conditions of work of the boatmen can be deemed as unfavourable. The conditions are even more unfavourable for those working at the city's burning *ghats* where smoke, ash and soot from the burning pyres constantly emanated. Though some protection is afforded to those working in the more commercial areas such as Meer, Dashashwamedh and Assi Ghat, the same facilities are not available for those in other areas.

5.10 Accidents at Work Site

There is inherent danger in the work of the boatmen plying in Ganga at Varanasi, with occasional news of an accident taking place in the Ganga. In order to minimise the incidence of accidents, the administration, during the monsoon season, imposes some restrictions on the

plying of boats. In the event of a moderate rise in water level, the number of passengers that can be carried per boat is limited and with further rise in the levels of water, the administration bans the operation of boats altogether in Varanasi. The latter was the case in 2013, when the city witnessed the heaviest floods since 1978. These restrictions, taken in the interest of public safety, were resented by a majority of the boatmen since they felt the community was, by and large, responsible enough to ensure the safety of passengers that boarded their boats. Absolute bans on plying of boats restricted the income earning opportunities of the community, they felt.

Even apart from the monsoon months, when the risks related with plying a boat in the heavy currents of the river are much higher, there is still a mild danger that is associated with their occupation. Though no accidents have taken place in Varanasi in recent times, the risk cannot be underscored as made evident in the recent capsizing of a boat in the adjoining district of Mirzapur, which took the lives of nearly a score people[295]. Boatmen were however at pains to emphasise the exceptional nature of such occurrences. Upon being questioned, they frequently gave the example of the state of roads in the city, where accidents and deaths happened on a more frequent basis. Yet they lamented the community being targeted for events which were undeniably rare.

The possibility of accidents occurring at the work-place are however much higher for divers, who often had to dive as deep as 30-40 feet into the Ganga to fish out bodies of people who had drowned and/or died in the river. Diving respondents in this study spoke of the fear that enveloped them before they dived into the water for often one to one-and-a-half minutes at a time to retrieve bodies. They spoke of the role of alcohol which was used to dull their sensations and reduce dread thus enabling them to make forays deep into the belly of the river. In a few instances, they recounted the death of fellow divers while on work. The administration too was blamed for being negligent since it provided them with no safety gear while frequently using their services for mounting rescue missions.

In case of death of a *gotakhor*, there was no fixed remuneration that was provided to their families. This fact was bemoaned by one respondent who stated that they too were humans and did not deserve the shoddy treatment which he felt the state government meted out to them. The respondents, from the general community of boatmen, were particularly critical of the institution

[295] India Today (2014): '18 missing as boat capsizes on Ganga in Varanasi,' 5th August.

of Jal Police, which they claimed had the post of a diver instituted to rescue people who had drowned into the water. They stated that this post which was reserved for Scheduled Caste (SC) groups should be especially reserved for members of the Mallah caste group due to their expert swimming and diving skills and the fact that the services of members of the community were utilised in any instance of drowning. The official of the JP however denied the existence of such a post and labelled these divers as '*swayam-sewi gotakhor* (self-serving divers),*'* who dived into the water driven by altruistic motives. By claiming thus, he divested the institution of JP of any responsibility of either paying them or being held liable in the event of an accident.

The role of the government is particularly condemnable in fomenting such a lax state of affairs. Since the *ghats* of Varanasi are a popular tourist destination, the government should have instituted proper security measures to address the safety concerns of the population visiting them. Despite visits by even the highest ranking officials in this country to this site, the administration has fallen short of establishing a basic safety protocol. The responsibility to protect the people has thus fallen on the hapless boatmen, who, with little regard for their own personal safety and well-being have to dive deep into the water (sometimes even in ice-cold water in the winter season) to ensure that tourists are not injured or that their bodies can be retrieved and handed over to their loved ones. The various organs of the government meanwhile seem more concerned with launching promotional drives on the importance of the maintaining the wholesomeness of the divine Ganga and instituting cosmetic cleaning measures on its *ghats* to give the impression of a concerned administration than initiating concrete steps for protection of people visiting the area or providing adequate facilities to the boatmen who actually discharge this duty. The JP (the singular institution created for protecting the people at the *ghats*) seems to be more of an outpost for VIPs getting a comfortable place to view the Ganga *aarti* or to facilitate boat-rides for such people than for ensuring the safety of people, as observed by the researcher and vouched for by a few respondents. The latter claimed that JP officials "*jhaankne bhi nahi aate* (do not even venture out to catch a glimpse)," other than performing a safety check at the time of the *aarti.*

Other than diving to retrieve drowning persons or bodies from the water, boatmen also dived to search for coins or valuables that pilgrims dropped into the water. While this appeared to be a harmless activity, some respondents mentioned a loss of hearing that they had suffered as a result of it. While one claimed that he had suffered from "*kaan mein khoon* (bleeding in ears)" when he accidently dived deep into the water, another stated, "*kaan phadphadaa ta hai agar gota lagaate*

hain (there is a weird feeling in the ear if I dive)." They thus avoided venturing into the water, but stated that they did not also go to a medical practitioner or seek any first aid despite the uneasiness and injury that they suffered. They did not view these injuries or sensations as serious enough to warrant a visit to a healthcare practitioner.

Apart from the dangers that the waters held for the boatmen, the river bank too was the scene of some accidents. The uneven steps of the *ghats* were responsible for at least two boatmen respondents tripping and hurting themselves (albeit both were in an inebriated state, as they stated). Even apart from that, one elderly boat-owner claimed that minor accidents took place almost regularly on the *ghats*. He blamed the local boys, who played bat-ball in the open spaces on the river bank, for hitting people, including boatmen and unsuspecting tourists. He highlighted the need for the *prashasan* (administration) to check the validity of this activity in this popular '*paryatak sthal* (tourist place),' since it was capable of causing injury to the passersby on the *ghats*.

There was no provision for any first-aid at the various *ghats* despite sometimes the victims getting badly injured from either falling of the steps or being hit hard by a cricket ball. People were thus left to fend for themselves in this environment and the same was true for the boatmen, to whom no protection or security and even less sympathy was accorded. The areas near the banks are however surrounded with numerous private and trust-run medical clinics and hospitals and even medical quacks and these were accessed in the event of an accident.

The ever increasing popularity of the *ghats* of Varanasi and the evening Ganga *aarti* too manifested itself in grave danger to the boatmen community and in general, to the people present at the *ghat* on one occasion when a bomb exploded at Shitala Ghat in 2010[296]. The absence of any measure instituted by the police and administration to protect against potential accidents, despite the heavy crowds, became apparent when a stampede occurred post the blasts. Though security measures have since been instituted, they are only limited to the time of the Ganga *aarti* and checks are conducted only at the two central *ghats.* Tourists approaching the *aarti* from the side of the river are not checked. The highly porous entrance to the *ghats* still makes this famous event vulnerable to further attacks. Moreover, there still does not exist any measure to prevent stampedes in the future.

[296] Singh, B.K. (2010): 'Terror Strikes Varanasi: 1 Dead, 25 Hurt in Blast at Ghat,' *The Times of India,* 7th December.

The boatmen, by virtue of being among the key service-providers at the time of this centre-piece event, are particularly vulnerable. One boatman, who was present at the time of the blast, stated that the trauma caused by the incident was such that he left the area before the *aarti* commenced each evening. Another senior boatman recounted the harrowing experience faced by the boatmen post the fracas, when he stated that the boatmen community was blamed for the blasts taking place since, according to the authorities, those who planted the device had reached the scene of crime on a *naanv*. He stated that instead of receiving recognition for helping people during the mêlée, the community was unfortunately scapegoated, which he reckoned was ultimately reflective of the government's negative attitude towards them.

The event thus highlighted the need for greater vigilance of the *ghats.* The researcher did witness (on one occasion) the patrolling of the *ghats* by a plain clothed security personnel, which could be indicative of heightened security measures at this locale, invisible to a passerby. Similarly she was informed of the recent detention of a few drug peddlers frequenting the banks of the river, which was deemed to be a sign of the increasing watchfulness of the police towards the activities on the *ghats.*

The preparedness of the administration to future disturbances however remains to be seen. In the meantime, the health and safety of the boatmen working at the *ghats* as well as the general public visiting this area remains their individual prerogative, with little to no help seemingly forthcoming from the administration.

5.11 Conclusion

The boatmen of Varanasi constitute an occupationally diverse group. The community is divided primarily on the lines of boat ownership and place of work. These factors govern the day-to-day working lives of the boatmen and also mediate their work experiences, including their interface with the governmental authorities that have been designated to police the *ghats.*

The greater insecurity faced by fishermen and divers within the boatmen community is reflective of the marginalisation faced by the weakest members of the group. The unequal distribution of economic ills from the ravaging of the Ganga is proof of the greater vulnerability experienced by the poor from denudation of their immediate natural surroundings due to their greater reliance on these resources for sustenance. The unequal social order within the boatmen community of Varanasi further hinders their socio-economic improvement.

CHAPTER 6

GANGA POLLUTION, GANGA ACTION PLAN AND THE BOATMEN OF VARANASI

6.1 Introduction

Ganga is the national river of India. It also has the distinction of being listed as one of the top ten most degraded rivers of the world. The high levels of pollution in this river have been the focus of numerous government initiatives, which have been organised under the ambit of the Ganga Action Plan (GAP). Urban areas, including Varanasi, have been given special attention in this plan as they were thought to be the maximum contributors to the river's pollution levels.

The current chapter aims to assess the awareness levels of boatmen with regard to the various initiatives instituted by the government for Ganga cleaning, under the aegis of GAP. Special focus is given to the Turtle Sanctuary in Varanasi, which has a direct bearing on the work of this community. Their perceptions of the usefulness and efficient functioning of these programmes and their inclusion and participation within both government and civil society initiatives aimed at cleaning the Ganga and its *ghats* is further delineated in the latter sections of this chapter.

6.2 Awareness of GAP among participants

The current section ascertains the awareness among boatmen of GAP and its constituent schemes that are functioning on the Varanasi *ghats*.

GAP was launched by the government in 1985. The foundation of this scheme was laid in Varanasi itself. In Varanasi, the main components of the scheme included creating physical structures such as Sewage Pumping Stations (SPSs) and an electric crematorium (located just above Harishchandra Ghat). Six SPSs were erected at various points on the *ghats* – Harishchandra, Mansarovar, Dr. Rajendra Prasad, Jalasen and Trilochan Ghat, respectively. The non-concrete or the non-core components of the scheme consisted of river front cleansing and development, monitoring improvement in water quality of Ganga and involving the public in contributing to a cleaner river. The role of the public was envisaged under the 'public participation' component of the programme[297].

[297] Jaiswal, R. (2007), *op cit.*

Table 6.1: Awareness of GAP and its constituent programmes

Heard of GAP	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	66 (95.65)	45 (97.83)	5 (100)	23 (100)	139 (97.2)
No	3 (4.35)	1 (2.17)	-	-	4 (2.8)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Awareness of GAP components					
SPSs	48 (69.57)	37 (80.43)	2 (40)	16 (69.57)	103 (72.03)
Electric Crematorium	47 (68.12)	36 (78.26)	5 (100)	20 (86.96)	108 (75.52)
Monitoring	-	1 (2.17)	-	1 (4.35)	2 (1.4)
Ghat Sanitation	30 (43.48)	23 (50)	4 (80)	13 (56.52)	70 (48.95)
Community Participation	-	1 (2.17)	-	-	1 (0.7)
Others	47 (68.12)	24 (52.17)	3 (60)	12 (52.17)	86 (60.14)
Total*	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

In the present study, the awareness among respondents of GAP and its various components was gauged (Table 6.1). 97.2 per cent of the participants had heard of Ganga Karya Yojana (the Hindi name of GAP). Though a majority of these respondents did not recognise the scheme by its official name, yet they were largely aware of governmental efforts aimed at tackling Ganga pollution in Varanasi.

As regards their awareness of its constituent components (Table 6.1), nearly three-quarter respondents (72.03 per cent) were aware of the SPSs that were situated on the *ghats*. Though almost all of the boatmen had seen them, some among them assumed that these structures erected on the *ghats* were meant for supplying drinking water to the city's population. 75.52 per cent of the respondents were aware of the electric crematorium that was located near Harishchandra Ghat. However a number of them criticised its functioning, stating that it remained closed for a majority of the time, even going as far to say that it worked only two months in a year and remained closed for the other 10 months. Respondents, who worked at Harishchandra Ghat, further criticised its functioning, with one of them stating, "They had installed it for poor people, but increased the rates from Rs.75 to Rs.700. *Aur Rs.100 alag se apne liye* (and Rs.100 they charge extra for themselves)."

Another 48.95 per cent participants were familiar with the state's efforts towards maintaining *ghat* sanitation. While most *ghats* were cleaned at least once a day, mentioned boatmen, the central *ghats*, such as Dashashwamedh, Dr. Rajendra Prasad and Shitala, which one respondent referred to as 'VIP *ghats'* were cleaned much more frequently – after a gap of every 5-6 hours. This was the reason, he stated, that while other areas had *gandagi* everywhere, these areas were clean. One key informant clarified to the researcher that the responsibility for maintaining these central areas had been divested by the government to Ganga Sewa Samiti, which daily organised the evening Ganga *aarti*. He further stated that they gathered money for their cleaning operations from their own resources, mainly the '*chanda* (offerings)' that people gave them.

Furthermore 46.15 per cent stated that they had seen a VNN boat being engaged in the task of cleaning the garbage daily lodged into the river by the pilgrims and tourists who visited the *ghats*. They however complained about the practice of picking up garbage from the western bank of the river and dumping it either mid-stream or onto the sandy eastern side of the river-bank. Most felt that this was not proper cleaning because ultimately the dirt streamed back into Ganga. 10.49 per cent of the sample was aware of the banning of the practice of washing clothes and using soap and detergents in the river. They however claimed that these rules were openly flouted on the river-front.

A mere 4.9 per cent knew about the awareness generation activities being undertaken by the government to promote the message of a cleaner Ganga among people and encourage them to

desist from dirtying it further. Only a miniscule percentage had heard about the monitoring (1.4 per cent) and public participation (0.7 per cent) component of GAP.

The low level of awareness of the non-concrete components of GAP among respondents is ironic since, as any observer would imagine, these are the elements of the programme where the possibility of inclusion of people and in particular, the communities ever-present on the *ghats* would be the highest. As regards the monitoring component of GAP, of the two respondents who were aware of this aspect of GAP, one was a boatman-owner from Tulsi Ghat, which is where the well-known non-governmental organisation, Sankat Mochan Foundation, previously headed by the late V.B. Mishra (former Mahant of the famous Sankat Mochan Temple in Varanasi), was located. This organisation has been central to the monitoring component of GAP in Varanasi – its built-in laboratory, Swatch Ganga Research Laboratory, was utilised for assessing water quality river near the concrete banks of the river and also mid-stream.

While this constituted the technical aspect of monitoring, communities too had a part to play in this programme, as emphasised by the official in-charge of the Public Awareness and Public Participation (PAPP) unit of VNN. Social monitoring is a relatively newer component of GAP. It was launched in Varanasi in 2013. Participation in monitoring activities is mediated by NGOs, contracted by VMC. Their role is to ensure inclusion of local communities in Ganga cleaning. For the *ghats,* contracted NGOs were tasked with the job of forming community-based organisations (CBOs) comprising of the diverse local populace, including vendors, priests, beggars, *dhobis,* Doms, barbers, boatmen and pilgrims, among others. A watch-dog role was envisaged for them to ensure people visiting the *ghats* did not dispose of their plastic waste, including polythene, into the river[298].

An aspect of 'participation,' which was exclusively focused on the boatmen community of the city, included the distribution of dustbins among them to be installed onto their boats. The boatmen were expected to inform tourists to dispose of their litter into these bins and at the end of the day, they were expected to dispose the garbage in a proper way. This scheme was limited to the major *ghats* of the city which recorded the most amount of traffic[299]. A representative of

[298] VNN (nd): *Public Awareness and Public Participation.* Varanasi: Varanasi Nagar Nigam, JICA-PAPP Project Management Unit.

[299] The *ghats* shortlisted for implementation of this scheme were – Assi, Tulsi, Shivala, Bhadaini, Harishchandra, Raja, Munshi, Shitala, Dashashwamedh, Rajendra Prasad, Meer, Man Mandir, Lalita, Scindia and Manikarnika.

the NGO, which enforced the scheme in 2013-14, claimed that 80 such dustbins were distributed to boatmen (as against the set target of 300 dustbins), while a VMC official stated that only 45 of these dustbins had been installed on boats. However in our study, none of the boatmen respondents made a mention of this scheme, either directly or even inadvertently (the latter while elaborating upon their contribution to the cause of Ganga cleaning). This was despite the fact that six of the sites selected for the scheme corresponded with the *ghats* sampled for this survey.

Thus while the participants were familiar with the technical aspects of GAP (in part due to the imposing physical structures that were erected on the *ghats* under the aegis of this scheme) and the sanitation measures implemented by VMC (engaging a boat for cleaning the garbage dumped into the river), hardly any respondent was aware of the other intangible features of GAP.

6.3 Performance of GAP, as perceived by boatmen

The following section provides an assessment of GAP functioning in Varanasi made by the boatmen respondents of this study.

In the present sample, only 7.69 per cent of the total respondents (Table 6.2) felt that the programme was wholly successful in meeting its aims and one respondent even stated, "Ganga *chamak rahi hai* (Ganga is shining)," to declare his perception of the performance of GAP. On the other hand, 22.38 per cent respondents, including 30.43 per cent boatmen workers, felt that the programme was a modest success. They stated that in recent times, the river had become relatively cleaner. The number of un-cremated bodies (of humans and animals alike) floating in the river too had registered a decline, it was felt. The same was also observed by the researcher from her first visit to the Ganga front in 2012 to 2015. These respondents felt that this was attributable to the awareness generation programmes of the government. Some even pointed out that the flow of the river was much better than in previous years, thus leading to a cleaner state of the river, with its waters being less mucky than in times past.

These positive assessments of GAP were however limited in number, since nearly two-thirds of the respondents (65.03 per cent) were critical of governmental efforts aimed at cleaning Ganga. The perception of failure among the elderly boatmen respondents in this study (those above the age of 56 years) was even stronger, with an overwhelming 86.36 per cent of them claiming that GAP had failed in improving the condition of Ganga. These elderly boatmen, who were able to recall the state of the river before the programme commenced in 1985, were unequivocal about

the fact that the quality of Ganga waters had deteriorated since then. One such boatman stated, "At Haridwar, *sheesha jaisa* (like a mirror) the water shines and here when you take a look at it, you can only see *kachra* (garbage)."

Table 6.2: Performance of GAP assessed by boatmen

Performance of GAP	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Not heard of GAP	3 (4.35)	1 (2.17)	-	-	4 (2.8)
Fully successful	9 (13.04)	1 (2.17)	-	1 (4.35)	11 (7.69)
Modest success	21 (30.43)	6 (13.04)	1 (20)	4 (17.39)	32 (22.38)
Failure	33 (47.83)	38 (82.61)	4 (80)	18 (78.26)	93 (65.03)
Other	3 (4.35)	-	-	-	3 (2.1)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Performance of GAP	**15 – 25 yrs**	**26 – 40 yrs**	**41 – 55 yrs**	**56 yrs & above**	**Total**
Not heard of GAP	2 (4.08)	1 (2.63)	1 (2.94)	-	4 (2.8)
Fully successful	4 (8.16)	3 (7.89)	3 (8.82)	1 (4.55)	11 (7.69)
Modest successful	13 (26.53)	9 (23.68)	8 (23.53)	2 (9.09)	32 (22.38)
Failure	28 (57.14)	25 (65.79)	21 (61.76)	19 (86.36)	93 (65.03)
Other	2 (4.08)	-	1 (2.94)	-	3 (2.1)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

The responses of all those who condemned the working of GAP ranged from, *"Arab rupaya kashi mein par safai nahi ho paawat hai* (there are billions of rupees in Kashi, still the river

cannot be cleaned),*"* to *"koi safai nahi, khaali halla* (no cleaning, only noise)*,"* to *"dikhaane ke liye thoda bahut kaam karte hain* (to show results they do some work)*."*

They further denounced the officials who were responsible for overseeing the various facets of the programme, stating that these officials only came to the *ghats* when some important people came to the city, otherwise they would never been seen in this area. One respondent was in particular critical of the officers supervising the functioning of SPSs. He complained:

> "*Sirf tankhwa khaate hain, bekaar ho gaya hai. Naam chalta hai, kaam nahi. Paisa barbaad* (They only take home salary. SPSs have become useless. They are there in name only, they do not function. Money wasted)."

A few boatmen also highlighted the problem of physical dirt which was present in the river. Polythene was seen to be a major problem and was distinguished from the flowers and garlands which were left into the water. As one boatman stated, "Plastic *nahi galti hai* (does not decompose). Flowers decompose and they finish off. They are not a problem I feel. Polythene is the reason for pollution." Another respondent blamed the continuing practice of submerging ashes and un-burnt parts of flesh from bodies being cremated on the *ghats* and those dead bodies which could not be cremated as per the customs of Hindu religion for the continuing pollution of the river. He stated that government awareness programmes had made little dent since these forms of pollution continued.

A few respondents made another pertinent observation regarding the reason for continuing pollution levels in the river. Though these were not directly related to the functioning of the GAP in Varanasi, yet they noted that there would not be any need to clean Ganga if the river had enough flow and water in it. A boatman duly noted, "*Agar paani nahi toh kachra toh jamega* (if there is no water then dirt will accumulate)." Tehri Dam too was brought into these conversations, since it was blamed for the reduced flow of water, though water levels were deemed to be appreciably higher in 2013 than in previous years[300]. In this regard, one elderly boatman respondent was particularly disparaging of the wrongful priorities of the government regarding its Ganga cleaning efforts. He stated:

[300] 2013 was also the year of the Maha Kumbh Mela in Allahabad – the largest congregation of humans in the history of mankind. During this event, the government was under tremendous pressure to keep pollution levels in the Ganga to a minimum and thus released higher than normal amount of water in to the river to ensure dirt levels were kept to a minimum.

> "You stop us from bathing, using soap and *tel* (oil) and then let *naalas* (drains) drop sewage water into the river. You dirty it and blame us. Tehri Bandh (dam) reduces the *pravaah* (flow) of water, so dirt just accumulates there."

Thus these respondents were able to identify the problem of abstraction, which had severely depleted the river of its water, as being responsible for high levels of pollution. A few even blamed the dirt let off by the leather factories in Kanpur which spoilt the water even before it entered the city of Varanasi. The role of the government was implicated in both these cases.

Thus from the pattern of responses of the boatmen participants of this study, it can be deduced that a majority of them shared a negative perception of GAP. They pointed to the poor management and upkeep of resources built under the aegis of the programme in Varanasi. A recently published article assessing the performance of SPSs in Varanasi reiterated the opinions of these boatmen – inadequate attention to the maintenance of these structures and poor electricity supply resulted in them functioning at a lowly eight per cent of their installed capacity. Constantly leaking *naalas* and overflowing drains during monsoons nullified the money spent on these technical resources[301].

By virtue of being positioned on the *ghats*, boatmen have witnessed first-hand the performance of GAP and through their responses it was easy to gauge their lack of faith in government's management of the programme. The question that thus arises here is that if the boatman community is highly critical of the government's performance, can they be expected to effectively contribute to the programme under its participatory component?

6.4 Assessing participation within GAP

This section focuses upon the participatory content of GAP. It attempts to critically assess the meaning of such involvement in the programme from the point of view of the boatmen community in Varanasi and understand as to how such a form of participation affects and empowers those whose involvement is sought. In other words, does it constitute ownership or greater control over the programme or the way in which participation is being used in the current context of moving 'governance beyond the state' is a misnomer to confuse people while actual power is still held by the government officials.

[301] Alley, K. (2014): "Ganga and Varanasi's Waste-Water Management: Why has it Remained Such an Intractable Problem?" *South Asia Network on Dams, Rivers and People (SANDRP).* Available at: https://sandrp.wordpress.com/2014/09/25/varanasis-ganga-wastewater-management-why-has-it-remained-such-an-intractable-problem/, accessed on 27th March, 2014.

Though GAP, at the time of its initiation, was lauded as a people's programme and the concept of participation was embedded into the original document, yet this aspect of the programme has often been sidelined[302]. Up until recently, admitted one key informant interviewed in this study, relatively little effort had been made by the government to mobilise people to participate in Ganga cleaning efforts.

While the government had previously made provision for the formation of Citizens' Monitoring Committees (CMCs) in each city where the programme was initiated, an evaluation of GAP functioning in 2004 revealed either non-constitution of these bodies in most cities or their ineffective performance in those places where they had been set up[303].

In the present study, none of the boatmen or boatmen leaders interviewed were aware of the existence and functioning of CMCs in Varanasi. Government structures (even participatory ones) have often been observed in the past to have been more accessible to the more affluent and educated members of society, which may account for the lack of awareness of this largely poor and socially backward community about this institution[304]. However, in the present study, even VMC officials were unaware of the existence of this body. This thus raised questions not only about the inclusion of local *ghat*-based communities in these bodies but also threw light on their state of functioning in Varanasi.

Apart from CMCs, in recent times, greater thrust has been accorded to the role of local communities in Ganga cleaning. This was done after the government initiated a review of GAP II, which commenced in 1993. Ever since its inception, the programme had heavily relied upon technological inputs to improve pollution levels in the river's waters. After more than 25 years of GAP functioning, the waters of the river are significantly worse than they were in 1985. In 2009, mean total coliform (TC) levels in Ganga at Varanasi were 144,833 MPN/100ml, as against the maximum permissible limit of 2,500 MPN/100ml. Similarly BOD levels in the water stood at 10.5 mg/l as against the prescribed target of 3mg/l or less[305]. Erection of SPSs and STPs had thus failed in their objective. Various writings laid bare the lacunae in the programme. Poor planning

[302] Ahmed, S. (1994), *op cit*, refers to Kaushal, 1990 in stating that between the years 1985 and 1990, only 0.133 per cent of GAP expenditure was given to voluntary organizations.

[303] Public Accounts Committee, 2003- '04 (2004), *op cit*, p.124.

[304] Jha, S., Rao, V. and Woolcock, M. (2007): 'Governance in the Gullies: Democratic Responsiveness and Leadership in Delhi's Slums,' *World Development*, Vol. 35, No. 2, pp. 230-246.

[305] NRCD (2009), *op cit*, p. 28.

and management on part of the government were at the forefront of these criticisms. Expensive sewage-treatment technology was imported from the West without much appraisal being conducted of its suitability to Indian conditions. The Dutch waste-water treatment technology, the Upflow Anaerobic Sludge Blanket (UASB), was used in GAP. This technology was purchased (with money from Dutch aid) despite its relative ineffectiveness in treatment of waste water and its proven weakness in removing harmful pathogens during the treatment process[306]. Similarly the approach employed to cleaning the river too was deemed problematic – the absolute reliance on STPs to cleaning up the river's waters, rather than encouraging the development and usage of cleaner machinery by taxing the use of technology which caused widespread environmental contamination, too came under criticism[307]. The end result was that, despite the massive amounts of money being pumped into it, GAP is widely regarded as a failure. The poor state of the national river was visible to all and sundry.

In preparation of GAP III, the government mandated a review of GAP II, which identified a number of weaknesses in programme functioning. The absence of participation by local communities was identified as one of the neglected components of this 'people's programme.' The programme was deemed to be suffering due to lack of awareness and co-operation by local communities in meeting its goals. This led to a whole gamut of activities being launched under the name of 'Public Awareness and Public Participation (PAPP).'

Thus it can be said that the role of public participation in contributing to the successful outcome of a programme was accorded recognition after the magic pill of technology failed to register meaningful success. In other words, participation was seen as a convenient alternative to answering difficult questions about the programme rather than simply acknowledging the failure of past strategies[308].

In Varanasi, PAPP was rolled out in 2013, when VNN invited tenders from CSOs for rolling out this governmentally-determined strategy in six different zones of the city – the *ghats* of Varanasi constituted one such zone. Functionaries of the CSO, which was selected for catering to the *ghat* zone for the year 2013-14, were interviewed by the researcher for this study[309]. This aspect of the

[306] Menon, U. (1988), *op cit.*
[307] Thakkar, H. (2007), *op cit*
[308] Ahmed, S. (1994), *op cit*
[309] The contract of the concerned CSO (along with 2 other CSOs working other city zones) was not extended for the year 2014-15 due to its inability in meeting its targets.

programme, once introduced, was implemented through contracted CSOs. The latter were responsible for spreading awareness among the population on the importance and need for Ganga cleaning and for further engaging various community members on this issue. The agenda for engagement was however determined in advance by the programme authorities, leaving little scope for genuine participation of the general population which was, ironically, relegated to being the recipient of such action by the contracted CSOs.

The stated rationale behind the introduction of PAPP was that communities both contribute to (often unknowingly) pollution and also suffer from its after-effects. They should thus be made aware of their role in engendering pollution, so that they can alter their behaviour accordingly. A multi-pronged strategy was devised for creating awareness among the different population groups. Some of the activities listed out included conducting awareness meetings with various stakeholders, performing *nukkad natak* (street plays), issuing press releases and advertisements in both electronic media, putting up banners and hoardings at various public places, organising charity events such as walks and runs and initiating signature campaigns, among others[310].

While these methods were expected to generate the requisite amount of awareness, the participation component of the programme involved the formation of community-based organisations (CBOs), which were expected to supervise the running of the programme. A three-tiered structure of community-based organisations (CBOs) was to be created at the *mohalla* (colony), ward and zone level. The Zone Development Committee (ZDC) which existed at the highest level was to be constituted so that it would have members from all Ward Development Committees (WDCs)[311].

For the Varanasi *ghat* zone, 4-5 *ghats* were clubbed together and a Mohalla Development Committee (MDC) was to be constituted from among the people at these *ghats.* Their role was to oversee the implementation of the programme in their respective areas. In practical terms, their responsibility would entail dissuading a person on the *ghat* from defecating openly on the river-bank, advising them to use proper sanitation facility, informing people of their responsibility to not litter on the *ghats* and the river and also telling people to avoid using soap while bathing in the river's waters.

[310] VNN (nd), *op cit*
[311] *ibid*

These committees were thus entrusted with the responsibility of superintending people's actions on the *ghats*. They were to constitute the labour force of the programme. In other words, the public sector, due to its inability to effectively man the *ghats*, had devised a tactic wherein it would delegate the responsibility of maintaining a clean river-front to the local communities which lived and worked in that area. These local communities thus formed the unpaid labour force of this scheme as the government attempted to reduce its own burden[312].

The beginning point for contracted CSOs in this project was to conduct a baseline survey of the different population groups which resided in their respective areas to ascertain their awareness levels with regard to Ganga cleaning. During this exercise, CSOs were expected to identify a number of community leaders who would then be convinced to join their respective MDCs (at the *ghats*, the CSO worker stated that only vendor committees had been constituted).

Thus in this approach CSOs were reduced to being contracted agents of the state, who were required to fulfil the mandate that had been handed to them under the terms of contract that they entered into with VMC. Their accountability here lay with VMC and not to the local communities whom they were expected to serve. Thus despite the adoption of the terminology of 'participation' within the programme, decision-making continued to be top-down. This is evident in the fact that performance targets for CSOs were fixed by the VMC in their contract, who had the power to refuse project extension to any organisation whose work it deemed lax. The CSO contracted by VMC to work on the *ghats* was refused extension for the year 2014-15 for precisely this reason, stated the VMC official. Thus despite resorting to a community-based participation model of governance, governmental authorities in Varanasi maintained their hold over the programme. Such a form of governance can be defined as being a continuation of old policies cloaked under the garb of participation[313].

While an examination of the concept of participation within GAP revealed the superficial and passive nature of participation[314] of local communities within the programme (one that was employed without the devolution of powers to the community), further interaction with

[312] Zerah, M. (2009): 'Participatory Governance in Urban Management and the Shifting Geometry of Power in Mumbai,' *Development and Change*, Vol. 40, No. 5, pp. 853-877.
[313] *Ibid*
[314] Cornwall, A. (2008), *op cit*

functionaries of the CSO working on the Varanasi *ghats* under the aegis of GAP revealed that even the process of implementation was mired in flaws.

Money troubles blighted the performance of the scheme complained respondents, which influenced the effectiveness of the programme. CSO members complained that this was the reason that they were not able put up an ample amount of banners and hoardings propagating the message of a clean Ganga. This also resulted in them not being able to install the required number of dustbins on boats. They further alleged a lack of support by VMC who, it was felt, should have made installation of dustbins on boats mandatory for renewing their license for the forthcoming year. The scheme, they admitted, had not been as successful as anticipated – boatmen had removed these dustbins since their installation had not been made obligatory.

Similarly another scheme mooted by VMC too failed to show positive results. The organisation had been tasked with the appointment of a "Ganga Mitra (Friend of the Ganga)" on the *ghats*. He was supposed to perform the role of a watch-dog, who had to whistle and subject an individual to embarrassment if he witnessed them defecating or urinating on the *ghats*. A monthly honorarium of Rs.500 was to be paid to him. However non-timely payment of dues resulted in shelving of this scheme too, it was alleged.

The VMC official, based in the PAPP-Project Management Unit (PMU) cell too admitted the laxity of VMC in disbursing funds. She claimed that delayed disbursal of funds meant that she could not even berate participating CSOs for their slack performance. Itching for funds, CSOs were forced to deploy precious manpower resources to VMC and away from the field as they haggled with officials, beseeching and demanding their release, as per the terms of contract. This affected the quality of work performed by them as well as the effectiveness of the programme.

Despite the criticisms labelled above and in spite of the limited scope for involving local communities in GAP, the work of these organisations however cannot be out rightly rejected as being redundant. Interactions with CSO personnel working on the Varanasi *ghats* revealed that the organisation had succeeded in creating a 'shared space' wherein discussions between the CSO representatives and different categories of workers on the *ghats* were frequently conducted regarding their day-to-day problems and experience of working in this highly commercialised and often contentious work environment. With regard to the boatmen, he stated that union recognition was the prime demand of members of the community that had emerged from his

conversations with them. Other demands included the employment of community members as *gotakhors* and the creation of such a post per *ghat* as well as steps to be taken for regularisation of the workforce by the government. Some of these issues were raised by a number of boatmen respondents even in the present study.

These demands of the boatmen workforce verbalised to the CSOs, functioning as representatives of the government, had given them some means of getting their otherwise unheard voices heard by administrative officials. Though, till the time of writing, no concrete step had been taken towards meeting of these demands, yet the creation of an 'invited space[315]' for conveying their concerns to the authorities can be considered to be a step forward for marginalised communities, whose participation is being sought in the programme.

An issue however exists with the formation of such a space for discussing the concerns of people based upon the *ghat*, including the boatmen. Since the programme is only concentrated in the 15 key commercial *ghats* of the city, the concerns of only a limited category of the workforce (in this case, the boatmen workforce) are communicated to the CSOs and through them to the government. As seen in the previous chapters, boatmen in these central *ghats* are socio-economically and politically well-placed relative to their counterparts working in the more secluded areas of the riverine landscape. Excluding them from such spaces means that voices of the most marginalised within the community remain buried[316].

A further concern for the government in mooting the role of locals based on the *ghats* in monitoring behaviour of people is related to the relatively large and porous landscape of this area. The CSO staff highlighted the difficulty faced in attempting to spread awareness on the *ghats*, since on any given day, three-fourth of the people in this area constituted its floating population. Including them in the purview of awareness generation activities was impossible, since most of these pilgrims and tourists did not stay in the city for more than a few days.

A boatman too elaborated upon his experience of advising people to refrain from dirtying the *ghat*, stating:

> "*Kitni janta hai Kashi mein. Mana karein ek taraf toh doosri taraf karte hain. Toh uska kya?* (There is so much public in Kashi. We tell them not to pollute on one side then they dirty it in some other corner. What to do about that?)"

[315] Cornwall, A. (2002): 'Locating Citizen Participation,' *IDS Bulletin*, Vol.33, No.2, p. i-x.
[316] *Ibid*

The nature of the landscape made monitoring of activities difficult, especially given the fact that programme activities were concentrated in a select few locales.

Even these locales, as observed by the researcher, were mostly not equipped with proper garbage disposal facilities for the visitors to dump their litter there. In the absence of dustbins, gentle remonstrations and counsel of the superintending boatmen or other members of the MDCs would not have much effect, one would imagine. The situation is however changing with regard to the installation of dustbins at the *ghats* post the 2014 general elections, which are now being erected at frequent locations, as observed by the researcher during her field work stint in 2015.

Another problem that may be encountered in including members of the community of boatmen within the programme is the low opinion shared by a majority of them of governmental efforts aimed at Ganga pollution cleaning. A large number (mentioned above) felt that the programme was mired in bribery and corruption, resulting in Ganga still remaining dirty. They criticised the government for hassling members of the community to hide their flaws in implementation. Some responses of boatmen respondents in this regard are as follows:

> "Money comes for Ganga cleaning but goes where? And instead they try to prohibit the Mallahs from plying their trade."
>
> "They removed the tea and paan stalls of the poor – when they got the money, then they became quiet."
>
> "Nagar Nigam boat itself discharges the garbage onto the other side of the river. They just clean mud from the *ghats* after monsoon and nothing else."
>
> "They say that Majhi dirty the river, but in the morning, the (chemicals of) dyes used in colouring saris get discharged into the river."
>
> "When Nagar Nigam officials come here, then they say remove the boats. Anchor them away from the *ghats*, they order. Pilgrims face difficulty in bathing. Where should we take our boats?"
>
> "Millions of rupees had come for making *chhatri* (overhead umbrellas) for Mallahs. They took the money from the Japanese, but did nothing."

The anger against VNN officials for shoddy implementation of GAP could easily be detected in the above statements made by members of the boatman community in Varanasi, especially since they felt that they had to suffer from government's ire in the aftermath of it. Another respondent irately declared that the community had not been included in any Ganga *"safai karyakram* (cleaning programme)" by the state. A boatman from Shitala Ghat went so far as to declare that. "If any work comes, it goes to the *mahant* (priest) at the *ghats* and never to us. They take charge

and we get left behind. Brahmin Mallah *se chidte hain* (Brahmins dislike Mallahs) and call them dirty." He thus highlighted the discriminatory attitude of not just the high-caste Brahmins on the *ghats*, but also of the authorities who overlooked this socio-economically weak community in cleaning initiatives. Instead they gravitated towards the more powerful and socially respected priests on the *ghats*, who enjoyed the benefits of favouritism by the authorities.

In the present study, just a couple of respondents stated that they had worked with the government in its cleaning efforts and that too when they had been employed as casual workers to remove dirt from the *ghats.* Apart from a VNN boat removing garbage from the left bank of the river (only to again dump it into the river mid-stream or onto its sandy bank), most remained unaware of any concerted effort taken by the government to clean the river. None of the respondents in the present study made a mention of being contacted by a governmentally-contracted CSO as part of government efforts to engage them in maintaining a clean river-front.

The PAPP initiative is however in its infancy and thus to make a sweeping judgement of the performance of the CSOs work on the *ghats* would be a foolish exercise. Yet by listing out some of the complaints which members of the boatmen community hold against the government, the potential hurdles to be faced by any organisation in reaching out to them and subsequently enrolling their support in government-mediated efforts to clean the banks of the river become amply evident. Their attitude to these efforts, once enrolled, too would be under question since, as Ahmed (1994) alleges, frequently witnessing the debasement of a cause by government's own officials is bound to sully its value in the eyes of the local community[317]. Ahmed's critique of the role of government was effectively played out in the words of a CSO official who had frequently implemented cleaning drives on the *ghat*. He claimed:

> "When we were young, elders told us that we should not do *shoch* (toilet) in the river, otherwise we will get *kodh* (leprosy). We were told never to dirty it. *Ab woh bhavna tyaag di hai humne jab hum bade ho gaye hain* (we have given up that feeling now that we have grown old), as we see sewage being deposited there on a daily basis without any consequences against any person."

Thus it may be concluded that the component of PAPP cannot be separated from the programme. Though the above statement was not uttered by a boatman respondent, yet it can be said that the performance of the rest of programme is bound to resonate and have a synergistic influence on

[317] Ahmed, S. (1994), *op cit*

this aspect of GAP as well[318]. Furthermore, even the component of participation that has been delineated in the programme only envisages a limited role for the local communities, including as boatmen. Identifying the problem, planning, decision-making, organising a response to the problem are areas still controlled by the government, thus leaving the people only as passive participants within the entire project. Despite the adoption of the new terminology of participation, PAPP only offers the chimera of community participation. Governance as in the past remains top-down.

George (1976) writes that such passive inclusion of communities is typical of programmes which are techno-centric in nature and are implemented through a process of 'technological implantation' from the West, without much consideration being given to the social context in which technology is being introduced. She further asserts that an exclusive focus on technological components of programmes often renders local communities 'functionally invisible' in the implementation process[319] – a scenario which is evident in the current context.

