

# **POLITICAL ECONOMY OF INTER-PROVINCIAL WATER- SHARING IN PAKISTAN**

*Dissertation submitted to Jawaharlal Nehru University  
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**MASTER OF PHILOSOPHY**

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**DECLARATION**

I declare that the dissertation entitled “**POLITICAL ECONOMY OF INTER-PROVINCIAL WATER-SHARING IN PAKISTAN**”, submitted by me in partial fulfillment of the requirements for the award of the Degree of **MASTER OF PHILOSOPHY** of Jawaharlal Nehru University is my original work. This dissertation has not been submitted for any other degree of this University or any other university.

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**CERTIFICATE**

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*Dedicated to....*

*My Grandfather Late Damodar Singh, Who  
despite being an illiterate, shown me the way to school.*

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*Amit*  
**(Amit Ranjan)**

## **PREFACE**

The purpose of this study is to go into detail and highlight the problem related to water and water sharing in Pakistan. There have been many researches being done on topic related to 'water' but most of them has been done by the researchers from Science and Geography background. The purpose here is to study the political-economy of water. The area chosen for the study is Pakistan since the issue of water is emerging as one of the most divisive elements in Pakistan's polity and economy.

In his recently published commentaries on Global issues Immanuel Waller-stein the famous world-system theorist, begins his commentary No. 110 with these prophetic words:

“At a turning point in the Second World War someone asked Winston Churchill whether the battle marked the beginning of the end. And he replied, no, but it might be the end of the beginning..... (Ahmed: 2006)

Though the quotation is related with the Second World War and further stretches to link itself with the Iraq war but it can be related with the water crisis too.

Human civilization has its evolution on the banks of famous rivers. The ancient civilizations are known by the names of rivers like Indus civilization, Nile civilization, Haeang Mo civilization, Amazon civilization etc. The beginning of humanity would not be possible in the absence of these rivers. They provided the ancient man fertile soil which further led to production of food grains for their consumption. Once agricultural practice started, it led to further development in other, ancillary, fields of human life. But now with the growing industrialization and pollution, the very source of polluted river water are causing a great threat to the entire eco-system. The climate change puts up a great question mark on the existence of availability of river water in coming days. The river beds led to beginning of end of the problems related to permanent settlement and food to ancient people. Now due to human activities they will lead to end of beginning of human beings.

United Nations and other International Organisations have cautioned again and again over the growing problem of water in future. International panel on climate change was set up by the UN to go into the depth of the problem and provide recommendations to overcome it. IPCC has released its final report and warned the world citizens against taking the environment for granted. It warns that due to climate change the rivers across

the world are in great danger. Eco-system has been greatly disturbed by the growing pollution across the world. Though the policy makers show a great concern towards the upcoming disaster, but they do nothing at ground zero level. In India National River Authority had been set up in 1990s to sort out the pollution related problem of major rivers like Ganga, Yamuna, and Gomti etc. The Authority seems to be ineffective because the pollution in these rivers is growing day by day.

In the beginning of 1990s the policy-makers and the Government around the world mainly in developing world discovered a mysterious and fascinating word, "Privatization". They thought that it will work like Aladdin's Chiragh. It will take away all their problems and help them to be at a comparative level in terms of development with the developed world. They did not realise that how they are being entrapped by the developed countries. After end of colonialism decades back, they have been going to re-colonise in new way. Colonialism returned with new face in 1990s in developing countries. Multinational companies and transnational companies started coming to developing countries and taking over the resources of these countries. They made promises that they will turn the face of those countries. Elites and middle-class welcomed them with open arms. They benefited those people to a great extent in various ways.

Under the aegis of privatization, liberalisation and globalisation the governments of the developing countries showed dreams to its poor masses. The new economic policies had been adopted to end poverty and increase growth. Both dreams have been in doldrums as poverty across the world has increased notwithstanding improved growth rates. A wide gulf between the poor and rich has been created.

After almost every sector of economy is being privatized. The MNCs are now looking to get control over the water resource. It will be beneficial to them because the consumers are in billions. Nobody can live without water for a single hour. So the profit will be at maximum. The governments in various parts of world are ready to do it under the pressure of MNCs and TNCs, without realizing the impact of the privatization to meet the basic needs of human beings. The government always blames people for the depletion but it is other way round. The government has failed to manage this resource. They have failed to activate their, lazy and useless agencies, to take action against the



polluter industries. The government must inculcate work-culture among its employees. The need is for positive work-culture, not privatization.

Pakistan which has rich water resource, is facing problem due to mis-management and biased policies by its policy makers. Punjab and Sindh, mainly, are fighting over the issue of water-sharing due to politicisation of river Indus water. If managed properly, Indus can sort out various water related problems in Sindh. The government does not want this because they use the problem for their own benefit. It has a rich agriculture belt but now it has to import food grains due to increase in population and decline in the fertility level of soil.

The issue of Sukkur barrage Tarbela dam, Jinnah barrage and Kala Bagh dam still makes political noise in the streets of Pakistan. These dams produce cheap and unpolluted electricity. They have negative side also. They disturb the natural flow of river water, destruct environment leading to massive human displacement and large scale migration of people to cities. It is not that dams should not be constructed, but their heights should not be beyond a certain limit which suits the ecology. The question of displacement must be also sorted out before going for dams. The people affected from the must be consulted and taken into confidence. Finally dams should be for development and must not be to serve political purpose of someone.

Conflicts over regional priorities must be sorted out. Democratic structure is great shock observer. Democracy must not only be representative, but also participatory in nature with its roots spread up to local level. Pakistan's see-saw with underdeveloped democracy and democratic structures is of great concern. All those issues which could be sorted out by debate and compromise, here and there are leading people to become violent. Kala Bagh dam issue has seen violent clashes between, the people and from Sindh and Punjab.

This dissertation will look into all the above said issues in great detail. The political economy of water sharing in Pakistan which is title of the study, deals with political and economic aspects of water sharing. By politics one means the policy-making process, compromise and adjustment in allocation of water resources. At the same time water is a resource which helps in production, is part of consumption, and adds value to all fields like agriculture industry etc.

Most of the Primary sources have been accessed from internet. The Secondary sources have been compiled from books, articles and newspapers from Pakistan and India.

The dissertation contains five chapters. Chapter 1 focuses on the importance of water. Here a general outlook is highlighted related to the topic. Chapter 2 focuses on the regionalism in Pakistan. The areas of dispute and conflicts among the provinces in Pakistan are highlighted. The Micro-Movements emerging in northern Kashmir has been also dealt with. Chapter 3 is on inter-provincial water sharing in Pakistan. Punjab-Sindh conflict is the main focus of this chapter. A historical perspective of the conflict has been dealt in this chapter. Chapter 4 is about management of water resources in Pakistan. The attempt is being made here to look for an alternative to public and private management of resources. People's participation at local level in management of resources has been dealt in this chapter. The last chapter concludes the study where the author, drawing particularly from the experience of Pakistan, has warned the policy maker about the ill-effects of pollution and climate change.

## **CHAPTER-1**

### **A CONCEPTUAL STUDY OF WATER AS A RESOURCE**

## 1.1. Introduction

Water as a resource is the most important one for the survival of human being and nature. Though three-fourth of our planet earth comprises of water, we are reaching to that position where we are likely to face water-scarcity. This problem has emerged because of scarcity of fresh water resources which is being needed for maintenance of the global- natural and biological order. Out of three-fourth of available water a miniscule amount (3%) of water is fresh water available for our day-to-day use.

It is human being himself, who has to be blamed for moving to the point where its very existence would be in question due to non-availability of water. The achievement, gained by the *Homo sapiens* has been at the cost of digging its grave by polluting the weather and depleting the last -existing resources by waste-fully using it. Today faced with challenge of water-scarcity by 2025 various steps are being taken at global, regional and at local level. United Nations in it's, annually published, Human Development Report, has focused on the global water crisis and poverty in its 2006 report. The government of India has declared 2007 as "water year". Lots of research and initiative has been encouraged to tackle the problem of water scarcity.

There are observers who feel that the amount of fresh water present on the earth is sufficient for our survival. They blame the policy-makers for making us to reach to the position where we could or would likely to face water-scarcity. The uneven distribution of fresh water resources is also a problem. For instance of global water resources, a large fraction is available where human demands are small, such as in the Amazon Basin, Northern Canada and Alaska. Its unequal temporal distribution means that it is not usable or that massive infrastructure is required to protect it and to store it for later use, with considerable social and environmental impact. In many temperate zone river basins, adequate water resources are relatively evenly distributed over the year, but they are used so intensively that surface and ground water resources become polluted and good-quality water become scarce.

Summing up the proceedings of the UN Millenniums conference in Tokyo, Kofi Annan, the then Secretary General of the United Nations stated "*Fierce Competition for fresh water may well become a source of conflict and wars in the future*" (Annan, 2001). Water poses both a threat and an opportunity to the UN system in the context of the high-level panel on threats, challenges and change. Increasing scarcity of clean fresh water impedes development, undercuts human health and contributes to the conflict continues between and within states. While rarely states have gone on to war on the issue of water allocation but within states, water-scarcity can assume an increasingly contentious and violent role when for example water dependent sectors such as irrigated agriculture can no longer sustain farming livelihoods, leading to destabilizing migration flows. Water has also proven to be a productive pathway to confidence building cooperation and conflict prevention. In politically unsettled regions, water is often essential to regional development negotiations that serve as de-facto conflict-prevention strategies (Carius, Dabelko and Wolf).

Management and conservation of water are effective tools to face the problem of water scarcity by the middle of this millennium. Conservation can be done by following the modern as well as traditional ways. Management of water leads to a conflict between state and civil society. The civil society feels that the people who are going to be affected by the policies of the government must be consulted at the time of policymaking process. The gap between the policy-makers and those, who are going to get affected by the policies in developing countries leads to rising numbers of protests against proposed dam-projects or on the privatization of drinking water. People feel that they can provide effective inputs to the government for management of water because of their proximity to the sources for which policy is being made. Government in developed countries have recognized the importance of participation of the people and so various committees are coming into being, drawing members from both the government and from the civil society for effective management of river-basins, water-shed or to control growing pollution of water sources. Developing countries needs to follow this model.

## **1.2. Sources of Fresh Water**

Only 3% of water on the earth is fresh water and over two-third of this is frozen in glaciers and polar ice-caps. The main sources of water are:-

### **1.2.1 Surface water**

Surface water is water in a river, lake or fresh water wetland. Surface water is naturally replenished by precipitation and naturally lost through discharge to the oceans, evaporation and sub- surface seepage.