6.5 Turtle Sanctuary

The current segment deals with the experiences of the members of the boatmen community with regard to the implementation of the turtle sanctuary in Varanasi and their perceptions regarding its effectiveness. The portion of the Ganga River, running from Raj Ghat to Ramnagar in southern Varanasi was declared a Kachhua (turtle) Sanctuary in 2006.

The origins of this sanctuary stretch back to 1987, when the government formulated a plan to annually release scavenger turtles into the river in Varanasi, which were expected to feed onto the carcasses dumped into the holy Ganga[320]. Under this 'Scavenger Turtle Scheme,' turtle eggs were procured from their natural habitat in the Chambals, from near the cities of Agra and Mainpuri, informed the Range Officer at the Kachhua Sanctuary Office in Sarnath, Varanasi, incubated at designated hatcheries, reared and subsequently released into the water. Devised under the aegis of the GAP, the aim of this initiative was to complement the physical and technical components of the programme and reduce pollution levels in Ganga at Varanasi.

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[318] Harriss, J. (2001): *Depoliticizing Development: The World Bank and Social Capital.* New Delhi: LeftWord Books, p.64-5.

[319] George, S. (1976), *op cit*, pp. 89-112.

[320] Lokgariwar, C. (2013): 'Turtle Relocation Programme or Turtle Poaching Plan,' *India Water Portal.* Available at: http://www.indiawaterportal.org/articles/turtle-relocation-program-or-turtle-poaching-plan, accessed on 5th March, 2015.

Table 6.3: Knowledge of turtle sanctuary and perceived effects on work

Awareness of Kachhua Sanctuary	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	57 (82.61)	45 (97.83)	5 (100)	22 (95.65)	129 (90.21)
No	12 (17.39)	1 (2.17)	-	1 (4.35)	14 (9.79)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Perceived effect on work					
Attempt to curtail boating in Ganga	3 (4.35)	9 (19.57)	1 (20)	2 (8.7)	15 (10.49)
Motor-boat ban	24 (34.78)	22 (47.83)	5 (100)	15 (65.22)	66 (46.15)
Fishing ban	22 (31.88)	27 (58.7)	2 (40)	13 (56.52)	64 (44.76)
Agriculture ban	11 (15.94)	10 (21.74)	2 (40)	2 (8.7)	25 (17.48)
Sand-mining ban	4 (5.8)	14 (30.43)	-	3 (13.04)	21 (14.69)
Other interference	6 (8.7)	9 (19.57)	1 (20)	2 (8.7)	18 (12.59)
No effect	2 (2.9)	1 (2.17)	-	-	3 (2.1)
Cannot say	14 (20.29)	4 (8.7)	-	1 (4.35)	19 (13.29)
Total*	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

As part of this scheme, activities such as fishing, plying motor-boats, agriculture and sand-mining are prohibited in Varanasi. The offence is punishable by law under the Wildlife Protection Act of 1972. While the previous chapters have elucidated in some measure as to how this sanctuary has interfered with the pursuit of their traditional livelihood activities, this segment

will elaborate further upon boatmen's viewpoints of this sanctuary and how the working of this initiative affects their working environment.

Within the present sample, 90.21 per cent of boatmen respondents were aware of the promulgation of the Kachhua Sanctuary in Varanasi. Boatmen workers at 82.61 per cent were the least aware category (see Table 6.3). Interestingly, while all boatmen respondents above the age of 56 years had heard of this sanctuary, boatmen belonging to the age-group of 12-25 years had the most number of respondents, at 16.33 per cent, who claimed to be ignorant of the presence of a sanctuary in Varanasi.

A large percentage of respondents felt that this sanctuary constituted some form of threat to their occupation. 46.15 per cent boatmen respondents, including all motor-boat owners and 65.22 per cent boatmen who owned both hand-oared and motor-operated boats, were aware of the restrictions imposed by the state Van Vibhaag (VV) on plying of motor-boats. Almost all of these respondents however opposed the ban and sought to defend themselves. One motor-boat owner from Shivala Ghat claimed that the logic of the government that motor-boats caused injuries to the turtle were flawed since,

> "Motor lies below the surface in a motor-boat and produces *kampann* (vibrations) in the water, which can be felt by the turtle. They realise that someone is nearby and then move away."

A similar reasoning was given by another boatman, who stated that the noise made by the machinery of the motor-boat seeped into the water and so the turtles moved away and did not come near such a boat. He further justified his stance by stating that the *kachhua* was a very sensitive creature and retreated even when somebody touched it or came near it when in water, so how would they remain near a motor-boat, despite being able to perceive their presence. Another respondent asserted:

> "They say *pankha* (fan) of boat kills turtle. Then why do we never see the body? Why does it never rise up? *Moorkhta hai aadhikaari ki* (it is foolishness of the officials). This is all related to money. They should have given it to *sichaai vibhaag* (irrigation department). They have association with water."

While the latter respondent blamed the poorly informed Forest Department officials for this move, some other respondents went on to highlight the hypocritical attitude of the officials themselves. They claimed that though motor-boats had been banned in the name of the turtle sanctuary, yet when these very officials went on a tour of the river, they themselves utilised the

services of a motor-boat. The Jal Police too owned a motor-boat, some stated, to demonstrate the insincerity of the officials.

A couple of respondents however disagreed with the majority opinion and stated that motor-boats were harmful to these turtles since they disturbed the peace and tranquillity of this turtle habitat. One of these respondents further stated that he agreed with officials that the *dhuaan* (smoke) from these boats polluted the waters of the river. These voices were however in an extreme minority and apart from these two respondents, none supported the motor-boat ban.

Apart from the ban on motor-boat, 44.76 per cent of respondents (including over half of all hand-oared boat owners) also mentioned the prohibition on fishing that had been implemented due to the turtle sanctuary. While most respondents criticised this aspect of the ban as well, with one stating, "They try to stop us from fishing, but then what will we eat," to register his protest, a single respondent appreciated this state measure. This young 18-year old boatman worker claimed that people and in particular fishermen killed these *kachhua,* who would often get entrapped in the net laid out by the former, for catching fishes. The fishermen would then take them home. He further explained that though they did not explicitly mean to ensnare these turtles, but once caught, they would not let them escape. Only if someone saw them, they would leave the turtle. However, as soon as he uttered these words, a neighbouring boatman sternly admonished him and asked him if he had ever witnessed such incidents. As the former replied in the negative, he was further scolded for speaking without substantive evidence to support his words, since such false accusations, as he claimed, tainted the image of the community. At the very least, members of the boatmen community should not levy such allegations without knowing the truth, he further stated.

The incident thus brought into focus the resistance of the community to the charge that their fishing and eating habits were responsible for the failure of the sanctuary. A number of boatmen respondents were aware of this allegation against their community (though it was denied by the Forest Department official posted at Sarnath-based rearing centre) and thus upon being queried about this sanctuary, immediately sought to defend themselves. While one participant claimed that though forest officials leave turtles into the river, they themselves were at the centre-stage of the plot to 'parcel' them away to smugglers. Another stated:

> "*Yeh gareeb ke khilaaf hai* (this is against the poor). They leave ten and show thousand on paper. 75 per cent of the boatmen do not eat *kachhua* as they were considered to be avatars of Lord Vishnu."

Similarly, a boatmen leader asserted his community's innocence by proclaiming, "This is a *ghotaala* (scam). Turtle is our *kul-devta* (community-god). Instead, they kill turtle and supply in hotels and their people eat its meat."

Though a few stray incidents of trapping and eating were not denied by these respondents, yet they were anxious to ward off the labelling of their entire community with such a charge, which they perceived to be a slight. It is important to note here that dietary practices are considered to be an important marker of caste position in Hindu social hierarchy. Customary eating practices of various boatmen and fishermen caste groups have included consumption of animals such as rats, crocodiles and tortoises. Such eating habits did not conform to notions of cleanliness and purity in the minds of both colonialists and traditionally high caste Hindus and were considered to be defiling[321]. This played a key role in the designation of the community as a lower caste group. Thus such utterances by community members, wherein they denounced consumption of meat of turtles can be seen as an effort to set themselves apart from such eating habits. On the other hand, the same may also be understood as a move by some community members to ward off any threat of administrative and police action.

Moving on to other activities deemed illegitimate by the turtle sanctuary in Varanasi – while 17.48 per cent were aware of the ban on agriculture, 14.69 per cent, including 30.43 per cent of hand-boat owners, were familiar with the ban imposed on sand-mining (Table 6.3). They were however none too pleased with this decision of the authorities as well, since sand-mining especially had been a particularly lucrative income-earning opportunity for a number of these boatmen.

Though mining and cropping had been relatively effectively curtailed by the state forest department (especially the former), whose officials claimed that they went on regular inspections of this site to ascertain that no illegal activity transpired there, yet they had not been very successful in eradicating the practice of horse riding that takes place there. As per the observations of the researcher, the sandy banks have come to serve a picnic spot for people

[321] Doron, A. (2013), *op cit*, p.39; Douglas, M. (1966): *Purity and Danger: An Analysis of the Concepts of Pollution and Taboo.* London: Ark Paperbacks, p. 8-11.

looking to enjoy a day-out on the scenic Ganga river-front. The crowds are particularly visible during autumn and winter season as the weather at this time of the year is quite pleasant. Not only is this indicative of half-hearted vigilance by the forest officials, but also reflects the apathy of the JP, when such activities are clearly visible from across the river. In their defense, officials of the forest department claimed that plans to stay near the river-front, to curtail the presence of illicit activities, had not materialised since the affected families (many of whom resided nearby) publicly heckled and abused them and their wives, which made staying there virtually impossible. No matter the excuse, the fact is that while livelihood opportunities for the city's boating community were curtailed and this occupational group publicly vilified as a threat to an important conservation measure of the government, the norms of the turtle sanctuary continue to be flouted. Any potential nesting sites of the turtle would be under danger from rthe stomping of the horse's hooves into the sand. Given such human presence and the fact that almost daily garbage from the concrete banks is dumped here by VNN employees, the question that arises is that would turtles, who prefer solitary and calm locales, even frequent such a place.

The bar on sand-mining was further disapproved by a few respondents who stated that higher levels of sand that had accumulated onto the eastern bank of the river had resulted in flow of the river being deflected onto the city's concrete *ghats* on the west, which had resulted in gradually eroding the under-water base of these *ghats*. Some respondents pointed out that the height of Dashashwamedh Ghat had already declined a little and it may cave in the future if remedial measures were not taken. The same is being gradually accepted by the government, as evident in recent measures to take stock of the situation and public announcements made regarding 'expert management' of sand levels on the river's eastern banks in the city to ward off the threat to the heritage structures and temples on the western front[322]. If past experience is any indicator, it is clear then that such scientific management will not include the resident boatman community who were displaced from their traditional activities due to the implementation of scientifically guided conservation measures to begin with. Thus while expert committees are formed and consultations are held to deal with the aftermath of poorly planned expert conservation, poor communities who derive their sustenance from these resources suffer.

[322] Chandra, S. (2014): 'Here's What Stands in the Way of Ganga's Path to Redemption,' *The Indian Express*, 9 June.

Not only is this consequence felt in economic and material terms, but the sanctuary has had another profound impact on the community – it has resulted in labelling of this community as being involved in the trapping and eating of turtle meat. They recognised this mark on their identity and felt that this was unfair, stemming from the poor performance of this ill-conceived plan. The most popular riposte by boatmen respondents upon being asked about the turtle sanctuary was summed in the succinct words of one boatman, "*Kachhua dikhayebe nahi karte hain* (turtles are not seen)*."*

Some reasoned that though the VV left these turtles in the water, yet the given the innate nature of these turtles, they migrated to other more '*shant* (quiet/peaceful)' areas. Others even questioned the expertise or knowledge base of the forest officials in proclaiming a sanctuary in a densely crowded urban area, with one stating, "Turtle rearing in the city, there is no benefit from this. *Farzi, galat hai* (fake, this is wrong). They should do it in the outskirts where it is quiet." While some other respondents stated that turtles which had been reared for a year in a '*bandha paani* (enclosed water)' would not be able to adapt to the river. They belonged to *pokhra* and were not fit to be left in the river.

Finally, a large number of respondents stated that turtles are not fixed creatures. They have been noted to travel long distances within a water body. One boatman stated that they travelled as much as 14km every day. He then questioned the means employed by the VV to monitor the progress of these turtles so as to ensure that they remained within the boundaries of the sanctuary and serve the purpose which had been envisaged for them in the original plan. Another stated that during the monsoon season, when the flow of the water currents was particularly strong, these turtles were swept out of the boundaries of the city.

The officials of the VV too admitted that there was no procedure for monitoring the distance travelled by these turtles or to ensure in any way that they remained within the confines of the sanctuary area. Since there was no monitoring, he was unable to make any assessment of the impact of the programme on reducing pollution levels in the Ganga. Though he estimated that the litter generated by the temples (including flowers) had reduced, he could not definitively ascertain any positive impact on the river by the turtle sanctuary.

Given the official acknowledgement of the lack of awareness about the impact of the programme, it came as no surprise that the boatmen community too questioned the efficacy of

the *kachhua* sanctuary. One senior leader of the community from Shivala Ghat questioned the relatively strict adherence to rules by the Forest Department officials when it came to activities which were pursued by the boatmen, including sand-mining and agriculture. He pointed out that the by-laws of the sanctuary had instituted other conditions as well, including not making loud noise near the water (which effectively banned the ringing of bells) and not touching Ganga water. Yet these norms were flouted with impunity on an hourly basis at the *ghats*, without the administration raising a voice against them. His views were echoed by a few other members of the community, who too felt that they were being unfairly targeted in the name of this conservation measure. One respondent claimed:

> "Sanctuary *yeh mallahon ko badnaam aur unka utpeedan hai* (sanctuary is to taint the reputation of the Mallahs and to exploit them). Not even any *kachhua* here and if they were there, their eggs on the sand would be visible and no eggs can I see."

These failures were partly attributed to a lack of inclusion of locals in the planning of this measure. The boatmen knew the river inside out and felt should have been consulted before the plan was executed as it was felt this would have helped the government save money. The result was that they perceived themselves to be the unfair targets of adverse government policy, despite what they claimed was little fault of their own. A fair number of respondents openly asserted their claim on the river, with one contending, "*Itihaas gavaah hai hamaara adhikaar hai* Ganga *par* (history is witness to the rights that boatmen have had over the Ganga)."

Given that the words of the boatmen hold some truth (that plying over the Ganga has been the preserve of the boatmen community for numerous centuries), one is thus forced to ask from where did the idea of a sanctuary germinate in the first place. A sanctuary, in most minds, is associated with a vision of nature than is not 'spoiled' by human presence. It thus harks back to an Eden-like conception of nature – a pristine landscape that is not tainted by the presence of indigenous communities. The fact that such landscapes barely exist in nature does not however debar people from imagining it and attempting to recreate them in the name of protection and conservation of nature. Indigenous communities who have historically played an important role in moulding and shaping such remnants of nature are denied a presence within these sanctuaries.

Thus such communities who had previously enjoyed unlimited access to these resources find themselves excluded from these landscapes as sanctuaries as erected by governments[323].

The Ganga river sanctuary in Varanasi, similar to other such 'protected' sites, thus only came up by limiting traditionally free access to resources of local communities and by criminalising hitherto legitimate and commonly practiced activities. As communities (as in the case of Varanasi) attempt to re-assert their access over resources, it gives the state the ammunition to blame their deviancy and lack of awareness for failure of state conservation policies and thus take corrective action. The sanctuary (once freed from such irritating presence) is often thrown open to the rich tourist to enjoy for his visual consumption[324]. The same has been the case in Varanasi, where governments despite attempting to remove *ghat*-based communities such as boatmen, washer-men and cattle-rearers has not instituted any ban on tourists and pilgrims coming on to the *ghats* and accessing the riverfront and polluting its waters.

In Varanasi, the religious and spiritual significance of the place has meant that the state of the river is in full public view. The government is thus under pressure to show results, yet it cannot impose sanctions on the pilgrims who are responsible for a large portion of the dirt thrown from the *ghats.* The sanctity with which religious rituals are upheld (even more so under the current dispensation in which the government derives a great proportion of its legitimacy from upholding its role as the guardian of Hindu interests and openly espouses a Hindutva ideology) has meant that outlawing of these practices is virtually impossible.

The technical components of GAP have not performed up to expectations and this has resulted in the government focusing on communities such as boatmen and cattle washers, among others to detract from other more important issues. In our study, eminent environmentalists including a couple of members of the National Ganga River Basin Authority (NGRBA) stated that boatmen were minor contributors to the degradation and pollution of the river. While motor-boats did play some minor role in river-pollution, activities such as fishing and agriculture were not deemed by them to be responsible for the poor state of the river. Water abstraction and a resource hungry populace with a lifestyle focused on ever-increasing consumption were felt to be the major reasons for its degradation. Yet with power equations being firmly entrenched with government

[323] Neumann (1998): *Imposing Wilderness: Struggles over Livelihood and Nature Preservation in Africa.* Berkeley: University of California Press, p.2-9.

[324] Guha, R. (1997), *op cit.*

officials, who possess the authority to alter not only the face of the landscape to suit limited hegemonic interests, but also own the 'decision power' to push poor resource dependent communities, already at the fringes of society and its consumption patterns, further to the margins[325].

Hariss (2001) offers an alternative to such policies which disregard the realities and concerns of poor communities. He propounds the concept of policy makers and officials implementing such policies being 'embedded' within local communities. This, he states, results in bringing about greater 'synergy' between the public and officials and helps in formulating better and more accepted policies, which would ensure greater co-operation from the public[326]. It would thus serve as a welcome break from the currently followed path of officials devising policy prescriptions while being stationed in their panopticons[327].

Until then, as in the case of the boatmen and fishermen community in Varanasi, they continue to resist such measures as the Kachhua Sanctuary, either clandestinely or even by resorting to direct action, in case the need so arises. However such actions of resistance, often deemed illegitimate by concerned government authorities, should not be seen in isolation. Instead as Neumann (1997) argues, such behaviour is a product of the governmental policies of conservation[328]. At this juncture, it is also important to realise that the boatmen should not be solely seen as victims of an adverse state policy with very little complicity in moulding their surroundings, while having to face the full brunt of increasing ecological degradation being effected onto Ganga by growth-oriented developmental activities. Throughout the study, except for a sole instance (mentioned above), none of the motor-boat workers or owners accepted their role in polluting the river though it is a minor source of pollution. The respondents' sought to resist the charge and branded it as being unfair. They reduced it to the realm of rumour-mongering by vested interests to whitewash their own complicity in degrading the river. While the latter may be true to a large extent, but attempts by motor-boat owners' and workers' to ward of liability with statements such as:

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[325] Boyce, J. (2002): *The Political Economy of the Environment*. Cheltenham: Edward Elgar Publishing Ltd, p. 8-9.

[326] Harriss, J. (2001): *Depoliticising Development: The World Bank and Social Capital.* New Delhi, LeftWord Books, p. 65-66.

[327] Singh, R.P.B. (2011): 'Ruins and Rubrics in Contemporary India,' *Aut Aut, (Atlante Occidentale-Orientale)*, No. 350, pp. 134-147.

[328] Neumann, R. (1997), *op cit,* p.13.

> "*Nahi* motor *toh paani ke uppar hoti hai, toh dhuan hawaa mein jaakar bhikar jaata hai. Paani ko dooshit nahi karta* (No, the motor is placed above the water, so the smoke emanating from it is discharged into the atmosphere. Water does not get polluted)."

Making statements such as these and simultaneously expressing grave concern over the declining state of the river and emphasising their participation (at an individual level) in keeping Ganga clean is ironical to say the least. The close enmeshing of economic interests with Ganga has affected their perception of the river and trumped their concern for her ecological state. Their relatively minor contribution to the spoiling of the river's waters is, in the final analysis, added up as an additional pollutant of the Ganga in this system of 'organised non-liability[329].'

6.6 Civil society organisations (CSOs) and their interface with the boatman community of Varanasi

Apart from government-led measures focusing on cleaning of the *ghats* and the river in Varanasi, a number of civil society initiatives too have fixed their attention on the issue of Ganga degradation. While in the previous sections, we have taken a look at the CSOs contracted by the VNN to spread awareness at the *ghats* and engage the local population in cleaning efforts, the current section deals with CSOs that are either situated on or near the *ghats* and propagate improvement in the state of the river as well as CSOs or even individual initiatives that have been engaged in cleaning the physical garbage on the *ghats.* The role of boatmen within these initiatives will further be traced in this segment.

In recent years, 'Save Ganga Movement' – a loose umbrella of organisations and activists advocating the cause of a *nirmal* (cleaner) Ganga have been actively organising and participating in protests against the government's policy of relentless damming of the river and gradual destruction of the river bed in the upper reaches of the Ganga basin, which have been deemed to be two of the biggest factors in contributing to the degradation of the river. A number of Varanasi based organisations, including Ganga Mahasabha and Vidya Mutt, have participated in these activities, including in a massive Ganga rally in Delhi in 2012 to pressurise the government into taking positive action on their demands.

The researcher interacted with members of these two advocacy groups regarding their perception of the factors polluting Ganga. Apart from the issue of motor-boats which was regarded as being

[329] Beck, U. (1995), *op cit*, p. 159-160.

a minor contributor to pollution levels in the river, they felt that boatman community was by and large not culpable in polluting the river.

Table 6.4: Awareness of CSOs working on the issue of Ganga degradation and pollution mitigation

Awareness of CSOs working on the issue of Ganga cleaning	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Sankat Mochan Foundation (SMF)	12 (17.39)	14 (30.43)	-	8 (34.78)	34 (23.78)
School/college students	23 (33.33)	5 (10.87)	1 (20)	8 (34.78)	37 (25.87)
Ganga Sewa Samiti	6 (8.70)	1 (2.17)	-	-	7 (4.9)
Swami S. Sanand	-	2 (4.35)	3 (60)	1 (4.35)	6 (4.2)
Others	5 (7.25)	4 (8.70)	-	-	9 (6.29)
Cannot say	27 (39.13)	21 (45.65)	1 (20)	7 (30.43)	56 (39.16)
Participated in Ganga cleaning					
Yes	35 (50.72)	26 (56.52)	2 (40)	15 (65.22)	78 (54.55)
No	34 (49.28)	20 (43.48)	3 (60)	8 (34.78)	65 (45.45)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Though based in Varanasi, yet given the national character and focus of these organisations, it was hardly a surprise that very few of the boatmen respondents were aware of the work of these bodies in Ganga degradation mitigation. In the present study, however the name and work of a long-standing Ganga activist, Swami Swaroop Sanand (formerly known as Professor GD Agarwal) was known to 4.2 per cent of the boatmen respondents (Table 6.4). In 2013, this

venerated activist sat on a well-publicised fast unto death for over 100 days to protest against the damming of important Ganga tributaries, Alaknanda and Mandakini, which would have severely affected the riverine ecosystem and the quality of downstream Ganga water. These respondents, though unaware of the immediate context of the fast by the Swami, were however supportive of the demand for ceasing construction of dams on the river. Seeing the after-effects of the Tehri Dam which had reduced river flow and affected the volume of the water in the river as well, there was no boatman respondent who advocated the increased damming of the river.

One respondent in particular, 45 year old boat-owner, Pramodh Majhi, also declared himself to be closely associated with movement led by Swami Swaroop Sanand. He stated that in the year 2013, he himself sat on a 51-day fast at Varanasi to protest against the deteriorating state of the river. He even stood in the river for one whole day. The city district magistrate (DM) came to visit him and only after multiple requests and pleas this boatman (who had been hospitalised towards the end of his non-violent protest) ended his fast.

This was however a solitary instance wherein a member of the boatmen community in Varanasi had been involved within the larger activism based Ganga movement. Interactions with members of the above CSOs and a perusal of their websites and of the larger Save Ganga Movement revealed that relatively little or no space had been accorded within their campaign to poorer communities such as the boatmen within their debate on the state of the Ganga. Their focus was almost exclusively on ecological state of the river and the need to align its physical purity with the high spiritual status that it had been accorded in the Hindu religion. Issues of material and physical displacement of poorer communities due to the degradation of the river were not given much significance in their programme. Harriss (2007) mentions the overwhelming tendency of most civil society advocacy initiatives to be almost exclusively dominated by middle and upper-class individuals[330]. The same was evident in this case, at least with regard to the inclusion of the communities such as boatmen and fishermen in the cause.

Their role, whenever sought (as for example during the 2008 Ganga Sanskriti Pravah Yatra by the Ganga Mahasabha), was limited to being the recipients of awareness generation activities. Activities such as oath-taking, among others, reflect a largely token involvement of local people within the movement.

[330] Harriss, J. (2007), *op cit*

Apart from these advocacy CSOs, there exists another category of organisations who are mainly engaged in working on the *ghats* in Varanasi. In this study, the most popular such organisation, mentioned by 23.78 per cent of the respondents (Table 6.4) was the Sankat Mochan Foundation (SMF), founded by the late V.B. Mishra in the year 1982. The office of the organisation is situated above Tulsi Ghat. The founder, a well-known personality in Varanasi, was also the hereditary Mahant (priest) of the Sankat Mochan Temple in Varanasi. The organisation, lauded for its advocacy work and its contribution to the debate on the use of appropriate technology used in sewage treatment under the aegis of GAP, has also been known for its work related to awareness generation and community engagement activities among the population at Varanasi.

The boatmen respondents were largely appreciative of the work of this institution. They acknowledged the effort made by the SMF for the cleaning of the *ghats* from Tulsi to Assi, even though the *phool-maala* collected were dropped off on the other side of the river's banks. One respondent stated that though he had employed his own people in this cleaning initiative, he made an effort to gather local people as well in his work. He too had thus participated in cleaning the *ghats* along with the rest of the organisation workers. However not all respondents were equally impressed with the work that SMF had done in the past. They were aware that the organisation had an official mandate to clean the Ganga *ghats* and received funding for their work. The cleaning initiatives thus undertaken by them were not in consonance with, what these respondents perceived to be the amount of funding that he received. One even commented in the presence of a group of other boatmen, "*Khaane peena ka* business *aur koi safaiyaa nahi* (corrupt business and no cleaning)." None of the other present boatmen voiced their disagreement with his assessment. In another separate incident, however, a boatman sympathised with the plight of the SMF, who, he felt, had done "very good work" on the Ganga. The results were not commensurate with their efforts however, because, as per the respondent, the senior Mahant had not received the co-operation of the government and other individuals who too were involved in the programme of Ganga cleaning.

Another boatman stated that though awareness meetings were organised and boatmen too attended them, yet they were not sought by the organisation to play any larger role in their cleaning and conservation efforts. His words were seconded by a few other respondents. Though SMF, located just above Tulsi Ghat, was well-recognised and respected by a large number of respondents in this study, yet the organisation's engagements with them never stretched beyond

the ambit of generating awareness. In the sole instance in which a boatman had participated in removing dirt from the *ghat* along with the agency's other contracted workers and volunteers, his association too never extended beyond contributing his physical labour. Ahmed (1994) had commented upon the role played by SMF. She had stated that its bond with the community generated through the goodwill of its leader and its awareness generation activities among the general population through song, poem and painting competitions and programmes had not been harnessed further to reflect increased participation by the people in its programmes and agenda formation[331]. The same was visible twenty years later, at least in the case of our present respondents.

Though Ahmed (1994) had further clarified that at the time of her study, it was too early to anticipate or comment upon the fruits of the knowledge creation efforts by the SMF, much time has passed since then. Since then, numerous efforts (as seen in the previous section) have been made to build further awareness among the general public and the local communities on the *ghats,* to keep Ganga clean. The present study thus attempts to venture a reply to that question, with regard to the primary respondents of her study – the city's boatman community.

Of the 143 boatmen respondents, 55.45 per cent stated that they had been involved in cleaning the river in some way or the other. 28.57 per cent of the total respondents stated that they took action of their own accord. The most common form of such action was to discourage people from throwing plastic garbage into the river. Some however complained that when people did not listen to them, they had no other option but to remain silent. Others claimed that sometimes they themselves removed the *phool-maala* or the clothes that people left into the water and kept them in a corner from where the designated sweeper would remove them the following day. A couple of respondents at Mansarovar and Chauki Ghat claimed that they had installed dustbins at their respective *ghats* to ensure that cleanliness was maintained. Similarly, at Rana Mahal Ghat (adjacent to Chausatti), a few of the local people, including the boatmen of the area, worked to not only paint the walls of this *ghat* but also planted bushes and tree saplings to improve the general environment of their area and give it a pleasant look. They also checked men from urinating anywhere on the *ghat*¸ except for the urinal that had been constructed there. One

[331] Ahmed, S. (1994), *op cit*

boatman at Assi Ghat (near Tulsi) stated that he even dug a pit and deposited all the collected garbage into it one time.

Similarly, a Mallah from Chauki Ghat (who also owned and operated a hotel at that *ghat*) had taken upon himself the responsibility of cleaning Kedara, Someshwara and Chauki Ghat and had installed dustbins at these locations as well as cleaned a huge mound of garbage that had been collecting on the muddy bank of the river, below the concrete *ghat* steps of Kedara Ghat. He stated that he had been motivated to do so as a little school girl, who came to the *ghat* to participate in cleaning efforts, exhorted him to join in the cause of clean Ganga. Furthermore, he claimed, the actions of Narendra Modi, the Prime Minister of the country, who himself picked up a broom and humbly swept garbage off of Assi Ghat, too had inspired him. He felt that since he drew sustenance from the Ganga, he was morally obligated to ensure that she was not besmirched by dirt and pollution.

Another 12.59 per cent of the total boatmen participants stated that they had worked towards maintaining cleanliness on the *ghats* due to the encouragement of the leaders of the boatmen organisation, Maa Ganga Nishadraj Sewa Samiti (MGNSS). They now not only discouraged people from throwing dirt, but some had also begun to avoid using soap in the water. Their intent was the same – Ganga was seen as the provider and it was considered to be the duty of the members to help maintain her purity. Tourists too would not prefer to seek rides when the surroundings were dirty, some stated, so the onus fell on them to help keep their surroundings clean.

Thus, as the above examples depict, the self-mobilisation efforts of various members of the boatmen community are aplenty.

Though it is difficult to state what percentage of such efforts in the present times can be attributed to the various knowledge building campaigns and to what extent does commerce influence the people to keep their surroundings tidy, the fact of the matter is that members of the community across the various sampled *ghats* were aware of the need to keep the river-front clean and acknowledged their role in such efforts. During her field-work in 2015, a number of boatmen that the researcher interacted with also mentioned the cleaning efforts of PM Modi. This factor seemed to have also played a role in seeping into the consciousness of the respondents the need for a visibly beauteous environment.

The emphasis put on cleaning by the PM too seems to have reflected on the river-front, where the number of dustbins across the *ghats* had increased and concomitantly the litter on main *ghats* had decreased. Though these are positive signals, yet at the same time, efforts need to be further scaled. The government agencies too need to improve their performance if they wish for people to be continuously engaged in the role of monitoring the banks of the river. A case in point was the Kedara Ghat. More than a couple of months after an illegal structure was demolished by the Varanasi Development Authority (VDA) on this *ghat*, the debris were yet to have been cleared. This tarnished the effort of the person who had earlier cleaned up this space, since he felt that all his hard work had been undermined by apathetic and careless government behaviour. In his opinion, the government needed to be more pro-active if the *ghats* had to be cleaned rather than being complicit in dirtying it.

While this was one instance, there were other episodes too wherein the community felt that the message of a clean river was exploited by non-serious organisations who just used the opportunity to clean the *ghat* as a photo-op and to build upon their public image. Such service-oriented organisations, several respondents claimed, came to the *ghats* almost every month with media photographers in tow. Their work was termed as just a "*dikhaawa* (show)" since "*safaai bas* (cleaning only) 4-5 minutes." Such gimmicky measures were condemned by a majority of the participants.

In this regard, respondents were also largely critical of the efforts of school and college students, who they claimed came to the *ghats* one day in a year, formed a human chain, took out a procession, cleaned the river-front with their own hands using a broom and then went away, but only after their efforts had been clicked. While a few appreciated this endeavour of children, others felt that this was largely cosmetic since coming to the *ghat* one day in a year was insufficient. One respondent even criticised this measure since he felt that while accomplishing little, small children were forced to stand on the *ghats* under the direct sun for a long amount of time without any provision for food, while the school and its officials received publicity.

Thus to conclude, it may be said that though such programmes aimed at awareness creation among local communities have been successful to an extent, since the boatmen have been participating in cleaning efforts, yet if we assess the larger picture, one is confronted with the question – what has such participation meant for the community or the river.

How has the beautification of the *ghat* helped, since the garbage is often dumped back into the river with the expectation that the river will carry it away with its flow? Sewage stills flows into the river, religious refuse is still left in large numbers, plans are afoot to build even more dams on the river – the 2013 Inter-Ministerial Group on Ganga has recommended the construction of 69 more hydropower barrages on the river and its tributaries in its upper reaches[332] – which will further impede its flow and industrial pollution too shows no sign of abatement. As these problems remain, the question that arises is that what exactly will cleaning of the *ghats* accomplish if the state of the river keeps on deteriorating further. To a naked eye, it may seem as if success has been achieved in cleaning the river as there is less perceptible litter on its banks. This would make a visit to the *ghats* considerably more appealing for the numerous tourists and pilgrims who come to Varanasi, yet the real issue would remain unsolved. The decision of the government to clean up the river-front, though praiseworthy, should not however distract from the more valid goal of preventing river degradation.

Another issue which comes to the fore at this time is – what exactly do the self-mobilising efforts of the boatmen achieve for their community? While it undoubtedly contributes to the programmatic agenda, it can be said that the same has not benefited the community in terms of giving them greater decision-making power within the Ganga Action Plan. Power relations remain unchanged[333], since the goal of such participation at the very outset was to educate and mould the people and use their services and manpower to meet the end – a tidier and more ordered form of physical environment. It can however be argued that the government's insistence on such a goal (of a visibly cleaner river-front) led to the implementation of the Kachhua Sanctuary in the first place. While turtles were meant to feed on the flowers and leaves disposed off into the river by the incoming pilgrims, there was no attempt made to implement the ban on the sale of such religious items. The result was that while religious pollution into the river continued unabated, the blame was laid at the door of poor communities such as the boatmen since their fishing, sand-mining and cropping activities were conveniently held liable for hampering the government's cleaning and conservation efforts.

[332] Government of India (2013): *Report of the Inter-Ministerial Group on Issues Relating to River Ganga.* New Delhi: Government of India.

[333] Cornwall, A. (2008), *op cit*

In the face of such measures, the need for involving local communities or at the very least, allowing them to vocalise their thoughts and concerns while framing policies is exemplified.

6.7 Current situation in Varanasi

Election of a new central government, which had vowed to clean up the Ganga, has resulted in a flurry of policy actions focusing at cleaning up of the historic river-front at Varanasi. This has potential implications for the working conditions of the city's boatmen community. The present segment takes a look at the changing nature of the workplace environment of these Varanasi boatmen and their opinion of such policies.

In present times, the city of Varanasi has come under national gaze unlike never before. It is the parliamentary constituency of the Prime Minister (PM) of India, Narendra Modi under the 16th Lok Sabha. A key mandate of Narendra Modi had been to clean up the *ghats* of the ancient city and improve the state of the national river, Ganga, which previous governments had failed to do.

Amongst the plans initiated by the Modi government to improve the state of the river in Varanasi is the Jal Shav Vahini (JSV). Under this novel initiative, boats will ferry dead bodies entering into the city to one of the two cremation *ghats* – Harishchandra and Manikarnika. Saamne Ghat and Raj Ghat are the designated locations to which these bodies will be brought and from there taken to these two *ghats* by the designated boats. The service will be free of charge and not only is it expected to provide relief to thousands of people who enter into this holy city to cremate their dead, but it is also aimed at easing the city's traffic congestion problem. All expenses related to the operation of these boats are the responsibility of the government.

The Gujarati NGO, Sudhanshu Mehta Foundation Jaalansh, is in charge of running the service. Two workers, one a member of the city's Dom community and another, a Mallah boatman from Gaay Ghat, have been employed for operating the first of these motor-operated boats.

This new initiative, formally inaugurated on 28th March, 2015 by Union Finance Minister, Arun Jaitley has however divided the city's boatman community. While some, including the MGNSS have supported the move[334], a little over a hundred Mallah men and women have sat in protest at Raj Ghat against this measure, which they fear is a threat to their livelihood.

[334] Singh, B. (2015): 'Boatmen Oppose the Jal Shav Vahini,' *The Times of India*, 31st March.

The protestors, organised under the banner of Varanasi Nishad Raj Kalyan Samiti, argue that they are the rightful custodians of the River Ganga in Varanasi. They have little means of livelihood besides their almost complete dependence on the river. Though they were in favour of the free services provided by the government to mourners, they were against the running of this service by Gujarati outsiders, who they felt would soon appropriate their customary trade if the current plans of the government go forward. A demonstrator contended:

> "Instead of spending money on these people, the government should spend the money on us. We could have provided the same service at a much lesser cost if they would have contacted us. We have no other occupation. The government should think about us."

Another protestor belonging to the Mallah community articulated his concerns about the initiative:

> "They will bring these people over through this initiative and they will then gradually take over our occupation. History is witness to our rights over the Ganga but after they have removed us from here, they will take over our history as well. What will we do then? To protect ourselves, we are sitting on a *dharna*. Today it is Varanasi, tomorrow it can be *sangam* in Allahabad."

Along with the landscape change that is being engendered by economic growth-oriented capitalist forces on the immediate environment of the boatmen, the forces driving change are also complicit in dislocating communities and cultures that gave shape to the landscape in the first place through their historical association with it. The fear of the respondent is evident in the above statement, questioning the adverse policies of the government as a reflection on its intentions to drive them out of their historic environment.

Another grouse of these demonstrators was the lack of inclusion of the community in the planning of this scheme, despite it being closely linked with their trade.

While one may be tempted to view the protests and *dharna* by sections of the boatmen community as an over-reaction, an important point to be made here is that besides the occupation of boating, most members of these boating families across the *ghats* had little foothold in any other trade or occupation. They lacked representation in government jobs as well and had even been classified as being amongst the poorest and most backward of communities within the OBC

category in UP[335]. This was reiterated by a few participants who stated that the Ganga was the only asset they possessed, without which their community would be reduced to starvation.

The scheme thus proves to be another case which was implemented without consulting or taking into confidence the local communities who would be affected by its functioning. Though the programme as such does not constitute significant threat to the interests of the boatmen community and does not seek to oust them from their traditional preserve, but these protests are, in a way, reflective of the insecurity of these boatmen, who have little prospects for employment besides their dependence upon the river.

Another feature of PM Modi's plans for the Ganga includes the creation of a navigational corridor on the river. Simultaneously, plans are underway to create river engineering structures across the entire length of the river at a distance of approximately 100km to facilitate the movement of ships across this corridor. The Varanasi turtle sanctuary has been a significant hurdle in the accomplishment of these plans. This has seen a rise in the criticism of the sanctuary and frequent questioning of its concrete achievements by different organs of the government in the past one year, whereas in the past, there was talk of this being an important conservation measure. Motor-boats were routinely vilified as being the cause of much of the increased pollution in the river in Varanasi as they operated in contravention of the norms of the sanctuary.

Interestingly however, in present times, even the JSV is based out of a motor-boat. Before the launch of this scheme, the running of motor-boats was cleared by the divisional commissioner of the Inland Waterways Authority of India. Given the hurdle created by the sanctuary in the plans of the new government, including the removal of the accumulated sand on the eastern shore of the river, there is expectation that the revocation of the sanctuary is imminent[336].

Thus, the Kachhua Sanctuary is facing threat today. However the challenge does not arise from boatman's resistance and antipathy towards it or from an evaluation of the performance of the sanctuary, but from the government's own plans of creating a passageway across the river. A boatman owner from Nishad Raj Ghat commented upon the irony of the situation:

> "They are removing sanctuary for their benefit. We are powerless. Jahaz Raani (a large house-boat ferrying tourists across the length of the river) had come in November into the city, but they stopped it. When their boat is stopped,

[335] Verma, A.K. (2001), *op cit*

[336] Dikshit, R. (2015): 'Shav Vahini Project Rides over Forest Row,' *The Times of India,* 29th March.

> government is questioning what the benefit is...Now they assault the concept of sanctuary. It has nothing to do with us."

The question now remains what will be the state of the river in the future. Though the government has publicly endorsed the concept of *aviral* (unobstructed) Ganga, yet its policy pronouncements have differed with its promise. As Iyer (2014) has stated, a navigational corridor will require further re-engineering of the river, including dredging up of its basin, which does not bode well for it. It indicates entrusting the river once again in the hands of engineers, whose scientifically designed dams on the river have led to the current state of degradation of the Ganga[337]. The river has suffered, as a prominent activist in Varanasi pointed out, from the lack of a river-basin approach. A systems approach, which takes all the parts of the ecosystem as having some effect on another and where the whole is greater than the sum of its parts, is required. While localised conservation measures to treat localised pollution may help or contribute in improving the state of a river, such improvement will always be incremental and not sufficient to deal with the degradation or even pollution of the river as a whole.