Although the only natural input to any surface water system is precipitation within its watershed, the total quantity of water in that system at any given time is also dependent on many other factors. These factors include storage capacity in lakes, wetlands and artificial reservoirs, the permeability of the soil beneath these storage bodies, the run off characteristics of the land in the water shed, the timing of the precipitation and local evaporation rates. All of these factors also affect the proportions of water lost through discharge to the oceans, evaporation and sub-surface seepage.

Human activities can have a large impact on these factors. Humans often increase storage capacity by constructing reservoirs and decrease it by draining wetlands. Humans often increase run off quantities and velocities by paving areas and channelizing stream flow.

The total quantity of water available at any given time is an important consideration. Some human water users have an intermittent need for water. For example, many farms require large quantities of water in the spring and no water at all in winter. To supply such a farm with water, a surface water system may require a large storage capacity to collect water throughout the year and release it in short period of time.

Other users have a continuous need for water, such as a power plant that requires water for cooling, to supply such a power plant with water, a surface water systems only needs enough storage capacity to fill in when average flow is below the power plant's need.

Nevertheless over the long term the average rate of precipitation within a watershed is the upper bound for average consumption of natural surface water from that watershed. Natural surface water can be augmented by importing surface water from another watershed through a canal or pipeline. It can also be artificially augmented from any of the other sources; however, in practice the quantities are negligible. Humans can also cause surface water to be "lost" (i.e., become inaccessible) through pollution.

### **1.2.2 Sub surface water**

Sub-surface water or ground water is fresh water located in the pore space of soil and rocks. It is also water that is flowing within the aquifers below the water table. Sometimes it is useful to make distinction between sub-surface water that is closely associated with surface water and deep sub-surface water in an aquifer (sometimes called "fossil water").

Sub-surface water can be thought of in the same terms as surface water: inputs outputs and storage. The critical difference is that for sub-surface water storage is generally much larger compared to surface water. This difference makes it easy for humans to use sub-surface water unsustainably for a long time without severe consequences. Nevertheless, over the long term the average rate of seepage above a sub-surface water source is the upper bound for average consumption of water from that source.

The natural input to sub-surface water is seepage from surface water. The natural outputs from sub-surface water are springs and seepage to the oceans.

If the surface water source is also subject to substantial evaporation, a sub-surface water source may become saline. This salinization can occur naturally under endorheic bodies of water or artificially under irrigated farmland. In coastal areas, human use of a sub-surface water source may cause the direction of seepage to ocean to reverse which can also cause salinization. Humans can also cause sub-surface water to be “lost” (i.e., become unusable) through pollution. Humans can increase the input to sub-surface body water by building reservoirs or detention ponds.

Water in the ground is in sections called aquifers. Rain rolls down and comes into these. Normally an aquifer is near to the equilibrium in its water content. The water content of an aquifer normally depends on the grain sizes. This means that the rate of extraction may be limited by poor permeability.

### **1.2.3 Desalination**

Desalination is an artificial process by which saline water (generally ocean water) is converted to fresh water. The most common desalination processes are distillation and reverse osmosis. Desalination is currently very expensive compared to most alternative sources of water, and only a very small fraction of total human use is satisfied by desalination. It is only economically practical for high valued uses (such as household and industrial uses) in arid areas. The most extensive use is in the Persian Gulf.

### **1.2.4 Frozen water**

Several schemes have been proposed to make use of icebergs as a water source, however to date this has only been done for novelty purposes. Glacier runoff is considered to be surface water.



### **1.3. Threats to Fresh Water**

Both the sources and the availability of the fresh water is on decline due to various natural and man-made reasons. They are:

#### **1.3.1 Climate Change**

Climate change has a significant impact on water resources around the world because of the close connections between the climate and hydrological cycle rising temperatures will increase evaporation and lead to increases in precipitation though there will be regional variations in rainfall. Both drought and floods may become more frequent in different regions at different times and dramatic changes in snowfall and snowmelt are expected in mountainous areas. Higher temperatures will also affect water quality in ways that are not well understood. Possible impacts include increased eutrophication. Climate change could also mean an increase in demand for farm irrigation, garden sprinklers and perhaps even swimming pools.

#### **1.3.2 Depletion of aquifers**

Since competition for water is growing, underground aquifers are becoming depleted. This is mainly due to irrigation by groundwater. Millions of small pumps are currently taking water out of aquifers to irrigate crops. Irrigation in dry areas such as India is supplied by ground water.

#### **1.3.3 Pollution and water protection**

Water pollution is one of the many concerns of the world today. World governments have strived to find solutions to illuminate this problem. Many programs strive to protect our water resources.

## **1.4. Uses of Fresh Water**

Uses of fresh water can be categorized as consumptive and non-consumptive (sometimes called “renewable”). A use of water is consumptive if that water is not immediately available for another use. Losses to sub-surface seepage and evaporation are considered consumptive, as is water incorporated into a product (such as farm produce). Water that can be treated and returned as surface water, such as seepage is generally considered non-consumptive if that water can be put to additional use.

### **1.4.1 Agricultural**

It is estimated that 70% of world wide water use is for irrigation. In some areas of the world irrigation is necessary to grow any crop at all, in other areas it permits more profitable crops to be grown or enhance crop yield. Various irrigation methods involve different trade-offs between crop yield, water consumption and capital cost of equipment and structures. Irrigation methods such as most furrow and overhead sprinkler irrigation are usually less expensive but also less efficient, because much of the water evaporates or runs off. More efficient irrigation methods include drip or trickle irrigation, surge irrigation and some types of sprinkler systems where sprinklers are operated near ground level. These types of systems, while more expensive, can minimize runoff and evaporation. Any system that is improperly managed can be wasteful. Another trade off that is often insufficiently considered is salinization of sub-surface water.

As global populations grow and as demand for food increases in a world with a fixed water supply, there are efforts underway to learn how to produce more foods with less water, through improvements in irrigation methods and technologies, agricultural water management, crop types and water monitoring.

#### **1.4.2 Industrial**

It is estimated that 15% of world-wide water use is industrial. Major industrial users include power plants, which use water for cooling or as a power source (i.e., hydroelectric plants), ore and oil refineries, which use water in chemical processes, and manufacturing plants, which use water as a solvent. The portion of industrial water usage that is consumptive varies widely, but as a whole is lower than agricultural use.

#### **1.4.3 Household**

It is estimated that 15% of world wide water use is for household purposes. These include drinking water, bathing, cooking sanitation and gardening. Basic water requirement for household estimated by Peter Gleick is around 50 lts. per person per day, excluding water for gardening. Most household water is treated and returned to surface water systems with exception of water used for landscapes. Household water use is therefore less consumptive than agricultural or industrial uses.

#### **1.4.4 Recreation**

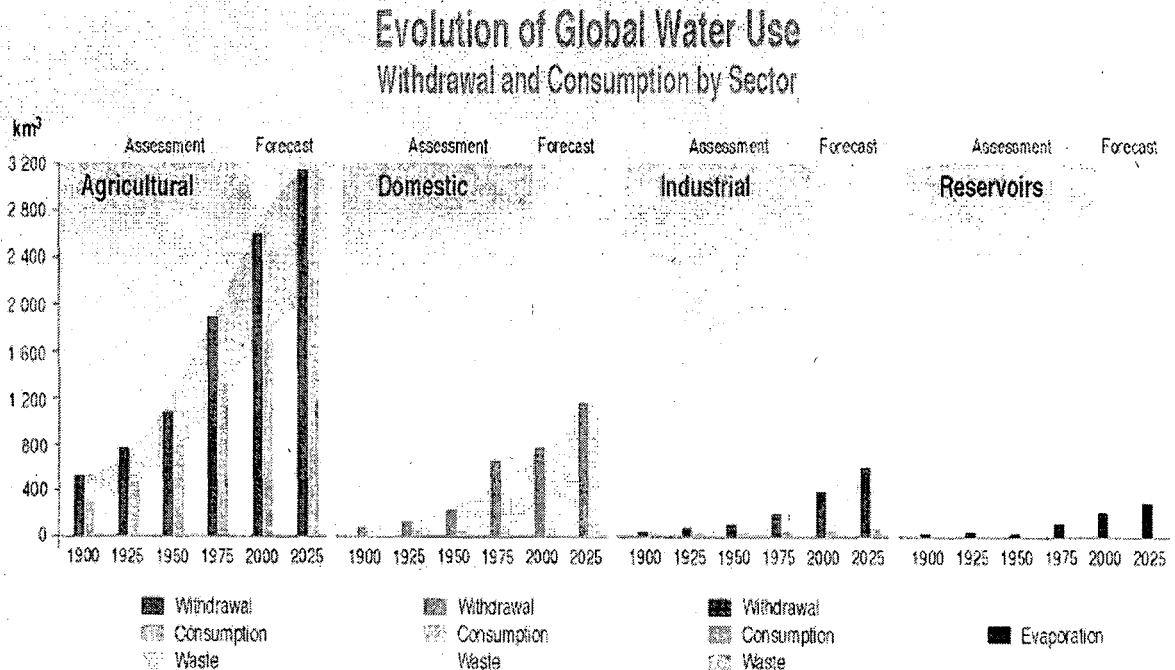
Recreational water use is very small but growing percentage of total water use. Recreational water use is mostly tied to reservoirs. If a reservoir is kept fuller than it would otherwise be for recreation, then the water retained could be categorized as recreational usage. Release of water from a few reservoir is also timed to enhance whitewater boating which also could be considered a recreational usage. Other examples are anglers, water skiers, natural enthusiasts and swimmers.

Recreational usage is non-consumptive. However it may reduce the availability of water for other users of specific times and places. For example, water retained in a reservoir to allow locating in the late summer is not available to farmers during the spring planting season. Water released for whitewater rafting may not be available for hydroelectric generation during the time of peak electrical demands.

### 1.4.5 Environmental

Explicit environmental water use is also very small but growing percentage of total water use. Environmental water usage includes artificial wetlands, artificial lakes intended to create wildlife habitat, fish ladders around dams, and water releases from reservoirs timed to help fish spawns. Like recreational usage, environmental usage is non consumptive but may reduce the availability of water for other users at specific times and places. For example, water release from a reservoir to help fish spawns may not be available to farms upstream.

(Source: United Nations Statistical Department)



Note: Domestic water consumption in developed countries (500-800 litres per person per day) is about six times greater than in developing countries (60-150 litres per person per day).