Thus, unless the core issue of water abstraction will not be tackled, the situation of the river will not improve. Depending upon a growth oriented development paradigm and progressing without recognising the limits to nature irrespective of the damage wrought onto the ecology are the cause of deterioration of the river. Until checks are put in place, degradation of resources including the Ganga will continue unabated and the health and well-being of the population will suffer. While greater power and economic resources will insulate the affluent sections of society from a large portion of the after-effects of environmental degradation, resource dependent communities and the poorer sections of society, who share relatively lesser blame in engendering toxicity in the surrounding environment, will face the maximum consequence of such degradation[338].

6.8 Conclusion

Though a number of initiatives related to Ganga *ghat* cleaning have been launched in Varanasi, both governmental and by various non-governmental civil society organisations, yet the inclusion of the boatmen community in policy designing and implementation is low. While efforts at awareness generation have yielded some fruit, yet the role of the boatmen in

[337] Iyer, R. (2014): 'For Rejuvenating, Not Re-engineering the Ganga,' *The Hindu.* 16th July.
[338] Boyce (2002), *op cit*

contributing to a tidier river-front has not had much benefit for members of this community. They continue to be marginalised within these initiatives, with their services only being sought as volunteers to either help remove the garbage from the *ghats* or as watch-dogs to prevent others from leaving their waste in their area. Such inclusion has not had an empowering influence on the working lives of the members of the boatmen community.

CHAPTER 7

OCCUPATION AND HEALTH LINKAGES OF THE BOATMEN OF VARANASI

7.1 Introduction

A number of health concerns are faced by the Varanasi boatmen, relating to their working conditions, such as the nature of work and the physical and social attributes of the working environment including the feudal ownership of productive assets. Not only do these factors influence the income levels of the boatmen and their socio-economic conditions but also their access to essential services including healthcare. Difficult conditions, involving hazardous activities such as the rescue and retrieval missions mounted by divers in Varanasi, involve higher risks to health. Moreover continuous performance of physically challenging work-related activities and dangerous tasks not only take their toll on the health of workers but may also manifest themselves into occupationally-acquired health habits. The usage of tobacco-based products and alcohol among boatmen and divers of Varanasi is thus explored from the context of the working conditions of these respondents.

The following chapter thus looks at the occupation-related health behaviour of the boatmen community in Varanasi as well as health concerns reported by them, which they perceived were related to their working lives and the larger working environment.

7.2 Health related behaviour of boatmen respondents: Tobacco consumption

The following section traces the consumption of tobacco-based products among the boatmen respondents of this study. It also discusses the perceived relationship between tobacco usage and performance of their work activities.

In the present study, consumption of tobacco-based products more than twice a week by a respondent was characterised as frequent usage. Tobacco usage was common among boatmen, with 67.13 per cent admitting to consuming these products on a daily basis, while 31.74 per cent respondents claiming that they did not use such products. Only 1.4 per cent of the total sample of boatmen stated that while they used to consume such products earlier, they no longer did so at the time of the interview. Usage was the highest among hand-oared boat owners (84.78 per cent) and boatmen workers (65.22 per cent), depicted in Table 7.1.

Table 7.1 Frequent consumption of tobacco-based products

Frequent Use of Tobacco-based products	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Yes	45 (65.22)	39 (84.78)	1 (20)	11 (47.83)	96 (67.13)
Used to consume	-	1 (2.17)	-	1 (4.35)	2 (1.4)
No	24 (34.78)	6 (13.04)	4 (80)	11 (47.83)	45 (31.74)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Form of tobacco*					
Paan	34 (75.56)	33 (84.62)	-	9 (81.82)	76 (79.17)
Gutka	9 (20)	3 (7.7)	-	1 (9.09)	13 (13.54)
Tambaku/Khaini	5 (11.11)	6 (15.39)	1 (100)	2 (18.18)	14 (14.58)
Bidi/Cigarette	4 (8.89)	2 (5.13)	-	1 (9.09)	7 (7.29)
Others	2 (4.44)	4 (10.26)	-	1 (9.09)	7 (7.29)
Total	**45 (100)**	**39 (100)**	**1 (100)**	**11 (100)**	**96 (100)**
Daily money spent					
Less than Rs.10	19 (42.22)	13 (33.33)	-	3 (27.27)	35 (36.46)
Rs.11-25	15 (33.33)	15 (38.46)	-	6 (54.55)	36 (37.5)
Rs.26-50	7 (15.56)	7 (17.95)	-	2 (18.18)	16 (16.67)
Rs.51-100	2 (4.44)	-	1 (100)	-	3 (3.13)
Rs.101 and above	2 (4.44)	-	-	-	2 (2.08)
Cannot say	-	4 (10.26)	-	0	4 (4.16)
Median amount	15	18	-	18.5	16.42

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

The daily money spent on these goods was relatively low, with 73.96 per cent of the total respondents who used these products stating that they spent less than Rs.25 per day on their consumption. The total median amount spent per day was Rs.16.42 for all categories of boatmen and the highest, at Rs.18.5, for motor-boat owners.

Paan and tobacco shops are ubiquitous in Varanasi and abound in the colonies above the *ghats*. In a number of these outlets, the price of a single *sada* (plain) *paan* was a mere Rs. 2. Similarly the low-cost price of *bidis* and *khaini*, as also other tobacco-based products, meant that despite moderate to high usage, per day aggregate spend was relatively less.

Higher usage of tobacco and its products was observed among boatmen of higher age categories. While 38.78 per cent of boatmen below the age of 25 years consumed them, 91.18 per cent and 86.36 per cent of boatmen participants in the age groups of 41-55 years and 55 years and above frequently spent on them (see Appendix 7.1). Numerous younger boatmen altogether denied using tobacco since they felt that it was not a good habit. A moderate positive correlation (r) was also observed between age and tobacco usage ($r = 0.44$).

A relatively low association, although negative, was also observed between respondents' consumption of tobacco and their education levels ($r = - 0.35$). 92.5 per cent boatmen who had had no formal schooling used tobacco, while this usage declined significantly with the attainment of schooling even up to primary level. 63.64 per cent of those who had studied till primary level consumed tobacco-based products, while 51.22 per cent of those who studied till secondary level used them and 66.67 per cent respondents' who had studied till senior secondary used these products (Appendix 7.1). Upon being quizzed about a perceived relationship between tobacco and the performance of their work-related duties, given the high rates of consumption, 76.04 per cent of the respondents denied such a linkage (Table 7.2). While most boatmen who consumed tobacco-based products admitted that they had started consuming them after their entry into the profession, a majority of them did not agree that any such relationship existed between their work and this habit. Of the 23.96 per cent that did perceive an association, while a few of them felt that it gave them energy, others mentioned that it gave their body warmth, particularly in the cold winter months. One respondent stated that chewing *paan* helped him since, "*muh band toh saans naak se lete hain* (mouth is closed so we breath from the nose)." This was seconded by another couple of respondents, one of whom clarified:

> "*Hawa mein gala sookhta hai, paan se geela rehta hai* (wind makes the throat dry, *paan* keeps it moist). When we eat *paan,* then our mouth remains closed. If we open our mouth and breathe, then our throats become parched)."

These respondents thus maintained that chewing *paan* helped them in the performance of their duties and was thus an intrinsic part of their working lives. They thus considered it to be a work-related activity.

Table 7.2 Does tobacco consumption facilitate work performance

Tobacco usage helps work performance	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	11 (24.44)	7 (17.95)	1 (100)	4 (36.36)	23 (23.96)
No	34 (75.56)	32 (82.05)	-	7 (63.64)	73 (76.04)
How does it help?					
Gives energy	5 (11.11)	2 (5.13)	-	2 (18.18)	9 (9.38)
Rejuvenates body at the end of the day	1 (2.22)	1 (2.56)	-	-	2 (2.08)
Other	4 (8.89)	3 (7.7)	1 (100)	2 (18.18)	10 (10.42)
Cannot say	1 (2.22)	1 (2.56)	-	-	2 (2.08)
Total	**45 (100)**	**39 (100)**	**1 (100)**	**11 (100)**	**96 (100)**

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

While boatmen respondents were unable to perceive any direct links with this widespread habit of chewing *paan* and other tobacco products, doctors interviewed for this study had a different story to tell. More than half of them recounted high usage of tobacco as a factor in breathing problems faced by boatmen who came to them for treatment of their ailments. Breathing problems were particularly high in boatmen aged 40-45 years and above, it was stated. This combined with their working environment and their personal habits, wherein they frequently

bathed and dived into Ganga waters were seen as causal factors in the development of breathing difficulties and chest problems in members of this working community.

Health problems associated with tobacco usage included poor oral and dental hygiene among respondents. A very small percentage also reported problems in their lung arising from sustained usage of tobacco-based products. Dental problems were however not taken seriously by respondents, who stated that they did not visit a dentist or any other doctor for gum-related problems.

7.3 Health related behaviour of boatmen respondents: Alcohol Consumption

The current section on alcohol usage among boatmen deals with the extent and pattern of consumption among boatmen respondents and their perception of its linkage with their occupation. The economic effects of frequent usage on the household economy and the health of these respondents are also explored.

Doron (2011), in his study on the usage of alcohol among the boatmen community of Varanasi, writes about the tendency among the common public to view this traditionally lower-caste group as being pre-disposed to criminal behaviour and alcoholism. The writer however warns against the 'pathologising' of this habit among boatmen and calls for the need to investigate the social, cultural, economic and work-related processed which boatmen associate with this habit. In other words, he calls for greater contextual analysis of the usage of alcohol among boatmen in Varanasi[339].

The mark of alcoholism which is frequently associated with boatmen was often acknowledged in the present study by members of the community themselves. Upon being queried about their regular use of spirits, a frequent riposte delivered by the boatmen was that though Mallahs were infamous for high levels of consumption of alcohol, often rightly so, yet this was not true in their case.

In this study, we only queried boatmen respondents about frequent usage of alcohol. As in the case of tobacco, if respondents agreed to drinking liquor on two or more occasions in a week, it was classified as 'frequent' or 'regular' consumption. Of the 143 respondents surveyed in this study, 21.68 per cent claimed that they drank on a regular basis. Boatmen workers had the highest proportion of regular liquor drinkers at 26.09 per cent, while those who owned both

[339] Doron, A. (2011), *op cit.*

hand-oared and motor-operated boats has the least proportion of regular drinkers (13.04 per cent), shown in Table 7.3. A total of five respondents (3.5 per cent) stated that while they used to be frequent drinkers in the past, they had left that habit at the time of the study. Nearly three-quarter (74.83 per cent) of the participants denied consuming alcohol on a frequent basis. A large number of boatmen did admit that they drank spirits on an occasional basis, for example at social functions or at a get-together with their friends, but they did not classify such consumption as frequent.

Table 7.3 Frequent consumption of alcohol among boatmen respondents

Frequent consumption of alcohol	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	18 (26.09)	9 (19.57)	1 (20)	3 (13.04)	31 (21.68)
Used to consume earlier	1 (1.45)	2 (4.35)	-	2 (8.7)	5 (3.5)
No	50 (72.46)	35 (76.09)	4 (80)	18 (78.26)	107 (74.83)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Age at which you began consuming alcohol					
15 years and less	5 (26.32)	-	-	1 (20)	6 (16.67)
16-25 years	9 (47.37)	7 (63.64)	-	2 (40)	18 (50)
25-35 years	5 (26.32)	3 (27.27)	1 (100)	1 (20)	10 (27.78)
36 years & above	-	1 (9.09)	-	1 (20)	2 (5.56)
Total	**19 (100)**	**11 (100)**	**1 (100)**	**5 (100)**	**36 (100)**

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Appendix 7.2 depicting the age distribution of regular consumers of alcohol reveals the highest prevalence of such consumers is in the age category of 41-55 years (47.06 per cent), followed by boatmen in the age group of 26-40 years (21.05 per cent). Most respondents' commenced with this habit after they entered the occupation of boatmen, as they themselves stated. In the study, 83.33 per cent boatmen respondents stated that they began drinking after the age of 15 years (Appendix 7.2). Boatmen, particularly from the Mallah caste group, usually enter the profession at an early age. While boys as young as 10-11 years old can sometimes be seen plying boats and learning the trade, they do not join the profession till about 15-18 years of age, when they are physically capable of ferrying a boat, laden with passengers, on their own. In our study, a few of the youngest respondents still attended school in the afternoon while participating in this work in the evenings or during the time of their vacations.

Higher levels of education among boatmen too showed a lower prevalence rate of frequent alcohol consumption. While 30 per cent of those without any formal education drank liquor on a regular basis, the figure was much lower for those who had completed secondary education (12.2 per cent) and studied up to intermediate level and beyond (14.29 per cent) (Appendix 7.2). Though no significant correlation (r =-0.16) was observed between these two variables, yet as portrayed in the above bi-variate table, there is a decrease in prevalence of the habit with an increase in years of schooling among boatmen respondents.

Of the regular users of alcohol, 35.48 per cent claimed that this was a daily habit for them. While four respondents refused to answer this question, another 29.03 per cent stated that in the week prior to the interview they had just consumed it on one or two occasions. Of the two respondents who did not drink even once in the week preceding the date of the interview, one had suffered a horrific leg-injury which had occurred after he charged at a bull in an inebriated state. Subsequently, the latter showed him no mercy. He had thus been bed-ridden for the past three months since the time of the accident and had no access to alcohol (Table 7.4).

Of the total respondents, drinking spirits on a daily or nearly every day basis was a habit for eleven of them (see Table 7.4). This constitutes 7.69 per cent of the total boatmen interviewed for this study. While the statement had been made with reference to the previous week, most of them did admit that they drank nearly each day as a matter of routine. As per the World Health

Organisation (WHO), about 1.2 to 3.9 per cent Indians drank liquor everyday in 2007[340]. Thus it can be said that a higher proportion of the boatmen of Ganga in Varanasi consumed alcohol daily than the general population.

Table 7.4 Level of consumption among frequent users of alcohol

Consumption of alcohol in the past one week	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
None	-	1 (11.11)	1 (100)	-	2 (6.45)
1-2 days	7 (38.89)	1 (11.11)	-	1 (33.33)	9 (29.03)
3-5 days	4 (22.22)	1 (11.11)	-	-	5 (16.13)
6-7 days	5 (27.78)	4 (44.44)	-	2 (66.67)	11 (35.48)
No reply	2 (11.11)	2 (22.22)	-	-	4 (12.9)
Amount consumed in one day					
100 ml or less	5 (27.78)	2 (22.22)	-	-	7 (22.58)
100-250 ml	10 (55.56)	5 (55.56)	-	3 (100)	18 (58.06)
250-500ml	2 (11.11)	1 (11.11)	-	-	3 (9.68)
More than 500ml	1 (5.56)	-	-	-	1 (3.23)
No reply	-	1 (11.11)	1 (100)	-	2 (6.45)
Total	**18 (100)**	**9 (100)**	**1 (100)**	**3 (100)**	**31 (100)**
Mean daily consumption (ml)	194.44	168.75	-	175	185.34

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

[340] The Indian Express (2015): 'Alcohol Consumption Rising Fast in India: OECD Report,' 18 May. Available at: http://indianexpress.com/article/india/india-others/alcohol-consumption-rising-fast-in-india-oecd-report/, accessed on 25th February, 2016.

Though alcohol usage is higher than among the general population, the rates do not warrant a blanket generalisation of the community as one of 'drunkards.' However this exact label was explicitly associated with them by two of the six medical practitioners interviewed for this study. While one oft-frequented doctor at a welfare hospital (named by a number of respondents) stated, "95 per cent drink and only 5 per cent do not," another (a pharmacist working at the government-run PHC in Varanasi), asserted, "88 per cent *nannvik daaru peete hain. Usse kam nahi. Yeh pahalwaani mein bhi hain, toh* supplements *bhi lete hain* (88 per cent boatmen drink. Not less than that. They are also into body-building, so they also take supplements)."

The mean daily consumption computed from the responses of current regular drinkers revealed high levels of alcohol usage among them. Average daily consumption of frequent drinkers was 185.34 ml. Boatmen workers consumed the highest amount on an average, at 194.44 ml (Table 7.4). The mean weekly consumption for all regular drinkers, as derived from the above data, stood at 720.99 ml for all groups of boatmen. Given that one serving usually contains 30-50 ml of drinks, the average daily consumption for these boatmen roughly falls between 4-6 drinks. This lies in the category of heavy to binge drinking[341].

Though these respondents' accepted their usage of alcohol, yet on the *ghats*, during the day time, most of them did not drink. Doron (2011) writes that within this working group, appearing drunk at the work place (the *ghats*) was deemed improper. Such men were considered 'morally degraded,' since they violated the prime rule of the working arena. In a service-oriented industry such as theirs which caters to thousands of tourists on a daily basis, orderly and polite behaviour was upheld as the standard business practice. Any action contrary to such a convention was viewed as detrimental for business and brought on condemnation from other boatmen, he states[342]. In the present study, such a view was brought to the fore when at the end of an interview, a boatmen asked the researcher if he could pose to her a question. Upon receiving an affirmative answer, he proceeded to ask her whether he 'appeared' drunk and if she had been able to make out from any of his answers or his mannerisms throughout the interview, if he was intoxicated. The researcher replied in the negative, which perceptibly pleased the participant, who then acknowledged that appearing drunk at a '*paryatak sthal* (tourist place)' and talking to

[341] National Institute on Alcohol Abuse and Alcoholism (nd): *Drink Levels Defined.* Available at: http://www.niaaa.nih.gov/alcohol-health/overview-alcohol-consumption/moderate-binge-drinking, accessed on 4th May, 2016.

[342] Doron, A. (2011), *op cit*

and courting '*sawaari* (customers)' in an inebriated state was not good behaviour. Though he quickly ventured to deny that this was a daily habit for him (to drink liquor and come to the *ghats*), he recognised the mistake that he had made that particular day.

Apart from a few divers at Raj Ghat, at none of the surveyed sites, the researcher came across no visibly inebriated boatman, save a single instance. He refused to be a part of the study.

While appearing drunk on the *ghats* was not approved by the overall community of boatmen, in some instances, boatmen found a way to bypass larger community mores. At two prominent *ghats* in Varanasi (including one central *ghat*), changing rooms, erected by the government as public utility spaces for the convenience of the pilgrims and tourists visiting these places, were found to have been appropriated by these boatmen. These rooms were shielded from direct public gaze and thus functioned as convenient spaces on the open *ghats* for boatmen who wished to either rest or drink or gamble during the day time.

In the evenings, after the end of the daily Ganga *aarti,* crowds at the *ghats* generally thinned down. This signalled an end to the working day of most boatmen. With the passage of time, as the trickle came to a general standstill, groups of boatmen could sometimes be seen milling together either on boats or at secluded spots on the *ghats*, sometimes drinking and gambling. At this time, caution that was generally adopted during the day time was abandoned as the niceties of the workplace were no longer required to be followed, given that tourists were no longer around.

A few respondents put forth their reasoning for this habit. They associated it with the physical demands of their work. While a total of 72.73 per cent of current drinkers' did perceive a relationship between their work and their usage of alcohol, 42.42 per cent of them stated that drinking in the evenings helped rejuvenate and re-invigorate the body and muscles after a long and hard day of physically exhausting work (Table 7.5). Similar to tobacco, these respondents thus perceived alcohol to be a work-related practice and an intrinsic part of their working lives.

While 27.27 per cent of frequent drinkers did not make any connection between this practice and their work, 12.12 per cent, while perceiving a link, were unable to articulate it. A few of the respondents interviewed during the survey round (9.09 per cent) also claimed that drinking alcohol greatly reduced their anxiety and fear which helped them to dive into the water while performing scouting expeditions.

Table 7.5 Relationship of alcohol with work performance

Alcohol aids work performance	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	15 (78.95)	6 (66.67)	-	3 (100)	24 (72.73)
No	4 (21.05)	3 (33.33)	1 (100)	-	9 (27.27)
How does it aid performance					
Rejuvenates body	9 (47.37)	3 (33.33)	-	2 (66.67)	14 (42.42)
Removes fear in diving activities	2 (10.52)	1 (11.11)	-	0	3 (9.09)
Other	2 (10.52)	-	-	1 (33.33)	1 (9.09)
Cannot say	2 (10.52)	2 (22.22)	-	0	4 (12.12)
No effect	4 (21.05)	3 (33.33)	1 (100)	-	9 (27.27)
Total	**19 (100)**	**9**	**1**	**3**	**33 (100)**

Source: Boatman survey
Note - Figures in parenthesis indicate percentages of the sample population column wise in each cell.

The latter rationale put forward by these respondents was reiterated by the divers of Raj Ghat who were interviewed in the second phase of this study. While over a fifth of the total respondents stated that they consumed alcohol on a regular basis, the case of diver respondents' was markedly different. Almost all divers drank liquor, including all of those interviewed in this study. These divers' claimed that alcohol consumption was ubiquitous among Raj Ghat divers who have been in this work for more than 5-10 years. Drinking was seen as an important part of diving work, since it was used to not only off fear that diving deep into the water brought upon them but also helped to provide warmth to the body. As one respondent stated:

> "Without alcohol, we cannot do this work. *Shareer sust ho jaata hai* (body becomes lethargic). We get tired also. For this reason only, *ghee* is also important. That is why, I eat *ghee* also)."

Boatmen respondents frequently claimed that even the police officials who on occasion hired the services of these *gotakhors* provided them with alcohol before asking them to dive into the work for participating in rescue activities. Frequently even the reward for mounting safe rescue missions was alcohol. While these respondents mentioned this act of the police and local administration in a matter of fact way, the women of diver households looked upon this habit in a less kind way. Questions relating to divers' use of alcohol invited looks of both contempt and despondency among them. They were critical of the advantage taken by the police of their men's penchant for alcohol. As one elderly lady (mother of a deceased diver) stated, "*Sarkar ek sheeshi daaru denge, bas khatm* (government will give one bottle of alcohol, that's it)," to highlight the reward or the lack of reward that diver's received for work which put their life at risk and the unfairness of the absence of further administrative culpability in such matters.

The relationship between alcohol and occupation that divers' proclaimed was less recognised by their wives, who in a number of cases, had to suffer due to this habit. Among numerous divers', this occupationally acquired habit had, with constant usage over the years, transformed into alcohol dependency. It was not surprising therefore that women lamented the high levels of addiction and usage among their men. While one woman claimed that they started drinking regularly by the age of 15-25 years and as a result, "*umar lambi nahi hoti hai.* 40 – 50 *saal zyaada se zyaada* (they do not have long lives. 40 – 50 years maximum)," another stated, with reference to her husband, "*daaru pee pee kar shareer kharaab kar liya hai* (Drinking alcohol has ruined his body)." A couple of ladies also pointed to the opening of a "*sharaab ka theka* (alcohol shop)" in their colony's vicinity around 5 or so years back which had led to an increase in alcohol consumption among their men. In this regard, one lady stated:

> "Earlier no, there was no *sharaab ka theka* (alcohol shop). Now a shop has opened here. Now he drinks it like tea. He goes to get alcohol as soon as he wakes up in the morning."

Another lady (wife of a 40 year old diver) further claimed that her husband would do any work for money. The extent to which alcohol had played havoc with her married life is mentioned in the following lines:

> "*Bojha ya koi bhi mazdoori . . . daaru ke liye* (heaving luggage or any other wage labour . . . for alcohol). If he has money, then he will refuse work, if not, then will

> do for money . . . . Earlier he used to give money, so I could manage household expenses, now he just drinks alcohol . . . . Earlier he used to drink less. Since our son has started working, everyday there is a fight. He hits our son and my other children other. Every day he throws me out of the house. He comes to the house only for *gariyaane* (fighting). If his brother says anything, he starts fighting. We have tried to stop him but he does not listen. Friends also try to stop him. He promises also, but as soon as he gets money . . . since this alcohol shop has opened, he has started drinking more . . . . I don't go outside; my body is ruined from beatings. I am anaemic. I have pain in my body and swelling due to which I cannot work. *Maar khaate khaate ho gaye aise* (constant beatings have made me like this)."

Her elder son, who was 17 years old, clarified that though all men (divers') near their house drank alcohol, but their father was the most violent of the lot. His uncle, who lived in another room in the same premises and was also a diver, too drank alcohol on a daily basis, yet he gave money at home and did not physically abuse his family in the manner that his father did, he claimed.

Other women, while not testifying to the prevalence of violence in their households, however did speak about the penury which alcohol usage by their husbands or their sons brought upon their households. As one respondent stated, "*ghar ke kharche par prabhaav* (it affects household expenses). We cannot prepare *roti* (bread) also." Similarly another claimed that they ate just twice a day due to their inability to afford a third meal. She stated that taking loans was out of the question since they had no means to repay the loan.

Table 7.6 Socio-economic score of boatmen, based on their regular consumption of alcohol

Category of boatmen	Mean Socio-economic Score
Frequent Drinkers	30.59 (23.69-37.49)
Used to consume earlier	50.85 (19.86-81.84)
Do not consume	39.62 (35.25-43.99)

Source: Boatmen Survey
Note: Figures in the parenthesis are 95 per cent confidence intervals.

The claims made by these women about the effects of regular usage of alcohol on their household's budget were visible through our survey data on the boatmen as well. As illustrated in Table 7.6, frequent drinkers of alcohol among surveyed boatmen respondents scored less than

their colleagues on the socio-economic index. The index which was computed using housing conditions, access to basic household amenities and ownership of productive economic assets ranks surveyed boatmen (excluding Raj Ghat respondents) on the basis of their score on these parameters (see Chapter 4). Current regular consumers of alcohol were thus amongst the socio-economically weakest boatmen in Varanasi. Former regular drinkers had the highest SE score at 50.85, while those who were not regular with this habit, too fared better than regular drinkers.

The result of a linear regression of the impact of regular consumption of alcohol on the SE standing of surveyed boatmen too supports the above result. As indicated in Table 8.6, the regression co-efficient shows regular alcohol consumption has a negative effect on boatmen's SE level. SE status is the dependent variable in the table, while frequent drinking, among other categorical variables, is an independent variable whose influence is tabulated on the former. Thus as shown, those who did drink liquor on a regular basis were 3.48 times worse off than their counterparts who did not drink ($p<0.001$).

In the case of divers' (who were not included in the survey round of the current study), it can be assumed that the same results would apply. Usage of alcohol was high and drinking was perhaps even more sustained in the case of divers. It was not uncommon to meet an intoxicated diver at Raj Ghat during the day time, since as they claimed to drink and dive (work hours generally stretched from 9 a.m. to 3 p.m.).

While a direct relationship may be traced on increased expenditure on intoxicants and reduced household spending on other heads, including essential amenities (as evident in the testimonies of most female respondents of diver households), other influences cannot be discounted. Alcohol-related morbidity too has a significant effect on household finances. Numerous current drinkers related to the researcher health issues such as stomach ulcers, liver abscess and liver cirrhosis and even recounted past hospitalisations brought on by alcohol abuse. In a few instances, loans from family members and colleagues were also taken to tide over hospitalisation. Even for in-patient care, the high cost of medicines was identified as a "*dikkat* (problem)," in accessing services. Doctors interviewed in this study too spoke of the financial constraints which impaired access of a number of boatmen patients. A doctor at Bhelupura Government Hospital claimed that the main reason for leaving treatment was, "*koi sunishchit* (any guaranteed) source of income *na hone ke karan* (due to its absence)."

A private practitioner at a small dispensary near Prahladh Ghat also spoke of financial issues affecting treatment completion. He claimed, "*Paise ka aabhaav aur ashiksha. Paisa kamaate hain lekin bachat nahi* (lack of money and illiteracy. They earn money, but have no savings)." He also implicated their usage of alcohol as a factor in promoting financial difficulties:

> "Boatmen . . . *bahut hain daaru peene waale* (many of them are alcoholic). They are daily wage earners. They earn anywhere between Rs.500-1000 daily. They finish their money drinking alcohol."

In his assessment, he was supported by another private practitioner, who further spoke of their tendency to seek stop-gap care. He stated:

> "Take symptomatic treatment. *Ruk ruk kar karte hain* (take gaps) . . . . Stop gap treatment is also due to money and financial issues. Plus drink regularly and use that for treatment. Also as soon as they get mental relief from little improvement they leave."

Other doctors too, belonging to both government hospitals and private clinics (including welfare hospitals), identified the prevalence of symptomatic treatment among boatmen respondents as an area of concern which hindered treatment regimens and treatment success, including in cases of hepatitis and liver abscess, failure and cirrhosis. The dominant tendency was to view boatmen patients' usage of alcohol as a hindrance to treatment completion. Statements ranged from, "They are mostly not so weak financially, but due to addiction, there are drop-outs," to "They do not take *niymat dava* (regular medicine) and do not leave alcohol, so there is a high mortality rate," and finally, as a doctor at Mata Anandamayee Hospital, Shivala stated, "70 per cent do complete treatment; 30 per cent do not. Even those who complete, continue (with) alcohol intake, (so) there is high recurrence."

Alcohol was thus implicated not only as a causal factor in engendering disease among boatmen, but also blamed for poor treatment outcomes. While de-addiction centres existed at Sir Sunder Lal Hospital, Banaras Hindu University Institute of Medical Sciences (BHUIMS) and Pandit Deen Dayal Hospital (both government hospitals in Varanasi), only two doctors mentioned referring patients to these places for de-addiction. They both however claimed that de-addiction was not successful in a majority of cases.

A senior doctor at Sir Shiv Prasad Gupt (SSPG) Government Hospital, also popularly referred to as Kabir Chaura Hospital, spoke of the tendency of these workers, in most cases, to approach formal healthcare facilities only after the ailment had assumed chronic proportions. He thus

claimed, "Generally come at advanced stages. Initially take medicines from local practitioners and only later come here." Another doctor corroborated this view point, "Almost 60 per cent cases report at a slightly advanced stage of liver problem. Reason is due to alcohol intake."

Interestingly, in the study, women respondents from diver households too blamed alcohol usage for incomplete treatment regimens. A senior woman respondent, mother of a diver, stated that she no longer encouraged her son to seek healthcare access despite signs of discomfort brought on by years of alcohol abuse. She thus said:

> "He started doing this work at the age of 15 years. First he used to search for coins and then he started rowing a boat. If I stop him, he says who will take care of his family. I cannot take care, so I do not stop him . . . he lives on alcohol. I tell him not to go to a doctor. If I take him to a doctor and he gives medicines . . . son is still drinking. So my money is *fizool kharcha* (wastefully spent). What do I do?"

As the financial effects of alcohol usage tell on boatmen and diver families in a variety of ways, the option of foregoing healthcare access is also sought, especially given that little hope of seeking a long-term cure to the physical ailments of regular alcohol users seems possible, as long as their dependence is maintained.

Using data from National Sample Survey Organisation's (NSSO) survey on healthcare expenditure (60^{th} round), Berman, Bhandari and Ahuja (2010) demonstrate that 3.8 per cent of urban households suffered from impoverishment in 2004 due to expenditure incurred from out-patient care. They further illustrate that the high burden of catastrophic health expenditure is felt acutely more often in out-patient treatment cases than in cases of hospitalisation. This is attributed to the greater frequency with which payments have to be made (despite their relatively small amount) in such cases[343]. Regular alcohol consumption can thus have a debilitating effect on household budgets, not just through a diversion of income for purchasing alcohol but also through the disease and disability it engenders and the consequent expenditure on healthcare that it requires[344].

In conclusion, it might be said that the frequent level of consumption of alcohol among boatmen and in particular, divers needs to be seen in the context of their working environment. The probable occupational link should not be simply brushed away and it would serve ill to label

[343] Berman, P., Ahuja, R. And Bhandari, L. (2010): "The Impoverishing Effect of Health-care Payments in India: New Methodology and Findings," *Economic and Political Weekly*, Vol. XLV, No. 16, pp. 65-71.

[344] WHO (2011): *Global Status Report on Alcohol and Health.* Geneva: World Health Organisation, p. x.

frequent consumption in all respondents as an upshot of their personal habit. The administration, though its policy of offering alcohol to divers to titillate them into undertaking hazardous rescue missions, too explicitly support such a habit and is condemn-worthy. However the realities of the women and other family members of boatmen (especially diver) households who are at the receiving end of such a habit too cannot be ignored. They are among the biggest victims of such a frequent and potential high usage of alcohol amongst the male members of their family.

7.4 Occupation-related health concerns reported by the Varanasi boatmen

Work-related health concerns can be understood as those health concerns which may be partially or wholly attributed to the work environment of a population. The role of other causative factors in the emergence of these health issues cannot be discounted, with working conditions often being only one among a number of 'risk-factors' that give rise to such ailments[345].

The current section focuses on health problems reported by boatmen as being related to their work and their perception regarding the intensity and chronic nature of the health problem and subsequent action taken. Analysis in this segment had been conducted both according to the category of the boatmen and the age of respondents.

7.4.1 Skin ailments – In the current sample, the most commonly reported health problem was skin lesion. 38.46 per cent of the respondents, including 47.83 per cent hand-oared boat owners, reported being plagued by some form of skin trouble, which they felt was linked with their occupation (Table 7.7). Sores and calluses in the palms were present in the hands of most boatmen who plied hand-oared boats on a regular basis. As one respondent stated, "*naanv khene se yeh gatte pad gaye. Yeh toh aam hai* (rowing a boat caused these calluses. This is common)." Other respondents further explained, holding on to the wooden oar while operating boats caused '*gatte'* (calluses). However, most of the respondents dismissed this concern stating it to be an inevitable part of their working lives, which began soon after they started rowing a hand-oared boat. Though some reported minor pain due to these bumps on the palm of their hand, others stated that it did not interfere with any other aspect of their lives or work. One 42 year old boatman owner stated that sometimes these calluses even bled, but he still claimed the problem to be mild since he had learned to cope with them as he had been riding a boat for over 25 years. A few even reported that these *gatte* sometimes became blistery, yet almost none of them felt the problem to be acute since this was a common and unavoidable aspect of their work.

[345] Lesage, M. (2011), *op cit.*

Table 7.7: Occupation-related health concerns reported by boatmen respondents

Work-related health concerns	Workers	Hand-oared boat owners	Motor-boat owners	Own hand-oared & motor-boats	Total
Skin concerns	28 (40.58)	22 (47.83)	-	5 (21.74)	55 (38.46)
Tiredness and breathlessness	13 (18.84)	13 (28.26)	-	3 (13.04)	29 (20.28)
Pain in joints	7 (10.14)	6 (13.04)	-	5 (21.74)	18 (12.59)
Others	17 (24.64)	9 (19.5)	1 (20)	5 (21.74)	32 (22.38)
None	26 (37.68)	11 (23.91)	4 (80)	9 (39.13)	50 (34.97)
Total*	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Duration					
Less than a year	5 (7.25)	4 (8.7)	-	-	9 (6.29)
1-3 yrs	10 (14.49)	5 (10.87)	1 (20)	2 (8.7)	18 (12.59)
3-5 yrs	4 (5.8)	4 (8.7)	-	1 (4.35)	9 (6.29)
5 yrs & above	22 (31.88)	22 (47.83)	-	11 (47.83)	54 (38.46)
Intensity					
Mild	25 (36.23)	22 (47.83)	1 (20)	8 (34.78)	56 (39.16)
Moderate	9 (13.04)	5 (10.87)	-	3 (13.04)	17 (11.89)
Acute	9 (13.04)	8 (17.39)	-	3 (13.04)	20 (13.99)
Treatment sought*					
Government	4 (5.8)	1 (2.17)	-	-	5 (3.5)
Private	7 (10.14)	9 (19.57)	-	1 (4.35)	17 (11.89)
Welfare	2 (2.9)	2 (4.35)	-	3 (13.04)	7 (4.9)
Unlicensed	3 (4.35)	4 (8.7)	-	-	7 (4.9)
Self-care	8 (11.59)	11 (23.91)	1 (20)	3 (13.04)	23 (16.08)
Other	1 (1.45)	-	-	1 (4.35)	2 (1.4)
No treatment	22 (31.88)	11 (23.91)	-	9 (39.13)	42 (29.37)
Total	**43 (100)**	**35 (100)**	**1 (100)**	**14 (100)**	**93 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

43.64 per cent of respondents who reported skin problems stated that they did not seek any medical help for their problem, while another 30.91 per cent claimed that they utilised home-remedies for their concerns (Table 7.8). While some claimed that they used lukewarm *'dal ka paani* (water of lentils)' to press and rub onto their hands, others resorted to '*sarson k*e *tel ki maalish* (massaging with mustard oil)' to alleviate the pain. Apart from these more common measures, a range of other measures too were adopted such as '*garam sikai* (warm compress)', '*malaai* (cream)' or even "*sarson ka tel, lehsun aur sendha namak* (mustard oil, garlic and sea salt),' mixture was rubbed onto the hands to soften the hard callused skin. A couple of respondents even resorted to Ayurvedic treatment for the condition.

Palm lesions were not the only skin ailments which troubled the boatmen. Some respondents stated that plying a boat in the hot summer months caused heat rashes on various parts of their body, including their back. One even mentioned that sitting on the "*garam patra* (scorching seat)" to row a boat in the hot afternoon sun caused painful sores on his bottom. He further stated that he put, "*tel garam kar ke* (oil, after heating)," hoping to alleviate the pain from the blisters.

One hand-oared boat owner from Meer Ghat also stated having to immerse his feet into the river during the discharge of his occupational tasks caused "*paer sadta hai aur khujli hoti hai* (legs rot and itching occurs on skin).' Though he described the condition as mild, yet he stated that it had subsisted for over five years. He claimed to have utilised self-care as well as having visited a private doctor for healing the condition, but to no avail. The conditions of work prevented a return to normalcy, he asserted.

A few respondents also stated that they sometimes developed boils and rashes on different parts of their body, including their knuckles, during the monsoon season. This they attributed to the deterioration in the quality of the river's waters due to the direct discharge of dirty sewage water from overflowing drains in the city. Though such a condition was deemed acute by these respondents, yet they did not report taking any treatment for these skin concerns. Instead as one respondent claimed that this would go away on its own once the monsoon subsided and hence was not a big cause for worry for them.

Table 7.8: Skin ailments

Skin ailments	**15 – 25 yrs**	**26 – 40 yrs**	**41 – 55 yrs**	**56 yrs & above**	**Total**
Yes	15 (30.61)	18 (47.37)	13 (38.24)	9 (40.91)	55 (38.46)
No	34 (69.39)	20 (52.63)	21 (61.76)	13 (59.09)	88 (61.54)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**
Duration					
Less than a year	1 (6.67)	2 (11.11)	-	1 (11.11)	4 (7.27)
1-3 yrs	4 (26.67)	3 (16.67)	-	2 (22.22)	9 (16.36)
3-5 yrs	2 (13.33)	1 (5.56)	2 (15.38)	-	5 (9.09)
5 yrs & above	8 (53.33)	12 (66.67)	11 (84.62)	6 (66.67)	37 (67.27)
Intensity					
Mild	12 (80)	13 (72.22)	11 (84.62)	6 (66.67)	42 (76.36)
Moderate	2 (13.33)	3 (16.67)	1 (7.69)	1 (11.11)	7 (12.73)
Acute	1 (6.67)	2 (11.11)	1 (7.69)	2 (22.22)	6 (10.91)
Treatment sought*					
Government	1 (6.67)	1 (5.56)	-	-	2 (3.64)
Private	3 (20)	4 (22.22)	-	1 (11.11)	8 (14.55)
Welfare	-	-	-	-	-
Unlicensed	1 (6.67)	2 (11.11)	2 (15.38)	2 (22.22)	7 (12.73)
Self-care	3 (20)	5 (27.78)	6 (46.15)	3 (33.33)	17 (30.91)
Other	-	-	1 (7.69)	1 (11.11)	2 (3.64)
No treatment	9 (60)	7 (38.89)	6 (46.15)	2 (22.22)	24 (43.64)
Total	**15 (100)**	**18 (100)**	**13 (100)**	**9 (100)**	**55 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

The temporal nature of the problem thus led them to underestimate its severity despite the perceived discomfort. There was also an element of helplessness given that their reliance on the river and association with it (in their professional lives) could not really be altered given that the nature of their occupation.

7.4.2 Tiredness and Breathlessness–A total of 20.28 per cent boatmen respondents stated that they suffered from the problems of tiredness and breathlessness which they felt was due to the physical exertion that they faced in their work (Table 7.7).

While almost all boatmen who plied a non-mechanised boat stated that they were often out of breath and experienced tiredness after a long ride, yet in thus study, these symptoms were counted for only those respondents who reported feeling tired and/or out of breath even though a long time had passed after undertaking a journey and for whom this was a daily or common occurrence and not merely a one-time feeling of tiredness and/or breathlessness.

The figure was higher for hand-boat owners at 28.26 per cent. Moreover, as seen in Table 7.9, half of the boatmen aged 56 years and above reported feeling tired and breathless after foraying into the river with their boats. While some of the elderly boatmen attributed this to their age as well, stating that this was to be expected as it was a part of their aging process. However a number of others declared that *'kamzori'* (weakness) and '*khoon ki kami* (anaemia)' in their bodies, rather than age-related factors, were the reasons that such tiredness was experienced.