Source: Igor A. Shikhtomanov, State Hydrological Institute (SHI, St. Petersburg) and United Nations Educational, Scientific and Cultural Organisation (UNESCO, Paris) 1998

The above figure clearly explains the distribution pattern of the water in various sectors. The figure clearly explains the increase in the amount of water in almost all

sectors from 1990 level. The assessment of 2025 presented in the data also talks about the increase.

## **1.5. World Water Supply and Distribution**

According to an estimate by 2025 water shortages will be more prevalent among the developing poor countries, where resources are limited and population growth is rapid, such as the Middle East Africa and parts of Asia(HDR;2006). By 2025, large urban and semi-urban areas will require new infrastructure to provide safe water and adequate sanitation. This will lead to growing conflicts with agricultural water users, who currently consume the majority of the water used by humans.

The more developed countries of North America, Europe and Russia will not see a serious threat to water supply by the year 2025, not only because of their relative wealth but more importantly, their populations will be better aligned with available water resources. North Africa, the Middle East, South Africa and Northern China will face very severe water shortages due to physical scarcity and a condition of overpopulation relative to their carrying capacity with respect to water supply. Most of South America, Sub-Saharan Africa, southern China and India will face water supply shortages by 2025; for these later regions the causes of scarcity will be economic constraints to developing safe drinking water as well as excessive population growth. But according to new figures from the UN Economic Commission for Europe at least 120 million people living in Europe-one in seven of the population still do not have access to clean water and sanitation.

More than 2.7 billion people will face severe water shortages by the year 2025 if the world continues consuming water at the same rate, the United Nations has warned(HDR;2006).

A new report released to mark world water Day on 22<sup>nd</sup> March 2006 says that another 2.5 billion people will live in areas where it will be difficult to find fresh water sufficient enough to meet their needs. The booming crisis is being blamed on

mismanagement of existing water resources, population growth and changing weather patterns. The areas most at risk from the growing water scarcity are in semi-arid regions of sub-Saharan Africa and Asia. The first World Water Development Report was a joint undertaking of twenty three United Nations (UN) agencies and is a major initiative of the new world water assessment programmed (WWAP) established in 2000, with its secretariat in the Paris headquarters of the United Nations Educational Scientific and Cultural Organization (UNESCO).

The distribution of water resources around the globe is highly unequal, even at the continental level. Asia has more than 60 percent of the world population but only 36 percent of river runoff. South America meanwhile has just 6 percent of global population but 26 percent of run off. Canada has more than 30 times of water available to each citizen in comparison to China. Many of the world's largest river catchments run through thinly populated regions. These include the Amazon (15 percent of global runoff but 0.4 percent of global population) and the Zaire-Congo that flow into the Atlantic Ocean and the great rivers of northern Canada and Siberia that flow into Arctic Ocean. Meanwhile, many countries with high population density or growth rates, such as Pakistan and Egypt, are in hot, water stressed regions where crops require irrigation.

Water tables are falling on every continent. Shortages are having an increasing effect on global grain markets, as arid countries that rely on irrigation for crop productions are switching to food imports. As a result, North Africa and the Middle East are the fastest growing markets for grains. The World Bank warns that freshwater likely to become one of the major factors limiting economic development.

Faced with growing water shortages in many parts of the world, the main choice is between supply side and demand side solutions. Supply-side solutions imply more large dams and large water transfer projects. Aid agencies are increasingly reluctant to lead such projects because they have a history of heavy cost over-runs, poor financial returns and ecological and social damage through flooded valleys and disrupted fluvial eco-systems. They have concluded that demand –side solutions after much better returns

and less collateral damage. Economic analyses have demonstrated that investment in industrial and domestic water saving devices (such as low flush lavatories), in using irrigation canals and in drip-feed irrigation saves more water more cheaply than can be won from dams and other supply schemes.

The title of Human Development Report' 2006 is "Beyond Scarcity: Power Poverty and the Global Water Crisis". The Human Development Report continues to frame debates on some of the most pressing challenges facing humanity. Human Development Report 2006 focuses on the:

- Investigate the underlying causes and consequences of a crisis that leaves 1.2 billion people without access to safe water and 2.6 billion without access to sanitation.
- Argues for a concerted drive to achieve water and sanitation for all through national strategies and a global plan of action.
- Examines the social and economic forces that are driving water shortages and marginalizing the poor in agriculture.
- Looks at the scope for international cooperation to resolve cross-border tensions in water management.

Overcoming the crisis in water and sanitation is one of the great human development challenges of the early 21<sup>st</sup> century. Success in addressing that challenge through a concerted national and international response would act as a catalyst for progress in public health, education and poverty reduction and as a source of economic dynamism. It would give a decisive impetus to the millennium development goals- the targets adopted by governments as part of a global partnership for poverty reduction.

There is more than enough water in the world for domestic purposes, for agriculture and for industry. The problem is that some people- notably the poor- are systematically excluded from access by their poverty, by their limited legal rights or by public policies that limit access to the infrastructures that provide water for life and for

livelihood. In short scarcity is manufactured through political processes and institutions that disadvantage the poor.

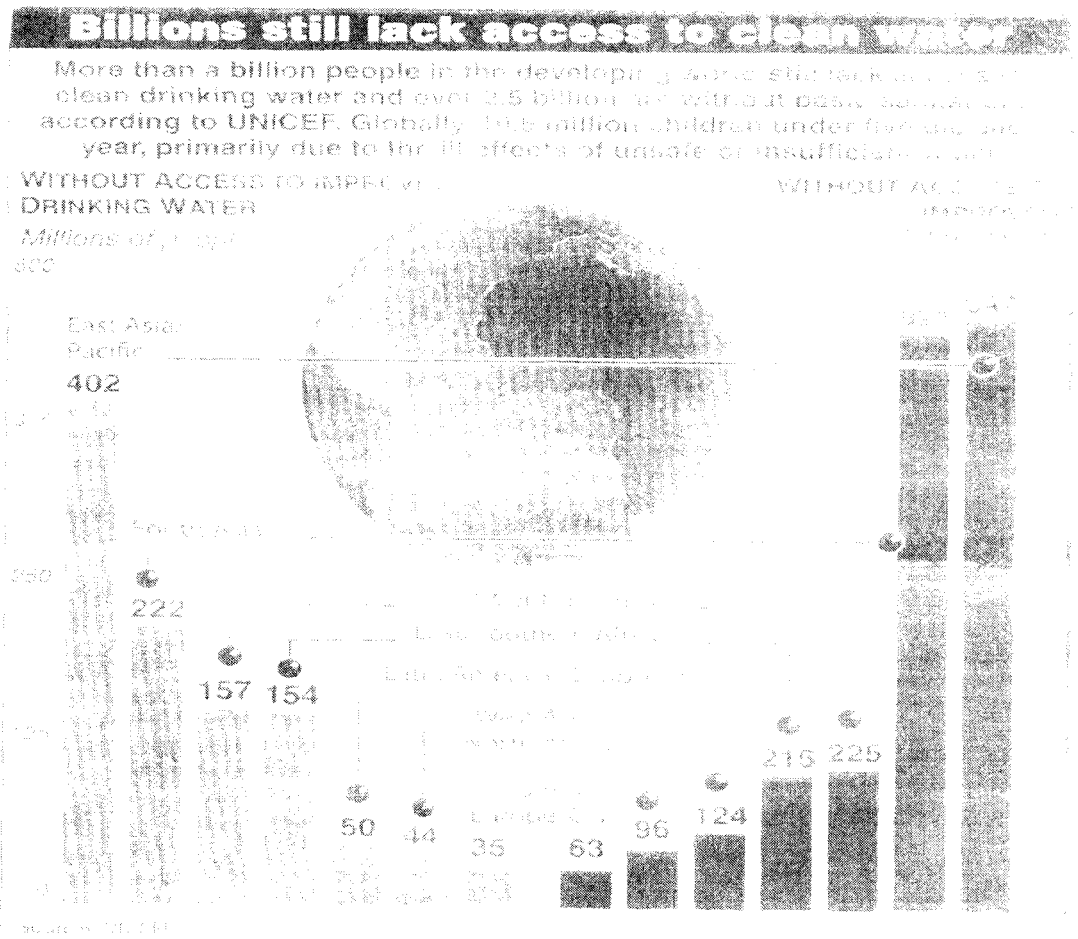
Apart from the highly visible destructive impacts on people, water insecurity violates some of the most basic principles of social justice. Among them:

- *Equal citizenship*: Every person is entitled to an equal set of civil, political and social rights, including the means to exercise these rights effectively. Water insecurity compromises these rights. A woman who spends long hours collecting water or who suffers from constant water related illness has less capacity to participate in society, even if she can participate in electing her government.
- *The social minimum*: All citizens should have access to resources sufficient to meet their basic needs and live a dignified life. Clean water is part of the social minimum with 20 liters per person each day as the minimum threshold requirement.
- *Equality of opportunity*: It is a key requirement for social justice, is diminished by water insecurity. Most people would accept that education is integral to equality of opportunity. For example children unable to attend school when they are afflicted by constant bouts of sickness caused by unclear water do not in any meaningful sense enjoy to education.
- *Fair distribution*: All societies set limits to the justifiable extent of inequality. Deep inequality in access to clean water in the home or productive water in the field does not meet the criterion for fair distribution, especially when linked to high levels of avoidable child death or poverty.

The UN Secretary General feels that “Access to safe water is a fundamental human need and therefore a basic human right”.

Human Development Report lays its stress on the fulfillment of Millennium Development Goal by 2015. It attracts the attention of the world society towards the importance of management and accessibility of water to all, including the poor.





(Source; The Hindu, dated, 28 October, 2006)

The figure above, sourced from the UNICEF, shows the number of people lacking drinking water facility throughout the globe. This clearly shows a gap between developing and developed countries. This figure also validates our assumption that availability of water is not the only criterion for accessibility to drinking water, politics and other related factors too have substantial role to play in water accessibility. Take for example African continent is rich in water resources but then also the number of people lacking accessibility to drinking water is the most in the continent. This is due to the problem of continuous civil war and uneasy relationship among the states, which leads to

no co-operation at all in terms of sharing the water and other resources among them for judicious use.

## **1.6. Management and Conservation of Water**

Clean water is essential to human survival, yet it is increasingly scarce. Despite pressures on this crucial resource, people often have little or no opportunity to participate in watershed decisions that affect them. The United Nations has identified the rising demands for water as one of the four major factors that will threaten human and ecological health for at least a generation. Over the coming decade, governments throughout the world will struggle to manage water in ways that are efficient, equitable and environmentally sound.