Over 60 per cent of the two latter age categories of boatmen (41-55 years and 56 years and above) however stated that they had been experiencing this issue for more than five years, though once again, there was a tendency among these respondents to set aside this health issue as being either mild or moderate. Less than a third of the boatmen above the age of 40 years who reported this health concern claimed it to be acute (Table 7.9).

Thus though there was awareness of the problem among these respondents, yet it was not deemed significant enough to take action. 44.83 per cent stated that they did not seek any medical help, while another 20.69 per cent of the total respondents claimed that they depended upon household remedies or oil massages to ease the feeling of tiredness. Of those that did seek treatment, a private practitioner (13.79 per cent) followed by a government (10.34 per cent) and trust hospital (10.34 per cent) were the popular choices (Table 7.9).

Table 7.9 Tired and Breathlessness

Tiredness and Breathlessness	**15 – 25 yrs**	**26 – 40 yrs**	**41 – 55 yrs**	**56 yrs & above**	**Total**
Yes	4 (8.16)	6 (15.79)	8 (23.53)	11 (50)	29 (20.28)
No	45 (91.84)	32 (84.21)	26 (76.47)	11 (50)	114 (79.72)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**
Duration					
Less than a year	1 (25)	-	-	-	1 (3.45)
1-3 yrs	1 (25)	3 (50)	1 (12.5)	4 (36.36)	9 (31.03)
3-5 yrs	2 (50)	2 (33.33)	2 (25)	-	5 (17.24)
5 yrs & above	-	1 (66.67)	5 (62.5)	7 (63.64)	15 (51.72)
Intensity					
Mild	2 (50)	4 (66.67)	2 (25)	4 (36.36)	12 (41.38)
Moderate	1 (25)	2 (33.33)	4 (50)	3 (27.27)	10 (34.48)
Acute	1 (25)	-	2 (25)	4 (36.36)	7 (24.14)
Treatment sought*					
Government	-	1 (16.67)	1 (12.5)	1 (9.09)	3 (10.34)
Private	1 (25)	-	1 (12.5)	2 (18.18)	4 (13.79)
Welfare	1 (25)	-	1 (12.5)	1 (9.09)	3 (10.34)
Unlicensed	-	1 (16.67)	-	-	1 (3.45)
Self-care	1 (25)	1 (16.67)	1 (12.5)	3 (27.27)	6 (20.69)
Other	-	-	-	-	-
No treatment	1 (25)	3 (50)	5 (62.5)	4 (36.36)	13 (44.83)
Total	**4 (100)**	**6 (100)**	**8 (100)**	**11 (100)**	**29 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

7.4.3 Pain in the shoulders and hands – was reported by 12.59 per cent of the respondents, including 21.74 per cent of owners of both hand-oared and motor-operated boats (Table 7.7). Similar to other occupation-related health concerns, a higher percentage of boatmen in the senior age categories – 41-55 years (23.53 per cent) and 56 years and above (22.73 per cent) had experienced them (Table 7.10). Motor-boat owners who did not face the same exertions as those who operated non-mechanised boats did not report this symptom.

The sitting posture adopted for rowing and the exertion required in manoeuvring the handles of the boat while rowing were identified as reasons for such pain among the respondents. One elderly 57 year old boatman worker, who primarily rode a medium-size boat, stated that years of rowing had contributed to acute pain in his wrists. He depended upon home-remedies to lessen the discomfort.

In the age group 41-55 years, 62.5 per cent of respondents and all respondents 56 years and older who complained about this problem stated that they had experiencing some form of pain in their shoulders, hands and/or wrists for over 5 years. This form of trouble was rated as moderate to acute by half of the respondents in the former age category and by 80 per cent of those belonging to the highest age category.

Despite the severity of the problem faced, action taken among respondents who reported this condition was low. Among those who faced this trouble, 33.33 per cent stated that they took no treatment, while another 27.78 per cent claimed that they depended upon home-remedies or preferred going to a chemist rather than a doctor for alleviating such pain. Private practitioners (27.78 per cent) were preferred in case the respondents sought treatment from a formal healthcare institution. No respondent reported going to a government hospital for treatment of this health concern (Table 7.10).

Table 7.10 Pain in hands and shoulders

Pain in hands and shoulders	15 – 25 yrs	26 – 40 yrs	41 – 55 yrs	56 yrs & above	Total
Yes	1 (2.04)	4 (10.53)	8 (23.53)	5 (22.73)	18 (12.59)
No	48 (97.96)	34 (89.47)	26 (76.47)	17 (77.27)	125 (87.41)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**
Duration					
Less than a year	1 (100)	-	1 (12.5)	-	2 (11.11)
1-3 yrs	-	1 (25)	1 (12.5)	-	2 (11.11)
3-5 yrs	-	-	1 (12.5)	-	1 (5.56)
5 yrs & above	-	3 (75)	5 (62.5)	5 (100)	13 (72.22)
Intensity					
Mild	1 (100)	1 (25)	4 (50)	1 (20)	7
Moderate	-	1 (25)	1 (12.5)	2 (40)	4 (22.22)
Acute	-	2 (50)	3 (37.5)	2 (40)	7 (38.89)
Treatment sought*					
Government	-	-	-	-	-
Private	1 (100)	1 (25)	1 (12.5)	2 (40)	5 (27.78)
Welfare	-	-	1 (12.5)	-	1 (5.56)
Unlicensed	-	-	1 (12.5)	1 (20)	2 (11.11)
Self-care	-	1 (25)	3 (37.5)	1 (20)	5 (27.78)
Other	-	-	1 (12.5)	-	1 (5.56)
No treatment	-	2 (50)	3 (37.5)	1 (20)	6 (33.33)
Total	**1 (100)**	**4 (100)**	**8 (100)**	**5 (100)**	**18 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

7.4.4 Others – 22.38 per cent of the total respondents stated that they experienced other occupation related health concerns. Lower back pain and chest pain was commonly reported by the respondents, which they attributed to the stress of heaving oars while rowing. These conditions were largely reported by boatmen belonging to the age category 41-55 years (23.53 per cent) and 56 years and above (22.73 per cent) (Table 7.11). One respondent stated that acute pain in the back was the reason that he rowed less. For back related problems, most respondents stated that they had visited a doctor for seeking relief. Private practitioners were the most common preference of these respondents.

A number of boatmen also reported feeling dizzy, nauseous and experiencing head-aches while driving a boat under a hot summer sun. However, this problem was largely reported by respondents belonging to the age groups, 15-25 years and 26-40 years. The stance of most respondents to this health concern was best encapsulated in the following words, made by a 73 year old senior boatman, "*Ghaam mein bimaar hote hain par kya karein, dhandha hai hamaara* (we fall sick working under the sun, but what can we do, this is the nature of our work)." Despite describing the problem as moderate, he shrugged at the mention of any medication or treatment action. Similar to this elderly gentleman, most respondents who reported this problem did not opt for any treatment, feeling it to be a relatively mild health concern.

Accidents, both severe and mild, were also reported by these respondents. A number of respondents stated that they had suffered from loss of hearing due to ear drum perforation and one even reported a nose-bleed due to their participation in diving activities. Despite the perceived seriousness of these concerns, none of these respondents opted for medical treatment. They however stated that they had either stopped or in one case, substantially reduced going underwater to prevent further such accidents.

The dangers from diving and the risks to their health thus resulted in behaviour change in these respondents. A point to remember here is that for these boatmen, diving was an auxiliary activity, carried out to supplement their income and not their primary work-related task. Ferrying for customers was their primary income-generating activity and hence leaving or curtailing diving (after an assessment of the risks involved in the task) did not have a substantial economic impact on these respondents, as they themselves confessed. The same was however not the case with the Raj Ghat divers (discussed in section 7.4).

Table 7.11 Other occupation-related health concerns

Other health concerns	**15 – 25 yrs**	**26 – 40 yrs**	**41 – 55 yrs**	**56 yrs & above**	**Total**
Yes	11 (22.45)	8 (21.05)	7 (20.59)	6 (27.27)	32 (22.38)
No	38 (77.55)	30 (78.95)	27 (79.41)	16 (72.73)	111 (77.62)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**
Duration					
Less than a year	1 (8.33)	1 (14.29)	2 (22.22)	1 (16.67)	5 (14.71)
1-3 years	4 (33.33)	-	1 (11.11)	2 (33.33)	7 (20.59)
3-5 years	2 (16.67)	-	2 (22.22)	-	4 (11.76)
5 years and above	3 (25)	6 (85.71)	4 (44.44)	3 (50)	16 (47.06)
Intensity					
Mild	7 (58.33)	2 (28.57)	3 (33.33)	2 (33.33)	14 (41.18)
Moderate	1 (8.33)	2 (28.57)	-	2 (33.33)	5 (14.71)
Acute	4 (33.33)	3 (42.86)	6 (66.67)	2 (33.33)	15 (44.12)
Treatment sought*					
Government	1 (8.33)	-	1 (11.11)	1 (16.67)	3 (8.82)
Private	2 (16.67)	1 (14.29)	5 (55.56)	-	8 (23.53)
Welfare	1 (8.33)	-	-	1 (16.67)	2 (5.88)
Unlicensed	-	-	-	-	-
Self-care	3 (25)	4 (57.14)	3 (33.33)	1 (16.67)	11 (32.35)
Other	-	-	-	1 (16.67)	1 (2.94)
No treatment	6 (50)	1 (14.29)	2 (22.22)	2 (33.33)	11 (32.35)
Total	**12(100)**	**7(100)**	**9 (100)**	**6 (100)**	**34(100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

A respondent from Khidki Ghat brought into focus the exceptional vulnerability faced by boatmen working at the city's two cremation *ghats.* He stated that he had been burnt in an accident during the course of his scouting duties on the *ghat* and had to be taken to a private hospital for treatment.

In one instance, the wife of a boatman worker also reported an accident from a motor-boat on her *ghat.* She thus stated:

> "My leg got stuck in the motor. This happened seven years back. For one month, I was even admitted in a hospital at DLW. Doctor has recommended getting an iron rod inserted in my right leg. There is a constant pain in the winter months. One month back I went to a private clinic in Lanka. At the private clinic, they take Rs.150 for consultation. From the beginning, I go there. This time, pain was too much. I got an X-ray done, the bone is fixed. The doctor gave a special sock, which cost Rs.900. So I got that. He also gave me medicine for 15 days."

This lady also stated that her accident all these years ago had severely curtailed her mobility. She did not venture out of the house any longer. Her husband brought groceries home, while she stayed put at home.

A few other respondents also reported accidents that they suffered at the work-place. While one reported an injury on the leg due to his falling off the steep steps of his *ghat,* another couple of respondents did mention an injury from the motor of their machine-operated boats. However these were just minor injuries.

Finally, a few respondents (2.16 per cent) also reported experiencing feelings of stress and anxiety due to the insecure and erratic nature of their work. The thought of making ends meet and undertaking other social and medical expenses within their limited income troubled these respondents. While one respondent stated that he had attempted to get himself treated, but could not continue with his full course due to a lack of money, another (a 64 year old fisherman) stated that he even had to get admitted at a charitable healthcare institution for three days due to ill-health brought on by stress. He stated:

> "I am always tensed. There is no other support. I have two children to marry off and they are daughters . . . . I got treated at Janta Hopsital, Gowdolia. I was admitted for three days there. They inserted a machine also."

He had to take a loan from a local *mahajan* (money-lender) to pay off medical expenses incurred during his brief stay at the hospital. At roughly the same time as he was undergoing treatment, he stated that his son too had to be hospitalised for a '*ghaav* (blister)' on his lungs brought on by

long-term sustained usage of *gutka*. Though he too had been admitted to a trust hospital, Kaudia at Gowdolia, yet the expenses from both ailments set him and his family back by Rs.40,000-45,000. In order to continue with both the treatment regimens, he had to further resort to distress sale (sale of household assets), which, he stated, were essential for the continuation of treatment.

Another respondent, who was approximately 50 years old and worked at Raj Ghat, attributed his stress to an accident he suffered while plying his boat in Ganga's waters when the river was at spate. The accident ended in his *naanv* sinking into the river. The loss of his sole economic asset and his inability to either retrieve the sunken boat or pay for the construction of a new one, he claimed, resulted in "tension *mein bimaar* (tension caused illness)". He suffered acute problems in his liver for which he underwent treatment.

Even in this instance, respondents reported preferring accessing private medical care institutions (23.53 per cent) to both government (8.82 per cent) and trust hospitals (5.88 per cent), despite the higher costs of the former (Table 7.11).

A range of morbidities were reported by respondents in the present study, which they felt shared an association with their occupation. Motor-boat owners reported an almost negligible amount of health concerns vis-à-vis the rest of the respondents, except in the case of accidents from the machinery of the boat. This may be due to the fact that plying a motor-boat was not a physically demanding activity as well as the fact that most motor-boat owners only plied their boat on occasion. In almost all instances, they had boatmen workers working for them, while their task remained limited to scouting, approaching and negotiating prices with potential passengers. The problems experienced by the other category of boatmen were hence not shared by these respondents.

A higher proportion of boatmen aged 41 years and above reported ailments which they perceived was related to their occupation. Though age may have been a factor in the development of these health concerns, yet working conditions too were implicated. The physical nature of their work-related activities and as Mittal and Goswami (2006) state, the 'accumulated effect' of years of repetitive and strenuous physical activity is bound to influence the health of workers[346]. This is visible also in the higher self-reported health concerns by hand-oared boat owners and workers, who undergo the highest amount of physical stress in their work.

[346]Mittal, A. and Goswami, P. (2006),

An observation that can be made from above data is the high proportion of respondents opting for self-care or family-based care rather than approaching healthcare institutions for treatment. While this was particularly true for those conditions where ailments were perceived to be mild, it was also visible in substantial measure for moderate and acute forms of more chronic conditions. Apart from accidents or severe conditions, in instances where the boatmen felt that pain or discomfort was an inevitable aspect of their work, they decided to forego formal treatment measures in large measure. Collins and Green (2014) declare that inability to access formal healthcare institutions due to affordability constraints often causes people to depend upon home-based care. The efficacy of self-care should not be always doubted. They claim that 65 per cent to 85 per cent of healthcare falls in the domain of self-care, with people utilising both allopathic and non-allopathic medicines, including various forms of traditional medicine to alleviate pain and suffering and effect healing[347]. In the present study too, self-care or home-based care emerged as an important remedial measure for troubled respondents.

In cases, where respondents accessed the formal healthcare network, the study shows a high preference for private rather than government hospitals. This is despite the fact that Varanasi is endowed with a good network of government medical institutions, which in most cases, are in the vicinity of the main living areas of the boatmen respondents in this study. Their reasons for foregoing treatment at government setups, despite the seemingly lower treatment costs and their preference for private institutions and its implications on their socio-economic status will be dealt with in following chapter on healthcare access (Chapter 8).

7.5 Diving and Health

While the occupation of boating is associated with a number of work-related health concerns, the health issues of those workers whose primary occupational activity was diving were to some extent different. The following section deals with the risks to health and safety posed to the divers by their working conditions.

Numerous people drown (accidentally or by design) and die in the Ganga in Varanasi every year. Only the local boatmen or the expert divers present ubiquitously on the *ghats* have the skill and expertise to save the lives of these people or to retrieve their bodies. It is thus ironic that the lives of these essential service-providers (akin to coast-guards) are considered to be dispensable by the government, despite the ever-increasing crowds thronging on the *ghats*.

[347]Collins, C. and Green, A. (2014), *op cit*, p. 60.

As recently as December, 2014, a proficient diver lost his life trying to save the life of a woman who had jumped into the river. As these *gotakhors* were called upon to render expert services during the night time (after the woman had jumped into the river), respondents stated that his leg had gotten stuck in the concrete and plant weed floating under the river, which prevented him from swimming back to the surface for air. The anger of the respondents was immense when they recounted that the police officials disowned the efforts of their brave colleague after his passing away. They stated that the police claimed that he had jumped into the river of his own volition and thus they fended off any official responsibility for his death. The state government had however stepped in and announced a compensation package of Rs. 5 lakhs for the deceased diver's family. At the time of writing, more than five months had passed since his demise, yet his former neighbours and colleagues and head of the 'Jal Ganga Gotakhor Samiti,' in Raj Ghat, Varanasi (an organisation of *gotakhors* of Raj Ghat) all claimed that his family had not received a single penny of the compensation. The only money that they had received was from the insurance agencies.

During the course of this narrative, another *gotakhor* nearby pointed to a little unkempt child roaming bare-footed on the steps of Raj Ghat. He stated that his father too had been a *gotakhor*, who had died a few years back in a similar diving accident. His wife, grief-stricken and '*chinta ke karan* (ridden with anxiety),' followed her husband to the grave within a year of his death. His two children were thus left orphaned and had been adopted by their grandfather, an elderly boatman of the *ghat.*

While respondents stated that whenever divers of the UP Provincial Armed Constabulary (UP PAC) came to Varanasi for provision of services, their divers were always equipped with oxygen tanks and masks to ensure their safety, but whenever they were called upon for their services, no arrangements were made for them. They were even expected to get their own rope which was their only equipment. "*Jeevan-mrityu ke beech mein sirf rassi ka fansla* (only a rope separates life from death)," quipped one respondent, while another stated that, "*Bina rassi ke jaane se doob gaya woh* (going without a rope caused his drowning)."

The divers' further revealed that while on official duty, the police officers (whom they served and upon whose request or command, they went into the water) made no arrangements for any medical personnel or even any basic first aid kit of any kind. If during the course of these rescues

they were injured in any manner, then the officials however did facilitate their access to treatment at a nearby health facility.

Though these incidents illustrate the hazard imperiling the lives of these divers, yet ironically they were disdainful of those divers who used such safety equipment. They mentioned that on occasion divers from as far as Patna and Mumbai and even army divers had come to Varanasi but with their heavy kit could not reach the depth that they reached without any support. Despite such condescension towards the use of such protective gear, they recognised the link between their occupation and their health and well-being. Among the prime demands of Jal Ganga Gotakhor Samiti, as elucidated by its president, were government insurance of Rs. 5 lakh to all divers, inclusion in the government workforce and in case this demand could not be met, then a yearly salary in the region of Rs.20,000 to Rs.50,000 and provision for free treatment at hospitals. The government hospital, Kabir Chaura, he claimed, was inexpensive just in name since all medicines they gave had to be purchased from the open bazaar, hence the final demand.

While every year, respondents stated 1-3 diving fatalities were recorded either while saving people or during the course of their own search for coins and valuables on the river bed, but while discussing occupation and health linkages, it is also important to consider the health morbidities that arise from diving.

During the course of the interview, one diver mentioned the *'andha mod* (blind turn)' inside the river which, he stated, significantly increased the risk of accidents under water. Such a charge was seconded by another diver respondent from Raj Ghat, who too quipped about the danger that these 'blind turns' in the river posed. Upon being probed further, they revealed that the bed of the river in Varanasi and in particular near the Raj Ghat was littered with a number of concrete structures and big rocks. In a couple of instances, respondents stated that while attempting to quickly come out of the water, they had hit their head against these structures. One respondent who had experienced such a knock reported being disoriented by the experience. He stated that the blow to the head was not substantial enough to make him unconscious thus he was able to swim back to the surface. Yet after the incident, he had curtailed his diving activities substantially, he stated.

Most *gotakhor* were proud of their under-water swimming and diving expertise and some even adopted a nonchalant attitude towards the hazards arising from their occupation. Statements such as the one that they were in this trade from their '*baap-dada ke samay se* (father-grandfather's

time)' and that they were born in water and had been swimming and diving in the river since a very early age, hence they were not afraid of the water were common. A few however acknowledged the danger to their physical safety from diving. One diver respondent stated in this regard that the practice of keeping eyes closed while being underwater in order to cope with water pressure helped him in the performance of his duties. He stated that if on occasion, he did open his eyes while being under 40-50 feet of water, he was often consumed with '*bhay* (fear).' Another respondent proffered a more cautious approach. This young 23 year old boatman and former diver claimed that the risks associated with diving were the main reason that he had left it. He stated, "Mummy *ne mana kar diya iss kaam se. Iss mein itna khatra hai, isliye chhod diya* (Mummy did not allow me to do this work. There is so much danger in this work, so I left it)." Another respondent proffered a different viewpoint. He claimed, "*Humein darr nahi lagta. Darr sirf parivaar se. Tension sirf parivaar se ki kaun dekhega unko*… (We do not feel fear. We have fear only for our families. Tension only regarding our families that who will look after them…)."

Brewer et al (2007) states that threat perception varies with both the probability and gravity of harm accruing to an individual if she/he treads a particular path. Greater the dread with which the action is perceived, greater is the perception of risk and consequently the likelihood of changing paths[348]. The two view-points mentioned above highlight the difference in the outlook towards hazards. Women of diver households generally deemed the occupation more risky, since they had to face the prospect of injuries and even death (on occasion), strong-arm tactics of the administration and finally even the brunt of alcohol-usage among their men. They had hardly any say in any of these matters and could do little but advice caution, knowing that they would be perhaps be the biggest victims if anything untoward happened. This expression of fear was substantiated in the following account by a woman interviewed in this study:

> "Every woman feels scared. Police offers him liquor and he leaves immediately . . . . Alcohol also reduces life . . . . We always stop him from diving to take out corpses. If something happens to him, then who will feed us."

Her words thus underscored the anxiety that grips women whose men participate in such risky work, but as another elderly woman respondent declared, "*hamare baap-dada se kar rahe hain, toh hamare kehne se kya hoga* (they have been doing this work from the time of our forefathers, so what can we say)?" In the midst of these difficult circumstances, despite them being able to

[348] Brewer, N.T., Chapman, G.B., Gibbons, F.X., McCaul, K.D. and Weinstein, N.D. (2007): 'A Meta-Analysis of the Relationship between Risk Perception and Health Behaviour: The Example of Vaccination,' *Health Psychology*, Vol. 26, No. 2, pp. 136-145.

perceive the dangers, they expressed their helplessness and relative powerlessness to prevent their men-folk from continuing with this work.

One 28 year old diver respondent, while accepting the danger to his well-being that his work posed, expressed his helplessness at his circumstances that made him carry on with this work. He stated:

> "If we get scared, then we will have to leave this occupation, but being scared will not feed us. My wife asks me to leave, but then what will I do. We need to eat and live also . . . I do not want my son to get into this work. I am fed up of doing social service. There is no benefit in this work. I do not want him to go this way, but want him to do *uppar ka kaam* (work above the *ghats*). But what will a poor man do – construction work, cleaning utensils. During monsoons, even I do this – construction work, hauling luggage . . . ."

Despite acknowledging the risk involved with diving work, this young respondent lamented the lack of other viable economic opportunities available to him. In the face of such helplessness, he carried on with his diving work despite the perceived risk to his physical being that his work entailed. High risk perception from the dangers of diving also manifested itself in the usage of alcohol among diving respondents. Alcohol usage was deemed to be important work-related practice since it helped to drive away fear and make sorties into the potentially fatal river-bed a more tenable and less worrisome proposition.

Thus by and large, though the workers' accepted that their work made them susceptible to such accidents. Apart from fatalities, a number of health morbidities were also reported by divers as being related to their work. The commonly conveyed problem was damage to the ear caused by diving deep into water. Ear drum perforation and loss of hearing were problems experienced. Similarly, diving without adequate safety and precautions, stated respondents, could affect eye-sight as well. While *gotakhors* admitted that they kept their eyes closed under water, one stated that his father had completely lost his eye-sight after one voyage deep into the river, where he had made the mistake of opening his eyes. Another respondent seconded the experience stating that he too had experienced some loss of vision which he attributed to his work. He claimed, "*ganda paani jayega toh roshni kam hi hogi* (if dirty water enters, then eyesight will become weak)*."* This was however not mentioned with reference to the Ganga but to the various *pokhra* (lake) that he had dived into during his career. The latter respondent however did not wear spectacles despite his poor vision. He stated that he felt embarrassed being the only one in the community to wear spectacles, since none of the other *gotakhors* wore one.

Another health concern mentioned by all such respondents was occasional bleeding from the nose. This was seen as a warning signal to come to the surface, since if the divers ignored this warning sign, as one *gotakhor* commented, there were chances that, "*Vinaash phat jaata hai* (nose membrane is damaged)." Similarly, diver respondents mentioned that diving with a cold sometimes exacerbated the problem and also prevented them from going too deep into the water since the breath could not be held for as long as it was during other times. "*Sar jakad jaata hai* (head feels heavy)," was the response of one participant.

While the risks to health were greater during the winter season, when the possibility of contracting a cold was higher, a respondent explained that despite these problems divers continued venturing into the Ganga. They however reduced the number of trips made under water – for example, if they went under water around 10 times during the summer season, in the colder weather, they embarked on only 4-5 such trips. However, he stated that the number of tourists coming in at Raj Ghat was higher during the winter season, thus the decline in earnings from *gotakhori* was compensated from the ferrying of passengers.

During winters, there was also an increased risk of straining muscles in different parts of the body due to the cold, which had the potential of further curtailing their stay under water or risk harming themselves. Therefore, winters were a particularly vulnerable period for them. During the monsoon season, when the river was flooded, diving activities were deemed particularly hazardous and risky and thus were not carried out. They were also banned by the administration.

Thus as the above section illustrates a high number of health morbidities that plague this section of the boatmen community in Varanasi. While the *gotakhors* are engaged in diving for coins and other valuables on the bed of Ganga for a large portion of their working hours, yet they stated that the threat to their lives arose most often when they were tasked with diving to retrieve bodies from the river. While a 28 year diver referred to this work as '*samaaj seva* (social service),' another highlighted his community's responsibility to perform this work. He stated:

> "So many people go missing in Ganga. Who knows where their bodies disappear. We need to help them . . . . If we do not do this, people whose bodies are in the river – nobody will perform their *antim sanskar* (last rites)."

Despite this avowal of their moral responsibility to help out people in distress and the frequently voluntary nature of the help offered, respondents also unanimously agreed that both the local police administration and the Jal Police officials courted their services as well. They had to

oblige to administrative demands. Not only were they tasked with undertaking rescue and retrieval missions, but the government also used their services on the festivals. During such times when fetes and *melas* (fairs) were organised on the *ghats* and a huge rush of visitors was expected, their services were called forth. They were given official badges and stationed at strategic points to keep an eye on the riverfront in order to make sure that safety of all visitors was maintained. A senior *gotakhor* mentioned in this regard:

> "On the occasion of Chhath Pooja, *prashasan (*administration) hired us. They gave us duty. Gave us a badge to wear. After duty was over, they called us to the *thana* (police station) and gave Rs.1000 for 5 people for 24 hours work."

Another respondent commented:

> "On *pooja* (festival occasion), we do duty so no accident takes place, but we get no duty otherwise. If accident happens, we are blamed and given no money. *Koi fayda nahi, mila-jula ke ghaata hi ghaata* (no benefit to us, in totality, we endure only loss)."

The remuneration was felt to be inadequate by divers interviewed in this study. While divers mentioned that they frequently worked for the administration (as and when they were called upon to do so), the JP official interviewed for this study tended to deflect all responsibility for divers' actions by referring to them as '*swayam-sevi gotakhor* (independently-serving divers).' Such pronouncements allowed the administration to absolve themselves of any liability for any injury or fatality suffered by workers' while working for them. Despite their failure to provide them with adequate safety gear while utilising their services, the administration could deny responsibility for their deaths.

While regularisation of their services has been a long-standing demand of the *gotakhors* and the larger boatmen community in Varanasi, the state has failed to do so. It has also failed to institute an apt occupational health and safety (OHS) policy which takes into consideration the hazardous nature of their working conditions. As Mittal and Goswami (2006) write in the case of sewage workers, neither has there been an attempt to study the causes and patterns of such work-related deaths among divers nor has been much effort to provide them with protective equipment to prevent such unnecessary loss of life[349]. Neither did our interactions with VNN and JP officials

[349] Mittal, A. and Goswami, P.J. (2006): *Hole to Hell: A Study on the Health and Safety of Sewage Workers in Delhi.* New Delhi: Centre for Education and Communication, p. iii-iv.

nor did a scoping of the City Development Plan for Varanasi, 2041[350] reveal any plans for a policy formulation to take remedial steps for the mitigation of the inherent hazards which plague such work. While rules have been formulated regarding the compulsory wearing of life-jackets by boat passengers and the number of passengers allowed per boat (based on its size) by the VNN, the former in particular is routinely flouted. Furthermore divers have been excluded from the purview of these safety measures. For the authorities, the commercial aspects of the profitable *ghat* economy remain more important than the lives of such essential service providers who work to ensure the viability of the *ghats* as a tourist destination, thus foregoing their responsibility to amongst their most marginalised workers.

The high number of health morbidities and the occasional fatalities, coupled with an apathetic administration, added to the adverse working circumstances of this group of boatmen respondents. Though by and large these respondents agreed that their occupation made them susceptible to injury and even death, yet they underestimated the likelihood and possibility of suffering from grave harms in the day to day discharge of their work-related duties. As Krewski *et al* (2008) state, higher fear and anxiety translated into a greater risk perception[351]. Yet their belief in their own expertise abilities and their charge that they were 'Ganga-*putra* (sons of Ganga)' made them discount work-related hazards. Underscoring the absence of a rope as being the primary reason why an expert diver lost his life in December 2014, a respondent stated, "*varna woh nahi maara jaata* (otherwise he would not have died)." This statement thus clarified a part of their viewpoint towards risk estimation in their working environment. The perception of danger among such respondents, based on an analysis of past experience, was not strong enough in such cases to make them leave this occupation. On the other hand, a boatman worker who plied a motor-boat on the commercially lucrative Shivala Ghat narrated the loss of his ear-drum while diving into the Ganga, after which he had left diving. At Raj Ghat however the working environment was markedly different. The lure of coins and other valuables on the river-bed (dropped off by incoming passengers from the overhead railway and highway network) was an important driver of work. As Douglas (1986) writes, the question of risks determining action should be seen in context of distributive justice. Risk acceptance cannot be understood without an understanding of the socio-economic background of people facing the risk and the

[350] Ministry of Urban Development (2015), *op cit*

[351] Krewski, D., Lemyre, L., Turner, M.C., Lee, J.E.C., Dallaire, C., Bouchard, L., Brand, K., Mercier, P. (2008): 'Public Perception of Population Health Risks in Canada: Risk Perception Beliefs,' *Health Risk Society*, Vol. 10, No.2, pp. 167-179.

opportunities available to them if they are willing to forego the risk[352]. In this case, the Raj Ghat divers largely carry on with their profession on a daily basis, given their wider social circumstances and the lack of perceived economic alternatives, while the government which frequently utilises their services, shrugs off its own responsibility for ensuring the welfare of its workers and minimising the risks involved in the pursuit of their occupational tasks. In other words, their lack of 'choice' and need for employment thus prevents action from being taken despite the dangers involved in their line of work.

7.6 Conclusion

Frequent tobacco and alcohol consumption rates were high among the boatmen of Varanasi. These habits however should not be viewed in isolation from the working lives of these respondents. As Doron (2008) states, such a restricted perspective will lead to a tendency of 'pathologising' this behaviour and viewing the boatmen as being predisposed to (in particular) high rates of alcohol usage. The working environment of the boatmen, particularly divers and the physically demanding nature of their occupational tasks, can be seen as factors in the emergence of such behaviour. As stated above, these activities should be seen and understood as being 'probably occupationally-acquired.' The role of administration, wherein it encourages such behaviour, particularly among divers to ensure that the continued commercial success and viability of the Ganga *ghats* is maintained, underscores their complicity in maintaining alcohol dependency among the divers.

Apart from work-related health behaviour, a number of work-related health morbidities too were reported by respondents. Skin concerns, followed by tiredness and breathlessness and pain in shoulders and arms were among the most commonly reported ailments. These were higher among higher age-groups and can be attributed not only to the higher age profile of respondents but also to years of pursuing physically-demanding work. Morbidities were higher and particularly acute among divers, whose working conditions and working environment was markedly more difficult than other boatmen. Yet their poor socio-economic conditions and lack of viable alternative livelihood made them discount work-related hazards and carry on with their work.

[352] Douglas, M. (1986), *op cit*, p. 10-11.

CHAPTER 8

HEALTH AILMENTS AMONG BOATMEN FAMILIES AND ACCESS TO HEALTHCARE SERVICES

8.1 Introduction

The health condition of the Varanasi boatmen and their families is closely associated with their socio-economic and living conditions. Environmental conditions such as their housing conditions, availability of clean drinking water, sanitary and drainage facilities, garbage disposal facilities and the physical state of the river Ganga have a bearing on the health of boatmen and their families. Access to existing healthcare facilities, which play an important role in influencing the health of people too is affected by the socio-economic condition of people availing these services.

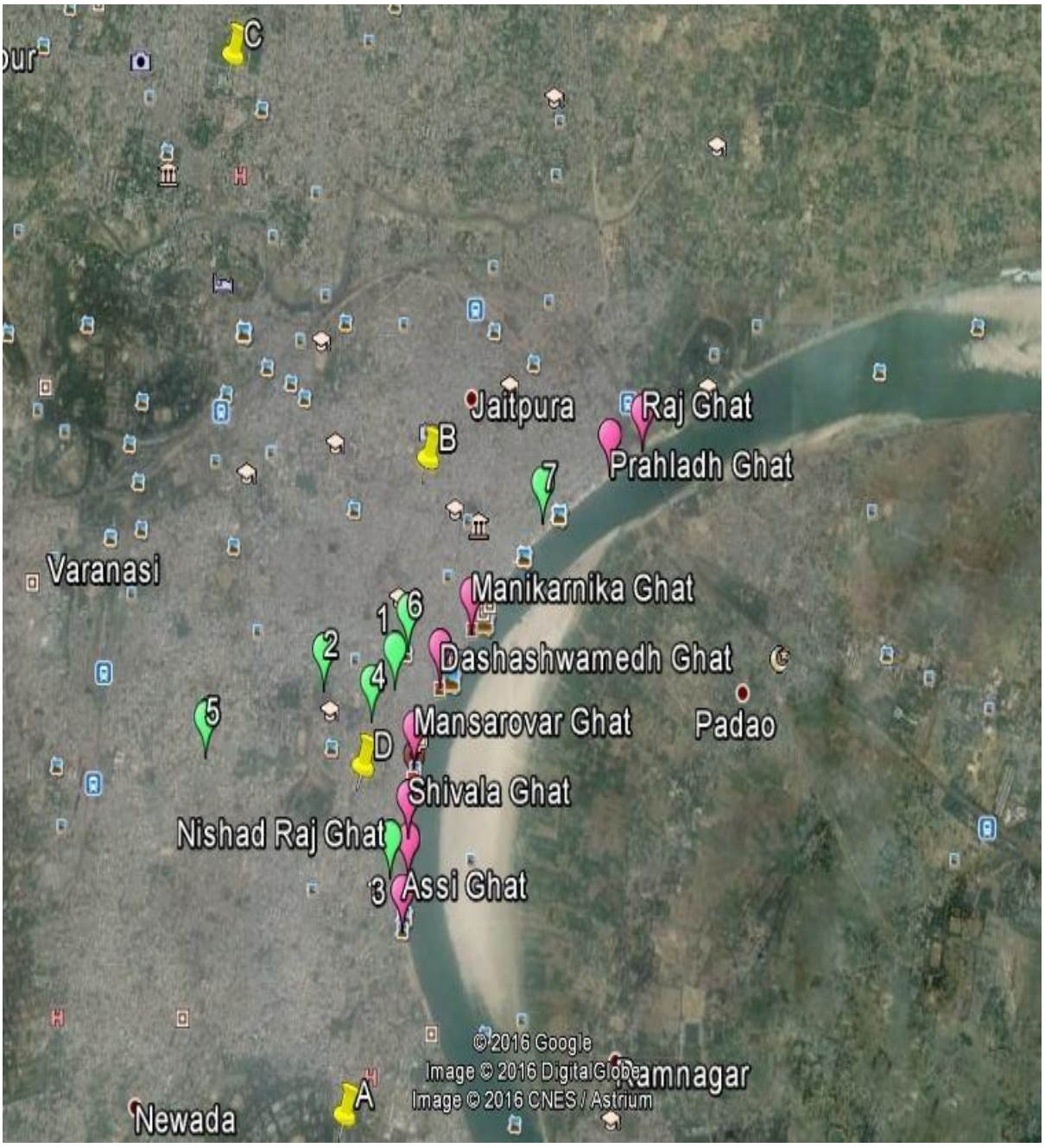
The following chapter looks at the health concerns reported by boatmen families. It tries to draw linkages and contextualise the health concerns of the boatmen within their existing housing and socio-economic conditions. The role of the physical environment in the creation and distribution of ailments among families of boatmen respondents is also dealt with in this chapter. It concludes with an assessment of their access to health service institutions in the city and factors influencing access, for both in-patient and out-patient service utilisation.

8.2 Accessibility to healthcare services

Varanasi city has a well-developed network of healthcare facilities. While these facilities are dispersed in fair measure across the city, the following section takes into consideration only that healthcare infrastructure which is located near boatmen colonies or in areas that were accessible to the boatmen respondents of this study.

The healthcare network in the city can be divided largely into three distinct domains – government, private and trust-run facilities. Private practice abounds in the city and incorporates private clinics (helmed by a single general physician), diagnostic centres, nursing homes, specialty clinics and hospitals. Numerous private clinics were found in the colonies in which boatmen families resided and not only did they dispense allopathic medicine, but provided *ayurvedic* and homoeopathic treatment as well.

Map 8.1: Government and trust-run healthcare institutions in Varanasi accessed by the boatmen



Source: Google Earth

Note – (i) Public healthcare institutions have been depicted with a yellow marker, where A = Sir Sunder Lal Hospital, BHUIMS; B = SSPG Hospital, Kabir Chaura; C = Pandit Deendayal Upadhyay Hospital; D = SVRKC, Bhelupur.

(ii) Charitable healthcare institutions have been depicted with a green marker, where 1 = Jangamwadi; 2 = Kaudiya Hospital; 3 = Mata Anadamayee Hospital; 4 = Janta Sewa Hospital; 5 = Hindu Seva Sadan Hospital; 6 = Marwari Hospital; 7 = Birla Hospital.

Among the government hospitals in Varanasi, the biggest and most important care-giving centre is Sir Sunder Lal Hospital, Banaras Hindu University Institute of Medical Sciences (BHUIMS), depicted in Map 8.1. It is the prime government medical care institution of not only Varanasi, but also the entire Purvanchal region (which comprises of eastern UP and the western districts of the state of Bihar). It is a multi super-specialty hospital and is situated at a distance of approximately two kilometres from Assi Ghat – the last of the 84 *ghats* of Varanasi and within four kilometers from Shivala, Shurda and Nishad Raj Ghat areas, where substantial numbers of boatmen respondents in our study resided.

Next is the Sir Shiv Prasad Gupt (SSPG) Government Hospital at Kabir Chaura, a zonal hospital, located at four kilometres away from Raj Ghat, where a large boatmen and divers' colony is situated. Swami Vivekanand Rajkiya Smarakiya Chikatsalaya (SVRKSC), a government-run Primary Health Centre (PHC) near Bhelupura Crossing in Varanasi, is again situated at a two kilometre distance from Chausatti Ghat area, while being within a five kilometre radius of Assi Ghat and thus even nearer to localities such as Shivala and Nishad Raj in Varanasi. Last of all, Pandit Deendayal Upadhyay Hospital in Pandeypur, is situated approximately six-seven kilometres away from Prahladh Ghat area (near Raj Ghat) (Map 7.1).

Numerous trust-run hospitals or charitable medical institutions exist in Varanasi and a large number of them are located near the *ghats*. A number of these institutions are affiliated to the *ashrams* that dot the colonies above the *ghats.* These include Jangamwadi and Kaudia Hospitals (Ramkrishna Mission Hospital) near Dashaswamedh. Other charitable hospitals near the *ghats* are Maa Anandamayee Hospital at Shivala, Janta Seva Hospital and Hindu Seva Sadan Hospital near Gowdolia Crossing and Marwari Hospital at Dashashwamedh Crossing. Similarly Birla Hospital at Machhodari is one kilometer away from Prahladh Ghat area and less than two kilometers from Manikarnika, both with significant boatmen population (Map 7.1).

Apart from these main sources of treatment provision, chemist shops and unlicensed practitioners too were found in and around the areas in which boatmen lived. As evident in the following sections, these were also accessed by respondents for treatment seeking.

8.3 Physical environment, reliance on Ganga's waters and health

The boatmen community in Varanasi, by virtue of their close occupational linkages with Ganga, largely lives near the riverfront. The river forms an important part of their lives – not just as the physical resource base sustaining their economic activities, but also as an essential resource that

meets their daily living needs. The following section traces their dependence upon the Ganga and its influence on their health and well-being.

A point to note is that dependence on Ganga's waters in personal lives should not merely be assessed by their relative proximity to the river. This usage should be seen in terms of their year-round access to basic amenities such as clean drinking water and toilet and sanitation facilities. Bourdieu in his habitus theory states that people's actions should not be understood as indiscriminate behaviour. In a complex social environment, wherein people's experiences are mediated by their social context and their positioning within the social class structure, he argues that daily encounters with the external world play a crucial role in influencing dispositions, notions and behaviour[353]. Thus their dependence on the River Ganga in their daily lives should be seen in context of their daily life scenarios and the availability of and their accessibility to water and sanitary facilities within or near their households.

In recent times, there has been a proliferation of data on the unfit nature of Ganga's waters in Varanasi city. The vast amount of untreated domestic sewage discharged into her waters from densely populated urban centres is a major source of the river's pollution. This coupled with waste-water discharge from industries which dot the river's banks throughout her course have considerably muddied her water resources. In 2012, data released by the Uttar Pradesh Pollution Control Board (UPPCB) revealed that the quality of water in Ganga was below the standards set by Central Pollution Control Board (CPCB) for not only drinking purposes but also for bathing. The Total Coliform (TC) levels in the downstream waters of Ganga at Varanasi were 44,000 MPN per 100 ml, as against the mandated 500 MPN/100 ml (for bathing purposes) while BOD and DO content stood at 4.95 mg/l and 7.40 mg/l, respectively. Mandated standards for BOD are 3 mg/l or less, while the same for DO is 6 mg/l or more[354].

Adding to the above data on pollution levels in Ganga are the figures released by Sankat Mochan Foundation (SMF) in Varanasi. Table 8.1 presents the latest available figures for pollution levels in Ganga in Varanasi city. The organisation, based at Tulsi Ghat, has a government approved Ganga water-quality testing laboratory. As depicted in Table 8.1, the high level of faecal coliform and Biological Oxygen Demand (BOD) in the River Ganga in Varanasi fail to meet the

[353] Bourdieu, P. (1989): 'Social Space and Symbolic Power,' *Sociological Theory,* Vol. 7, No. 1, pp. 14-25; Bourdieu, P. (1996), *op cit.;* Meinert, L. (2010): 'Resources for Health in Uganda: Bourdieu's Concepts of Capital and Habitus,' *Anthropology and Medicine*, Vol. 11, No. 1, pp. 11-26.

[354] Ministry of Urban Development (2015), *op cit,* p. 150

set standards for drinking and bathing and thus make usage of Ganga's waters by the public hazardous for their health.

Table 8.1 Ganga water quality data in Varanasi on 06/02/2016

Locations	**Temperatu-re of water (TW)**	**Total dissolved solids (TDS)**	**Dissolved oxygen (DO)**	**Biological oxygen demand (BOD)**	**Faecal Coliform Count/100 ml**
Nagwa	18	344	3	42	460,000
Narayan Ghat	18	238	7.8	4	24,000
Aghoreshwar Ghat	18	240	7.8	3.8	30,000
Samne Ghat	18	240	7.6	5.2	41,000

Source: Sankat Mochan Foundation

The above data, while testifying to the poor quality of Ganga's waters in Varanasi, presents only an incomplete picture of the total level of pollutants discharged into the river, since it does not depict the extent to which individual contaminants such as nitrates, arsenic, nickel and lead have seeped into her waters. River Varuna (which discharges into Ganga towards the north of Varanasi) has a high nitrate content[355]. This impacts the quality of Ganga's waters in that area and endangers the health of people working and residing there.

Despite the risk to their health and well-being, people continue to access Ganga's waters, including communities living close to the river, who use these waters for meeting a number of their basic household needs. In consonance with their access to basic amenities, the level of risk perceived to their health from a particular behaviour also plays a role in determining action. While both the possibility of harm and its perceived acuteness play a role in influencing risk perception, another important factor that influences attitudes towards risk is perceived vulnerability or susceptibility. Despite demonstrated effectiveness of a health behaviour, faith in the physical capacity of the body to resist disease can also deter preventive action. The belief that the body is conditioned to the environment which surrounds it, along with all of its attendant

[355] Ministry of Urban Development (2015), *op cit,* p. 149.

hazards, often plays a role in minimising the perception of risk in individuals and communities[356].

In the following section, we thus explore the usage of Ganga's waters by the boatmen community in Varanasi, in context of their housing conditions and larger living circumstances as well as the perceived risk from accessing the polluted waters of the river.

As stated earlier in the chapter on the living and housing conditions of the boatmen (Chapter 4), a majority of the respondents rely upon Ganga's waters for their basic needs. In the present study, 93.01 per cent boatmen participants stated that they daily bathed in her waters, while 49.65 per cent washed clothes while bathing and 32.17 per cent brushed their teeth with her waters (see Chapter 4, Table 4.8). Bathing at the *ghats* was a daily ritual for most of the boatmen. These respondents stated that they either took a bath early in the morning, after the first onrush of customers at the *ghats* who came to view the sunrise on the Ganges or waited till around noon to bathe after the steady stream of morning visitors halted. Apart from bathing, 75.52 per cent boatmen also stated that while plying a boat, particularly during the summer months, they often drank water from mid-stream Ganga to quench their thirst. Such reliance on the river was not deemed to be risky to their health and well-being. Boatmen stated that throughout their history of usage of her waters, no harm had accrued to them or to anyone else that they knew from such utilisation. Upon being queried about her polluted state, a majority of them refused to even call her '*gandi* (dirty),' though they admitted the presence of '*gandagi* (dirt)' in her waters. Alley (1994) mentions the widespread tendency among resident Banarasis to separate the notion of *gandagi* from Ganga, which was considered to be pure and chaste. The hallowed waters of the river were considered to be chaste and powerful enough to subsume *gandagi* without being consumed by it. Belief in her ability to purify all dirt and carry it away without her body and form being sullied was commonly shared by the local population, states Alley[357]. Thus while her physical form may not match her pristine spiritual state, the garbage which tainted her waters did not contain within it the ability to pollute her ritual status. This belief was visible in the current study as well. Though older respondents did express concern about the visible deterioration in the physical state of Ganga, yet they refused to identify their usage of her waters in their personal lives as having any detrimental effect on them, since the notion that the river could be a danger

[356] Brewer, N.T., Chapman, G.B., Gibbons, F.X., McCaul, K.D. and Weinstein, N.D. (2007), *op cit*

[357] Alley, K. (1994): 'Ganga and Gandagi: Interpretations of Pollution and Waste in Banaras,' *Ethnology*, Vol. 33, No. 2, pp. 127-145.

was not accepted by them. Furthermore upon being probed about the physical refuse which flowed in her waters, a common refrain was, "*Hum logon ko aadat hai. Humein kuch nahi hota* (We are used to it. Nothing happens to us)." They thus felt that their bodies were conditioned to the environment and thus habituated to face its risks.

The perception of risk plays an important role in influencing health behaviour[358]. Years of close association with the river had thus reduced their susceptibility to illness and disease and brought about an increased physical resistance which diminished the need for preventive action, respondents stated. The notion of separating themselves from the river in their private lives was not entertained by them. An elderly boatman from Tulsi Ghat claimed, Mallahs had throughout the history of their community shared a bond with the river which had nurtured and sustained them, thus it could do them no harm. Furthermore an opinion shared by numerous respondents was that the river was their mother (in Hindu mythology, Ganga is celebrated as a Mother Goddess) and a mother was not capable of causing her children any harm. Thus commonly held cultural beliefs about the river (shared by this community) held sway among boatmen respondents over scientific claims about the unfit nature of Ganga's waters.

Thus while scientific data (mentioned in Table 8.1) brings into focus the poor quality of the river's waters and indicts it for engendering ill-health and disease in the population, which lives in the vicinity of the river and uses it for meeting their basic needs, the boatmen participants in this study upheld the spiritual purity of the river. Their daily life experiences and historic cultural and spiritual beliefs regarding Ganga belied scientific claims about the spoliation of her waters in Varanasi. As Lansing, Lansing and Erazo (1998) write, each community confers different values to their environment and the ecosystem around them[359]. Thus while engineers and scientists focus solely to the physical properties of the waters of Ganga, boatmen who cherish a deep regard for the river and acknowledge her role in the cultural history of their community and in their continued economic and physical sustenance, by and large, did not view her waters with the same level of scientific judiciousness. Only a small per cent of participants (6.99 per cent) did not utilise her waters for any household purpose. Even then they refused to proclaim her waters as being dirty (they lived some distance away from the *ghats*, which made utilisation of her

[358] Brewer, N.T., Chapman, G.B., Gibbons, F.X., McCaul, K.D. and Weinstein, N.D. (2007): 'A Meta-Analysis of the Relationship between Risk Perception and Health Behaviour: The Example of Vaccination,' *Health Psychology*, Vol. 26, No. 2, pp. 136-145.

[359] Lansing, J.S., Lansing, P. S. and Erazo, J.S. (1998): 'The Value of a River,' *Journal of Political Ecology*, Vol. 5, pp. 1-22.

waters for household purposes difficult); only two respondents' were averse to using her waters at all, since they perceived it to be unhealthy. Women of boatmen household, who were interviewed for this study, too shared this belief about the reliability and wholesomeness of the river's waters. While only a small number of boatmen households depended upon Ganga on a regular basis for activities such as cooking (15.38 per cent) and washing of utensils (11.19 per cent) (see Table 4.8), women respondents interviewed in this study in all the four locations – Shivala, Shurda, Nishad Raj and Raj Ghat – stated that they too were forced on rare occasions to use her waters. In the event of a water shortage in their area, these women stated that either they or their husbands would fetch water from the river to meet their household needs, apart from drinking. The claim of the river being a mortal hazard was repudiated by them. While one woman from Nishad Raj Ghat did recount her son developing a rash near his ear which caused excessive itching, after bathing in Ganga, she attributed it to his habit of bathing for long hours – nearly 2-3 hours daily – rather than his exposure to the waters of the river. She emphasised that Ganga's waters were clean and did not pose a risk to their health. Similarly another woman respondent from Shivala, whose son developed itching on his body, after bathing in Ganga's waters, claimed that this occurred as he bathed too long. She brushed aside any suggestion that this may be due to insanitary condition of the river.

While all respondents in this study, across the sampled *ghats*, were aware of a number of open drains flowing into Ganga (38 open drains discharged into Ganga in Varanasi), they sought to clarify that they did not bathe or use or fetch water from near these points where dirty sewage water flowed. A point of view that was commonly shared by all categories of respondents was that if the river had water and enough flow in it, then there was no question of it not being healthful. A boatman stated in this regard, "*Paani mein bahaav hoga toh kachra nahi thamega, beh jaayega* (if there is flow in the water then the garbage will not accumulate, it will get carried away)." In response to a query about her physical state, a female respondent claimed, "Now the river is clean. It has been better since the past two years (since 2013). People also clean it and there is better cleanliness on the *ghats*. People pick up the garbage. *Naanv* (boat) also comes to clean it." Prior to 2013, the year of Allahabad Kumbh Mela, a common complaint had been the lack of water in the river. Since then, the volume of water in Ganga at Varanasi has been increased by the political establishment after widespread complaints by all sections of the society, including religious organisations, against the severely abstracted state of the river. As a result, cleanliness had improved. With the election of the Prime Minister, Narendra Modi, from

Varanasi in 2014, sanitary conditions on the 84 *ghats* of Varanasi too has improved, leading to a perception of an improved state of the river.

While claims about the salubrious state of Ganga's waters were near unanimous among respondents, in one matter they did make an important distinction. Upon being queried about using her waters for drinking purposes, boatmen respondents admitted that water near the *ghats* was not fit for drinking. The *ghats* were often strewn with garbage and all kinds of refuse, including plastic bags and flowers and *diyas* from religious offerings made to the river. In addition, at specific points on the riverfront, cows, buffaloes, dogs and human beings could all be seen bathing, frequently using soap. Similarly at certain locales, laundry men and women would be spread out near the riverfront washing clothes. The practice of open defecation at the *ghats*, though greatly reduced, still persisted. Boatmen stated that they drank only her mid-stream waters, where the *'bahaav* (current)' was stronger and hence the water was relatively fresh and clean. Their dependence was however forced. As one respondent stated:

> "In the hot afternoon sun, when we row the boat, our throat gets parched. We drink water from Ganga-ji, then we get satisfaction."

This statement was echoed particularly by those who rowed a hand-oared boat, since not only was their effort significantly greater but they also spent more time in plying from one place to another in comparison to a motor-boat. These respondents also emphasised that drinking water from the middle of the river had never resulted in them facing any negative health consequences. In fact, this was a common practice among their community members, it was asserted.

Regarding the question of using her waters for drinking purposes at their home, while some women reiterated the perception of their male family members about the cleanliness and fitness of the river, others stated that, in the event of a water shortage, if they ever depended upon the Ganga's waters, they boiled it as a preventive measure. One lady at Shivala Ghat, whose husband worked at Dashashwamedh Ghat, stated that while they might use the river's waters for bathing and washing and that no risk had accrued from such usage, yet they never utilised it for meeting their household's drinking water needs. On the rare occasions when their supply lines failed them and they had to rely upon the river for drinking water, women stated that they did not feel that untreated water from the river was good for their health and well-being, especially as far as their children were concerned.

Doctors (both at government and private facilities) also pointed out cases of worm infestations, including cases of hook, ring and tape worms, among boatmen and their family members, including their children. A medical practitioner at a government hospital however held responsible the personal habits of members of this community for this issue. Alluding to their usage of Ganga's waters, he stated, "Problem of worm infestation is due to bathing and mouth washing." As Hamner et al (2006) report, an estimated 200 million litres of raw human sewage is expelled into Ganga in Varanasi every day, with high dependence upon the river's water by riverfront communities being an important predictor of enteric diseases including cholera, diarrhoea, dysentery, hepatitis- A, typhoid and acute gastro-intestinal disease[360]. In our study, 9.21 per cent of boatmen households reported the prevalence of enteric diseases, such as diarrhoea, cholera and malaria, in their households in the one month prior to the date of the interview. The interviews for the survey round of the study were primarily conducted in the months of March and April. Seasonal variation in the emergence and prevalence of a number of enteric diseases is frequent in India. It is a well-ascertained fact the risk factor for water-borne diseases is higher in the rainy season, particularly in cases where dependence on surface water is high.

In the present study, while most households depended upon a piped source of water supply (78.32 per cent) and had a government water connection, a substantial number depended upon either a well or a hand-pump or a boring water connection to meet their water needs. While there were complaints by residents about the quality of water from the former, the latter sources were spared from any such criticism. It is important to realise all of these latter sources by being in the immediate vicinity of Ganga were re-charged by her waters. Any deterioration of the river's waters would thus have a direct effect on her groundwater aquifers. None of the respondents in the study were however able to make a connection between these groundwater sources and the river Ganga nor did they have any outright complaints against the water drawn from these sources for meeting their basic household needs, except for a single respondent from Shurda. She stated that her brother-in-law, who worked at Chausatti Ghat, had suffered from a serious stomach ailment some years back and since then he refused to drink any water without boiling it beforehand.

[360] Hamner, S., Tripathi, A., Mishra, R.K., Bouskill, N., Broadaway, S.C., Pyle, B.H. and Ford, T.E. (2006), *op cit.*

The quality of piped water supply was also indicted by respondents during the monsoon season. Women in Shivala and Nishad Raj colonies expressed concern about the seepage of sewer water into the drinking water supply lines. The water from these taps was thus visibly dirty and brown in colour. While at one location (Shurda), two of women respondents mentioned that water was dirty for the first fifteen minutes and then clean water came through the pipes, which they then stored and utilised, the same was not the case in other areas. At other locations, women respondents unanimously agreed that they had to boil water and filter it before drinking during this time of the year to prevent the spread of diseases. The spread of filariasis, malaria and diarrhoea was mentioned during the monsoon season. Though they denied an endemic spread of any disease in their localities during the monsoon season in the past one year from the time of the interview, they did mention hearing of a few cases of such water-borne infectious diseases in their vicinity. A 22 year old lady respondent at Nishad Raj Ghat mentioned that for the past two years during the monsoons, her husband would get medicines to prevent filariasis. This anti-dose, she stated, had been recommended to her by a nearby private doctor after there was widespread incidence of the disease in their area three years ago.

Medical practitioners' (government, private and doctors working in trust-run hospitals) interviewed for the purpose of this study too testified to the common prevalence of enteric diseases among boatmen families including diarrhoea, dysentery, vomiting and jaundice. The doctors however clarified that these diseases were not just specific to boatmen families, but a product of the poor environmental conditions that prevailed in colonies that boatmen lived. A general physician at Mata Anandamayee Hospital (a trust-run medical institution) stated, "Water-borne diseases are not specific to them. They are related to the supply of water, which is problematic." Another doctor at a government hospital claimed:

> "Water supply in their localities is problematic. Water supply line is attached with the sewer line and frequently there is seepage of dirty water into the drinking water supply line. There are some cases of diarrhoea. Similarly some cases of vomiting, loose motion and indigestion."

A 30 year old wife of a Shivala-based boatman, who had two young daughters, stated that after her two children had developed a stomach infection, the private doctor that she consulted for their treatment advised her to boil water and then give it to her children. She admitted that after their treatment, she had stopped following any filtration process.

While boiling water before consuming it may be an effective short-term measure in preventing water-borne disease, yet their vulnerability to such infections and ailments needs to be seen in context of their environmental and socio-economic condition. Their relative economic deprivation prevents them from gaining access to basic amenities such as clean drinking water and also influences their access to proper toilet facilities. In the midst of these social issues, seeking to impart them with relevant health education so as to facilitate behaviour modification will only have a limited impact on their well-being. Unless larger structural issues such as poverty and inequality are addressed which exclude relatively poor populations from accessing basic amenities and keep them mired in poor living and working conditions, such change strategies will only serve limited gains, asserts Nayar (2007)[361].

During the monsoon season, the physical state of Ganga too underwent a decline. Though rains increased the flow and volume of water, yet at this time, the stretch of river flowing through the city was distinctly muddy. The sewer system in Varanasi is not only insufficient for meeting the needs of the city's rapidly expanding urban population but also old and increasingly decrepit. Monsoon showers bring forth with them the problem of overflowing sewers and result in direct runoff of storm water from drainages into the river, thereby dirtying it. Most boatmen respondents and in most cases, women of their households agreed that the water of Ganga during the rainy season posed a risk to their health. The perceived likelihood of contracting a disease from usage of Ganga's waters was high during this time of the year, particularly among the female respondents of this study.

At this time, activities such as bathing and brushing their teeth and washing their clothes in Ganga were curbed by the boatmen. A variety of factors were responsible for this. The strong current in the river made close access a dangerous proposition. During this season, boating in the river was banned by the administration and finally the distinctly brown coloured muddy waters of the river put off boatmen from pursuing such activities. The risk to health from both the strong current and the sewage laden waters was deemed significant enough and the strong possibility of contracting illness or injury resulted in a change from normative usage patterns. However not all boatmen paid equal heed to these risks. In 2013, when Varanasi experienced its worst floods since 1978, the researcher still observed a group of eight to ten boys and men bathing on the banks of the swollen river at Raj Ghat. Upon being queried, one of them stated that they were all

[361] Nayar, K.R. (2007): 'Social Exclusion, Caste and Health: A Review Based on the Social Determinants Framework,' *Indian Journal of Medical Research,* Vol. 126, No.4, pp.355-363.

boatmen who lived in the colonies above Raj Ghat. Despite the flooded state of the river, they insisted on bathing in her waters every day, almost as a matter of ritual. They put it down to personal habit. Later on in the study, as the researcher visited the colonies of the boatmen above Raj Ghat, she realised that a number of houses lacked a usable bathroom. In such circumstances, bathing in the river and using her waters was less a matter of choice and more of a compulsion for these respondents.

During this interaction, three of the respondents, including an eight year old boy, showed the researcher rashes that had developed at the base of their fingers and hands that they attributed to their usage of Ganga's waters in the rainy season, yet they stated that these would go away once the rains subsided. This was a yearly phenomenon and was perceived as mild and not worth adopting a change in health behaviour or even visiting a healthcare practitioner. Thus though these participants did face the consequences of a spoilt and pollution-laden Ganga, yet they overlooked these effects since they did not perceive these skin rashes as a particularly severe menace. Their capacity to subside as the season changed made them willing to take the risk. In addition, their social and economic circumstances meant that they had little choice but to continue depending upon Ganga's waters for bathing and brushing purposes. The doctors' interviewed in this study too confirmed the relatively frequent cases of skin infections reported by members of the boatmen community. They claimed that skin ailments such as eczema, scabies, allergic dermatitis and fungal infections had been treated by them. One medical practitioner at a government Primary Health Centre (PHC) at Bhelupura in Varanasi city stated:

> "Dermatological problems and allergies are reported more in May, June and July. Earlier in 1978 I used to drink the *nirmal* (clean) water of Ganga. Now in summers, water is so *ganda* (dirty), polluted and at such a low-level. This is the season when skin ailments too are reported."

Summer season was also the time when the water levels were at their lowest in the river. The lack of flow and the low volume of water meant that the untreated sewage discharged into Ganga from the open drains in the city concentrated in the river's shallow waters, leading to a higher number of skin-related ailments during these months.

Thus in the above section, as we take a look at the health practices of different members of the boatmen community and the ways in which they negotiate with their physical environment (including Ganga), it helps us to gain an insight into the various ways in which health is perceived and also maintained by them. The health-related habits of boatmen, particularly given

the changing physical condition of Ganga and the increasingly degraded state of her waters, thus need to be seen in the context of their social position, customary beliefs and also their working lives. These should not be construed as chance behaviour. Their social and economic habitus and their working environment mandate this dependence on her. Their work brings them in close contact with the river on a daily basis, where they cannot escape immersing themselves wholly or partially into her waters each day. This is especially true for divers who plunge into the river everyday on numerous occasions in search of money. Moreover boatmen have historically shared a symbiotic relationship with the river, which has formed an intrinsic part of their community's history and folklore. Ganga is venerated as a mother and seen not merely as a nurturer but also one who sustains their ways of life and is a means to their economic survival. Added to this, their belief in her ritual purity make the boatmen community overlook the dangers that she poses to their health.

While these can be seen as predisposing factors in their usage of the river's waters in their personal lives, yet their continued utilisation of her waters (despite the changing realities and the increasingly toxic nature of her waters) have to be seen in the backdrop of their social positioning in the society and the attendant power relations. A number of boatmen lived in slum colonies which suffered from poor provisioning of basic amenities. The poor quality of water at their houses, with frequent seepage of sewage laden waters into the general water supply, their inability to afford and maintain water filters and occasional water shortages coupled with overcrowding at their houses – are all daily lived experiences of boatmen which have bolstered their dependence upon Ganga. Despite the likelihood of contracting infections from the waters (as posited by the scientific community), their reliance continues. By virtue of their age-old association with Ganga, they considered their bodies to be conditioned to her risks. Any side-effects from such a habit that manifested itself on their bodies was considered to be minor ailment and not worthy of launching a course-correction. Only in the case of drinking water and during the monsoon season was a distinction made. Herein their lived experiences such as witnessing mild outbreaks of various water-borne diseases in their localities and the noticeably muddy hue of Ganga made them adopt a more cautious approach in their behaviour. The higher possibility and severity of hazard encountered thus affected their perception of risk.

8.4 Illness in boatmen families in the 30-day reference period

The following section takes a look at self-reported health morbidity among boatmen families in the 30 days prior to the date of the interview and subsequent seeking of non-hospitalised treatment among boatmen families. It deals with morbidity as perceived, experienced and reported by respondents in this study. The quantified data on diseases and other health concerns helps to understand the prevalence patterns of different ailments.

As depicted in Table 8.2, more than half of the boatmen respondents in the study (53.15 per cent) reported having faced a health concern in their family in the 30 days prior to the conduct of the interview.

8.4.1 Fevers – Fevers (including cough and cold) accounted for the highest per cent of reported health morbidities. Boatmen workers (48.48 per cent) followed by those owning both hand-oared and motor-boats (45.45 per cent) reported the highest cases (Table 8.2). While most respondents blamed the cold winter season and bathing in the cold waters of Ganga and the change of weather for the emergence of the ailment, not all cases were equally innocuous. A relatively well-to-do hand-oared boat owner (in his thirties) working at Harishchandra Ghat, recalled his three-month old daughter suffering from a severe cough. Though the child had been born at home, yet due to the serious nature of her condition, he took her to a local private clinic located near his house. Similarly a 21 year old boatman from Prahladh Ghat stated that his father had been suffering from high fever in the past month. He collapsed one day from fever and even fractured a bone in his leg. Though he was taken to a government hospital for treatment subsequent to the injury, he passed away.

In yet another incident, at Chausatti Ghat, a boatman stated that his wife had been consistently ill in the past one month and had been coughing incessantly. Her persistent cough compelled him to take her to a private clinic where, despite an X-ray and blood tests being performed, including a test for tuberculosis, doctors' were unable to detect the cause of her ill-health. She had had no respite and even at the time of the interview, she was unwell.

Table 8.2 Ailments in boatmen families in the 30-day reference period

Illness in the Family in the past 30 days	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor boats**	**Total**
Yes	33 (47.83)	31 (67.39)	1 (20)	11 (47.83)	76 (53.15)
No	36 (52.17)	15 (32.61)	4 (80)	12 (52.17)	67 (46.85)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Type of illness*					
Fevers (including cold and cough)	16 (48.48)	13 (41.94)	1 (100)	5 (45.45)	35 (46.05)
Accidents	5 (14.29)	3 (9.68)	-	-	8 (10.53)
Enteric diseases	2 (6.06)	4 (12.9)	-	1 (9.09)	7 (9.21)
CVDs	3 (9.09)	1 (3.23)	-	2 (18.18)	6 (7.89)
Others	9 (27.27)	11 (35.48)	-	4 (36.36)	24 (31.58)
Total	**33 (100)**	**31 (100)**	**1 (100)**	**11 (100)**	**76 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

8.4.2 Enteric diseases – As shown in Table 8.1, 9.21 per cent of respondents mentioned an instance of a water-borne disease in their family. Jaundice, diarrhoea, cholera, malaria, dengue and typhoid were among the illnesses mentioned. An assessment of this limited data-set revealed that these diseases were spread across different locations and not clustered at a single *ghat.* Cases were thus reported from Prahladh, Nishad Raj, Meer and Harishchandra Ghat areas, thus showing the vulnerability to disease is spread across the community rather than limited to a specific geographical locale.

8.4.3 Cardio-vascular diseases – Cardio-vascular diseases (CVDs) were reported by 7.89 per cent respondents, including 18.18 per cent of those who owned both hand-oared and motor-boats (Table 8.2). Except for a single respondent, a 41 year old boatman worker who complained of heart trouble, all other reported cases were of individuals above the age of 50 years. Thus as is commonly the case with CVDs, prevalence was largely coterminous with higher age categories. Heart trouble, blood pressure (BP) and hypertension were among the problems mentioned.

8.4.4 Others – Finally a range of disparate ailments were reported by a total of 31.58 per cent respondents. Within this category, breathlessness was reported by four respondents, for which remedy was sought mostly from private practitioners, while one respondent claimed to have visited an unlicensed doctor or rural medical practitioner (RMP) for treatment. Stomach-related ailments, including gastric problems and stone in the stomach, followed by age-related complaints among elderly family members, anaemia and joint pains were some of the other health concerns reported. Tuberculosis (TB) was reported in three instances, including two at Nishad Raj Ghat. It is herein that some of the socio-economically weakest members of the boatmen community resided. In this densely packed slum colony, numerous boatmen lived in overcrowded conditions in one or two room houses. Such conditions are seen as conducive for the spread of the contagious diseases. A couple of the doctors also mentioned the low prevalence rates of tuberculosis among members of the community, though one private doctor at Prahladh Ghat stated that there had been around five to six TB cases in the past six months, which he felt were higher than otherwise detected among boatmen families.

Interactions with boatmen revealed that they too did not take tuberculosis too seriously. As one 28 year old boatman from Nishad Raj Ghat stated:

> "We do not have many TB cases. 10 per cent or even less than that. We do hard work. In our diet, we consume a lot of fish also – a minimum of four times in a week. *Khaane waale toh roz khaate hain* (People even eat daily) . . . during monsoons, it is less. This is because we are not able to catch fish since boating is banned due to the high level of water . . . . Eating small fishes helps in cases of TB, for example Kotri. It is important that the fish is small. They are more abundantly available during summers. Roho and Katla are also good for health."

A diverse set of ailments were thus reported from boatmen families, including fevers, enteric diseases and cardio-vascular diseases.

8.5 Treatment for illnesses: Out-patient care sought for illnesses in the 30-day reference period

While the above section deals with self-reported morbidities in boatmen families, in this section we map out their access to the city's health service system for treatment of these ailments. The data on health service utilisation and the type of healthcare institution sought for treatment aids in understanding factors affecting their access to the health service system.

Table 8.3 Treatment undertaken for ailments in boatmen families

Type of treatment*	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor-boats**	**Total**
Government	5 (15.15)	9 (29.03)	-	1 (9.09)	15 (19.74)
Private	21 (63.64)	13 (41.94)	1 (100)	5 (45.46)	40 (52.63)
Welfare	8 (24.25)	5 (16.12)	-	-	13 (17.11)
Unlicensed practitioner	1 (3.03)	2 (6.45)	-	2 (18.18)	5 (6.58)
Self-care	4 (12.12)	1 (3.23)	-	1 (9.09)	6 (7.89)
Others	-	2 (6.45)	-	1 (9.09)	3 (3.95)
No treatment	-	2 (6.45)	-	1 (9.09)	3 (3.95)
Total	**33 (100)**	**31 (100)**	**1 (100)**	**11 (100)**	**76 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

For the variety of ailments faced by the members of boatmen families, private health care practitioners served as the most popular choice for treatment, with 52.63 per cent respondents stating that they opted for treatment there. Government health services were a distant second choice for these respondents, with less than a fifth (19.74 per cent) preferring treatment at

various government facilities and 17.11 per cent opted for treatment at charitable hospitals or dispensaries. The proportion of un-treated ailments to reported cases (3.95 per cent) was low. A few respondents (3.95 per cent) stated that they visited traditional faith healers, which were included in the category of 'Others' in this study (Table 8.3).

The findings in this study are reflective of the larger national trend. As per the National Sample Survey Organisation's (NSSOs) 71st round (2014-'15) data, 21.2 per cent of all out-patient care is met by the public sector in urban areas of the country, while 78.8 per cent of those accessing care avail private medical services. In the NSSO survey, charitable medical institutions are included within the ambit of private services[362]. In the present study too, over three-quarters of the total respondents reporting ailments in the past 30 days (76.32 per cent) utilised private institutions (including private hospitals, clinics, doctors, charitable institutions and unlicensed practitioners). In contrast, only 22.39 per cent of those who visited healthcare institutions claimed to have visited a government facility for seeking out-patient care (some respondents sought care at multiple levels, the figures thus do not tally to 100 per cent).

An assessment of the data revealed that in the 15 instances of ailments reported (19.74 per cent) in which respondents stated that they visited a government facility for treatment seeking, in four such cases, they also visited a private facility. Two of these cases were of malaria and the other two were of fever (conditions which are not chronic). In one episode, a lady with a stone in her stomach visited a charitable hospital along with a public institution for availing treatment. The bulk of those people utilising public services were accident cases to mainly SSPG Hospital, Kabir Chaura, which has provisions for emergency services. Using multiple levels of care can be interpreted in a variety of ways – it can either be perceived as inadequacy of services provided resulting in movement between the levels of institutions, but can also reflect that government services were not the first choice for a number of these respondents.

Despite the existence of a number of government health facilities in the vicinity of boatmen colonies, access to them was low. While the perceived inadequacies of the government healthcare sector have been dealt with in a later section, a number of factors constraining access to services need to be understood in context of the above information.

[362] National Sample Survey Organisation (2015): *Key Indicators of Social Consumption in India Health: NSSO 71st Round (January – June, 2014).* New Delhi: Ministry of Statistics and Programme Implementation, Government of India, p. 14.

For the above mentioned healthcare institutions, both government and charitable hospitals, while the road network was good from even distant boatmen localities and decent public transport facilities existed, respondents in the study by and large still preferred accessing private facilities for out-patient care. Affordability (in terms of paying for transport costs) played an important role in impairing access. A young respondent from a diver family at Raj Ghat stated his sister was being treated at a distant hospital for malnutrition and calcium deficiency, due to which her body became stiff on occasion. He thus stated, "we get the entire month's medicines in one go from the hospital. If we go daily, then Rs.30 is the transport cost. That would come to Rs.700-800 a month." These 'other treatment expenses' (expenditure excluding medical costs) were also the reason, he stated, that for minor ailments, his family preferred visiting a nearby RMP.

The proliferation of unlicensed practitioners, private doctors, private clinics, hospitals and welfare institutions (such as a free dispensary run by Missionaries of Charity at Shivala Ghat) in the localities of boatmen did veer some respondents away from government institutions. The transportation costs, while seemingly not significant, need to be seen in context of the relative poverty of respondents and the erratic and uneven nature of their earnings.

These factors (distance and affordability) played an even bigger role for a number of women respondents. While in many cases, the mothers, wives and young daughters of boatmen worked as petty vendors in and around the *ghats* of Varanasi and some even as domestic workers in more affluent households in nearby colonies and thus enjoyed movement outside of the house, yet in at least five to six instances, the researcher came across cases where women stated that they never or barely ever ventured out of their houses without men of the household accompanying them. At one *ghat*, a relatively prosperous boatman owner (with a fleet of six boats), who also owned and ran a popular tea-stall proudly claimed that he never let his wife out of the house without him alongside her. He claimed that he did this for her safety and security since he did not wish anyone to lay a single bad glance on her. While this view was not shared by all those women who were grounded at home and also their family members, yet their inability to move out of their houses independently can be seen as limiting factor in visiting distant health facilities.

Distance, security and the need for a male companion thus did influence, to a fair measure, access to health services of women. This fact was highlighted in the instance of a sister of one boatman owner from Nishad Raj Ghat. She said:

> "I contracted dengue when I went to Mathura. Then last month, after I came back, I got jaundice due to weakness in my body. I had it for 15-20 days. I took regular medicines. The doctor says that I am well now. But even now I do not feel hungry. So I eat less. I went to a nearby doctor (RMP) . . . *jee ghabraa raha tha* (I was feeling anxious). He said I am still weak and gave me health supplements. He also gave me syrup, but it is bitter, so I am not taking it. I want to visit a homeopathic doctor. But he opens his clinic in the evening. He comes to the locality after seven in the evening, so I cannot go. His clinic is in the interiors, it is quite isolated there.*"*

Security concerns did thus play havoc with women wishing to utilise services of their choice, even when the services were located in their vicinity, as evident through this example.

Another factor that came to light as playing a role in steering respondents to the private sector was private practice by doctors working in government and charitable institutions. A 32 year old wife of a boatman and mother of three children from Shurda (near Harishchandra Ghat) narrated her experience. She stated:

> *"*For the past one year, I have been experiencing a problem in my *bachche daani* (uterus); there is swelling there. I have been taking medicines. I have been getting fever for the past one or two months. Medicine helps in bringing it under control, but if I stop medicine, within 10-15 days, again I get fever. First I went to a doctor at a government hospital (Sewa Sadan) and then went to the same doctor at her private clinic. There are so many people at the government hospital so she does not look at you first. She leaves the government hospital early to go to her private clinic . . . . This problem started one to two years after the delivery of my youngest daughter. Now she is 10 years old. One or two months after delivery, I started to lift heavy stuff. I think this problem is because of that only . . . . ."

In the above account, an important point is that Sewa Sadan was not a government hospital, but a trust hospital. The narration, while indicting the concerned hospital for the rush of patients and low dealing time with the doctor, also highlights the impression that the woman respondent had of a government healthcare facility. While she had faith in the doctors' ability and thus followed her to her private practice, long waiting time and subsequently less time spent with doctor deterred her from visiting the doctor at the hospital, despite the lower consultation fees.

8.6 Ailments in boatmen households requiring hospitalisation in the 365-days reference period

This section deals with ailments suffered by boatmen households in a 365-day reference period, for which they or their family members required hospitalisation. Hospitalised treatment is

understood as "medical treatment of an ailing person as an in-patient in any medical institution having provision for treating the sick as in-patients[363]."

Hospitalisation rates are based on the responses of the 143 boatmen from 16 *ghats* who participated in the survey round. The data presented below does not include delivery cases.

Table 8.4 Hospitalisation in boatmen families in the 365-days reference period

Hospitalisation in the family in the past 365 days	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor-boats**	**Total**
Yes	14 (20.29)	16 (34.78)	3 (60)	5 (21.74)	38 (26.57)
No	55 (79.21)	30 (65.22)	2 (40)	18 (78.26)	105 (73.43)
Total	**69 (100)**	**46 (100)**	**5 (100)**	**23 (100)**	**143 (100)**
Level of care*					
Government	3 (21.43)	2 (12.5)	-	-	5 (13.16)
Private	7 (50)	8 (50)	2(66.67)	2 (40)	19 (50)
Charitable	4 (28.57)	7 (43.75)	1 (33.33)	3 (60)	14 (39.43)
Total *	**14 (100)**	**16 (100)**	**3 (100)**	**5 (100)**	**38 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

In this research, 26.57 per cent of the total respondents, including 34.78 per cent of hand-oared boat owners, reported a member of their family being hospitalised in the 365 days prior to the conduct of the interview (Table 8.4). The total number of hospitalisations in the study was 39, with one boatman reporting two separate hospitalisation cases in his family in the past one year.

The rate of hospitalisation among boatmen families, understood as the number of persons hospitalised per 1000 population, was 33.77. This was calculated using the information on the

[363] National Sample Survey Organisation (2015), *op cit*, p. 16.

family size of boatmen participants. The mean family size of boatmen was 8.08 persons. Thus the total number of family members of 143 respondents came to 1155 persons.

Of the total respondents reporting hospitalisation, 13.16 per cent stated that they went to a government health facility while fifty per cent accessed private services and 39.43 per cent utilised charitable hospitals for seeking in-patient care (Table 8.4). Preference among boatmen families in Varanasi city is thus skewed towards private and charitable healthcare facilities.

8.6.1 Liver ailments – Of the six cases of liver troubles reported by boatmen in their families in the past one year (15.79 per cent), depicted in Table 8.6, five accepted that the sustained usage of alcohol was the primary cause behind the ailment.

In a single instance, a boatman worker chose to take treatment at the government-run SSPG Hospital at Kabir Chaura, while the rest accessed charitable hospitals. A couple of study participants stated that they went to Mata Anandamayee Hospital at Shivala, since this hospital had a separate department available for dealing with liver ailments and offered good treatment. Speaking about his experiences at this hospital, one study participant said:

> "My father's liver was *kharaab* (not functioning properly). He was operated for that and was admitted for 15-20 days. The daily bed-charges were Rs.350. The cost of medicine was Rs.1000. Expenses will be there, but they also take good care."

However not every respondent was equally at ease about expenditure incurred on treatment. One 50 year old hand-oared boat owner claimed that he had to take a massive loan to be able to pursue treatment. He stated:

> "Liver *kharaab ka* (not functioning properly) operation. This happened due to alcohol. My father gave money. I took a loan of Rs.1,50,000 also. I also took a loan from a money-lender at a rate of five per cent per month. Still I left treatment midway."

Despite the substantial amount of loan taken and the monetary help that he received from his family, this respondent was unable to complete his treatment. Financial constraints thus hindered his pursuit of treatment and its outcome, he stated.

A 25 year old boatman respondent who took his father to another trust-run hospital in Varanasi spoke unhappily of his experience. He stated that medical officials at the hospital did not check up on his father properly. They neglected his treatment and later on, even refused to admit him, due to which he had to go to another trust-run hospital. The reason for such behaviour, the

respondent alleged, was due to the hospital staff's prejudiced attitude towards his father's drinking habit.

Table 8.5 Classification of ailments requiring hospitalisation

Types of ailment requiring hospitalisation	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor-boats	Total
Liver	1 (7.14)	3 (18.75)	-	2 (40)	6 (15.79)
Accidents	1 (7.14)	5 (31.25)	-	-	6 (15.79)
Enteric diseases	4 (28.57)	1 (6.25)	-	-	5 (13.16)
CVDs	2 (14.29)	1 (6.25)	-	1 (20)	4 (10.53)
Others	6 (42.86)	6 (37.5)	3 (100)	2 (40)	16 (42.11)
Total *	**14 (100)**	**16 (100)**	**3 (100)**	**5 (100)**	**38 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

8.6.2 Accidents – Accident cases contributed to 15.79 per cent of the total hospitalisation cases (Table 8.5). Private facilities were preferred in accident cases, with a couple of respondents' utilising trust-run medical institutions, while none accessed public services for this health concern.

While private services were popular among respondents, yet the relatively high fees that they charged made access to services difficult for poorer respondents. One boatman owner from Harishchandra Ghat narrated his experience:

> "I fell near the *ghats* and injured my foot. My family took me to a private hospital. The doctor informed us that there is a fracture in my bone and he said that I would have to be admitted. We did not have money so they brought me back home. My wife went to her employers (she is a domestic worker). She told them about me so they loaned money to her. After four days, they took me to the hospital again and then I was operated."