Recent years particularly the past decade have seen a rapid growth of international law regarding the important of participatory decision making generally and in and in specific context of international water shed management (Bruch 2001, 2002). The body of ever great law ranges from provisions in international and regional declarations to binding conventions [for example on trans-boundary environmental impact assessment (TEIA) on international water courses].

Citizens, non-governmental organizations (NGO's) businesses ,universities and other members of civil society have played an essential role in developing and implementing environmental and natural resource laws and institutions at local and national levels over the past decades. This role has extended more recently into numerous international institutions, processes and contexts (Shelton 1994). Norms on public involvement not only are emerging but also are rapidly crystallizing. In fact the efforts by the international law Association (ILA) to revise its Rules on the equitable use and sustainable development of waters, which reflect customary norms and practices, confirm the rapid emergence and recognition of public involvement in international watercourse management (ILA;2004). Regional context and variation can often help this process: for example, in Africa evolution of these norms has the added benefit of a "rich

tradition of participation in water management” at local level (Sharma et al 1996), which can form the basis for similar development at the international level.

Public access to information, public participation in decision making and access to mechanism for redress have synergistic benefits. Public involvement also improves the quality of decisions because public input can supplement scarce government resources for developing norms and standards, as well as for monitoring, inspection and enforcement (Sharma et al 1996). Decision affecting international watercourses frequently is made by government officials who are located far from the waters in question. As a result these decisions do not reflect the interests of the people residing at the border. Public involvement can ideally address potential problems at an early stage. When public is not given an adequate chance to participate in the process of decision making they sometime starts doing protest against the proposed project. These protests sometime may turn into violence. For example, the construction of the Pak Mun Dam on a tributary to the Mekong River in Thailand did to include public participation in the assessment process. Although the dams were completed in 1994, the communities affected by the dams have objected to the compensation, which they view as inadequate and the unexpected costs associated with the protests have increased the dam’s overhead, altering the cost-benefit analysis (Kaosa-and et al 1998). Controversy over Sardar Sarovar water project in India, which lacked effective public involvement, has also increased the cost of the project (Taylor 1994).

Similarly, when the public is not involved in decisions that could affect them, the simple lack of public support can impede implementation. For example, the World Bank funded Kampong Improvement program, in which country lacked public participation which led to apathy on the part of the intended beneficiaries and a failure to maintain the project (Taylor 1994).

In contrast, involving the public in managing international water courses can improve the credibility, effectiveness and accountability of governmental decision-making process. Initiatives by NGOs can also facilitate the decision-making process. Citizen and NGOs can also improve the monitoring of potential violations, particularly

when they understand their rights and the standards that apply (Shummay 1999; UNEP 2002). For example an increasing number of river and bays in the United States and in other countries have “river keepers” and “bay keepers”- individuals who investigate and report potentially illegal actions that harm the waters, such as illegal discharge of wastes (Cronin and Kennedy 1997).

The Mekong River Commission (MRC) has been a leader in developing frameworks to promote public involvement in international watercourse management. The 1995 Agreement on the Cooperation for the Sustainable Development of the Mekong River Basin established the MRC to manage river-related activities in the lower basin. Cambodia, Lao people’s Democratic Republic, Thailand and Vietnam are parties to the MRC, which replaced earlier committees dating back to 1957 although the riparian nations of China and Myanmar have yet to join the MRC formally. The MRC is currently drafting and reviewing a public-participation strategy.

Along the United States-Mexico border, two organizations seek to manage the shared natural resources, including the Rio Grande and the Colorado River. The International Boundary and Water Commission (IBWC) was established in 1889 (initially termed the International Boundary Commission) to implement the boundary and water treaties between the United States and Mexico. The Border Environment Cooperation Commission (BECC) was established by the North American Agreement on Environmental Cooperation (NAAEC 1993) in response to the North American Free Trade Agreement (NAFTA). The BECC must certify that proposed projects before the North American Development Bank that are located within 100kms of the border satisfy all the applicable environmental laws and have adequately incorporated community participation. Many of the projects that the BECC certifies can affect the trans-boundary river that forms much of the boundary between the USA and Mexico.

In Europe management of the Danube and Rhine Rivers has incorporated public participation. The 1994 Danube River Protection Convention (Convention on Cooperation for the Protection and Sustainable use of the Danube River 1994), signed by 11 states, has particularly strong provisions for public access to information. In 1999, the

European Community and the Nations of Germany, France, Luxembourg, The Netherlands and Switzerland concluded the convention on the protection of the Rhine (Convention on the Protection of The Rhine 12999).

The 1990s saw the rapid rise of international commitment to involving the public in the management of Lake Victoria. The Lake Victoria Environmental Management Project, funded by the Global Environment Facility (GEF 1996) facilitates public participation in the development of projects and policies. In anticipation of the treaty establishing the East African Community, Kenya, Tanzania and Uganda adopted a Memorandum of Understanding (MoU) on Environment Management that relies on public involvement and specifically addresses Lake Victoria.

All of these above mentioned public participation projects to manage water and rivers are transnational in nature and scope. They address international projects. But at regional and at local levels there are many projects which are in presence to facilitate management of water.

The Netherlands have water boards, which are the oldest democratic form of government. Like the provincial and municipal authorities, these boards are instruments of the government. Originally meant to manage the collaborative task of protection against inundation and sea intrusion, they are now responsible for all the essential aspects of the regional water planning and management. In France there is river- basin committee consists of 60-110 members, representing interested parties at the national regional and local levels industrial and agricultural groups and citizens. The committee approves the long term (20-25years) schemes for developing water resources. Every five years they vote on an action plan to improve water quality. The importance of insuring greater and more effective participation of women is being emphasized on by this committee.

Apart from rivers seasonal rain is a great source of fresh water. Conservation of rain water for use in the non-rainy season can address many of our water related problems. Rain water harvesting is a technique of increasing the recharge of groundwater

by capturing and storing rainwater locally in sub-surface water reservoirs to meet the household needs. Objectives of the rainwater harvesting are to:

- Meet the ever increasing demand for water.
- Reduce the runoff which chokes drains.
- Avoid the flooding of roads.
- Augment the groundwater storage and raise the water table.
- Reduce the groundwater pollution.
- Improve the quality of groundwater.
- Reduce the soil erosion.
- Supplement domestic water requirement during summer and drought.

Rainwater can be conserved by the techniques of roof water harvesting, refilling of dug wells, recharging of hand pumps, construction of percolation pits, trenches around fields and dams on small rivers. All these methods are traditional but are very effective one. They are being in use in the subcontinent from long time back.

Watershed development is also a good technique for conservation of water. Watershed is geographic area that drains to a common point which makes it an ideal planning unit for conservation of soil and water. It may comprise one or several villages or localities; contain both arable and non-arable lands, various categories of land holding and farmers. The watershed approach enables a holistic development of agriculture and allied activities, such as horticulture, agro-forestry and silviculture.

### **1.7. Sustainable Development and Water**

Society consistently faces issues relating to economy, environment and fairness among people. Each of these human concerns is in some way impacted by the forces that drive the natural world. However, development models intended to tackle societal problems have traditionally taken a piecemeal singular approach addressing issues of

economics, environment or social health, sometimes in isolation from one another (Flint And Danner; 2001).For example socio-economic systems often become caught up in the adverbial “economy versus environment” debate and begin operating in a linear direction taking resources from the earth making them into products and throwing them away to produce large amounts of waste (take-make-waste).This process leads to communities being unsustainable.

*Sustainable Development is the centerpiece and key to water resource quantity and quality, as well as, national security, economic, health and societal well-being. Sustainable Development mean working to improve human’s productive power without damaging or undermining, society or the environment-that is, progressive socio-economic betterment without growing beyond ecological carrying capacity: achieving human well being without exceeding the earth’s twin capacities for natural resource regeneration and waste absorption(Flint;2003).*

Move in favour of adapting sustainable development begin in 1972, when Stockholm Conference, took place. In 1992 at Rio Earth’s summit the concept of sustainable development gained further boost. Article 21 of the agenda makes the signatories to adopt it for the benefit of the future generation. In 1998 at UNESCO headquarter in Paris, International Conference on Water and Sustainable Development took place. It emphasized on judicious use of water in order to maintain a natural balance between environment and human being. In 2001 Bonn conference on freshwater took place. IN March, 2007 Dubrovnik conference took place with its focus on improvement of technology so that we can eliminate various problems related to water.

All these events which are taking place in the world are positive indicator because it at least makes us aware about the gravity of problem, which will helpful for getting near to solution.

## 1.8. Water Resources in South Asia

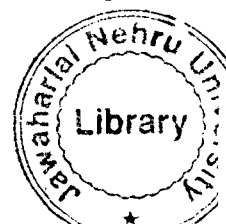
The South Asian sub-continent is facing water-related problems despite of being a water-rich region of the world. Major rivers of the world namely The Ganges, The Indus, Brahmaputra flows in the sub-continent making it well fed with water.

Despite the presence of rich fresh water resources, the South Asian subcontinent is going to face scarcity of water in 2025 (FAO, 2006). The main reason for this is pollution and uneven distribution of water resources. In some parts of the subcontinent flood is an annual phenomena while few of its parts remain in almost drought condition throughout the year for decades. With the large scale pollution related industries coming near the sources of the major rivers the ground water as well as the river water is getting badly polluted which makes them non-useable. The change in the climate is also giving a serious threat to existence of large amount of usable water.

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Large-scale development and management of water resources of the Indian subcontinent were introduced under a centralized policy of the British colonialist. The objective was to exploit maximal agricultural potential. The state is the donor of the water resources and it manages water resources through several of its department. This makes very difficult for the participation of the civil-society in the policy making process. At local level too state has its presence.

The growing protests against big dams in Pakistan and India are due to emergence of people's movement against the arbitrary policies of the state. The state had not consulted the people who are going to suffer due to the upcoming projects. The gap between state and people in policy making process is a dangerous proposition which is coming up in South Asia.

Besides dams the people in these countries are also angry to the government over the issue of privatization of water resources. The complaint of the people is that with the privatization of drinking water the gap between rich and poor will clearly come into





existence at the time of use of water. The global private companies, with profit in their mind would neglect the poor. The charge on the water will be so much that the normal people will not be able to afford it. The protestors are in favour of management and supply of water by the local governments. They want transparency and want to play a role in decision making process at various level of the government.

## **1.9. Conclusion**

The problem of water must be addressed seriously by the global leaders. It needs both short-term as well as long-term policies to overcome the problem. The growing pace of industrialization is doing an adverse impact on the pollution of water. The structural adjustment policy and the operation of MNC's in the developing countries have added to the problems of the developing countries. Globalization has given an opportunity to the developed countries to shift all their pollution-making industries to the developing countries. This results into pollution and exploitation of the resources of the developing countries at the maximum level, for the benefit of the developed countries. The developing countries must save itself from this type of dangerous trap and must use its resource at sustainable rate for the benefit of its future generation.

## **CHAPTER – 2**

### **INTER-PROVINCIAL RELATIONS IN PAKISTAN**

## 2.1. Introduction

Pakistan came into existence in 1947 after the blood-bathed partition of India into two sovereign countries- India and Pakistan. The basis for its emergence was religion. The pro-partition leaders, mainly under the banner of, communal, Muslim league, were of view that Hindus and Muslims are two different nations and after the independence of India, due to their numerical majority, Hindus would dominate over the Muslims in each sphere. They garnered and received political support from the Muslims by spreading the fear of Hindu domination after the independence of India. After getting a sovereign status Pakistan declared itself as a secular country. That was considered as a treachery by the leaders who demanded Pakistan in the name of religion. They challenged against the attachment of secular tag with Pakistan. After the coming into power by military-general, under the tutelage of ulemas Pakistan was declared as an Islamic state by General Ayub Khan. In 1971 Pakistan faced a great jolt. The separation of Bangladesh has given a great lesson to the Islamic nationalists of Pakistan for whom religion used to be the sole criterion of formation of a state. Bangladesh experience made them to accept the fact that factors like culture, language etc are also important factors which have their importance in making of a nation and these identities cannot be suppressed for a long period by a state.

It is interesting as well as ironical to note that the demand for formation of Pakistan was not vociferous by the provinces which are constituent units of Pakistan, at present. The demand for Pakistan was politicized and mushroomed in united provinces (present Uttar Pradesh) and Bihar. Many provinces such as Punjab and Bengal, which were big provinces to form Pakistan, had no substantial presence of Muslims league until mid-1940s. Both of them had secular government opposed to the idea of Muslims league. NWFP and Sindh too were not in favour of being part of Pakistan. The result of referendums in NWFP tilted 51% to 49% in favour of Pakistan. Historically people from Punjab and Bengal had no homogeneity, neither Sindh had and homogeneity with the other two. NWFP is tribal area and so is Baluchistan from long time back. Culturally, East Punjab and West Punjab, East Bengal and West Bengal, Sindh and Gujarat have

more similarity. Due to differences in cultural traits and historical experience the provinces in Pakistan have a difficult time to co-exist with each other. Inter-provincial feuds are common things, in today's politics of Pakistan.

## **2.2. Regionalism in Pakistan**

Pakistan is one of the world's most ethnically and linguistically complex states. Each of its provinces is associated with a single ethno-linguistic group: Punjab with Punjabis, Sindh with Sindhi, Baluchistan with Baluch and the Northwest Frontier Province (NWFP) with Pashtuns. Pashtuns and Punjabis are found throughout the country. Its tribal population is concentrated in the Federally Administered Tribal Area (FATA) and Azad Kashmir.

In December 1971 Pakistan became the first former colonial state to undergo a partition along ethno-linguistic lines when its East wing became the new independent state of Bangladesh (Cohen; 2004). Bengalis were not only dissatisfied groups; at various times active secessionist movement has sprouted in NWFP, Baluchistan and Sindh. Originally Pakistan comprised of five major ethno-linguistic groups whose unity Liaquat Ali Khan signified with a clenched fist. Mohajirs, who originally, led the demand for Pakistan, constituted the sixth group.

Until 1960s everything was going on smoothly in Pakistan but the danger erupted after the provinces started demanding for a greater provincial autonomy. The central leadership was against it and was for strong centralization of power and resources. The leadership always used the concept of "religious homogeneity" to overcome the call for "provincial autonomy". They tend to ignore the identities other than religion. After formation of Bangladesh, they have kept on pursuing tough state centric policy, moving forcefully against Baluch and triggering a rebellion among a powerful linguistic group, the Mohajirs (Ahmed;1998).

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Pakistan's ethnic and linguistic minorities often cite the founding document of Pakistan, the Lahore Resolution, as legitimizing their claims to greater autonomy. Although the resolution does not include the word "federation", it does say that the independent state it called for should have "constituent units" that would be "autonomous and sovereign". (Lahore Resolution; 1940).

### **2.2.1 Sindh's Trauma**

Sindh was brought into the Raj in 1843 by General Charles Napier, who seized the province without authorization (Seal; 1971). Four years later Sindh was absorbed into the Bombay Presidency. By 1937 the business community from Sindh begun calling for separation, which finally took place in 1936. In 1940s Sindhi's elite had to choose between the Congress and the Muslim league. They went for the later because the liberal social policies of the congress were posing danger to their trade and domination. On the question of partition several prominent Sindhis opposed the demand for Pakistan but the majority gave its nod for it.

The Urdu-speaking migrants from northern India went mainly to Sindh. Sindh received 20 percent of the Indian migrants. With their influx Sindhi speaking population of the province had declined from pre-partition level of 87 percent to about 67. Sindhi become minority in Karachi where the Mohajirs were 57 percent. Therefore, while partition had strengthened the ethnic homogeneity of Punjab and NWFP it had created a new ethnic divide in Sindhi and sown the seeds for fresh Sindhi grievances.

G.M. Sayed, who once supported the Pakistan movement, felt that Pakistan and the two-nation theory became a trap for Sindh- instead of liberating Sindh, it fell under Punjabi-Mohajir domination, and until his death in 1995 he called for a separate Sindhi "nation" implying a separate Sindhi country: (Cohen; 2004). In 1948 the fledgling Sindhi nationalist movement joined with Bengalis, Pashtuns and Baluch to form the Peoples Organization. It was succeeded by Pakistan Oppressed National Movement (PONAM), but both stopped short of openly calling for the dissolution of Pakistan (Seal; 1971).

Sindhi always have their scores of grievances against the Mohajirs and Punjabis. After recognition of Urdu as national language of Pakistan Mohajirs had been able to dominate in employment under the state of Pakistan. A quota system introduced in 1948 helped the Mohajirs to gain ascendance in Pakistan. Disgruntled by the policies of the state Sindhi started a movement to resurge their place in Sindh. In 1972 a movement began among the Sindhis, make Sindhi as a medium of instruction in schools; compel government employees to learn Sindhi; raise Sindhi-speaking paramilitary force; return land taken from Sindh in the resettlement program; regain provincial control over railways, the postal service, and electronic media; increase Sindh's share of the Indus waters; and declare Pakistan to be "four nations living in a confederation" (Khan; 2003).

At the time of the start of the movement Zulfikkar Ali Bhutto was the Prime-Minister, he belonged to Sindh, but he had to depend on Punjab and Mohajirs for being remain in power so he did not take strong steps to address the demands made in the movement. However by Mid-1970s the ethno separatist movement was weakened. Some of the grievances of Sindhis were being addressed by Zia-ul-Haq. Sindhi was made an official language of the Sindh, more university admissions seats were reserved for Sindhis and they were allocated a substantial presence in the Province's civil service positions. These came at the expense of Mohajir, but most likely the case of separatism was defused (Jones; 2001).

Sindhis are very much against the Punjabi domination in all state-related affairs of Pakistan. For Sindhis Punjabis are oppressors. They claim that Punjab violated the pre-independent agreement between Punjab and Sindh for the distribution of waters. The water dispute between Sindh, the lower riparian and Punjab remains a live issue and the subject of widespread Sindhi agitation. Sindhis feels that it was Punjabis who had encouraged the Mohajirs to migrate into their province. They also helped the Mohajirs to agitate against them.



### **2.2.2 Mohajir's Irony**

Closely linked to Sindhis fate, the Mohajir movement is unique in two ways. First it is not tied to a particular territory although Mohajirs and Sindhis compete for power and position in Sindh; and unlike the Sindhis, Baluch, Pashtuns and Bengalis the Mohajirs were part of Pakistan's elite until marginalized in the 1970s. During Pakistan's first twenty-five years they were accounted for only 3 percent of population but had 21 percent representation in the government jobs and were prominent in the army. (Waseem: 1989). Seven of the twelve biggest business houses were controlled by Gujrati-speaking Mohajirs. As a blessed minority-they had made the trek from India-they operated at the national, not provincial level (Cohen; 2004).

Introduction of ethno linguistic factor in the first freely held democratic election in Pakistan in 1970 and fleeing of many Bihari and Bengali Muslims from Sindh to new sovereign state of Bangladesh gave a punch to the Mohajirs majority in Sindh. Mohajir student organization came up in 1978 and Muttaahida- Quami -Movement was formed in 1984. The strong anti-Mohajir violence erupted in 1980s which forced the MQM chief to flee from Pakistan. He lives in exile in London from where he controls his party activities. Today large numbers of Mohajirs are migrating to western countries due to question on their safety in Pakistan. Despite of all these factors Mohajirs have a substantial presence in Pakistan and they are a force to reckon in Sindh due to presence of large number of Mohajir businessman.

### **2.2.3 Pashtun's Grievances**

The separatist group that poses the largest threat to Pakistan today is perhaps the Pashtun nationalist movement. It was active well before Pakistan's creation, then faded for twenty years, and now is experiencing resurgence. Pashtuns are natives of North West Frontier Province. Pre-independence NWFP had a popular leader Khan Abdul Ghaffar Khan, known as the "Frontier Gandhi" for his support of non-violence and

stewardship of a powerful organization, the Red Shirt. Like Sheikh Abdullah, he too favored provincial independence over accession to either Pakistan or India. Denied of option for provincial independence he did not participate in referendum vote for deciding the future of NWFP in 1947. Gaffar Khan's Red Shirts was succeeded by National Awami Party (NAP) led by his son Wali Khan.

NAP was active in NWFP and was vociferous to its demand of Pakhtoonistan. This demand had a very limited appeal among the Federally Administered Tribal Areas but was strong in four of the six settled districts of NWFP- Peshawar, Kohat, Bannu and Mordan. Lower middle class in urban areas and rural peasantry were tied to Pakistan state due to their substantial presence in Army. The Afghan regime under the leftist Prime Minister Hafizullah Amin had supported the cause for Pakhtoonistan. This was given away after the Soviet invasion of Afghanistan; because the former USSR did not want to have another front against it in Pakistan against its invasion of Afghanistan Taliban's adventure in Afghanistan further demolished the demand for Pakhtoonistan by uniting the area under the umbrella of religion.