The respondent further stated that the operation cost Rs.30,000 and he had to pay an additional Rs.100 a day for medicines. His family was still paying off the debt. He admitted that his wife's understanding employers and their empathy and charitable spirit had helped them tide over this incident, otherwise he did not know who else to turn to. The payment made for treatment was not the only setback that he faced. He had to hire a worker to ply his boat as he was unable to do so while he was recuperating. He paid this worker one-third of the money earned. The loss of a third of his earnings too affected his ability to cope with the burden of treatment. He further admitted that his mother, who also worked as a domestic worker, had to chip in to make ends meet. She too borrowed money from her employers (albeit on a lesser scale) so that he would not renege on the medicines which were essential for his recovery.

While none of the other respondents who had been hospitalised in the past one year due to an accident had to face such a heavy financial burden, yet indebtedness due to the cost of a medical procedure was common in our study. Government services were not viewed as an option and were frequently castigated for the poor quality of care that they dispensed. As one other respondent, who had suffered extensively from a dog-bite, stated, "*Sarkari mein gareebon ki sunwayi nahi jab tak* source *nahi* (Nobody listens to poor people in government hospitals till they have no source)."

8.6.3 Enteric diseases – were reported by 13.76 per cent of the respondents. Private hospitals were once again the preferred choice, with four out of five respondents accessing them, with a single respondent using government facilities. The latter, a boatman worker from Harishchandra Ghat went to SVRKSC (a PHC) at Bhelupura for his wife's treatment, who was then suffering from jaundice. She was also pregnant at that time. The hospital is located at a walking distance of ten minutes from his house. He however stated that he opted for a private hospital for her delivery since not only did he find the quality of care at the PHC unsatisfactory but also observed that treatment being hindered by the absence of personnel from work. He did not know anybody at the health centre to ensure that his wife was properly taken care of during childbirth, due to which he decided to use private facilities for her delivery.

In yet another instance, private institutions served as a measure of last resort to a respondent who first went to a trust-run hospital. His daughter was suffering from diarrhoea and the trust hospital gave her with 23 bottles of glucose, he alleged. Realising the false nature of treatment, he decided to shift her to a private hospital.

However all respondents did not profess equal satisfaction with private institutions. One respondent highlighted how he had suffered at the hands of the profiteering nature of a private nursing home where he took his child for treatment for diarrhoea. He stated:

> "My son was suffering from diarrhoea. He had fever also. We took him to a hospital; there they informed us that he had double pneumonia. They charged us one and a half lakh rupees. Apart from that, they took Rs.700 a day as bed charge. He was admitted for one month and even then the hospital refused to discharge him. The doctor was very rude. He shouted at us. Then I threatened him that I will expose him to the media if he did not immediately discharge my child. He had given my son wrong injections so that he would become ill and stay on at his hospital . . . . Went to government hospital also . . . In BHU they made us run to Kabir Chaura and then made us run back to BHU, so I left.*"*

He ultimately had to turn to another private hospital, but not before treatment costs left him in veritable financial ruin. At the time of the interview, the respondent worked as a cook in a nearby restaurant, which provided him with his main source of income. Striving extra hard to pay off his debt, he worked as a boatman worker at Shivala Ghat during his off-duty hours. Any other free time that he had he engaged in fishing to further substantiate his economic means and to buffer up the nutritional security of his family members.

8.6.4 Others –A range of other health morbidities were also reported by boatmen respondents. Ailments as diverse as ear, eye, tetanus, uterus infection, stone in the stomach, *'bavasir* (piles)', fits, tumour and appendicitis were reported from boatmen families.

As was the pattern observed above, private followed by charitable hospitals were the preferred treatment options. Only two of the respondents availed government services, including an elderly boatman whose wife had a *'paet ka* tumour (tumour in her stomach)', which had led to her contracting jaundice. Though she was operated upon at a government hospital, her husband stated that they had initially consulted a private doctor at Bhelupura, after she developed symptoms of jaundice and all her tests and diagnosis had been conducted at the clinic of the private medical practitioner. He stated that he even did '*jhaad-phook* (faith healing)' for her illness. In order to pay for the expenses incurred, this respondent from Meer Ghat (near Dashashwamedh) had to sell some of his wife's jewellery. However, he admitted that even doing so would not have been enough if Germany tourists would not have helped him out. He claimed that they paid him Rs.35,000 required for her medical expenses and also paid all expenses incurred at the hospital. He further stated that Japanese tourists offered him an additional Rs.20,000 to tide over additional medical costs, including those required for post-operative care.

Medical expenses were deemed to be a problem, but the link with affluent tourists which numerous boatmen had, helped them too overcome such difficult situations. This was evident in the following instance as well. As one lady respondent stated:

> "My sister-in-law was admitted to a hospital one year ago. She has been suffering from bone TB since her childhood. Her back is twisted from doing too much work. Last November, she again had a problem in her bone. She began to lose weight and experience tiredness and weakness, face difficulty in breathing and would begin to pant very soon. This lasted for one to two months . . . . She is around 33 years old. First we took her to Anandamayee. Her blood and urine were tested and she also had an X-ray done. She was admitted for a week. But she did not get well. They asked for Rs.350 as per day bed-charge. Everyday Rs.500-600 was spent on her treatment. Then one day a friend told us about Galaxy Hospital. It is a private hospital and very expensive. It is near Mahmoorganj. She was admitted for 15 days. Then we got her back home. After 15 days, she was admitted again. After some days she came back and the doctors recommended full rest for three months and prescribed regular injections. At the hospital, Rs.700 was the daily expense and every injection cost Rs.1000. *Ek do lakh ka poora kharcha* (the total expense was around one to two lakhs) . . . . My brother-in-law lives in Gumma in Japan, he married a Japanese girl. He paid the total cost of treatment."

A doctor at a trust-run hospital too testified to the help which foreigners often gave boatmen. He stated, "Mostly we give free medicines and in Varanasi, many people help. Foreigners do charity and give monetary assistance, so many Mallahs are able to go for treatment." While this may have been true in a number of cases, the same was not applicable for all.

Furthermore, as the above examples show that hospitalisation and final treatment at a particular hospital should not be taken to mean that all medical consultations and diagnostic tests were performed at the same institution. The stagnating public expenditure on health has meant that people have had to rely on private services in an increasing measure. The unregulated nature of private services and fragmentation of the health service system often result in people utilising multiple levels of care for treating an ailment[364]. The aforementioned examples are indicative of the interchanging nature of access between different care levels.

8.7 Financial burden of hospitalisation on boatmen households

The high burden of medical and other expenditure that is incurred during episodes of ill-health and in particular, hospitalisation has been shown to take its toll on the socio-economic status of

[364] Sodhi, C. and Rabbani, A. (2014): 'Health Service System in India: Is Insurance the Way Forward?' *Economic and Political Weekly,* Vol. XLIX, No. 35, pp. 26-29.

families[365]. This was visible in the present research on the boatmen of Varanasi as well. While financial difficulties due to treatment expenditure were claimed by a number of respondents in qualitative data, the same was visible through the quantitative data collected in this study as well. As shown in Table 8.6, the result of a linear regression on the socio-economic standing of boatmen shows that those who reported a family member being hospitalised in the 365-day reference period for this study were 2.74 times socio-economically weaker than those boatmen who did not report a hospitalisation in this period ($p<0.05$).

Table 8.6 Linear regression depicting influence of health behaviour on socio-economic status of boatmen respondents

Variables	Coef.	Robust Std. Err.	95% C.I.	
			Upper	Lower
Tobacco				
No®				
Yes	-0.53	0.71	1.57	-3.09
Alcohol Consumption				
No®				
Yes	-3.48 ***	5.77	-2.41	-8.93
Hospitalisation				
No®				
Yes	-2.74**	3.37	9.40	-9.41
Level of care				
Govt.®				
Private	-0.08	5.78	.46	-11.61
Trust	0.89**	6.46	5.79	-1.01
Constant	71.23***	0.05	94.56	67.9

Source: Boatman survey
Note: (i) ® denotes the reference category
(ii) Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1.

Half of the respondents reporting hospitalisation in the past year accessed private services, which are almost completely financed from out of pocket (OOP) expenditure. The "real time" penury

[365] Berman, P., Ahuja, R. and Bhandari, L. (2010), *op cit.*

caused by high OOP expenditures has been noted to have an adverse impact on the financial position of families, thereby sending them into a "poverty trap.[366]"

The 71st round NSSO data (2015) has shown that while 68 per cent of all hospitalisations in urban India are in the private sector (including charitable institutions), the expenditure incurred is significantly higher than in public institutions for treatment of the same disease. The difference is stark for most diseases, including three to four times for cancer and CVD treatment (both chronic diseases)[367]. In our study however, usage of private medical services for in-patient care did not have a big effect on the socio-economic status of respondents' vis-à-vis utilisation of government-run services (Table 8.6). Accessing private services had an eight per cent negative impact on the financial standing of respondents in comparison to usage of public healthcare. The regression coefficient further reveals that those who used trust-run medical facilities for hospitalisation fared much better on the socio-economic scale than those who accessed government services. They were 89 per cent better off than the latter ($p<0.05$).The R^2 value of the regression table was 0.69 indicating that 69 per cent of the variation in the model was explained through usage of the said variables. The F statistics too was significant thereby showing the overall significance of the model.

In our study, as numerous boatmen recounted, accessing public services was fraught with expenses beyond the range of medical expenditure. Charges of bribery, corruption and '*lafdebaazi* (cheating)' were frequently labelled against government institutions in the study. One respondent claimed, "*Paise ka khel hai, chahe sarkari chahe private* (it is a game of money, be it government, be it private)." The high cost of medicines, which in most cases had to be purchased from outside, added immensely to expenditure at public institutions. Expenditure on medicines accounts for the lion's share of expenditure incurred in treatment. In 2004-05, its share of expenditure stood at 71.2 per cent[368]. Similarly, diagnostic tests too constitute a substantial per cent of total medical expenses. As one respondent, injured in an accident stated, stated:

> *"Sarkari dakshina mangte hain* (government personnel ask for bribes). Government hospitals do not give plaster also. We have to pay for it. They prescribe tests from outside and even their X-ray is not good."

[366] Chowdhury, S. (2015): 'Public Retreat, Private Expenses, and Penury: A Study of Illness Induced Impoverishment in Urban India,' *Journal of Developing Societies,* VOl. 31, No. 2, pp. 153-183.

[367] NSSO (2015), *op cit,* p. 19.

[368] Bhojani, U., Triveni, B.S., Devadasan, R., Munegowda, C.M., Kolsteren, P. and Criel, B. (2012): 'Out-of-pocket Healthcare Payments on Chronic Conditions Impoverish Urban Poor in Bangalore, India,' *BMC Public Health,* Vol. 12.

His statement throws light on not only one of the potential reasons for high cost of care in government institutions in Varanasi but also brings into focus corrupt practices which dog them.

Another possible explanation for little difference observed in the SE status of boatmen opting for government and private medical services was the use of multiple levels of care for treatment of an ailment. This was evident in two instances expounded above. Such a relationship has been observed by Bhojani *et al* (2012) as well, thus explaining the almost similar levels of OOP expenditure incurred and the extent of financial catastrophe suffered from usage of private and public healthcare services. The context in their study was similar to boatmen areas in Varanasi as well – an urban locality, with a variety of practitioners and diagnostic facilities (both government and private) spread across the area[369].

In the instance of trust-run hospitals in Varanasi (that were utilised by respondents), a range of basic medicines for common ailments were freely available to patients. Hospitalised care was available at reduced rates and in some cases, even waived for BPL and other poor patients. This was however only done in cases where the hospital board and trustee members made an assessment of the financial constraints faced by the patient, after they put in an application seeking waiver of treatment costs. Furthermore these hospitals had their own diagnostic facilities, where tests, including X-ray and scans, were performed at cheaper rates than at private diagnosticians. The blow of medical expenses was thus cushioned to some extent and these factors may explain the improved SE status of those accessing trust-run medical institutions.

The effect of hospitalisation as a whole on the household's SE level however cannot be denied, irrespective of the level of care accessed. It can thus be said that any episode of hospitalisation has severe implications on the social and economic well-being of the boatmen of the Ganga in Varanasi.

8.8 Payment for treatment

Of the total number of respondents who sought treatment for ailments (both in-patient and out-patient care), more than half (54.95 per cent) stated that they wholly or partly (5.49 per cent cases) bore the payment for treatment from within their income and household savings. Only 35.14 per cent of hand-oared boat owners stated that they could manage treatment costs from within their own means (Table 8.7).

[369] Bhojani, U., Triveni, B.S., Devadasan, R., Munegowda, C.M., Kolsteren, P. and Criel, B. (2012), *op cit.*

Table 8.7 Financing of treatment

Payment for treatment	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor boats	Total
Savings	27 (62.79)	13 (35.14)	-	10 (83.33)	50 (54.95)
Selling assets	7 (16.28)	6 (16.22)	-	-	13 (14.29)
Loan from friends & family	14 (32.56)	16 (43.24)	1 (100)	1 (8.33)	32 (35.16)
Mahajan	4 (9.30)	2 (5.41)	-	1 (8.33)	7 (7.69)
Avoid/delay treatment	7 (16.28)	7 (18.92)	-		14 (15.38)
Others	-	2 (5.41)	-	-	2 (2.2)
Total*	**43 (100)**	**37 (100)**	**1 (100)**	**12 (100)**	**91 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

For those who found treatment beyond their family's economic means, 35.16 per cent stated that they borrowed money from either their relatives or friends, 7.69 per cent approached a *mahajan* (money-lender) and 14.29 per cent had to take recourse to distress sale of household assets, including jewellery and even occupational assets to pay for treatment related expenses. In one instance, a 60 year old boatman owner from Assi Ghat claimed that he had to sell his boat to finance his purchase. He thus stated:

> "I had a *phoda* (ulcer) in my stomach. *Mawaad pad gaya toh phat gaya* (pus accumulated in it and then it burst). I went to Mata Anandamayee for treatment. I sold one boat and received Rs.1,00,000 for it. I was admitted for 15 days. The total expenditure was Rs.80,000. Medicine continued for four months."

Another coping strategy adopted by respondents was to avoid or delay treatment (15.38 per cent) till requisite finances were arranged (Table 8.7).

In numerous cases, respondents stated that they made use of multiple strategies to arrange for funds when faced with an ailment in the household. As has been previously depicted (see Chapter 4), only 2.8 per cent of the 143 boatmen respondents had access to a private health insurance scheme, while none of them owned a government insurance scheme. Given the low spread of insurance cover, it was thus not surprising that in this study, none of the respondents reported using insurance to pay for the cost of treatment either wholly or partly.

Table 8.8 shows that 73.68 per cent of respondents using private healthcare facilities for hospitalisation had to resort to either loans or sale of household assets or other means to pay off a majority of the treatment costs. The same figure for those using charitable medical institutions and public health services was 57.14 per cent and 60 per cent, respectively. In contrast, only one-fifth of the respondents (21.05 per cent) utilising private services for hospitalisation of an ailing family member were able to pay for the entire treatment costs from within their income and savings. The higher costs of treatment in the private sector may be attributed to this phenomenon, though the incidence of using external means (including borrowing and selling productive assets) and/or avoiding or delaying treatment was quite high for all respondents, irrespective of the level of care that they accessed. Treatment costs further tipped poor households into financial ruin. This was illustrated in the case of a 40 year old boatman worker from Dashashwamedh Ghat. He stated:

> "My daughter *daura aaya tha* (got a fit). She was admitted in a (private) hospital in Mahmoorganj for ten days. This happened during the monsoon season. Her medicine is continuing till now. They have prescribed her medicines for one and a half years. It costs Rs.30 every time for one person to travel to and fro from the hospital. We have had to sell valuables and take loans from relatives and friends in order to pay for treatment. Rs.45,000 is the cost of treatment and I have taken a loan of Rs.25,000. I am facing a huge *paise ki garaj* (shortfall of money). My daughter gets 15-20 injections a day. This has weakened her eye-sight as well."

Similarly a 30 year old housewife of a boatman worker from Dashashwamedh Ghat spoke of the way in which arthritis, a chronic disease plaguing her mother-in-law, affected their household finances. Though her mother-in-law was not hospitalised for the ailment, yet the severity and long-term nature of her ailment for which she had regularly sought out-patient care, severely tested her family's economic standing. She stated:

> "My mother-in-law is very unwell. She is 70 years old. She is suffering from arthritis in her knees, wrists and the rest of her joints. She has had this condition for the past 30-35 years. Doctor has recommended an operation. One and a half

> years back went to a private doctor in Sigra. His consultation fee was Rs.300. My husband goes with her . . . . She went to a government hospital also for three-four years, but got no relief. Her medicine costs Rs.1000 for ten days. Three times a month we buy it. Rs.4000 a month goes in paying for her medicines . . . One year back, we got her kidneys tested as well. It cost Rs.30,000-35,000 but she got relief from it. Her kidneys are now damaged with having medicines for so many years. Doctor has said that both kidneys are damaged – one 94 per cent and the other 98 per cent. Now she is taking medicines for that also . . . . We borrowed money from friends and from my parents, mortgaged household stuff, sold ring to a gold jeweller and borrowed money on interest. We do not have the financial status . . .”

Regarding illness in the household in the 30 day reference period for this study, while 69.74 per cent were able to pay for treatment from within their family’s income and savings, a larger per cent of those utilising private healthcare services (67.5 per cent) in comparison to those using government (46.67 per cent) and charitable (53.85 per cent) were able to wholly afford treatment costs (Table 8.8). While this may seem surprising at first glance, an examination of the profile of ailments revealed that for both government and charitable hospitals, those respondents who had to arrange for external funds or seek to avoid or delay treatment, the health concerns were largely of a severe nature or chronic complaints. Accident cases followed by tuberculosis, water-borne diseases, stone in the stomach, CVDs and lung impairment were among the ailments for the treatment of which respondents could not afford to pay for from within their income and/or savings. There were only a couple of instances of fever (including cold and cough) in which respondents accessing the latter two institutions found treatment beyond their economic means.

In the single instance that a respondent using other treatment options had to resort to selling household assets to pay for treatment, he stated that his mother had, “*pathri se dard. Ilaaj ke liye* Nepal *le gaye. Baba pathri shareer se nikal deta hai* (Pain from the stone. For treatment, we took her to Nepal. A Baba there can take stones out of the body).”

High levels of indebtedness and distress sale of assets among respondents needs to be seen in the context of boatmen’s socio-economic levels and their working conditions. Boating on the Ganga in Varanasi is an unorganised sector occupation in which earning is dependent not only upon their place of work and tourist flow but also undercut by the high competition among workers soliciting clients. The closed feudal nature of the occupation prevents any Mallah or outsider who does not traditionally belong to an owner family from owning a boat and soliciting clients, except as a worker boatmen keeps the economic means of most boatmen depressed. Low insurance cover and lack of social security benefits extended to workers given the informal

nature of their work means that a severe episode of illness or injury can play havoc with a family's income and SE status. Families while having to deal with ailments are not only burdened medical expenditure, but also have to bear other related expenditures including transport costs and bribes. In addition, families are also faced with opportunity costs. This cost refers to loss of income for the period in which illness to an earning member of the household prevents her/him from attending work while she/he recuperates. High opportunity costs coupled with the burden of treatment expenditure has the potential to steep families into a "medical poverty trap" or a "poverty ratchet."

Table 8.8 Payment for treatment from household income and/or household savings

In-patient care	**Totally**	**Partly**	**Other means**	**Total**
Government	2 (40)	-	3 (60)	5 (100)
Private	4 (21.05)	1 (5.46)	14 (73.68)	19 (100)
Charitable	6 (42.86)	-	8 (57.14)	14 (100)
Total	**12 (31.47)**	**1 (3.5)**	**25 (65.03)**	**38 (100)**
Out-patient care				
Government	7 (46.67)	-	8 (53.33)	15 (100)
Private	28 (67.5)	4 (10)	8 (22.5)	40 (100)
Charitable	7(53.85)	-	6 (46.15)	13 (100)
Unlicensed practitioners	5 (100)	-	-	5 (100)
Others	8 (88.89)	-	1 (11.11)	9 (100)
Total*	**53 (69.74)**	**4 (5.26)**	**19 (25)**	**76 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population row wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

Though outpatient care is said to have a more debilitating effect on poor households' finances, yet in our study hospitalisation episodes were associated with greater penury, economic ruin and indebtedness. A coping strategy adopted by 15.38 per cent boatmen households seeking

healthcare, including 16.28 per cent boatmen workers and 18.92 per cent hand-oared boat owners was to delay treatment or if possible, to altogether avoid it due to inability to pay. However such a mechanism has the potential to further exacerbate ill-health, in both the short-term and long-term and thus ultimately increase the cost of medical expenditure. A 37 year old boatman from the peripheral Shitala Ghat, earning a monthly wage of Rs.2500 from boating faced the implications of delaying treatment to his family's detriment. He narrated:

> "My elder son was admitted to a government hospital. He had hernia. I took a loan of Rs.3000 on interest. For three years, we delayed his treatment. In the hospital, the doctor only asked for a bribe of Rs.4000 while the treatment cost Rs.3500. The medicines that they prescribed had to be bought from outside. If you do not have source then you have to pay a bribe in government hospitals . . . My one son died of jaundice. They prescribed an injection. Its cost was Rs.1200. I could not pay so he died . . . . This time when my elder son was in pain, I forced to take a loan."

Thus as evident in the above examples and in the numerous other instances expounded by boatmen respondents interviewed in this study, an episode of ill-health severely tests the financial resolve of most families. Delaying or avoiding treatment or pursuing treatment in a stop-gap manner, depending upon the availability of finances, has the potential to affect treatment outcomes. As ill-health builds up with irregular and sporadic access to the health service system, the limits to medical intervention become increasingly obvious. This is especially true in the case of socio-economically poorer households, where conditions of health and well-being are made worse by the poor housing and sanitary conditions of working class households.

8.9 Hurdles faced in seeking treatment

Difficulties in utilising healthcare services was considered for both inpatient and outpatient healthcare access. Only those respondents who reported ailments and stated as having sought healthcare services for remedying conditions of ill-health were asked this question.

Cost of treatment (48.35 per cent), followed by distance at which services were located and long waiting time for consultations (12.09 per cent) were the prime hurdles reported by respondents. Another 3.3 per cent attributed the difficulty in accessing care to the absence of medical personnel during work hours, while 4.4 per cent felt that the behaviour of health personnel was not appropriate towards them, which affected their utilisation of services (Table 8.9). A respondent from Harishchandra Ghat stated that he went to a government hospital for the delivery of his first child, but decided never to go there again since, "nurse *gaali deti hai* (nurse

verbally abused us).” 7.69 per cent of those who sought healthcare during the reference period in this study, including 41.67 per cent of those who own both hand-oared and motor-operated boats, stated that they faced no problem while accessing health services.

Table 8.9 Hurdles faced in accessing healthcare services

Hurdles Faced in Seeking Treatment	**Workers**	**Hand-oared boat owners**	**Motor-boat owners**	**Own both hand-oared & motor-boats**	**Total**
Distance from home	9 (20.93)	5 (13.51)	-	-	14 (15.38)
Long waiting time	5 (11.63)	3 (8.11)	1 (100)	2 (16.67)	11 (12.09)
Cost of treatment	21 (48.84)	19 (51.35)	-	4 (33.33)	44 (48.35)
Doctor/personnel not available	2 (4.65)	1 (2.7)	-	-	3 (3.3)
Behaviour of personnel	2 (4.65)	2 (5.41)	-	-	4 (4.4)
Other	7 (16.28)	5 (13.51)	1 (100)	1 (8.33)	14 (15.38)
No problem	-	2 (5.41)	-	5 (41.67)	7 (7.69)
Total*	**43 (100)**	**37 (100)**	**1 (100)**	**12 (100)**	**91 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

As illustrated in Table 8.9, while approximately half of the boatmen workers and hand-oared boat owners stated that they faced financial barriers in health service utilisation, a smaller proportion (33.33 per cent) of those respondents who owned both hand-oared and mechanised boats claimed this to be a limiting factor. It is important to remember that in this study, the former two categories of boatmen were among the socio-economically weakest members of the

community. Given that a large proportion of healthcare needs are serviced by the private sector, where services are dispensed based upon the ability to pay principle, it is not surprising that high treatment costs were deemed as the prime deterrent in access to healthcare by boatmen respondents, particularly by the socio-economically worse off sections among boatmen. Responses, highlighting barriers to accessing healthcare, ranged from:

> "My wife needs an operation on her leg, but it will cost Rs.30,000-40,000, so I am not getting it done."
>
> "My mother is a heart patient. The doctor has asked me to get her operated. It will cost four to five lakhs, so we have put it on hold. We have spent Rs.50,000 till now . . . . We went to BHU earlier for consultation."
>
> "My daughter has malaria. We are getting her treated at Bhelupura. Rs.400 is the daily expenditure incurred. *Girvi rakha hai* (we have mortgaged assets)."
>
> "Two years back, I had a blister on my foot. Its treatment cost me two to two and a half lakhs. I paid for it from my earnings. My foot got swollen. I got it treated in a private hospital. I took medicines for three months. They cost me Rs.1100 every day. Then one year back my mother got ill. She had pain in her stomach and was also anaemic. We took her to Anandamayee. We went there for two months. She did not get relief, then after 20-25 days, we took her to a private practitioner. We go there once every two or three months. The private doctor takes Rs.2000 for *khoon chadhaane ka* (blood transfusion) and for keeping her there. We borrowed Rs.10,000- 15,000 from relatives . . . Then 10 days before Dev Deepawali I got a pain in my stomach. I went to two three places and got an ultra-sound and an X-ray done from a private clinic. One doctor said that your case is beyond me. There is *mawaad* (pus) in a blister and it has burst. We went to a doctor at Anandamayee. He charged Rs.11,000 for the operation. Even though it is trust-run, they prescribe medicines from outside. Even now I am taking medicines. I have been taking them for the past six months. I do not row a boat now. I have kept a boy and he plies it. I did not drink for five months. I started drinking again after Holi, once in a day . . . ."

These examples depict not only the affordability barrier to utilising healthcare, but also indicate how distance from institutions (accessibility) affects not just access but adds on to the financial burden of a family by adding on to their opportunity costs. In our study, a respondent with a liver ailment, who was admitted to a government hospital, stated that he often observed that the doctors and other medical personnel did not come on time and sometimes even cancelled their visit, which resulted in a loss of time and not only affected the treatment process but also took precious time away from his informal sector job.

Mooney (2008) states that idea of access should not be limited to just the objective or tangible domain but should also encompass the area of perceived impediments to utilisation of health services by populations[370]. While a number of healthcare facilities (including government and trust-run) exist in the vicinity of boatmen's localities, yet the erection of more hospitals does not guarantee increased usage if other dimensions of access, including affordability, availability and acceptability, are not addressed simultaneously. The structuring of health service institutions should thus be done in a manner that services are provided and made available to all based on the differential needs of various segments of the population. Unless this materialises, access will be unequal.

8.10 Reasons for not choosing government hospitals

A number of reasons were put forward by respondents explaining their reasons for not accessing government healthcare facilities. Prime among them was the low quality of care at government institutions (36.14 per cent), followed by long waiting time (32.53 per cent) (Table 8.10). Long waiting times have been stated as one of the factors why populations utilising healthcare services for chronic ailments, which require frequent follow-ups, avoid public institutions[371].

Distance from home was put forward as the reason by 28.92 per cent. Higher distances travelled to reach government healthcare facilities added to higher transportation costs. Absence of health personnel and inappropriate behaviour of these personnel towards respondents and their family members were given as a reason by 21.69 per cent participants for bypassing government services (Table 8.10). In this regard, a respondent stated, "*Koi sunwaayi nahi, bina ghoos koi kaam nahi* (Nobody listens to us, without bribes no work happens)," while another expressed unhappiness with junior doctors constantly attending to them. He stated, "senior *aayega tab tak mareez mar jaaye* (by the time the senior doctor comes, the patient will die)." Apprehensions about the quality of care were expressed with statements such as "*maut karaane ke liye jaate hain* (people go there to die)," and "*sunwaayi nahi hoti* (nobody listens)."

[370] Mooney, G. (2008): 'Equity in Health Care: Some Concepts for Debate,' *Critical Public Health,* Vol. 18, No.1, pp.97-110.

[371] Powell-Jackson, T., Archarya, A. and Mills, A. (2013): 'An Assessment of the Quality of Primary Healthcare in India,' *Economic and Political Weekly,* Vol. 48, pp. 53-61.

Table 8.10 Reasons for not visiting a government healthcare facility

Reason for Not Choosing Government Health Facility	Workers	Hand-oared boat owners	Motor-boat owners	Own both hand-oared & motor-boats	Total
Distance from home	10 (23.81)	10 (32.26)	-	4 (44.44)	24 (28.92)
Behaviour of personnel/not available	9 (21.43)	7 (22.58)	-	2 (22.22)	18 (21.69)
Long waiting time	14 (33.33)	10 (32.26)	1 (100)	2 (22.22)	27 (32.53)
Poor quality of care	16 (38.1)	12 (38.71)	-	2 (22.22)	30 (36.14)
No trust of government facility	3 (7.14)	3 (9.68)	-	1 (11.11)	7 (8.43)
Others	18 (42.86)	16 (51.61)	1 (100)	6 (66.67)	41 (41.4)
Total*	**42 (100)**	**31 (100)**	**1 (100)**	**9 (100)**	**83 (100)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population column wise in each cell.
(ii) * Multiple responses were possible, hence the sum of the responses and the resulting percentages do not tally up to the total number of respondents mentioned below and a 100 per cent, respectively.

In this study, 41.4 per cent respondents also mentioned other reasons for not visiting government facilities (Table 8.10). Corruption in government hospitals was the single largest gripe that respondents had against public healthcare institutions. The practice of demanding bribes for undertaking treatment was seen as widespread in these institutions. Respondents alleged that "source *nahi toh dawa-daru nahi milta hai* (if no source, then do not get medicines)*,"* "source *aur chaploosi* (source and sycophancy)," "source *hai wahi* BHU (only those with source go to BHU)" and "*paisa diya toh uska tar se kaam* (if give money, they do his/her work immediately)." An elderly boatman from Prahladh Ghat, who owned both motor-operated and hand-oared boats, stated his experiences. He said:

> *"*My grandson had piles. I got him operated at a government hospital. I gave the doctor a bribe of Rs.4000 to do the operation. The medicines that they prescribed

had to be purchased from outside, so we had to run a lot. For the past two months, he has had pain in his stomach. His treatment costs Rs.150-200 a week."

Corrupt practices in government hospitals increased the cost of treatment, alleged respondents. The argument of lower cost of public services was discarded by these respondents, who felt that costs in these hospitals matched private hospitals and the quality of care was relatively poor.

The boatmen respondents in this study thus shared a largely negative perception of government services. The role of institutional factors in influencing access should not be negated. Declining investments in the healthcare infrastructure of this country have resulted in overburdened institutions. Inability to rein in corrupt practices in these institutions further increases the distance of these institutions from the minds of the public, who wish to access them.

8.11 Conclusion

The boatmen of Varanasi thus suffer from a variety of health problems which are associated with their environmental conditions. Fevers, enteric diseases, accidents and liver ailments were the most commonly reported ailments among boatmen families.

In response to these health concerns, maximum numbers sought treatment from private practitioners in the study, both for inpatient and outpatient. Illness and consequent hospitalisations in the past one year were associated with a decline in the SE status of respondents. This is illustrative of impoverishment brought on by high costs of treatment. Indebtedness, distress sale of assets and avoiding and delaying treatment were strategies commonly adopted by families with ailing members. The declining level of government expenditure on healthcare has affected service delivery in public institutions. As the private sector steps in to fill the void created by a retreating public sector, the high cost of treatment is a prime factor in impairing access of relatively poor households to the health services. Access determined by ability to pay not only creates unequal access but also affects treatment outcomes of patients and has economic consequences for poor households. Negligible spread of risk cover among respondents further exacerbated medical impoverishment.

CHAPTER 9

DISCUSSION AND CONCLUSION

Living, working and growing up in the cradle of the river Ganga, the boatmen in Varanasi share a deeply symbiotic relationship with the river Ganga which sustains and nourishes them, enables their livelihood generating efforts and forms an intrinsic part of their community's folklore, culture and rituals.

The present study aimed to gain an understanding of the social, economic and occupational life of the boatmen of Ganga in Varanasi, with particular focus on their relationship with the river. The technologically-engineered degradation of Ganga to feed an energy-intensive and growth-focus development drive have put immense pressure on Ganga's water resources and have consequently resulted in a number of remedial measures to improve the state of her physical resources. Organized under the umbrella of Ganga Action Plan (GAP), these measures have in a number of instances directly impinged upon the working conditions of the boatmen in Varanasi and touched upon their previously unfettered access to the river. The dynamic nature of their physical, political, economic and socio-cultural environment not affects the living and working environment of the boatmen community in Varanasi but also tells upon their health and well-being, which the study aimed to investigated.

The study was conducted in Varanasi city and was concentrated in and around the 84 *ghats* on the banks of the river Ganga. In this largely descriptive study, a multi-stage sampling design was chosen for selecting the final sample. In the initial survey round, 16 *ghats* were short-listed using systematic sampling. 143 boatmen present at these locales were interviewed after written consent has been taken from them. In the second round of sampling, in-depth interviews from 20 boatmen and seven *gotakhors* respondents were conducted to gain more knowledge on the diversity in working conditions of the different groups of boatmen and their differential interface with the state and administrative agencies working on the *ghats.* Furthermore, in order to gain more in-depth understanding of the housing, living and health conditions of boatmen respondents and their families, the researcher decided to visit main boatmen colonies in the city and interview women of the household. Free-flowing conversational interviews were held with 11 women respondents. In addition, key informant interviews with government officials, civil society organisation (CSO) members and healthcare practitioners were conducted.

The tools used for data collection included an observation checklist, close-ended interview schedule for the surveying the boatmen, in-depth interview schedules for conducting deep probing interviews with boatmen and women respondents from boatmen households and interview guidelines (for key informant interviews). The tools used for data collection included an observation checklist, close-ended interview schedule, in-depth interview schedule and an interview guideline. Secondary sources for data collection included government reports, reports of civil society organizations, newspaper articles and bibliographical studies, among others.

Field work was conducted from August, 2013 to April, 2015 and was spread across a period of 18 months and included a pre-pilot and pilot study phase and the final data collection round.

The boatmen of Varanasi largely belong to the Mallah or Nishad caste, a traditionally lower caste group. Falling under the other backward classes (OBC) category in UP, the Mallahs are noted for their backwardness in educational attainment and presence in government jobs. In the present study too, illiteracy and low educational attainment was widespread among boatmen respondents, who primarily belonged to the Mallah caste group (90.21 per cent). Of the total respondents, 66.43 per cent had studied up till primary level or less.

The boatmen, by virtue of their age-old occupational links with the River Ganga, largely live near the banks of the river in Varanasi. Both joint and nuclear family systems prevail in almost equal measure among boatmen families. The median household size of respondents in the study was 8.08 members. Despite the large family size, congested housing conditions were observed; 55.94 per cent respondents lived in one or two room houses. Small living quarters with lack of adequate ventilation and overcrowded living conditions were the stated reason for a number of younger boatmen to sleep on their boats, particularly in the summer season, where the pleasant night breeze made night-times more comfortable.

The main boatmen colonies in Varanasi city were Shivala, Raj Ghat, Prahladh Ghat and Nishad Raj Ghat, located just adjacent to the *ghats* and within a 100-150 metre range from the river. All four of them are also government-designated slum colonies. These areas are characterised by poor provisioning of basic amenities, resulting in insufficient access to clean drinking water (particularly during the monsoon season) and private water-based toilet facilities among boatmen households. Given these living conditions and the nature of their work (wherein they spent their time on the *ghats* from dawn to dusk and sometimes even slept on their boats), boatmen respondents professed a high amount of dependence upon the Ganga for meeting their daily

personal needs. In the present study, 93.01 per cent took bath in Ganga, 49.65 per cent used her waters for washing clothes and 32.17 per cent brushed their teeth with her waters. In addition, 75.52 per cent also admitted to drinking her mid-stream waters. High dependence upon the highly contaminated waters of the river was noted for engendering disease and ill-health among the boatmen and their families. Cough, chest congestion, eczema, skin allergies and worm infestations were among the ailments recounted by boatmen and medical practitioners as troubling the former from time to time. Despite these ailments, usage of Ganga's waters continued unabated as boatmen respondents and their families members refused to acknowledge the holy river's waters as posing a danger to their health. The only exceptions were usage of Ganga's *ghat*-side waters for drinking purposes and during the monsoon season – in both these cases, the lived experiences of the respondents had amply demonstrated the risk to health from usage of her waters. In these instances, the greater possibility of hazard made them adopt greater caution in their habits.

Apart from their personal lives, boatmen shared a close relationship with Ganga in their working lives too. Spending their days on the *ghats*, soliciting customers and ferrying passengers was the main occupational activity of the boatmen in this highly commercialised work space. The two-thousand odd boatmen community in Varanasi is spread across 84 *ghats*. Spatial variations exist in working conditions at different *ghats*. The *ghats*, while serving as a popular tourist locale, do not have an even distribution of pilgrims and tourists. Those imbued with a rich religious, spiritual and cultural history witness a higher footfall of tourists and pilgrims and hence have a greater income earning potential. At less lucrative locales, boatmen were forced to take recourse to activities such as fishing, tour guiding, diving and planting crops on the eastern banks of the river in a bid to eke out a sustainable living.

These boatmen owners (at secluded *ghats*) could not even shift their base to the prominent tourist *ghats* of the city. Customary community-based norms dictated that only boatmen families who had traditionally resided in that area and plied from a particular *ghat* had the right to moor their boats and solicit customers from that particular *ghat*. Unequal distribution of profits from the boating economy thus resulted in socio-economic disparity among the boatmen of Varanasi who plied at different locales. Similarly traditional mores prevented newer boatmen from owning a boat, thus relegating them to a worker status in this feudal system of ownership of resources.

Apart from place of work and ownership of a boat, the boatmen were also divided on lines of type of boat owned (hand-oared, motor-boat or both) as well as the number of boats owned.

Employing the mathematical technique of 'factor analysis,' a socio-economic index (SEI) of boatmen respondents was created in this study which ranked the boatmen on the basis of their socio-economic (SE) status. As a category, worker boatmen ranked the lowest in this SEI. The SE standing of boatmen was positively correlated with both ownership of boats and the type of boat owned. The monthly income earned from boating too depicted this relationship between boat ownership and income. The median income for those boatmen who owned both hand-oared and motor-operated boats in this study was Rs.4445.44 a month, while the same for workers and hand-oared boat owners was Rs.3642.54 and Rs.2501 per month, respectively. The lower income earned for hand-oared boat owners can be accounted by the fact that while workers gravitated towards the main tourist areas, at secluded locales, hand-oared boat owners earned barely a pittance due to a lack of opportunities for ferrying passengers. While 36.57 per cent earned less than Rs.2500 a month, at the other end of the spectrum, 6.72 per cent earned Rs.10,000 and above from boating in a month.

Nearly half of the boatmen in this study (48.25 per cent) were boatmen workers, while 32.17 per cent were hand-oared boat owners. The median monthly income for all categories of boatmen in this study was Rs.3458.45; 36.57 per cent respondents earned less than Rs.2500 a month, while at the other end of the spectrum, 6.72 per cent earned Rs.10,000 and above from boating in a month. From these figures, it is clear that a majority of the boatmen belonged to a lower socio-economic category. In order to cope with the low income levels, income diversification and entry of multiple members of the household, including female members, into the workforce, in other informal sectors of the economy, was a strategy adopted by various respondent families as a means of ensuring economic sustenance.

The boatmen at remote locales who depend substantially upon fishing and agriculture, among other tasks, were not just affected by the unfair economic order that pervaded the boatmen community. While the larger community of boatmen had thrived with the increasing commercialisation of Ganga's *ghats* in Varanasi, these respondents seemed to have been inversely influenced by the degradation of Ganga. Large-scale damming of the river, abstraction of its waters and dumping of untreated waste from industrial and domestic sources has resulted in severe degradation of Ganga. Dams have affected fish catch as well by imposing artificial

restrictions on the movement of fishes across her length. The result is that while inland fishery in India has thrived, fishing in the Ganga basin has undergone a decline, with fish catch declining from 85.21 tonnes to 62.48 tonnes from 1959 to 2004[372]. Furthermore, fishing, along with agriculture and sand-mining is banned in Varanasi. The Uttar Pradesh Forest Department (UPFD), in an attempt to stem the visibly deteriorating state of Ganga's waters in Varanasi, banned these activities. This has been done under the aegis of the 1987 Scavenger Turtle Scheme, which seeks to introduce turtles bred in captivity at a hatchery in Sarnath into the Ganga at Varanasi. It was expected that these flesh-eating turtles would consume the decomposing flesh from the carcasses that are daily dumped into the river here, thereby reducing pollution levels.

In 2006, the stretch of the river in Varanasi was designated as a Turtle Sanctuary. Yet nearly ten years later, as officials of UPFD confessed, no mechanism had been created to assess either the performance of the scheme or count the number of turtles that remained in Varanasi. Turtles are itinerant creatures and to expect them to stay within the seven kilometre confines of the sanctuary in a free-flowing river is not practical, a fact that was pointed out by numerous boatmen respondents critical of the impact of the sanctuary on their working environment. Though sand-mining had been wiped out in Varanasi and agriculture greatly reduced, fishing was still pursued, albeit clandestinely, under the cover of the night as the threat of police action hovered over fishermen.