After the US attack on Afghanistan and coming up of Hamid Karzai as the president of Afghanistan the Pakistani establishment is skeptical towards the new government which it thinks can further fan-up the movement for Pakhtoonistan in NWFP. The Pakhtoons are very much active in border areas of Pakistan and Afghanistan. Most of the Taliban leaders who fled away from Afghanistan in wake of U.S attack on it hid themselves in this area as they feel it as a safe region to protect them. Pakistan government feels uncomfortable to get in the proximity of NWFP and root out the terrorists from there. The government had recently signed an agreement with the local chiefs of border areas for coordination to arrest the terrorist present in that area, but the agreement was violated by the chiefs within a month of signing it, as they feel that Pakistan government is doing it under the influence of the USA to destroy the saviors of Islam.

#### **2.2.4 Baluch's Ethno-nationalism**

Baluchistan is the largest province of Pakistan. It constitutes about 42 percent of Pakistan's area. The Baluch are tribal people and have a tribal form of political organisation. This area has taken up arms against the Pakistani establishment a number of times. Since partition of India there have been five mini wars between the Baluch and Pakistani forces. The first two occurred in 1948 and 1958 and lasted for few months and ended with surrender of Baluchis and the imprisonment of the then Khan of Kalat and the execution of other rebels. Baluchistan third civil war began in 1962 and ended in 1968 and was fought between Baluch tribals and the paramilitary forces of Pakistan. Baluch suffered huge losses through shelling and air attacks. In 1973 another civil war started sparked by Bhutto's dismissal of local administrators which ended in 1975. General Zia had to reach to an accommodation with Baluch leadership in order to end the war. The resurgent of Baluch-ethnic nationalism, once again took place in 2005 on the issue of rape of a doctor by the Pakistani Army Captain in Sui region of Baluchistan. The Baluchi under the leadership of Akbar Khan Bugti rose against the Pakistani establishment. General Musharaff had been attacked at time of his visit to a military cant in Baluchistan. The old grudges of the Baluch have erupted against the state. Full fledged battle had been fought between the army and the Baluchis which had terminated, abruptly, with killing of tribal chief Akbar Khan Bugti in 2005 by the Pakistani Army. Though Baluchis had engaged with Pakistani Forces for many years they never have a martyr but now they have a martyr for their cause (Frontline; 2005).

Baluchistan is very rich in resources. This area also connects Pakistan from the West-Asia and Persian Gulf. The Baluch tribes are of martial race and they were last to convert into Islam; though the pagan practices still continues with them. They have a strong grudge against the Pakistani state. They feel that the resources which belong to them are being used by the Pakistani state. The large influx of Punjabis and Sindhis in Baluchistan is also cause for their tension. Pakistani establishment has also ignored their development and did not provide them a space in the state establishment. The Baluchis

are divided among various tribes under the different heads they are oppose to each other but are united against the Pakistani state's establishment. Nawab Bugti was considered to be the liberal among all and had never demanded the separate state. He was only for distribution of resources for the development of Baluchistan and provincial autonomy. Others are for separation. By killing him Pakistan has closed the door for democratic solution of Baluchistan problem, for time-being. (Frontline; 2005).

### **2.3. Sectarian and Linguistic Differences**

Pakistan constitutes of two major sectarian groups-Shias and Sunnis. Sunnis are in majority in Pakistan. Ahmadiyahs are also there but they are not considered as Islamic group in Pakistan. They have been de-recognized as Islamic during the prime ministerial tenure of Z.A.Bhutto. He did it in order to gain support from the Islamic fundamentalists in 1970s. Abdul Salaam- the first Noble Prize winner from Pakistan and Islamic world was from this group.

Shia's and Sunnis are at loggerheads in Pakistan. The violence among Shia's and Sunnis is common thing in Pakistan. Among Pakistani Sunnis the most important schools are of the Deobandis and the Barelvis. The puritanical Wahabis are also influential; though based in Saudi Arabia, they have funded many Islamic schools in Pakistan and elsewhere and are closely related to Deobandism, ideologically. Taliban have been influenced by the both and being trained in Deoband Madaras in Pakistan. Salafi is another school which influenced the Taliban's at most. It is back to the basics movements which maintained that Muslims ought the return to the original textual sources of the Quran and the Sunnah; thus breaking away from slavish reiteration of earlier interpretations of Islam. (El Fadl; 2002).

Numerically, the moderate Barelvi School has the largest number of adherents encompassing a large majority of rural Pakistanis. The Barelvi movement, which controls about a quarter of Pakistani's madaris, was influenced by mystical Sufi and Indian-Pakistani folk traditions. The main Barelavi political organisation is the Jamat-

Ulema-E-Pakistan (JUP). Some Barelavi groups especially in Karachi (such as the Sunni Tahreek) are involved in sectarian violence against Deobandi, in a turf war over control over the city's mosque.

The largest group of Mosques and Madaris belongs to the Deobandi sect of Islam. Deobandi control an estimated 65 percent of Pakistan's madaris. The main Deobandi-based party is the Jamat -Ulema-E-Islam-F (JUI-F) headed by Fazlur Rehman.

The Deobandis are among the most militant of Pakistan's Islamic groups and demand that the Pakistan state should become truly Islamic. They were also in the forefront of the movement to declare the Ahmadiyas to be non-muslims and are behind much of the anti-shia sectarian violence that plagues Punjab and Karachi. Harkat-Ul-Mujahideen (HUM), an offshoot of the JUI also indulges in sectarian violence in Pakistan.

Attacked by umpteen times Shia also produced large number of militant groups in order to counter-attack the Sunnis. Large number of militant groups in both sects has been emerged since 1980s. This was a result of Bhutto's and Zia's policy to make Pakistan into an Islamic state. They provided covert moral support for the proliferation of such militant groups, which could later on, help them to acquire or remain in power for a long period of time.

Shia-Sunni violence has its impact on the inter-provincial relationship to a large extent. The Sunnis are in majority in Punjab and have their sporadic presence throughout the Pakistan. Sindh is the home for majority Shia's. Karachi is the hotbed of Shia-Sunni sectarian violence.

The paramilitary Pakistan Rangers are on constant deployment in Karachi. Large number of Shia professional, educationists and businessmen had been killed by the Sunni militant groups. This has led to a mass migration of Shia businessmen and professionals from Pakistan. Murder of a prominent Shia doctor in 2003 by Sunni militants had a large

scale condemnation on by the Shia. The government attitude towards Shia has been always antipathetic. The state promotes Sunni militancy in order to carry out its propaganda in Jammu and Kashmir to their majority in number Sunnis always dominates over the institutions of the state.

A cluster of ethno religious groups have also expressed some desired for greater autonomy and might under certain circumstances seek independence or create law and order problems in Islamabad. The best known of these is in the Siraki-speaking region located in south-west Punjab and northern Sindh (Cohen; 2004).

Siraki is a distinct language spoken by both Punjabis and Sindhis. They constitute about 10 percent of the population of Pakistan. It is largely cultural and social with its center is in Multan. It is at its initial stage of identity-formation and mainly has economic grievances and thinks that they could be better off if separated from Punjab (Cohen; 2004).

Other potential separatist movements are to be found in Pakistan. Administered Kashmir and the Northern areas. In Kashmir the movement is for truly "Azad" Kashmir and not to what Pakistan means by the term. Balawaristan movement is going on for making a state constituting Baltistan Gilgit and Dardistan. They claim to be an oppressed people due to sectarianism, intolerance, poverty, etc.

These separatist movements have its impact on inter-provincial relations. The groups which are making demand for separation are being harassed by the people or by the government of the provinces to which parts they belongs to. The growing number of separatist movements presents a cruel picture of the Pakistani state. Lack of democratic rights and curtailed human rights makes the people belonging to diverse and distinct ethnic groups to being secondary citizen in comparison to the ruling factions and ruling class of Pakistan.

## **2.4. Federal Structure in Pakistan**

From the beginning itself Pakistan claims to be a federal state-with wider division of power between the central and the state governments. The federal nature of the state of Pakistan has kept on changing during various interventions made by the Pakistan Army at central levels. The constitution of Pakistan have been rewritten or tinkered with three times. The original constitution came into being in 1956, and then in 1962, 1973 and 2000 substantial changes have been made in by the rulers. During General Zia-ul-Haq's and General Musharaff's period Legal Frame Work Order has almost served as constitution.

The 1956 constitution replaced the Governor-General with a President, but the real power was with an elected Prime-minister elected by a national parliament. It preserved most of the British Indian constitutional structure and declared Pakistan to be an Islamic republic. The constitution of 1962 created a stronger presidency and an elaborate system of local government, presumably one that was party-free. The third constitution of 1973 re-introduced a Prime-ministerial system. All of these constitutions were amended significantly from time, most notably in 1985. Then as Zia's Martial law was being lifted, the powers of the president were increased in comparison with those of the Prime Minister who could henceforth be removed by the President and the provincial chief ministers by the governors. Prime ministerial authority was revived in 1997 by Nawaz Sharif, only to be once again subordinated to that of the president in 2002 by General Musharraf through an extra constitutional Legal Frame Work Order (LFO).

The military governments in Pakistan had given severe blow to the federal structure of Pakistan. The military always goes for centralized structure in order to have its control easily in almost all structures and institutions of Pakistan. The military chiefs keep the power to appoint and dislodge the government in provinces with themselves.

Almost all important institutions have a substantial number of serving or retired military officers who virtually rules with the help of technocrats.

During the periods of military rule, Punjab is in beneficial position due to the fact that large number of officer-cadres is from Punjab. In civilian regimes popular uprising in other provinces makes the politicians to look for political solutions as the civilian governments too favour Punjab. The difference during the military regime is that the military crushes any anti-voice through force which erupts in any province of Pakistan. Punjab gets good care under them. The presence of large number of Islamic organisations who helps military to gain power and remain in power, are in Punjab. This makes other provinces to be in subordinate position during the time of civilian and mainly during the military-regime.

As per constitution the Governor is the head of a province that discharges his function as an agent of the President (art 145). Article 149 of the constitution talks about certain directions to Provinces by the Federation. The cases are:

1. The executive authority of every province shall be so exercised as not to impede or prejudice the exercise of the executive authority of the Federation, and the executive authority of the Federation shall extend to the giving of such directions to a province as may appear to the federal Government to be necessary for that purpose.
2. The executive authority of the Federation shall also extend to the giving of directions to a Province as to the carrying into executive therein of any federal law which relates to a matter specified in the concurrent legislative list and authorizes the giving of such directions.
3. The executive authority of the Federation shall also extend to the giving of directions to a province as to the construction and maintenance of means of communication declared in the direction to be of national or strategic importance.