The plying of motor-boats too had been banned in Varanasi under the aegis of the Turtle Sanctuary. Yet they ply freely as the main boatmen workers' organisation in the city, Maa Ganga Nishadraj Sewa Samiti (MGNSS) with around 800 boatmen members, has managed to secure a stay from the High Court on the ban. It is pertinent to note that mostly the well-off boatmen owners from central *ghats* (areas with the maximum number of tourist footfalls) own motor-boats. The head of MGNSS too was the owner of a large fleet of boats from the most prominent *ghat* in Varanasi – Dashashwamedh.

Though the head of MGNSS claimed to represent all boatmen in the city, yet as analysis of the organisation's leadership structure and functioning showed that this was not really the case. Despite appearing to be an inclusive forum, want of internal democracy within the organisation and the absence of boatmen workers, fishermen and divers within the leadership structure meant that MGNSS had come to replicate the unequal power relations which persisted within the

[372] Das, M.K., Samanta, S. and Saha, P.K. (2007), *op cit*, p.1.

community of boatmen. The economic interests of the community's leaders did not sufficiently align with these sections of the boatmen community to give them centre-stage within their organisation. Their interests and concerns came to the fore only sporadically, in the face of a particular case of administrative brutality.

The fishermen and divers were thus among the weakest members of the boatmen community. They had little economic and political power to bring their issues to the centre-stage and seek redress for their plight. For the fishermen, ecological spoliation of the Ganga affected not only their income earning potential but also the quality of their nutrition. Further state action illegitimating their traditional livelihood earning opportunities added to their workplace insecurity.

For the divers, who are mainly based at Raj Ghat, the high risk job of rescuing drowning individuals or retrieving dead bodies from the river was performed by them, despite the existence of the institution of *Jal* (water) Police. Though the latter courted their services for this dangerous work, yet no safety measures or precautions were adhered to in the performance of this occasionally fatal work. A long standing demand of boatmen and divers to be instituted into the JP as a safety catch for their families, in the event of a mishap, has been long neglected by successive state governments.

The boatmen of Varanasi operate in a highly commercialised space. However, the drawback to working in such a commercialised space is that not only does the tourist gaze but also administrative gaze falls heavily on the working space. As the situation of the Ganga has deteriorated, the government has increasingly focused on measures to stem pollution levels in the river. In 1985, the government launched the techno-centric Ganga Action Plan (GAP) in 25 Class I towns across the Ganga basin. It was later on expanded to 27 more Class I towns in the region. Given the religious, spiritual and political significance of Varanasi, the city was chosen as the launch-pad for this central government funded scheme.

The technological aspects of GAP such as placing an extensive reliance on Sewage Pumping Stations (SPSs) to treat waste-water has not been very successful in Varanasi since old and decrepit sewage lines leak large amounts of waste-water before they reach the pumping stations, thus reducing the efficacy of the scheme at the very outset. Secondly the absence of 24-hour electricity in Varanasi means that all waste water that reaches SPSs is not treated and a large

proportion is unceremoniously dumped untreated into the river. A study published in 2014 states that in Varanasi, SPSs function to only eight per cent of their total installed capacity[373].

As GAP falters, the need to show results has led the local administration to impose greater restrictive measures on the *ghats* to deflect criticism of its culpability and consequent inaction in redressing the plight of this holy river. The Turtle Sanctuary is a prime example. Interviews with UPFD officials revealed that they blamed boatmen for a lack of compliance with a number of the regulations of the sanctuary, including their persistence with fishing and cropping, thus affecting performance of the scheme. Boatmen on the other hand recognising the mark imposed on them sought to highlight the fallacy of state measures and their close association with the Ganga and their respect for her. Numerous respondents referred to themselves as, "Ganga *putra* (sons)," and stated their participation in *dharnas*, protest demonstrations, meetings and cleaning initiatives related to the river (54.55 per cent).

MGNSS leaders too highlighted their concern for her plight by stating that they called monthly meetings of their members and used these instances to highlight the role of their community in mitigating river water pollution by clearing garbage accumulated near the *ghat* or by telling tourists to desist from throwing litter into the river. Furthermore, through its monthly meetings, MGNSS highlighted the role of factors such as the dumping of untreated waste-water into the river and the erection of numerous dams on the river and her tributaries (including the Tehri Dam) in contributing to her deteriorating state. Thus while this local level organisation showed remarkable awareness of the factors that have played a role in degrading Ganga (including those extending beyond Varanasi), yet it stopped short of propagating the riparian rights of fishing communities downstream who are arguably the most affected by this degradation.

Though boatmen respondents went to great lengths to highlight their relatively innocuous association with the river and their victimisation by state agencies, yet a significant duality in their attitude was visible in the sense that none acknowledged the role played by motor-boats in adding to the pollution of the Ganga in Varanasi. Though motor-boat pollution is a relatively minor source of Ganga water pollution, the boatmen sought to distance themselves from even the slightest responsibility in polluting its waters and referred to this charge levied upon them as

[373] Alley, K. (2014), *op cit*

being baseless. Thus as Beck (1985) states, in this system of 'organised non-liability[374]', even the boatmen of Varanasi were complicit.

This duality did not however lessen their critique of GAP. Of the total respondents, 65.03 per cent labelled it as a failure, while 22.38 per cent referred to it as a moderate success. The older respondents (56 years and above) were especially critical of the scheme, with 86.36 per cent claiming that the state of the river was better before 1985 – the year of commencement of the programme. Corruption and insincere attitude of the officials was blamed as well as the cosmetic nature of the schemes which failed to tackle the real issues degrading the river. The practice of picking garbage from the *ghats* and depositing it onto the uninhabited right bank of the river came in for especial criticism. Furthermore despite being important service-providers on the banks of the river, they decried their lack of inclusion in the programme.

An analysis of the people's participation component of GAP revealed that space or voice has been allotted to the relatively poorer communities residing and working by the riverside in the programme. The participation component only delineates a passive inclusion of people, while power continues to be in the hands of government agencies. Very little attention has been paid towards incorporating people's concerns and their knowledge of the river and its processes and the concerns of the local community into the programmatic agenda. This has resulted in disaffection among people.

They also realise their relative powerlessness in being able to make a case for change before the powers that be. A case in point was the Turtle Sanctuary – years of protest proved futile, yet with the current ruling dispensation planning to link various national rivers and create a navigational corridor, in a bid to provide an impetus to inland waterways, the news of the revocation of the sanctuary is imminent. The irony was not lost on the boatmen, who articulated their absence of adequate social and political representation in important posts of the government and further cited their lack of economic muscle as reasons behind their inability to induce change in government policy.

In 2014, with the election of Prime Minister N. Modi from Varanasi, their working environment has further evolved. A number of schemes have been initiated relating to the Ganga which impinge upon their workspace. One such measure is the Jal Shav Vahini (which aimed to transport dead bodies to the city's two burning *ghats* via a boat), flagged off by the country's

[374] Beck, U. (1985), *op cit*, p. 154.

Finance Minister in March, 2015. Despite the good intentions of this measure, a number of boatmen, especially at Raj Ghat (where the boat was to be stationed) expressed disaffection with this initiative due to a fear that this scheme presaged a taking over of their occupation by the government. The inability of the government to consult and include the different members of the boatmen community in the formulation of this scheme resulted in widespread protests against it. The word 'participation' thus needs to be changed from being a glib verb employed by the government to create a mirage of inclusion. Rather it needs to be meaningfully used to give voice to people's concerns whose cooperation is being sought.

The adverse environment of the community is reflected in their health conditions. In the present study, high rates of regular consumption of tobacco (67.13 per cent) and alcohol (21.68 per cent) were observed. Boatmen respondents consuming these products sought to draw a linkage between their working conditions and their usage of the same. Alcohol usage was present in greater measure amongst the divers of Varanasi. However high rates of usage of these products (in particular, alcohol) should not be seen as a mark of deviancy of the boatmen community, but they need to be viewed in conjunction with the work-related tasks of these members. For boatmen, 42.42 per cent stated that alcohol helped rejuvenate their body at the end of a long and hard day of physical labour, while for divers, it helped ward off anxiety and fear that diving almost 40-50 feet into the water brought. Thus instead of arriving at a pathological connection between its consumption and the boatmen community, an attempt should be made to understand it as an occupationally acquired habit in most instances. The role of the local police officials, including the Jal Police (JP), in encouraging this behaviour among divers should further be recognised and condemned, who freely offer divers' alcohol before they embark on rescue and retrieval missions in the Ganga. Instead of accepting responsibility for their well-being while using their services and providing them with adequate safety gear, the JP is complicit in encouraging alcohol usage among divers.

A number of regular alcohol users also reported suffering from ailments such as stomach ulcers, liver abscess, liver failure and liver cirrhosis. Liver related ailments were also among the highest reported cause for hospitalisation in boatmen families in the past one year, in this study. Medical practitioners interviewed in this study certified to the presence of these ailments among boatmen and also spoke of the tendency among them to access services when the illness was at an advanced stage. Frequent consumption of alcohol among boatmen respondents was also

associated with lower socio-economic status as compared to non-regular drinkers and those who had quit drinking on a frequent basis. The former category of boatmen scored the lowest on the SEI, as compared to the latter two categories, indicating a negative relationship between the two. Not only was regular alcohol consumption implicated in reduced expenditure for household goods (as testified by women of these households), but the morbidity engendered by this habit also resulted in significant medical expenditures, both of which affected the SE standing of a household.

Apart from alcohol-induced ailments, the working environment of the boatmen was complicit in partially engendering a number of ailments. In particular, skin problems (38.46 per cent), tiredness and breathlessness (20.28 per cent) and pain in joints (12.59 per cent) were reported by boatmen. Higher rates of prevalence were observed among hand-oared boat owners and boatmen workers, which befits the more strenuous nature of their work relative to those who operate a motor-boat. However most of these ailments were referred to as mild by the respondents, resulting in no action taken by 29.37 per cent, while 16.08 per cent resorted to self-care including warm compressions with local home-made potions to alleviate pain.

Private medical institutions were the preferred mode of choice for treatment for ailments affecting boatmen respondents and their families, both in hospitalisation cases and for out-patient care. Half of all ailments were treated at private facilities, followed by trust-run and finally public healthcare institutions. This was despite relatively easy accessibility of both government and trust-run facilities near major boatmen colonies (Nishad Raj, Shivala, Shurda and Raj Ghat). Corruption in government institutions, including the practice of asking for bribes was given as a reason by 41.4 per cent respondents for not accessing these facilities. Poor quality of care (36.14 per cent), long waiting times (32.53 per cent) and distance from home, resulting in higher transportation costs (28.92 per cent) were other factors outlined by boatmen respondents for avoiding government facilities.

An episode of hospitalisation in a boatmen family in the one year prior to the time of the interview was associated with a decline in the SE status. The results of a linear regression depicting influence of hospitalisation on SE standing of boatmen respondents showed that families reporting hospitalisation were 2.74 times socio-economically weaker than those who did not report any hospitalisation in the one-year reference period ($p<0.05$). There was no significant difference in the SE status of those accessing government and private services. However those

respondents who admitted their family members in a trust-run hospital were 89 per cent better off than those who accessed government medical facilities for seeking in-patient care ($p<0.05$), thus depicting the relatively lower cost of care in these institutions.

Financial difficulties were mentioned as the biggest impediment (48.35 per cent) for this largely poor community in accessing healthcare services. Only 31.47 per cent of those seeking in-patient care were able to manage expenses for treatment out of their own personal or household savings. Nearly half of those seeking healthcare reported taking loans from friends and family, *mahajan* (money-lender), selling household goods and/or delaying or avoiding treatment due to the high cost of healthcare. A mere 2.8 per cent respondents owned health insurance schemes, thus further depicting the high burden of healthcare expenditures befell entirely upon families seeking healthcare access. For boatmen, hospitalisation expenditures were more debilitating than out-patient costs in the short to medium term.

Chowdhury (2015) and Berman and Ahuja (2010) depict the high rates of medical impoverishment in India. Using data from the 61st NSSO round, the former estimates that six per cent or 18 million urban households fell below the poverty threshold in 2004-05, while the latter pegs this figure at five per cent. This is irrespective of the quality of care, which is often erratic in urban areas[375]. Chowdury (2015) also states that the poor who incur high medical costs for treatment are steeped into acute poor and even reduced to the brink of starvation. Increasing utilisation and dependence on private healthcare sector and increasing cost of treatment in public facilities, which face a rising resource crunch, are factors attributable to this phenomenon[376]. In this study too, it was observed that medical impoverishment that is often a bane of socio-economically poor households in a largely private healthcare market engulfed the boatmen as well. The medical poverty trap ensnared a large number of those reporting hospitalisation cases in the past one year.

The above section delineates the broader living, working and socio-economic conditions of the boatmen of the Ganga in Varanasi. Ganga forms a central aspect of their lives. It serves not just as the physical backdrop, but the boatmen share important cultural, social and economic links with her. She has been a part of their community's history for centuries and in present times, serves as the primary resource base which provides them with their livelihood opportunities. For

[375] Berman, P., Ahuja, R. and Bhandari, L. (2010), *op cit;* Chowdhury, S. (2015), *op cit*
[376] Chowdhury, S. (2015), *op cit.*

the larger community of boatmen, she provides them with opportunities for ferrying passengers from the thousands of tourists who daily visit the *ghats* seeking divine blessings from the holy river; for the fishermen, her vast fishery resources provides them with both income and nutrition and for the divers at Raj Ghat, scavenging for coins on the river-bed, where each day thousands of incoming passengers into Varanasi throw coins and valuables into Ganga, seeking her blessings and asking the River Goddess to fulfil their wishes. The river thus sustains them all, albeit in different ways.

In recent decades, as the condition of the river has coming under strain, the boatmen have found their workplace under the increased gaze of the state. GAP was initiated with the aim of making Ganga's waters wholesome yet the plan, launched without much foresight and an ill-suited technology at its helm, resulted in massive amounts of money – to the tune of over Rs.4000 crore – being spent with little reward to show for it.

Ganga is among the most abstracted rivers in the world. Engineering solutions while being able to stem pollution levels can achieve limited success but cannot reverse the larger problem of river degradation if its volume and flow remain curtailed. GAP while bypassing the main issue – the problem of water abstraction – deals with localised pollution levels in Ganga. This urban-centric programme concentrates its energies on reducing faecal coliform levels and maintaining the dissolved oxygen content in the river, without paying attention to individual pollutants such as nitrates, arsenic, chromium, cadmium and mercury, which continue to affect riverine life and the well-being of people residing in the Ganga basin. The singular focus on limited targets has undoubtedly reaped benefits and has given the planners of GAP much to cheer about in terms of the success of their scheme, yet Ganga has continued to deteriorate.

The requirement of the hour for Ganga is not a localised engineering approach which treats the problem of pollution as distinct from other issues afflicting it and thus does little to check the overall degradation of the river. What is needed is a river-basin approach to the river which treats river and its feeder tributaries as a holistic ecosphere. A systems approach to the river is essential which views the river as a whole and does not separate issues such as exhaustive damming of the river, indiscriminate construction of hydro-power plants, diversion of river's waters through an extensive network of canals for feeding water-intensive agricultural systems, pollution caused by run-offs from pesticide laden agricultural fields and dumping of toxic waste-water from both

industrial and domestic sources. A sound river management policy is required which assesses the impact of each not only on overall riverine health and but also on each other.

While the slogan of '*aviral dhara, nirmal dhara* (uninterrupted flow, clean flow),' coined in 2009 has been used by successive central governments to highlight their commitment to a clean and pollution free with apt environmental flows needed to maintain the larger health of the river and sustain aquatic life, yet the actual functioning of government schemes in the past few years belies all hope that change will occur in the near future. The 2013 report of the high-level Inter Ministerial Group (IMG), constituted to look into the issue of environmental flows in the river, gave the go-ahead for further construction of 69 more hydro power plants on the river and its tributaries in the Upper Ganga Basin. This recommendation stands out in sharp contrast to the commitment of an '*aviral* Ganga' and threatens to contribute further to the decline of the river.

Similarly the river linking project being followed by the Narendra Modi government which attempts to link rivers and thereby boost the flow and volume of water in parched rivers does not deal with issues which have caused such an abstracted state of rivers in the first place, but only attempts to provide a cosmetic solution to the problem.

As Ganga continues to be exploited with little consideration being given to her capacity to regenerate, it is important to realise that the burden of the environmental bads generated is being disproportionately borne by poor and marginalised communities. These 'ecosystem' communities have had little hand in engendering degradation, yet they have had to face the brunt of the consequences. While technology has been created to facilitate easy exploitation of resources and usage of such technology is rationalised as being essential for development, yet forcing certain people to accept the costs without an equitable sharing of benefits is inexcusable.

A case in point in the present study is the fishermen community in Varanasi. The construction of dams and hydro-power plants on Ganga and her tributaries, most notably the Tehri Dam (which commenced operations in 2006) and the 1975 Farakka Barrage have firstly not only affected the flow of water in the river, but also influenced the movement of fishes, leading to an extensive decline in fisheries in the river. While dams and hydro-power plants were created to harness the power of rivers, those at the helm of the technology failed to account for the consequent hazards which emerged and were felt by fishing communities hundreds of kilometres downstream as well as upstream.

Fishing communities across the length of the river, including in Varanasi (where admittedly their number is less), have had to suffer a decline in their nutritional security and income earning opportunities. These communities who often reside by the side of the river and are directly dependent upon the river's resources have benefitted little from the damming of the river. Yet not only have they had to suffer the maximum from increased river pollution levels due to dumping of toxic waste-water from industrial and domestic sources. The failure of the government to regulate and hold accountable industrial houses and local municipal corporations for their complicity in this has created an ambience of incorrigibility among them. As economics has come to trump the environment and little punitive action is meted out to those guilty of dirtying the environment, the system of 'organised non-liability' is increasingly being pervaded at the cost of the river and the larger ecosphere. In the process, the health of the people who live and work near the riverfront is being endangered. Today the Ganga river basin has the highest rate of cancer cases in the world[377]. This stands testimony to the state of ecology in the region.

It should be remembered that the depletion of our natural resources is a reflection of societal needs and social systems that govern the society and it is society that has to take responsibility for its actions. Technology can minimise risks, but cannot eliminate it and even the process of risk distribution and risk bearing is engendered in societal processes. The economically well-off, on account of their superior purchasing power ability have the ability to command resources as per their desires, are able to insulate themselves from harmful effects through their economic power. They thus have little regard for their actions denuding the environment. An uncompromising belief in the ability of science and technology to provide quick-fix solutions to problems created by industrial technological systems and their ability to shield themselves from environmental degradation drives their actions.

In case of Ganga and GAP in Varanasi, the people who are among the most affected by the degradation have been rendered voiceless in this process of seeking scientific solutions in the cleansing of the river. As Dutch technology was utilised in cleansing of sewage-water, little regard was given to the suitability of the technology to Indian social conditions or the availability of technological know-how among local engineers to ensure the proper upkeep and maintenance of the Sewage Treatment Plants (STPs). Unsurprisingly as it faltered, the role of local communities came into focus and blame began to be apportioned among them for directly

[377] Krishna (2012), *op cit.*

polluting the river. As awareness and participation campaigns seeking the co-operation of the people were launched, an important aspect of participation was ignored. The right of people to participate equitably in decision-making about matters relating to the state of their environment, resource usage and livelihood earning opportunities were not considered in this scenario.

By removing people from the decision-making process in GAP and by imposing measures decided by people in the central and state government or aid agencies based abroad, the participation component of GAP reinforced vertical relations. Unless social technological programmes are not run more democratically, with greater participation of communities, their risk of failure runs large. In this regard, it can be said that it would suit policy planners better if they moved down from their panopticon and became more embedded in communities whose lives and livelihood are affected by programmes that they formulate and implement[378].

Furthermore, greater social equality is essential if the process of decision-making has to be made truly democratic. Though a number of civil society organisations (CSOs), including advocacy organisations, function in Varanasi and some have even been roped in by the government to implement the participation content of GAP, yet it has to be remembered that in a society racked with extreme social inequality and unequal power relations, these organisations too ultimately come to reflect social distinctions. As in the case of MGNSS, the economically and socially powerful within the boatmen community in Varanasi have appropriated this organisation. The interests of the weaker sections within the boatmen are neglected in this arrangement. Similarly advocacy organisations working for the issue of Ganga in Varanasi have been observed to have bypassed local *ghat*-based communities who are arguably the greatest affected by her degradation, seeking only their token participation. The presence of CSOs should not be taken as the sole indicator of inclusiveness. Greater democracy needs greater organisation among the resource-based communities, who need to have a greater say in the way in which resources nurtured and cherished by them for centuries, are being utilised. The need of upstream users and influential urban centres, with their ever increasing power consumption needs should not be allowed to trump the life and livelihood needs of downstream communities.

In this entire process, there is also a need to accord greater respect to nature, in this case the Ganga River and also the animal and plant life which depends upon her for survival. Engineering initiatives should not be allowed to play havoc with the form, shape and condition of the river,

[378] Harriss, J. (2001), *op cit*, p. 65-66.

which affects all those dependent upon her. Limited cost-benefit analysis measures which have proliferated in recent years and seek to justify the erection of dams and barrages on the river should expand their range to include the impact on future generations of not only human but also plant and animal life as well as the loss to centuries' old socio-cultural systems of different communities. It should also take into account the estimated livelihood loss of all different communities dependent upon a river, before being considered at all.

Rivers and nature in general should not be considered to be an inexhaustible resource. Limits to nature have to be recognised and respected and the same should be reflected in our attitude and treatment towards our natural resources. Endless consumption and hyper-consumerism that is characteristic of current capitalistic economic models needs to be replaced with a more humane approach. An ecosocialist approach which focuses on need-based production and treats the needs of all sections of the society equitably while recognising the limits to earthly resources, needs to be promoted.

While the above may be posited as long term structural changes that need to be effected for a more ecologically and socially just society, in the short-term, a few recommendations for the benefit of the boatmen community in Varanasi are as follows – officials of the Varanasi Municipal Corporation (VMC) who oversee the implementation of GAP and the functioning of the STPs in Varanasi should be held more accountable for their role. Culpability for the relatively poor working of these plants should be established and the guilty officials should be made to face punitive action. GAP III, which is on the anvil, should not be allowed to go the way of its predecessors and should widen the ambit of waste-water treatment to include other contaminants which pollute the Ganga. Industries using polluting technology which affects the ecology of the Ganga river basin and pollutes the river should be charged with a pollution tax and government should deter the usage of hazardous technology.

Varanasi is today on the brink of an environmental disaster and has been categorised in the red zone signifying the poor state of its environmental and sanitary facilities. The British era sewage network is not only increasingly infirm and decrepit but also does not fulfil the needs of its burgeoning population. Laying of new sewage pipes and water lines which supply water to all of its citizens, including adequately cover slum populations, should be done at the earliest. The City Development Plan for Varanasi, 2041 identifies the problems and work should be done, taking into consideration long-term planning, on improving the city's sanitary condition.

Direct measures relating to the boatmen community in the city should include inclusion of boatmen and expert divers into the JP, which should have more outposts at the *ghats*. Currently there is a single outpost at Dashashwamedh Ghat, which in insufficient to man the entire *ghat* area which is 6.8 kilometres long. The other outpost at Raj Ghat was non-functional at the time of the study. Secondly the government should provide insurance cover for divers in Varanasi, whose service it frequently utilises for dangerous rescue and retrieval missions. Divers and their family members should be adequately reimbursed for any injury suffered or loss to life incurred while working for the local administration. These two have been long-standing demands of the boatmen and diving community in the city and the administration should speed up action on the same. Furthermore, the JP should ensure usage of adequate safety gear while utilising the services of divers who mount these expeditions, rather than just providing them with alcohol as an easy inducement for participation in such risky work. Diving without safety gear has occasionally resulted in deaths among divers. The administration should not be allowed to escape culpability for allowing such preventable deaths due to its failure to follow mandated safety procedures. Similarly boats too should have an insurance cover and government agencies hiring boats during the time of floods to help stranded people should be held liable for any damage to the boat or any accident suffered by the boatmen who mount such dangerous trips. At present, any wear and tear to the boat during this time becomes the responsibility of the boatmen. This discrepancy should be corrected. In the same way, expenses for any injury suffered by the boatmen during their participation in flood relief works should be covered by the government.

In conclusion, it must be said that environmental conditions of the boatmen of Varanasi are deeply influenced by the state of the river Ganga. Their lives are centred on this resource, which has experienced severe degradation in recent years. This has affected not just their working, but also their living and health conditions. However not all members of the boatmen community are affected equally by it. Fishermen and divers constitute in particular the weakest members of the community of boatmen. The unequal distribution of economic ills from the ravaging of the Ganga is proof of the greater vulnerability experienced by the poor from denudation of their immediate natural surroundings due to their greater reliance on these resources for sustenance. The unequal social order within the boatmen community of Varanasi and the retrogressive government policies which affects their workplace environment further prevents them from improving their plight.

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Appendix 4.1

Ghat-wise dependence upon Ganga's waters for meeting the daily needs of boatmen

Name of Ghat	Bathing	Washing	Washing Utensils	Cooking food	Brushing Teeth	Drinking water
Adi Shitala Ghat	1 (100)	-	-	-	-	-
Gularia Ghat	3 (100)	1 (33.33)	-	-	1 (33.33)	3 (100)
Chausatti Ghat	5 (83.33)	4 (66.67)	1 (16.67)	-	2 (33.33)	3 (50)
Dashashwamedh	7 (100)	4 (57.14)	1 (14.29)	1 (14.29)	2 (28.57)	4 (57.14)
Digpatiya Ghat	5 (100)	2 (40)	-	1 (20)	2 (40)	4 (80)
Gola Ghat	2 (66.67)	-	-	1 (33.33)	-	2 (66.67)
Harishchandra	23 (95.83)	9 (37.5)	1 (4.17)	2 (8.33)	6 (25)	19 (79.17)
Khidki Ghat	5 (100)	3 (60)	1 (20)	2 (40)	1 (20)	3 (60)
Mangala Gauri	4 (100)	4 (100)	-	-	1 (25)	2 (50)
Mansarovar	10 (83.33)	6 (50)	2 (16.67)	3 (25)	4 (33.33)	10 (83.33)
Meer Ghat	10 (100)	7 (70)	2 (20)	1 (10)	6 (60)	9 (90)
Nishad Raj Ghat	13 (86.67)	10 (66.67)	5 (33.33)	7 (46.67)	10 (66.67)	11 (73.33)
Shitala Ghat	9 (90)	5 (50)	1 (10)	-	2 (20)	9 (90)
Shivala Ghat	16 (94.12)	5 (29.41)	-	1 (5.88)	2 (11.76)	14 (82.35)
Prahladh Ghat	12 (100)	5 (41.67)	-	1 (8.33)	3 (25)	7 (58.33)
Tulsi Ghat	8 (88.89)	6 (66.67)	2 (22.22)	2 (22.22)	4 (44.44)	8 (88.89)
Total	**133 (93.01)**	**71 (49.65)**	**16 (11.19)**	**22 (15.38)**	**46 (32.17)**	**108 (75.52)**

Source: Boatman survey

Note - (i) Figures in parenthesis indicate percentages of the sample population from each *ghat* row wise in each cell.
(ii) Multiple responses (on dependence on river in their daily lives) were elicited from each respondent.

Appendix 7.1

Usage of tobacco by age and education

Frequent consumption of tobacco by age	**15-25 years**	**26-40 years**	**41-55 years**	**56 years & above**	**Total**
Yes	19 (38.78)	27 (71.05)	31 (91.18)	19 (86.36)	96 (67.13)
Used to, but left now	1 (2.04)	-	-	1 (4.55)	2 (1.4)
No	29 (59.18)	11 (28.95)	3 (8.82)	2 (9.09)	45 (31.47)
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**

Frequent consumption of tobacco by education	**Not studied**	**Primary**	**Secondary**	**Senior secondary and above**	**Total**
Yes	37 (92.5)	35 (63.64)	21	3 (42.86)	96 (67.13)
Used to, but left now	-	-	1 (2.44)	1 (14.26)	2 (1.4)
No	3 (7.5)	20 (36.36)	19 (46.34)	3 (42.86)	45 (31.47)
Total	**40 (100)**	**55 (100)**	**41 (100)**	**7 (100)**	**143 (100)**

Source: Boatman survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Appendix 7.2

Age distribution of regular alcohol consumers

Frequent consumption of alcohol by age	**15-25 years**	**26-40 years**	**41-55 years**	**56 years & above**	**Total**
Yes	4 (8.16)	8 (21.05)	16 (47.06)	3 (13.64)	31 (21.68)
Used to consume earlier	-	2 (5.26)	1 (2.64)	2 (9.09)	5 (3.5)
No	45 (91.84)	28 (73.68)	17 (50)	17 (77.27)	107
Total	**49 (100)**	**38 (100)**	**34 (100)**	**22 (100)**	**143 (100)**
Frequent consumption of alcohol by education	**Not studied**	**Primary**	**Secondary**	**Senior secondary and above**	**Total**
Yes	12 (30)	13 (23.64)	5 (12.2)	1 (14.29)	31 (21.68)
Used to consume earlier	1 (2.5)	4 (7.27)	-	-	5 (3.5)
No	27 (67.5)	38 (69.09)	36 (87.8)	6 (85.71)	107 (74.83)
Total	**40 (100)**	**55 (100)**	**41 (100)**	**7 (100)**	**143 (100)**

Source: Boatman survey
Note – Figures in parenthesis indicate percentages of the sample population column wise in each cell.

Annexure 1

Informed Consent

Name of Principle Investigator – Chhavi Sodhi

Name of Organization – Centre of Social Medicine and Community Health, Jawaharlal Nehru University, New Delhi - 110067.

Name of Sponsor - NA

Name of Project – Contextualising Environment and Health: A Study of the Boatmen of the Ganga in Varanasi

Hello! My name is Chhavi Sodhi and I am a Ph.D researcher from Jawaharlal Nehru University in New Delhi. In context of my research work, I am conducting a survey on the Mallah community of Varanasi, regarding their living conditions, livelihoods, working environment and health. I would like to ask you some questions on these themes as well as on your experiences with the Mallah community and views on them. In the coming few months too, I will be researching more in-depth on these afore-mentioned issues and may contact you again for the purpose.

Today's interview will take ___ minutes. I hope that you will participate in this research. Do you wish to ask me anything about the survey at this time? If you have any queries related to the survey later as well, then you are free to clarify them too. For this, you may even contact me. My number is _____.

Shall we begin with the survey?

Participant Information Sheet

1.	Purpose of the study:	Has been explained in the above section.
2.	Study Procedures:	Verbal interviewing of the respondents, including surveys and in-depth interviewing of boatmen respondents and interviews of other key informants.
3.	Risk of the Study:	No risk anticipated to the participant
4.	Benefits from the Study:	No direct benefit will accrue to the participant from this study. However it will help us in gaining further insight on issues pertaining to the boatmen community in Varanasi, especially those related to their health conditions.
5.	Complications:	The researcher does not anticipate any complications arising for the participants of the study.
6.	Compensations:	Respondents will not be compensated for participating in the study.
7.	Confidentiality:	Full confidentiality of the respondents name and identity will be maintained and will not be revealed to any other person.
8.	Rights of Participants:	Participation is voluntary. Respondents will have the right to refuse consent altogether for participating in the study or for any particular question as well as the right to withdraw from the study at any time of their choosing.
9.	Alternatives to Participation:	Respondents retain the right to refuse participation in the verbal interviewing process entailed in this without such refusal having any bearing on their lives or work.
10.	Any Other:	None.

Consent form

Part 1: Respondent

I have read/ heard the above information related to participation in the current survey process. I have been given the opportunity to clarify my queries regarding the survey and my questions have been answered to my satisfaction. I willingly, under no pressure from the researcher, agree to take part in the research.

Name of the respondent: Date:

Signature/ thumb impression:

(If illiterate)

Name of the witness: Date:

Signature of the witness:

Part 2: Researcher

I have shown/accurately read out the information sheet to the respondent and to the best of my ability made sure that the participant understands that the following will be done:

1. Participant's name and identity will be kept strictly confidential.
2. The respondent has been given the right to refuse to answer any question in the research process and even withdraw from the survey at any time.
3. I confirm that the respondent has been given the opportunity to ask any questions related to the survey procedure and I have answered all such queries with full honesty. I also confirm that consent has not been coerced from the respondent and he/she has agreed to participate in this survey freely and voluntarily.

Name of researcher: Date:

Signature of researcher:

Annexure 2

सूचना सहमति प्रपत्र

मुख्य अन्वेषक का नाम: छवि सोधी

संस्था का नाम: सामजिक औषधि एवं समुदायिक स्वास्थ्य केन्द्र, सामाजिक विज्ञान संस्थान, जवाहरलाल नेहरू विश्वविद्यालय, नई देहली—110067.

प्रायोजक (स्पोंसर) का नाम: -- NA

प्रोजेक्ट का नाम: कोंटेकषतुअलिसिंग एन्वाइरन्मेंट आंड हेल्थ: अ स्टडी ऑफ द बॉटमेन ऑफ द गंगा इन वाराणसी

नमस्ते! मेरा नाम छवि सोधी है, मैं दिल्ली में जवाहरलाल नेहरू विश्वविद्यालय की छात्रा शोधार्थी हूँ, और अपने शोध के सिलसिले में वाराणसी में मल्लाह समाज के उपर सर्वेक्षण करने आई हूँ। मैं आज, आप के रहन-सहन, आजीवका, काम के माहौल और सेहत से संबंधित जानकारी प्राप्त करने हेतु बात करना चाहती हूँ। आने वाले महीनों मैं इन मुददों पर और गहराई से शोध करूँगी और इसके लिये मैं आपसे फिर संपर्क कर सकती हूँ।

आज के इस सर्वेक्षण में लगभग ____ मिनिट का समय लगेगा। मैं उमीद करती हूँ कि आप इस सर्वेक्षण में हिस्सा लेंगे। क्या आप मुझसे, इस सर्वेक्षण प्रणाली से सम्बंधित कोई और सवाल पूछना चाहते हैं? सर्वेक्षण के दौरान या फिर उसके बाद भी अगर कोई सवाल आप पूछना चाहें, तो आप बेहिचक पूछ सकते हैं और आप मुझे इसके लिये संपर्क भी कर सकते हैं। मेरा फोन नंबर_____है।

तो हम इस प्रक्रिया की शुरुआत करें?

शोधभागीदार सूचना तालिका

1.	शोध का उद्देश्य:	पिच्छले भाग में समझाया गया है।
2.	शोध सोपान:	सहभागी से मौखिक सवाल-जवाब।
3.	शोध के जोखिम:	शोध से सहभागी को किसी प्रकार का जोखिम नहीं।
4.	शोध से लाभ:	इस प्रक्रिया में हिस्सा लेने से आपको कोई प्रत्यक्ष फायदा नहीं होगा, लेकिन हमें इससे मल्लाह समाज, उनकी दिक्कतें, तकलीफें और स्थिति के बारे में और अधिक जानकारी मिलेगी, खासकर उनके स्वास्थ्य के मुद्दों को लेकर।
5.	जटिलतायें:	शोध से सहभागी को किसी प्रकार की जटिलतायें नहीं पेश आयेंगी।
6.	क्षतिपूर्ति:	सहभागी को इस प्रक्रिया में हिस्सा लेने के लिये कोई मुआवजा नहीं दिया जायेगा।
7.	गोपनीयता:	आपका नाम और आपकी पहचान गुप्त रखी जायेगी इस पूरी प्रक्रिया में।
8.	भागीदार के अधिकार:	इस प्रक्रिया में हिस्सा लेना पूरी तरह से आपकी मर्ज़ी पर है। अगर आप भाग लेते हैं तो भी आप किसी सवाल का उत्तर देने से माना कर सकते हैं और चाहें तो किसी भी समय इस प्रक्रिया से पूरी तरह पीछे भी हट सकते हैं।
9.	शोध में भागीदारी के विकल्प:	सहभागी के पास अधिकार है की वह इस मौखिक सवाल-जवाब प्रक्रिया में हिस्सा लेने से मना कर सकते हैं और इससे उनके जीवन या काम पर कोई असर नहीं पड़ेगा।
10.	अन्य कोई सूचना:	नहीं

सहमति पत्र

भाग-1: सहभागी

मैने उपर लिखी हुई सारी जानकारी पढ़/सुन ली है और समझ ली है, सर्वेक्षण प्रक्रिया से जुड़े हुए, अपने सवाल पूछने का मौक़ा मिल चुका है और मेरे पूछे गए सवालों का संतोषजनक जवाब भी मुझे दिया गया है। मैं अपनी मर्ज़ी से, बिना किसी ज़ोर-ज़बरदस्ती या दबाव के इस सर्वेक्षण में हिस्सा लेना चाहूँगा/चाहूंगी।

सहभागी का नाम: तारीख.....

सहभागी के हस्ताक्षर/अंगूठे का निशान:

(अगर अनपढ़)

गवाह का नाम: तारीख.....

गवाह के हस्ताक्षर:

भाग-2: अन्वेषक

मैने सही तरीके से उपर लिखी हुई सारी जानकारी संभावित सहभागी को पढ़ कर सुना/ दिखा दी है और पूरी कोशिश की है कि सहभागी को जानकारी अच्छी तरह से समझ में आ गयी है की:

- सहभागी का नाम और उसकी पहचान गुप्त रखी जायेगी।
- उसे पूरा हक़ है कि वह किसी भी सवाल का जवाब देने से माना कर सकता है और किसी भी समय भागीदारी ख़त्म कर सकता हैं।
- मैं पुष्टि करती हूँ कि मैने सहभागी को मौका दिया कि वो सर्वेक्षण से जुड़े हुए मुझसे कोई भी सवाल पूछ ले और मैने हर सवाल का पूरी सच्चाई से जवाब दिया है। मैं यह भी पुष्टि करती हूँ कि मैने किसी भी व्यक्ति को दबाव डालकर इस सर्वेक्षण में हिस्सा लेने के लिये नहीं उकसाया और उसका इस प्रक्रिया में हिस्सा लेना उसकी आज़ादी और मर्ज़ी पर था।

अन्वेषक का नाम: तारीख.....