4. The executive authority of the Federation shall also extend to the giving of directions to a province as to the manner in which the executive authority there of is to be exercised for the purpose of preventing any grave matter to maintain the peace or tranquility or economic life of Pakistan or any part there of.

The controversy over inter-provincial trade is open. The states like Baluchistan and Sindh feels that they are being treated not at par with Punjab in terms of inter-provincial trade. Constitutionally, Majlis-e-Shoora (Parliament) may by law impose such restrictions on the freedom of trade, commerce or intercourse between one province and another or within any part of Pakistan as may be required in the public interest. The Provincial Assembly or a provincial Government shall not have power to:-

- a) Make any law or take any executive action prohibiting or restricting the entry into, or the export from, the province of goods of any class or description, or
- b) Impose a tax which, as between goods manufactured or produced in the province and similar goods not so manufactured or produced, discriminates in favour of the former goods or which, in the case of goods manufactured or produced outside the province discriminates between good manufactured or produced in any area in Pakistan and similar goods manufactured or produced in any other area in Pakistan.

Though the discriminatory clause is there in negative sense in the constitution in Pakistan. The resource rich area of Baluchistan is being exploited by the take without the payment of royalty in substantial amount. Punjab is being richly fetched by the exploited resource of Baluchistan. Traders and businessman of Punjab are being given more importance in terms of sharing of resources in Pakistan Sindh and other provinces leaks good infrastructure become of the step-motherly attitude towards them by the centre. The FDI is being largely invested in Punjab and all the World Bank and other multilateral financial institution's aid is being invested in Punjab at he cost of other provinces.

Underdevelopment of provinces sows seeds of dissensions and protest against the state. Bangladesh is a good example of it. They feel that the underdevelopment of their province is due to political reason. The Punjabis drew hatreds towards them due to constant negligence of other province by the state.

## **2.5. Conclusion**

Regional and provincial tensions are simmering in Pakistan. The state has to do hard work in order to democratically address the growing apathy in provinces and regions against the Pakistani states. The military has been used various times whenever a strong public pressure had been built up in Pakistan against the state. The military had provided only temporary solutions to the problems. The absence of strong democratic practices and weak civil society is main reason for the failure of democracy in Pakistan. The state machinery has been “Islamized” by the military dictators in the past. The civilian leaders too have failed to challenge the growth of islamization of Pakistani state and society. Whenever they challenges they have been put aside by the Islamic forces with the help of military. Z.A. Bhutto, Benazir Bhutto and Nawaz Sharif had to pay the price for not falling on the lines of Islamic clerics. The mullahs and clerics have gained ascendancy in terms of power during military rule.

The provinces of Sindh, Baluchistan, NWFP and Pakistan sided-Kashmir have never found favour from the military rulers due to absence of powerful Islamic sectarian clerics. These provinces in the past have been victims of sectarian discrimination. Baluchistan and Sindh have been abused for being under the influence of Iran. The Sindhis are being targeted by the state. Mohajirs were being nurtured by the state in past in order to crush the secular forces in Sindh. The Baluchi are being suppressed because they have never accepted the suzerainty of the Pakistani state due to their different identities. The state had never taken a democratic way to address the grievances of these people. It is a great irony that Punjab which dominates over the Pakistan in all matters had never called for birth of Pakistan till mid -1940s.

## **CHAPTER – 3**

### **PROBLEM OF WATER-SHARING IN PAKISTAN**

### **3.1. Introduction**

Amidst the many political problems that cry out for resolution in Pakistan, perhaps the severest one is the sharing of water of the Indus river system, which is the *hydrological life-line* of Pakistan. Indeed no conflict in Pakistan in recent years has been more obdurate, acrimonious and pervasive than this complex dispute. Competition over withdrawal of water from river Indus has added another dimension to the long-standing rivalry between Punjab and Sindh. To complicate the matter other provinces of Pakistan like North-West-Frontier province and Balochistan, too have joined in this water-feud.

The political formulation of water-related socio-economic interests and the civil society debate on water issues have remained limited in Pakistan (Habib; 2005). The central government's control on water- resources also complicates the matter, which instead of solving the water-issue, makes it a political weapon. The lack of people's participation in decision making process makes the central authority further strong. The deficit of democratic decentralization in Pakistan sometimes leads to feud among the provinces on the issue of water-sharing. Regionalism is growing very strongly due to this deficit of-democratic-decentralization. The civil-society has failed to engage into a serious debate over the issue of water, which gives ample space to the politicians to exploit parochial and regional sentiments (Habib: 2005).

### **3.2. Importance of River Indus**

Though Pakistan has various rivers which flow into its territory but river Indus has gained its importance due to its large catchments area and related controversies on the issue of water sharing. The total drainage area of the Indus is about 372,000 square miles of which 1, 75,000 sq. miles lies in the Himalayan Mountains, and foothills and the rest in the semi-arid plains of Pakistan. Since time immemorial, water of the Indus has formed the lifeline of Pakistan (Gill; 2005).

Indus is considered divine with an indiscernible beauty and charm. Its water, until Zaskar meets it, 30 kilometers down Leh, is transparently pearl blue and Buddhist devotees believe that it is pure Mansarovar water as till here no other river joins it. The source of Indus is in the Nyari province, of western Tibet, in the Kailas. Mansarovar region, which is also a source of Brahmaputra, the Sutlej and Karnali. According to the Tibetan and Vedic scriptures, sindhu is Lion River, while Brahmaputra, Sutlej and Karnali are respectively Elephant, Horse and Peacock rivers. After being joined by six rivers viz, Kabul, Jhelum, Chenab, Ravi, Beas and Sutlej, the Indus River system is formed (Gill; 2005).

From a hydrological point of view, the northwest of the Indian sub-continent is dominated by the Indus river system. The central section comprises the Indus flood plain and it is ringed in the north and west by mountains. Overall it covers 9, 45,350 kilometers, but only 60 percent (5, 62,030 kilometers) lies in Pakistan. The main hydrological artery is the Indus itself, fed from the east by its tributaries: Jhelum, Chenab, Ravi and Sutlej and from west by Kabul, Kurram and Gomal. All these rivers join the mighty Indus in the northern parts of the floodplain. Their headwork and catchments area of these rivers covers 5,51,700 kilometers of which 7 percent lies in Afghanistan, 10 percent in Tibet and 15 percent on the Indian side of Kashmir (Gill;2005).

The Indus basin accounts for the largest single catchments area, covering 2, 82, 900 kilometers and contributes nearly half the total flow. The river Kabul too has a very extensive catchments area and its tributaries the Chitral, Kunar and the Swat also contribute a very large quantity of water. The catchments areas of Sutlej, the Gomal, the Jhelum and the Chenab are all very extensive; but their flow is exceedingly variable. The flow patterns of these rivers largely determine the overall intensity of agriculture in Pakistan, and also the annual and seasonal variations in productivity.

Because of the Monsoonal precipitation, the combined peak flow for all the rivers taken together is in the months of June to September (accounting for 7 percent of the total flow each year) (Gill; 2005). It means that the unregulated flow would yield 84 percent

of the available water during the summer growth season and only 16 percent during the winter season. Similarly against the average annual inflow of 144.90 MAF a high flow to the order of 172.10 MAF was recorded in 1991-92, while a low flow of 99.98 MAF was recorded during 2000. On the average 38 MAF unused water flows to sea annually, out of this, 23 MAF is available for storage in river Indus and at off-channel sites(ibid;page4).

### **3.3. Sindh-Punjab Water Dispute**

When one looks at a satellite picture of Pakistan and its Sindh's province it becomes quite clear that the river Indus is the pivotal source for Sindh, as it is the only source of fresh water that sustains the people, local environment and the economy of Sindh. Indus is the longest river of the Indian sub continent. It is about 1900 miles long. Most of the lower Indus basin that constitutes Sindh today is accumulation of the silt, deposited by Indus flood flows over both of its banks and down below where it discharges into the Arabian Sea.

Present water crisis between Punjab and Sindh is not so much of a result of general water shortage due to climatic changes as some would want us to believe. As a matter of fact these crises are a result of an unbridled greed and callous mismanagement of the water resources by the unrepresentative nature and hegemonic attitude of the central government.

#### **Origins of the Water Issue**

The water issue between Punjab and Sindh is not a recent origin. Punjab has had its designs on the Indus water since the British had occupied both Sindh and Panjab in the middle of the 19th century. Most of the great world civilizations have been the gifts of the great rivers of the world. Disputes over waters of rivers have been occurring from time to time in world history.

Thanks, to the enormous development and more or less effective implementation of international law about rights of co-sharers of river waters, most of the present day river-disputes of the world have been amicably settled. The cardinal principle of the river water law that has merged out of centuries of international as well as international litigation on the issue, is that the party at the upper side of a river (legally known as upper riparian) has no right to withdraw or divert water from the common river if it causes loss or injury to a party at the lower side (legally known as lower riparian). Prof. H. H. Smith's famous work "Economic uses of International Rivers", which examines treaties between states since 1785 states that all these treaties proceed upon the principle that works executed in the territory of one state required the consent of another if they injure the interests of the latter.

There were two main riparian (co-sharers and beneficiaries) of the waters of the Indus River system in the pre-partition day. In the second half of the 19th century, the authorities from the province of undivided Punjab started diverting water from this system against the interests and rights of the Sindh province and this started the nearly a century and a half long, Sindh- Punjab water dispute. The dispute attracted the intervention of the government of British India from time to time. It is still continuing due to political and economic reasons.

The British colonizers were not interested in helping Punjab to damage Sindh. The issue came to the fore in 1901, when the Indian irrigation commission prohibited Punjab from taking even a drop of water from Indus without the approval of Sindh. In 1919 the Cotton Committee appointed by the Government of India to settle the Sindh-Punjab water dispute held that Punjab should not be given any water from Indus river system, till the results of the projected Sukur Barrage do not become evident. The 1919 Government of India act lays down that matters regarding Sindh-Punjab water dispute should be decided by no less as authority than the Viceroy of India. In 1925, Lord Reading, the Viceroy of India, rejected Punjab's request for Thal canal from Indus considering the undue deprivation of Sindhi lower riparian rights (Farouqi;2002).