अन्वेषक के हस्ताक्षर:

Annexure 3

Interview schedule for boatmen/ इंटरव्यू शेड्यूल नांविकों के लिये

Schedule no/सूची क्रमांक:

Date of interview/इंटरव्यू की तारीख:

Place of interview/इंटरव्यू की जगह:

Basic information (Section 1)/ मौलिक जानकारी (भाग-1)

101	Name of respondent/ सहभागी का नाम	
102	Address of the respondent/ सहभागी का पता	
103	Name of household head/ परिवार के मुखिया का नाम	
104	Relation to household head/ परिवार के मुखिया से रिश्ता 1. Self/ स्वयं 2. Spouse/ पति/ पत्नी 3. Parent/ माता/ पिता 4. Child/ बेटा/ बेटी 5. Brother/sister/ भाई/ बहन 6. Grandchild/ पोता/ पोती 7. Grand father/mother/दादा/दादी/नाना/नानी 8. Son/daughter-in-law/दामाद/बहू 9. Father/mother-in-law/ सास/ससुर 10. Brother/sister-in-law/ देवर/ननद 11. Uncle/aunt/ चाचा/चाची 12. Nephew/niece/ भतीजा/भतीजी 13. Other(specify)/अन्य (उल्लेख करें)	

Personal Information (Section 2)/ व्यक्तिगत जानकारी (भाग-2)

201	Age / उम्र	
202	Religion/ धर्म 1. Hindu/हिन्दू 2. Muslim/ मुस्लिम 3. Christian/ईसाई 4. Buddhist/बौद्ध 5. No religion/कोई धर्म नहीं 6. Others (specify)/अन्य (उल्लेख करें)	
203	Caste (specify the name of caste)/ जाति (नाम उल्लेख करें) 1. General/सामान्य 2. OBC/ अन्य पिछड़ा वर्ग 3. Scheduled Caste अनुसूचित जाति 4. Scheduled Tribe/अनुसूचित जन-जाति	

204	Marital Status/ वैवाहिक स्थिति 1. Married/शादीशुदा 4. Divorced/तलाक शुदा 2. Unmarried/ गैर-शादीशुदा 5. Widower/विधुर 3. Separated/अलग	
205	Type of household/ आपका परिवार किस प्रकार का है 1. Nuclear/एकल 2. Joint/जुडा हुआ	
206	Size of household/ परिवार में कितने सदस्य हैं 1. 1-5 members/सदस्य 3. 8-10 members/ सदस्य 2. 5-8 members/सदस्य 4. 10 and above/10 या ज़्यादा सदस्य	
207	Education/पढ़ाई 1. Not studied/पढ़ाई नहीं करी 4. Senior Secondary/ बारवीं 2. Primary/पंचवी तक 5. Graduate/स्नातक 3. Secondary/दसवीं तक 6. Higher (specify) /परा-स्नातक (उल्लेख करें)	
208	Ration Card/ राशन कार्ड 1. APL बीपीएल 4. No ration card/ कोई कार्ड नहीं 2. BPL/बीपीएल 5. Other (specify)/अन्य (उल्लेख करें) 3. Antyodaya/अन्त्योदया	
209	Bank account/ बैंक में खाता 1. Bank/ बैंक 3. No account/ कोई खाता नहीं 2. Post-office/पोस्ट-आफिस 4. Other (specify)/अन्य (उल्लेख करें)	
210	Insurance/बीमा 1. Health/स्वास्थ्य 3. None/ कोई बीमा नहीं 2. Life/ जीवन 4. Other (specify)/ अन्य (उल्लेख करें)	

Housing and living conditions (Section 3)/ आवास और रहने की स्तिथि (भाग-3)

302	Type of house/ घर किस प्रकार का है 1. Pucca/पक्का 3. Kachcha/ कच्चा 2. Semi-pucca/आधा-पक्का 4. Other (specify)/ अन्य (उल्लेख करें)	
303	Number of Rooms/ कमरे 1. 1-2 3. 5-6 2. 3-4 4. 6 and above/ 6 और उससे ज़्यादा	
304	Electricity/ बिजली: 1. Metered connection/मीटर 3. No electricity/बिजली नहीं 2. Illegal/मीटर नहीं 4. Other (specify)/अन्य (उल्लेख करें)	

305	Toilet facility that your household has access to/आपके परिवार के पास शौच की सुविधा: 1. Open defecation/खुले में 2. Private water-based toilet/निजी पानी के इस्तमाल वाला शौचालाय 3. Private dry toilet/निजी सूखा शौचालाय 4. Public toilet, dry/सार्वजानिक सूखा शौचालाय 5. Public water-based toilet/सार्वजानिक पानी के इस्तमाल वाला शौचालाय 6. Others (specify)/अन्य (उल्लेख करें)	
306	Primary source of drinking water for your household/ आपके परिवार का पीने के पानी का प्रथम साधन: 1. Within premises/घर के अंदर 2. Outside premises/घर के बाहर	
307	Type of source/ साधन का प्रकार: 1. Piped/ पाईप 4. River water/ नदी 2. Well/ कुआँ 5. Others (specify)/अन्य (उल्लेख करें) 3. Hand-pump/चापाकल	
308	Dependence upon the river for meeting general household water needs regularly (multiple choices possible)/ गंगा नदी के पानी का इस्तमाल अपने घरेलू रोज़ मर्राः की ज़रूरतों के लिये (एक से ज़्यादा जवाब मुमकिन): 1. Bathing/नहाना 4. Cooking food/ खाना पकाना 2. Washing clothes/कपड़े धोना 5. Brushing teeth/ दाँत साफ करना 3. Washing utensils/बर्तन धोना 6. Others (specify)/ अन्य (उल्लेख करें)	

Working and economic conditions of boatmen (Section 4)/ श्रमिक और आर्थिक हालत नांविकों की (भाग - 4)

401	Name of the ghat at which you work/ आप जिस घाट पर काम करते हैं उसका नाम:	
402	Number of years into this occupation of boating and fishing/ कितने साल से आप यह नाँव चलाने का और मच्छली पकड़ने का काम कर रहे हैं? 1. Less than 5 years/5 साल से कम 3. 15-25 years/ साल 2. 5-15 years/ साल 4. 25 years and above/25 सालों से ज़्यादा	
403	Seasonality of work/ क्या आपका यह काम पूरे साल करते हैं? 1. Perennial worker/पूरे साल 2. Non-perennial/ साल के कुछ महीने	
404	If non-perennial, then approximate number of months engaged in this work/ अगर पूरे साल नहीं, तो लगभग कितने महीने आप येह काम करते हैं? 1. 1-3 months/महीने 3. 6-9 months/महीने 2. 3-6 months/महीने 4. 9-11 months/महीने	
405	Employment characteristic/ रोज़गार विशेषता: 1. Full-time/फुल-टाइम 2. Part-time/पार्ट-टाइम	

406	Number of days worked in a week/ हफ़्ते में कितने दिन आप यह काम करते हैं? 1. 1-3 days/दिन 3. 6 days/दिन 2. 4-5 days/दिन 4. 7 days/दिन	
407	Number of hours worked in a day/ दिन में कितने घंटे आप काम करते हैं? 1. 5 hours or less/घंटे या कम 3. 9 – 12 hours/घंटे 2. 6 – 9 hours/घंटे 4. 12 – 16 hours/घंटे	
408	Do you own a boat/ क्या आप के पास अपनी खुद की नाँव है? 1. Yes/हाँ 2. No/नहीं	
409	If yes, then number of boats owned/ अगर हाँ, तो आपके पास कितनी नाँव हैं? 1. 1 4. 4 2. 2 5. 5 3. 3 6. 6 and above/6 या ज़्यादा	
410	Size of the boat owned/operated (multiple choice possible)/ नाँव की लंबाई (एक से ज़्यादा जवाब मुमकिन): 1. Small/छोटी 3. Large/ लम्बी 2. Medium/ मध्यम 4. Other (specify)/अन्य (उल्लेख करें)	
411	Type of boat owned/operated/ नाँव का प्रकार: 1. Hand-oared/हाथ से चलने वाली 3. Both/दोनों 2. Motor-boat/मोटर वाली	
412	Is the boat/s you own/operate registered/ क्या आपकी नाँव या जो नाँव आप चलते हैं वह रिजिस्टर्ड/पंजीकृत है 1. Yes/हाँ 3. Not motorboats/ मोटर नहीं 2. No/ नहीं 4. Do not know/पता नहीं	
413	If boat owned, then do you employ people/ अगर आपके पास अपनी खुद की नाँव है, तो क्या आप लोगों को काम पर रखते हैं नाँव चलाने के लिये ? 1. Yes/ हाँ 3. No, work by myself/नहीं, खुद करता हूँ 2. No, depend upon family labour/नहीं, मुझे परिवार के लोग मदद करते हैं	
414	If employer, then number of employees working under you/ अगर मालिक, तो आप कितने लोगों को काम पर रखते हैं नाँव चलाने के लिये 1. 1 – 3 3. 5 – 10 2. 3 – 5 4. 10 and above/10 या ज़्यादा	
415	If wage-earner, then mode of payment/ अगर मज़दूरी पर काम करते हैं आप, तो आप को पैसे कब मिलते हैं 1. Daily/ प्रति दिन 3. Monthly/ मासिक 2. Weekly/सप्ताहिक 4. Other (specify)/अन्य (उल्लेख करें)	

416	Remunerative activities performed within the realm of boating (multiple choices possible)/ पैसे कमाने वाली/लाभकारी गतिविधियाँ नौका विहार के कारोबार से सम्बंधित (एक से ज़्यादा जवाब मुमकिन): 1. Ferrying passengers/सवारी बिठाना 5. Tourist guide/ पर्यटक गाइड 2. Fishing/मच्छली पकड़ना 6. Diving (गोताखोरी) 3. Ritual activities/धार्मिक क्रिया 7. Others (specify)/अन्य (उल्लेख करें) 4. Transporting goods/सामान पहुंचाना	
417	Other remunerative occupational activity performed traditionally related to boating/ अन्य लाभकारी व्यावसायिक गतिविधियाँ पारंपरिक तौर से नौका विहार से सम्बंधित: 1. Build/repair boats/fish-nets/ नाँव/मच्छली-जाल बनाना/मरम्मत करना 2. Sand-mining/बालू खनन 3. Agriculture/खेती 4. Others (specify)/अन्य (उल्लेख करें) 5. None/ कुछ नहीं	
418	Average monthly income earned from boating (in rupees)/औसतन मासिक कमाई नाँव चलाने से (रुपयों में): i. Busy season/कारोबार का मौसम …….. ii. Lean season/मददे का मौसम …….	
420	Other sources of income/ कमाई के और ज़रिये i. Boating/नांवी कमाई …… ii. Other occupation engaged in/ अन्य रोज़गार……	
421	Occupation of other earning members in the household/ घर के बाकी के लोगों का काम i. ..... ii. ..... iii. ..... iv.	
422	Are you a member of any workers' organisation, related to boating?/ क्या आप नांवी कारोबार से सम्बंधित किसी भी मज़दूर संघ से जुड़े/सदस्य हैं? 1. Yes (organisation's name)/हाँ (संस्था का नाम) 3. No/नहीं 2. Do not remember/ Not sure/याद नहीं/पक्की तारीखे से पता नहीं	

Ganga Action Plan (Section 5)/ गंगा कार्य योजना (भाग-5)

501	Heard about of Ganga Action Plan (GAP)?/क्या गंगा ऐक्शन प्लान/ गंगा कार्य योजना के बारे में सुना है? 1. Yes/ हाँ 2. No/नहीं	

502	Awareness of its component features functioning at Varanasi?/ जानकारी इसके अंतर्गत वाराणसी में चलने वाली कार्य नीतियों की? 1. STPs/एसटीपी 2. Electric Crematorium/विद्युत शमशान/दाहग्रह 3. Monitoring/मॉनिटरिंग/निगरानी 4. Ghat sanitation facilities/घाट की सफाई की सुविधा 5. Community Participation/समुदायिक भागीदारी 6. Other (specify)/अन्य (उल्लेख करें)	
503	Are you aware of the promulgation of a turtle sanctuary in Varanasi?/ क्या आपने वाराणसी में लागू कछुआ सँक्चुरी के बारे में सुना है? 1. Yes/ हाँ 2. No/नहीं	
504	If yes, how does it affect your functioning?/ अगर हाँ, तो उसका आप के काम पर क्या असर पड़ा? 1. Attempt to curtail boating in Ganga/गंगा में नौका विहार को काम करने की कोशिश 2. Restrictions on/ plying motor-boat/मोटर-बोट के चलने पर रोक 3. Restrictions on/ not allowed to fish/मच्छली पकड़ने पर रोक 4. Restrictions on/ not allowed sand-mining on ghats/बालू-खनन पर रोक 5. Restrictions on/not allowed to cultivate crops/खेती पर रोक 6. Other forms of administrative interference (specify)/प्रशासनिक दखलंदाज़ी के अन्य और रूप(उल्लेख करें) 7. No effect/कोई नहीं 8. Cannot say/do not know/नहीं कह सकते/पता नहीं	
505	In your opinion, is GAP a success/आपकी राय में क्या GAP सफल हुआ है? 1. Fully successful/पूरी तरह से सफल 2. Moderately successful/मध्यम सफल 3. Failure/नाकामयाब 4. Other (please specify)/अन्य (उल्लेख करें)	
506	Are you aware of any civil society organisation that has been working on the issue of Ganga cleaning?/ क्या आप ऐसी किसी नागरिक संस्था के बारे में जानते हैं जो की गंगा की सफाई के मुद्दे पर कार्य करती है? 1. Yes (specify name)/हाँ (संस्था का नाम) 3. Do not know/नहीं पता 2. No/नहीं	
507	Are you a member of/have you participated in any initiative that has worked on the issue of Ganga pollution mitigation/ Ganga cleaning?/ क्या आप किसी ऐसी संस्था के सदस्य हैं/आपने भाग लिया है किसी ऐसे पहल में जो की गंगा की सफाई एवं प्रदूषण को काम करने से जुड़ा था/है? 1. Yes (specify name)/ हाँ (संस्था का नाम) 2. No/नहीं	

Health (Section 6)/ स्वास्थ्य (भाग-6)

601	On an average, how many meals do you eat in a day?/ औसतन एक दिन में आप कितनी बार खाना खाते हैं?	
602	Did you ever consume tobacco on a regular basis?/ क्या आपने कभी भी तम्बाकू का नियमित तौर से सेवन किया है? 1. Yes, I consume it/ हाँ, करता हूँ 2. Yes, used to consume earlier but not now/हाँ, पेहले करता था अब नहीं 3. No/ नहीं	
603	In what form do you consume tobacco? तम्बाकू का सेवन आप किस रूप में करते हैं?	
604	Do you feel tobacco consumption facilitates performance of your boating/diving work?/ क्या आपको लगता है कि तम्बाकू का सेवन करने से आपको नाँव चलाने और गोताखोरी के काम में मदद होती है? 1. Yes/हाँ 2. No/नहीं	
605	If yes, then how?/ अगर हाँ, तो कैसे? 1. Gives body strength/ शरीर में ताकत आती है 2. Rejuvenates body functioning at the end of the day/दिन के आखिर में शरीर को फिर जीवंत कर देता है 3. Removes fear in diving activities/गोताखोरी के काम से डर हटा देता है 4. Other (specify)/अन्य (उल्लेख करें) 5. Cannot say/ do not know/पता नहीं/कह नहीं सकते	
606	How much tobacco do you consume on a daily basis (in rupees)? आप एक दिन में कितने तम्बाकू का सेवन लेते हैं (रुपयों में)?	
607	Did you ever consume drink alcohol on a regular basis?/ क्या आपने कभी भी शराब का नियमित तौर से सेवन किया है? 1. Yes, I consume it/ हाँ, करता हूँ 2. Yes, used to consume earlier but not now/ हाँ, पेहले करता था अब नहीं 3. No/ नहीं	
608	If yes, then since when did/ at what age you start consuming alcohol?/ अगर हाँ, तो आपने कब/किस उम्र में शराब का सेवन पेहली बार किया?	
609	Do you feel alcohol consumption facilitates performance of your boating/diving work?/ क्या आपको लगता है कि शराब का सेवन करने से आपको नाँव चलाने और गोताखोरी के काम में मदद होती है? 1. Yes/हाँ 2. No/नहीं	

610	If yes, then how?/ अगर हाँ, तो कैसे? 1. Gives body strength/ शरीर में ताकत आती है 2. Rejuvenates body functioning at the end of the day/दिन के आखिर में शरीर को फिर जीवंत कर देता है 3. Removes fear in diving activities/गोताखोरी के काम से डर हटा देता है 4. Other (specify)/अन्य (उल्लेख करें) 5. Cannot say/ do not know/पता नहीं/कह नहीं सकते	
611	In the past one week, how many days have you consumed alcohol?/ पिछले एक हफ़्ते में आपने कितने दिन शराब का सेवन किया?	
612	On an average, how many drinks do you consume in a day?/ औसतन आप एक दिन में कितने ड्रिन्क का सेवन करते हैं?	
613	Health concerns faced by you attributable to your work environment in the realm of boating (multiple choices possible)/ स्वास्थ्य की दिक्कतें जो आपने महसूस करी और आपको लगता है की आपके नाँव चलाने के माहौल से जुड़ी हुई हैं (एक से ज़्यादा जवाब मुमकिन)? 1. Pain in shoulders/ joints/ muscles/कंधों/जोड़ों/मांसपेशिओं में दर्द 2. Skin irritation or lesions/खाल पर घाव, जलन या चिड़चिड़ाहट 3. Tiredness and breathlessness/थकान और सांस फूलना 4. Swelling in body/शरीर में सूजन 5. Other (please specify)/अन्य (उल्लेख करें) 6. None/ कोई नहीं	
614	Duration of the health concern/ स्वास्थ्य दिक्कत का समय/अवधि: 1. Less than a year/एक साल से कम 3. 3 – 5 years/ साल 2. 1–3 years/साल 4. 5 years and above/5 साल या अधिक	
615	Intensity of the problem/ तकलीफ की गहराई/तीव्रता 1. Mild/कम 3. Acute/ ज़्यादा 2. Moderate/ मध्यम	
616	Treatment sought/इलाज करवाया 1. Government hospital/सरकारी अस्पताल 2. Private clinic/प्राइवेट अस्पताल 3. Trust/Welfare hospital/ट्रस्ट/वेलफेर अस्पताल 4. RMP/झोला छाप डाक्टर 5. Self-medication/घर का इलाज 6. Other (specify)/अन्य (उल्लेख करें) 7. No treatment/ इलाज नहीं	

617	Any illness reported in your family in the last 90 days/पिछले 90 दिनों में, आपके के परिवार में कोई बीमार हुआ है 1. Yes (name the condition) /हाँ (उल्लेख करें) 2. No/ नहीं	
618	If yes, then treatment sought/ अगर हाँ, तो इलाज करवाया 1. Government hospital/सरकारी अस्पताल 2. Private clinic/प्राइवेट अस्पताल 3. Trust/Welfare hospital/ट्रस्ट/वेलफेर अस्पताल 4. RMP/झोला छाप डाक्टर 5. Self-medication/घर का इलाज 6. Other (specify)/अन्य (उल्लेख करें) 7. No treatment/कोई इलाज नहीं	
619	Hospitalisation in your family in the last one year/पिछले एक साल में आपके परिवार में कोई अस्पताल में भर्ती हुआ है 1. Yes (name the condition)/ हाँ (उल्लेख करें) 2. No/ नहीं	
620	If hospitalised, then type of hospital/ अगर भर्ती किया, तो किस प्रकार के अस्पताल में 1. Government hospital/ हाँ, सरकारी अस्पताल 2. Private clinic/ हाँ, प्राइवेट अस्पताल 3. Trust hospital/ हाँ, ट्रस्ट/वेलफेर अस्पताल 4. Any other (specify)/ हाँ, अन्य (उल्लेख करें)	
621	Payment for treatment/ इलाज के पैसे 1. Self/खुद से 2. Selling assets/ घर का सामान बेचकर 3. Bank-loan/बैंक से कर्ज़ा 4. Loan from friends/relatives/दोस्त/रिश्तेदारों से कर्ज़ा 5. Mahajan/महाजन 6. Avoid/delay treatment/इलाज में देरी करके/छोड़के 7. Other (specify)/अन्य (उल्लेख करें)	
622	Problems faced in seeking treatment/ इलाज करवाने में मुश्किलें: 1. Distance from home/घर से दूरी 2. Long waiting time/इंतज़ार लम्बा 3. Doctor/ medicine not available/दवाई/स्वास्थ्य कर्मचारियों की अनुपलब्धता 4. Cost of treatment/इलाज के पैसे 5. Behaviour of personnel/स्वास्थ्य कर्मचारियों का बर्ताव 6. Other (specify)/अन्य (उल्लेख करें)	

623	If sought treatment elsewhere, then why did you not go to the government health facility for your treatment?/ अगर इलाज कहीं और से करवाया, तो फिर आप सरकारी अस्पताल क्यों नहीं गये अपने इलाज के लिये? 1. Did not know about it/पता नहीं था 2. Distance from home/घर से दूरी 3. No facility/ अस्पताल नहीं है 4. Lack of adequate infrastructure/बुनियादी ढांचा में कमी 5. Doctor/ personnel not available/ दवाई/स्वास्थ्य कर्मचारी अनुपलब्ध 6. Behaviour of personnel/स्वास्थ्य कर्मचारियों का बर्ताव 7. Timing not convenient/समय सुविधाजनक नहीं 8. Long waiting time/इंतज़ार लम्बा 9. Poor quality of care/इलाज अच्छा नहीं होता 10. No trust of government facility/सरकारी सुविधा पर भरोसा नहीं है 11. Other (specify)/ अन्य (उल्लेख करें)	

Annexure 3

Indepth interview schedule for boatmen/divers

Date of interview/इंटरव्यू की तारीख:

Venue of interview/इंटरव्यू की जगह:

Name of the respondent/सहभागी का नाम:

- **Ganga River/गंगा नदी**
  - Views on the present condition of the Ganga/ विचार गंगा नदी के मौजूदा हालत पर
  - Views on the level of quality and quantity of water in the Ganga, including the state of pollution/ विचार गंगा में पानी की सफाई और मात्रा के ऊपर और प्रदूषण की दशा के ऊपर भी
  - Main reason for this current state of Ganga/ मुख्य कारण गंगा की मौजूदा हालत के लिये
  - Role of people (religious and cultural practices) in contributing to pollution of the river in the city/ वाराणसी में गंगा के प्रदूषण का स्तर बढ़ाने में लोगों की धार्मिक और संस्कृतिक प्रथाओं की ज़िम्मेदारी
  - Role of local communities, living and working on the riverfront in contributing to Ganga pollution in Varanasi/ वाराणसी में गंगा के प्रदूषण का स्तर बढ़ाने में नदी के किनारे रहने और काम करने वाले स्थानीय समुदायों का योगदान
  - Steps required for improving the river's state in Varanasi/ वाराणसी में गंगा की स्थिति को सुधारने के लिये ज़रूरी कदम

- **Occupation/व्यवसाय**
  - Entry into the occupation and reasons for it/ व्यवसाय में प्रवेश और उसके कारण
  - Key tasks/kinds of work performed in this line of boating (e.g. for boat owners, responsibilities for overseeing functioning)/ नाँव चलाने के व्यवसाय के मुख्य कार्य (उदाहरण नाँव मालिकों द्वारा नांवों की निगरानी)
  - Seasonality of work – explain in detail your yearly/seasonal schedule with respect to your occupation/ साल के किन महीनों में मुख्यता काम होता है - विस्तार से समझाइये अपना वार्षिक कार्यशैली

- Explain in detail your daily work and life schedule (a daily time sheet)/ विस्तार से समझायें रोज़ मर्राः का काम और जीवन शैली (दैनिक दिन-चर्या, उधहारण जैसे की नाँव पे सोना)
- Leisure/ leaves and holidays in your line of work/ छुट्टियाँ आपके व्यवसाय में
- Work-related migration for inland fisheries/ काम से सम्बंधित शहर एवं आवास बदलना मच्छली पालन करने के कारोबार के लिये
- Changes experienced in the functioning industry from the time you started till now/ इस व्यवसाय में आपकी शुरुआत से लेकर अब तक आपने क्या बदलाव देखे हैं
  - Changes in the river/नदी में बदलाव
  - Tourist influx/पर्यटक बहाव
  - Motorisation/मोटरैजेशन
  - Interface with different governmental authorities – Jal Police, UP Forest Department/अन्य सरकारी एजेन्सी और उनके कर्मचारियों का सामना करना – जल पुलिस, उत्तर प्रदेश वन विभाग इत्यादि
- Effect of these changes on your work and livelihood/ इन परिवर्तनों का असर आपके काम और आजीविका पर
- Unemployment/underemployment depending upon regular/seasonal availability of work/ बेरोज़गारी/न्यूनतम-रोज़गार की स्तिथि काम के नियमित/मौसमी उपलब्धता के आधार पर
- Seasonal migration away from the industry/ उद्योग से सालाना मौसम के हिसाब से काम में मददे आने के कारण बदलाव/प्रवास
- Satisfaction with your working and employment conditions/ रोज़गार एवं काम की परिस्थितियों से सम्बंधित आपकी संतुष्टि
- Earnings – for wage-earners, method and degree of payment of total work done/ कमाई - मज़दूर नांवीक के लिये, पुर दिन की कमाई के भुगतान का तरीका और उसमे से हिस्सा
- Sufficiency of earnings in meeting your daily needs and other expenditure requirement/ आमदनी की पर्याप्तता रोज़मर्राः की ज़रूरतों को पूरा करने में
- Indebtedness/ कर्जा
- Satisfaction with earnings/ संतोष अपनी कमाई/व्यवसाय से
- Attempt made to leave this occupation either permanently or temporarily/ क्या आपने कभी इस व्यवसाय को हमेशा के लिये या कुछ समय के लिये छोड़ने की कोशिश की है

- Reasons for coming back/ व्यवसाय में वापसी के कारण
- Would you prefer for your children to enter into this occupation?/ क्या आप चाहेंगें की आपके बच्चे भी यह काम अपनायें
- Suggestions for improving the condition of this industry/ उद्योग के सुधार के लिये सुझाव

➢ **Boatmen associations/नांविक संघठन**

- Awareness of various associations working for boatmen in Varanasi/ जानकारी वाराणसी में अन्य संघठनों की जो की नांविकों के हित के लिये काम कार्ट हैं
- Details of such organisations/ ऐसी सभी संघठनों का विवरण
- Working of these organisations/ इन संघातों का कामकाज
- Experience of working within the organisation/ अनुभव इस संघठन के साथ काम करने का
- Changes perceived in the lives and working conditions due to the association/ आपकी सोच से इस संघठन के बनने से नांविकों के जीवन में तथा काम की परिस्थितियों में क्या बदलाव आया है
- Instances of such organisation/s leading workers' demands to the administration/ उदाहरण ऐसी संघटन/ओं का नांविकों की मांगों की पाएषकास प्रशासन के सामने करने का
- Performance/effectiveness of these associations in improving boatmen conditions/ प्रदर्शन/ असर इन संगठनों का नांविकों की स्तिथि को सुधारने में
- Participation in activities through such associations for the purpose of cleaning up of the Ganga/ इन संगठनों के मध्यम से आपकी सहभागिता गंगा की सफाई के कार्य में

➢ **Interface with government authorities/सरकारी अगेन्सीओं के साथ के अनुभव**

- Ganga Action Plan in Varanasi – perceptions related to its functioning/वाराणसी में गंगा कार्य योजना - धारणा उसके काम-काज को लेकर
  - STPs/ एसटीपी
  - Electric Crematorium/ विद्युत शमशान/दाहग्रह
  - Monitoring/ मॉनिटरिंग/निगरानी
  - Ghat sanitation facilities/ घाट की सफाई की सुविधा
  - Community Participation/समुदायिक भागीदारी
- Performance of these measures/ गंगा कार्य योजना के अंतर्गत इन प्रोग्रांमों का प्रदर्शन

- Effect of these measures on the work environment of the boatmen/ गंगा कार्य योजना की नीतियों का असर नांविकों काम के परिस्थितियों पर
- Perception of the role of *Jal* Police on Varanasi ghats/ वाराणसी के घाटों पर जल पुलिस की भूमिका की धारणा
- Experience with *Jal* Police in their line of work/ अपने काम की लाईन में जल पुलिस के साथ आपका अनुभव
- Implementation of the turtle sanctuary in Varanasi/ वाराणसी में कछुआ सँक्चुरी का लागू होना/
- Effect of this measure on the working environment of the boatmen/ इस का परिणाम नांविकों के काम के परिस्थितियों पर
- Action taken against such measures/ ऐसी नीतियों के खिलाफ आवाज़ उठाना

➢ **Civil Society Organisations/ नागरिक संस्थाएं**

- Awareness of organisations working in Varanasi on the issue of Ganga cleaning and pollution/ जानकारी ऐसी संस्थाओं की जो की वाराणसी में गंगा की सफाई और प्रदूषण के मुद्दे पर काम कर रही हैं
- Participation/inclusion in activities of any organisation working on the issue of Ganga cleaning/ सहभाग्यता ऐसी किसी भी संस्था के काम में जो की गंगा सफाई के मुद्दे से जुड़ी हुई है
- Experience in such activities/ अनुभव ऐसी भागीदारी का
- Approached by any organisation for the purpose of co-operating or assisting in the programme of Ganga cleaning/ क्या आपसे गंगा की सफाई के मकसद में किसी संस्था या व्यक्ति ने कभी संपर्क किया है
- Experience with such programmes and your role in such activities/अनुभव ऐसे प्रोग्रांमों/कार्यक्रमों का और आपकी भागीदारी इन सब गतिविधियों में

➢ **Health/स्वास्थ्य**

- Perceived relationship of alcohol with boating and diving/ आपकी समझ से नाँव चलाने और गोताखोरी का काम करने से शराब का क्या नाता है
- Health concerns due to sustained alcohol and/or tobacco use/ लगातार शराब और/या तम्बाकू के सेवन से क्या आपको कोई स्वास्थ्य सम्बंधित परेशानियां
- Accidents at work-site/ काम की जगह पर या काम करते वक्त दुर्घटना

- Experience with such episodes of accidents/ आपका अनुभव ऐसा किसी दुर्घटना के सिलसिले को लेकर
- For wage earner – provision for medical care by employer/ मज़दूर के लिये - चिकित्सा-देखभाल/इलाज के लिये कोई इंतज़ाम
- Illnesses related to your work/ नाँव चलाने के काम से सम्बंधित बीमारियां
- Awareness of health concerns/hazards which may be related to your line of occupation/ जानकारी स्वास्थ्य चिन्ताओं/ खतरों की जो कि आपके काम/व्यवसाय से जुड़े हुए हैं
- Safety procedures adopted to mitigate such concerns/ सुरक्षा या बचाव प्रक्रियाएं जो कि आपने अपनायी हुई हैं ऐसी स्वास्थ्य चिन्ताओं/खतरों/दुर्घटनाओं से बचने के लिये
- Suffering from any particular disease/ क्या आप अभी किसी बीमारी से जूझ रहे हैं
- Experience related to your illness/ बीमारी से जुड़े अनुभव
- Treatment sought – share your experiences, related to/ इलाज संभंधित अनुभवों की पैशकश
- Availability of services in your area/ स्वास्थ्य सेवाओं की उपलब्धता आपके इलाके में
- Behaviour of health personnel/doctors/ बर्ताव स्वास्थ्य कर्मियों तथा डॉक्टोरों का
- Quality of care / इलाज का स्तर
- Financing of treatment/ इलाज पर खर्चा
- Adequate time devoted to recovery/ पर्याप्त समय सेहत ठीक होने के लिये दिया गया
- Problems in accessing health service system/ दिक्कतों अस्पताल और अन्य स्वास्थ्य सम्बंधित चिकित्सालयों में घुसने और इलाज करवाने में
- Any specific concerns that arose in seeking, continuation and completion of treatment/ कोई विशेष आई इलाज तक पहुचने, चालू रखने और खत्म करवाने में

Annexure 4

Interview guide for women of boatmen household

Date of interview:
Venue of interview:
Name of the respondent:

- State of water and sanitation in your area
- Supply of water supply throughout the year
- Primary source of drinking water for your household and any concerns associated with it
- Health concerns arising from water supply
- Seasonal dependence upon River Ganga for meeting personal needs
- Perception of the physical state of River Ganga and its cleanliness
- Health issues arising from such usage
- The main health concerns of families in your locality
- Reasons for these concerns
- Spread of epidemic diseases in your area in the past one year
- Ailments in your family in the past 30 days
- Level of care accessed
- Experience with health service system access
- Hospitalisation in your family in the past 365 days
- Level of care accessed
- Payment for treatment
- Indebtedness
- Experience with the health service system for in-patient care
- Difficulties experienced in such access

Thank the respondent for giving his time for the interview.

Annexure 5

Interview guide for government officials – members of National Ganga River Basin Authority

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- **Ganga River**
  - Views on the present condition of the Ganga
  - Main reason for this current state of Ganga
  - Steps required for improving the river's state

- **Work and functioning of the National Ganga River Basin Authority (NGRBA)**
  - Current work profile of the respondent
  - Structure of the organisation the respondent is working in
  - Other staff involved in the department and their work profile
  - Responsibilities as a member of this organisation/department
  - Procedural and actual functioning of the organisation since its inception
  - Intersectoral coordination needed to fulfil organisational responsibilities
  - Experiences co-ordinating with other departments working within the ambit of NGRBA
  - Performance of the NGRBA, with regard to the cleaning and preservation of the Ganga
  - Changes in the quality of Ganga water since the formation of the NGRBA
  - Satisfaction with the functioning of NGRBA
  - Suggestions for improving the functioning of the body

- **Role of other government agencies and programmes in the cause of Ganga preservation and cleanliness**
  - Awareness and role of various government projects and schemes implemented for dealing with Ganga pollution
  - Performance and effectiveness of these various programmes working on the issue of cleaning and preservation of the Ganga
  - Role of local civic agencies in working on the issue of cleaning and preservation of the Ganga
  - Assessment of their performance
  - Co-ordination between these various agencies
  - Suggestions for improvement

- **Role of people**
  - Role played by people in contributing to pollution in the Ganga, with special emphasis on Varanasi
    - Tourists
    - Locals
    - Religious pilgrims
    - Workers' such as boatmen, washer men and buffalo-herders
    - Others
  - Requirement for people's participation in contributing to the maintenance of a clean state of Ganga
  - Role of local communities residing by the Ganga and working on the riverfront in maintaining a clean Ganga
  - Role played by local boatmen and fishing communities, as in Varanasi, on maintaining a clean Ganga
  - Awareness among people and change in stance since the inception of GAP
  - Steps required for further enrolment of people, specifically those sharing direct association with the river in daily lives, in governmental programmes on Ganga pollution mitigation

Thank the respondent for giving his time for the interview.

Annexure 6

Interview guide for local civic government officials of the Varanasi Nagar Nigam (VNN)

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- **Ganga River**
  - Views on the present condition of the Ganga
  - Main reason for this current state of Ganga
  - Steps required for improving the river's state

- **Work of VNN, with regard to the implementation of the GAP**
  - Current work profile of the respondent
  - Structure of the organisation the respondent is working in
  - Other staff/departments involved with the implemenation and overseeing of the GAP in Varanasi within the organisation and their work profile
  - Specific steps undertaken/implemented towards the cleaning and preservation of the Ganga
  - Inter-departmental and inter-sectoral coordination needed to fulfil responsibilities related to Ganga pollution mitigation
  - Experiences with regard to GAP functioning for each of its components
    - Sewage Treatment Plants (STPs)
    - Electric Crematoria
    - *Ghat* sanitation
    - Riverfront development
  - Performance of different components of GAP I and II, with regard to the cleaning and preservation of the Ganga
  - Changes in the state of Ganga since the inception of Ganga Action Plan (GAP)
  - Funding for GAP implementation
  - Suggestions for improving the functioning of GAP

- **Citizen Monitoring Committees (CMCs)**
  - Formation and structure of the CMCs
  - Work profile and responsibilities
  - Schedule for (and holding of) meetings and quorum
  - Current membership – membership criteria and selection
  - Inclusion and representation of local communities in CMCs living and working on riverfront in the committee
  - Grievance redressal mechanism, with regard to overseeing implementation of GAP
  - Minutes of the meeting (request for this)

- Exercise of powers available to CMCs
- Co-ordination with VNN
- Performance and effectiveness of CMCs
- Suggestions for improvement

➢ **Local communities**

- Role played local communities in Varanasi in contributing to Ganga pollution
- Specific role played by boating and fishing communities in contributing to polluting activities in the Ganga
- Steps taken by VNN to redress situation
- Community awareness programmes
- Other community participation schemes
- Role of local communities in Varanasi in contributing to Ganga preservation and cleaning
- Role envisaged for boatmen in contributing to cleaning of Ganga
- Change perceived since the implementation of GAP
- Experiences in working with/alongside such communities in Ganga preservation and cleaning and interface with them
- Perceived avenues for further participation, especially for local communities, including boatmen, directly associated with the river
- Suggestions for increasing participation in GAP

➢ **Civil Society Organisations (CSOs)**

— CSOs working on Ganga cleaning and preservation in Varanasi
— Co-ordination, support to and funding for CSOs
— Experience of working alongside such CSOs
— Steps taken to enhance enlistment of CSOs towards the cause
— Co-ordination with CSOs (including workers' organisations) headed and formed by local communities working and residing on the riverfront in Varanasi
— Specific instances of working alongside boatmen's organisations/union in
— Experience of working alongside these organisations
— Steps for increasing their participation, specially the boatmen, in cleaning and preservation of Ganga

Thank the respondent for giving his time for the interview.

Annexure 7

Interview guide for officials of the Jal Police

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- **Ganga river in Varanasi**
  - Current state of the river in Varanasi
  - Main reasons behind this state in the city of Varanasi
  - Role of people (religious and cultural practices) in contributing to pollution of the river in the city
  - Role of communities working and living by the riverfront in contributing to the pollution of the river in the city (e.g. boatmen)
  - Suggestions to improve state

- **Work and functioning of the organisation**
  - Discuss area in brief
  - Current work profile of the respondent and responsibilities (patrolling at night)
  - Structure of the organisation the respondent is working in
  - Other staff involved and their work profile (other check-posts of the *Jal* Police)
  - Day to day functioning
  - Interface with local communities (e.g. boatmen), while working on the riverfront
  - Specific interface (or instances of contact) with boatmen and fishermen working on the riverfront
    - Are you aware of fishing activity in the area under your jurisdiction
    - If yes, then why do they continue to fish despite the existence of a sanctuary
    - Have you observed change in prevalence/intensity/episodes of the practice from earlier times till now
  - Experience of dealing with boatmen in their line of duty (arrests made or fines imposed, listings of violations)
  - Experience of dealing with pilgrims, visitors and tourists in their line of duty
  - Specifically role of boatmen in contributing to pollution on Ganga riverfront
  - Changes perceived in the attitude of different sets of people since the posting of *Jal* Police to the Ganga riverfront, with regard to polluting activities
  - Changes perceived in the attitudes of boatmen in pollution of the riverfront at Varanasi since the posting of the *Jal* Police
  - Satisfied with the maintenance of the riverfront in their locale and reasons for this
  - Assessment of the role of *Jal* Police to riverfront sanitation and Ganga cleaning and preservation
  - Suggestions for improving functioning of Jal Police
  - Steps required for improvement of water quality of Ganga in Varanasi

Annexure 8

Interview guide for officials of the Uttar Pradesh Forest Department in Varanasi

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- **Ganga river in Varanasi**
  - Current state of the river in Varanasi
  - Main reasons behind this state in the city of Varanasi
  - Role of people (religious and cultural practices) in contributing to pollution of the river in the city
  - Role of communities working and living by the riverfront in contributing to the pollution of the river in the city
  - Specific role played by boatmen in Varanasi in contributing to the river's pollution
  - Suggestions to improve state

- **Work and functioning of the organisation**
  - Discuss area in brief
  - Current work profile of the respondent and responsibilities
  - Day to day functioning related to overseeing of the implementation of the turtle sanctuary in Varanasi (patrolling and checking of violations)
  - Monitoring population and progress of turtles in Varanasi
  - Rationale behind designation Ganga at Varanasi as a turtle sanctuary
  - Interface with local communities in implementation of their initiatives
  - Specific interface with boatmen and fishermen while maintaining the sanctuary in Varanasi
    - Are you aware of fishing activity in the area under your jurisdiction
    - If yes, then why do they continue to fish despite the existence of a sanctuary
    - Have you observed change in prevalence/intensity/episodes of the practice from earlier times till now
  - Co-operation of local communities in this initiative, with special focus on boatmen community
  - Experience of dealing with such communities, especially boatmen in their routine functioning
  - Performance and effectiveness of the initiative in meeting its perceived (aforementioned) goals
  - Steps taken for enhancing co-operation of different groups of people towards adherence of rules of the turtle sanctuary
  - Special steps taken for enhancing co-operation of boatmen and fishermen community in Varanasi for successful maintenance of the turtle sanctuary

- Changes perceived in the attitude of different sets of people since the implementation of the sanctuary at Ganga in Varanasi, with regard to polluting activities
- Changes in the attitude of specifically boatmen community at Varanasi with regard to polluting activities related to the Ganga
- Suggestions for improving performance of UP Forest Department in implementing its initiative at Varanasi
- Steps required for improvement of water quality of Ganga in Varanasi

Thank the respondent for giving his time for the interview.

Annexure 9

Interview guide for Civil Society Organisations (CSOs) members working on the issue of Ganga preservation and cleaning

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- **Ganga river**
  - Views on the present condition of the Ganga
  - Views on the level of quality and quantity of water in the Ganga
  - State of pollution in the river
  - Main reason for this current state of Ganga
  - Role perceived of local communities, residing and working on the riverfront (e.g. boatmen) in contributing to Ganga pollution
  - Steps required for improving the river's state

- **Governmental initiatives related to cleaning of River Ganga**
  - Views regarding governmental initiatives towards the cleaning and preservation of Ganga
  - Co-ordination with governmental agencies in specific programmes
  - Assessment of performance of governmental initiatives, including specifically GAP I and II
  - Suggestion

- **CSO's programmes**
  - Programme implemented by CSO with regard to Ganga cleaning and preservation
  - Funding for the programme; Sponsors
  - Co-ordination with governmental agencies in programme implementation
    - Funding
    - Training
    - Other services
  - Co-ordination with other CSOs in programme implementation
  - Criteria for involvement of local communities in programme; awareness/active participation – including especially for boatmen community
  - Inclusion of/assistance from local communities, living and residing on the Ganga riverfront (especially boatmen), in implementation of programme activities
  - Experience of working with them/interface with them while implementing programme (with particular focus on boatmen)
  - Assessment of performance of programme
  - Suggestions for improvement

Annexure 10

Interview guide for health care providers

Date of interview:
Venue of interview:
Name of the respondent:
Designation:
Number of years working in this designation:

- Work profile of the respondent and how they came to practice in this area
- Structure of the organisation the respondent working in
- Discuss the area in which you work in brief
- Number of years working in this area and experience of working here, especially with boatmen – how boatmen came to be a significant client group for them
- The state of water and sanitation in the area
- Discuss in general the main health care concerns of the boatmen in his area, as assessed by him in his line of work
- Reasons for these concerns
- The role of frequent river water usage in contributing to the health status of the boatmen community in your area
- Main health concerns of the boatmen related to their occupation
- Distribution of health concerns – geographical, demographical, etc.
- Facilities available at your clinic/ compound for treatment of cases
- Main place of referral of cases
- Experience of dealing with boatmen in treatment of cases – case completion, ability to pay for treatment, etc.
- Suggestions for improving the state of health of these people

Thank the respondent for giving his time for the interview.