The GOI Act of 1935 section 130 and section 131(6) laid down the principle no province can be given an entirely free hand in respect of a common source of water such as an inter-provincial river. Examining the riparian rights and the claims of authorities of the (undivided Punjab, that an upper riparian province in India may take as much water as it needs from rivers flowing throughout it, the Rao Commission headed by justice Sir B.W. Rao of the Calcutta high court opined in the "Report of the Rao Commission" (Para 48, page 331) "pushed to its logical conclusions, this means that a province in which the head-waters of a great river are situated, can abstract any quantity of water and make a desert of the provinces or states lower down. We have already pointed out that this view is against the trend of international law and that in any event as far as India is concerned, it would conflict with the manifest intention of section 130 of the succeeding section of the government of India act 1935" commenting on the principle of equitable apportionment" of the river waters laid down by the Rao Commission. The former Prime Minister of Pakistan, Chaudhury Muhammad Ali says at pages 117-118 in his book "The Emergence of Pakistan".

The one and a half century old dispute between Sindh, the lower riparian province and Punjab the upper riparian over the sharing of the Indus river-system's water is probably the longest surviving unresolved water dispute of recent history. It has culminated in the water and lower riparian Sindh coming in the grip of a horrible water famine and economic and social ruin. In the perception of many people of Sindh, there is real danger of virtual physical extinction of people of Sindh in the not far distant future, if the artificially imposed water-famine conditions are perpetuated and/or more dams like the Greater Thal canal or Kala Bagh Dams take away even the present meager supply of water to Sindh.

Due to a most persistent clever disinformation campaign of the vested interests, the problem of the just settlement of the historic Sindh-Punjab water dispute for resolving of which the then governments of British India appointed three high powered authorities: The Cotton Committee in 1919, the Anderson Committee in 1935 and the Rao Commission in 1941, and which has defied the efforts of no less than four committees



and commissions appointed after the establishment of Pakistan (Akhtar Hussain Committee 1968, Fazal Akbar Commission in 1970, Anwar-ul-Haque in 1981 and Haleem Commission in 1983) in being merely reduced to questions of superficial and turbulent interpretations of the so called water “accord” of 1991 foisted through that notorious establishment puppet Jam Sadiq Ali, Chief Minister of NWFP, which on its very face does not address the most fundamental core issues of the Sindh-Punjab water dispute 1859-2003 (Mansur;2004).

It all started in 1859 when the authorities of the undivided Punjab, the upper riparian areas suddenly began diverting the waters of river Indus. In that year they constructed the central Bari Doab Canal on the Ravi, adversely affecting the water supply of Sindh. This proved to be merely the first shot in the one and a half century long predatory water war the authorities of the province of Punjab are waging against its poor and weak neighbour Sindh.

After the central Bari Doab, the upper riparian constructed between 1885 and 1901, three more canals viz. Sidnai, lower Chenab and lower Jhelum without the consent of the lower riparian Sindh. Paharpur canal in 1908, upper Swat canal in 1914 followed. Punjab started diverting water at large scale with the help of these canals (Salman; 2004).

It is well known that Punjab was the land of soldiers, during the British days. With the help of Muslim, Hindu and Sikh soldiers from Punjab, British had been able to suppress the mutiny of 1857. These soldiers were very loyal to the Britishers. The soldiers hailed from the peasants and farmers family. The Britishers provided initial benefit in terms of agriculture to the Punjab. Due to fertility of soil and rich in water facility this region developed agricultural heaven for India. The situation changed with the rise of revolutionary terrorism in Punjab. This area produced martyrs who fought against the British rule in starting 20th century. This made Britishers to divert their favour from Punjab to other areas. Its not that they liked Sindh rather their dislike of Punjab make them to award favour of Sindh.

Cotton Committee reported the same year that (undivided) Punjab should not be allocated water from Indus till the effects of construction of the proposed Sukur barrage project had not become evident. In September 1919 Government of Punjab presented that project as against Sindh's Sukkur barrage. The viceroy Lord Chelmsford rejected the Thal project. The government of Punjab protested against the Sukkur barrage and canal but the government of British India was for in favour of it and so it put down the protest by Punjab without having any consideration on it.

To establish some sort of claims on Indus waters the Government of the undivided Punjab, in November 1924, again reopened the question of Thal project this time with a proposal to construct a small experimental canal involving 750 cusecs. This was withdrawn later on by the Government of Punjab as they were waiting for the readings final decision in 1926. Lord Reading announced the final decision in 1926 which mentions:

That until such time as Sukkur Barrage Scheme comes into operation and further experience of perennial irrigation in Sindh is available the question of the volume of water required for that scheme cannot be re-opened.

That faced as they are with the unknown effect of the withdrawals which will be necessary for the supply of the Sutlej valley canals in the Punjab. The Government of Bombay have the right to object to further withdrawals from the Indus or its industries unless and until definite proof can be given that the supplies necessary for the Sukur Barrage project will not be endangered thereby. That such proof must be based upon the result of more accurate gauging of the river and its tributaries which were instituted as a result of Sir Thomas Word's note of the 10th December 1929.

In spite of it the Punjab government protested against the report/final verdict. The government then referred the matter to the Secretary of State and asked for his instructions. The Secretary of State replied that he was fully convinced of the report of the commission and the announcement made by the Viceroy. But the problem remained

far from getting solved. The water dispute between Sindh and Punjab had by this time reached such proportions that Government of India was forced to constitute an eight member committee under the Chief Engineer of UP, Mr. Anderson, with the clear and express direction that no fresh authorities (by the upper riparian the province of Panjab) be recommended which may be detrimental to the other riparian or may adversely affect not only the existing but also the future rights of such riparian over the waters of the Indus. "One of the terms of reference of *Anderson Committee* (was)...(2)" the possibility of finding such supplies without detriment to the parties interested in the waters of the Indus and its tributaries and the effect upon the existing or prospective rights of those parties of any fresh withdraws the authorization of which committee may recommend." In the meantime the (undivided) Punjab authorities who seem to have made mass manufacture of schemes and projects for taking away as much water from the Indus system as possible, their permanent occupation or rather an eternal passion, which continues till-day and promises to continue as long as there is even a single cusec of water left in the system for going down-stream to the lower riparian, produced yet another massive project for the purpose, the Bhakra Dam project (Singh; 2002).

Since the Punjab authorities thus continued to plan for further extensive withdrawals and storages, the Government of Sindh was compelled to lodge a complain in 1939 before the government of India under the provisions, of the GOI act 1935. The Complaint in its final form submitted to the Governor-General appointed a Commission under Justice B.M. Raw to look into the matters.

The Commission concluded that the withdrawals necessary for the Punjab projects mentioned in the complaint when super-imposed upon the requirements of other projects already in operations or about to be completed were likely to cause material injury to Sindh in the month of September. It recommended that only way to prevent any such injury is to construction of two barrages one in upper Sindh and the other in lower Sindh costing about Rs. 6 cores. The commission further found that Sindh would not be able to finance the projects without borrowing. The assumption that the Punjab would make a

contribution of Rs. 2 cores, which the commission considered to be a not unreasonable sum for her to pay as compensation on for the damage to Sindh irrigation.

But it was not until 1945 that an equitable solution was found when the 'Sindh-Punjab Agreement' regarding the sharing of the river Indus and the five Punjab rivers was signed. The agreement is still being in operation. This agreement was the result of the initiative of Rao Commission. The chief engineers from Punjab and Sindh had negotiations under the guidance of Sir Claude Angles, the Director of Central Irrigation and Hydro Dinlock Research at Poona, Bombay Presidency. The draft was finalized on 28th September 1945. According to that agreement, at Ghazi Ghat Punjab was to take one share from the Indus and Sindh was to get three shares. Articles of the agreement lay down that in future Punjab could not construct any dam on river Indus or any of its tributaries without the consent of the Government of Sindh.

This agreement was the first of its kind, in the known history of sub-continent when sensitive riparian problems have been solved by mutual agreement and acted upon by mutual agreement for a very long time.

After the partition of India and coming up of Pakistan there was a share of natural resources between India and Pakistan. The Indus river system was a bone of contention between the two sides. Both India and Pakistan wanted to absorb maximum water from the river Indus (Garg; 1999). A Committee was formed consisting of chief engineers of both India and Pakistan. There was an appellate tribunal headed by the chief justice of India, Sir Patrick Spenser to hear the appeal by the party which appeals to it after being dissatisfied by the award of the committee. The Indus water treaty was not accepted in positive mood by the Pakistan in general and Sindh in particular. The water of Indus would reach to lesser amount to Sindh because India diverts its share in midway from Tibet to Pakistan. It was held under the presence of the World Bank (Gulathi; 1963).

Indo- Pak dispute emerged again on the issue of Baghlihar dam, which India claims, important for supplying power to its side of Kashmir. While Pakistan is against it because

it feels that the dam would divert more water from its share and the Indus would be under the control of India. The main problem was with the height of dam and over the spillovers. The World Bank mediator Raymond Lafitte was assigned the task to look after the matter in 2005. In his initial report he had suggested for decreasing the height of dam from 4.5 mts to 3.0 mts. The Pondage, claimed by India to be 37.5 million cubic meter, has been reduced by him to 32.58 mcm. He has agreed to India with its right to have “gated spillways” for regulation of floods and sedimentation. (The Hindu; Feb, 2007) This decision is going to have its impact on the Sindh-Punjab distribution of share of Indus river system also.

In 1968, under the chairmanship of the Akhtar Hussain, the Water Allocations and Rates Committee was constituted by the Governor of former West Pakistan to review to barrage water allocations, reservoir release patterns and drawdown levels and use of groundwater in relation to surface water deliveries. The committee submitted its report on July 1, 1970 when the provinces were revived. No attention was paid to this report. Justice Fazal-e-Akbar Committee was constituted in 1970 to recommend apportionment of water of river Indus and its tributaries. The Committee submitted its report in 1971. During same time period, ad hoc distribution of Chasma barrage and later Tarbela reservoir storage among the provinces was ordered. No decision was taken on the Fazl-e-Akbar committee recommendations and water continued to be distributed ad hoc orders by the government of Pakistan (Mansur; 2002).

In 1977, the government of Pakistan established another commission comprising the chief Justices of the High Courts of the Province, headed by the chief justice of the Supreme Court to examine the issue of water apportionment. The report is pending with the Government of Pakistan. All these committees played with on the instructions of the Government of Pakistan. Though they had contained plans for the water-sharing but they failed at policy-level. But overall while some of the recommendations were put into practice, many were just ignored by the Government.

### 3.4. 1991 Water Apportionment Accord

This Accord was considered as an important one as seem. It was signed on 16th Mar 1991 at Karachi in a meeting of the chief ministers of the four-provinces of Balochistan, North West frontier Province, Punjab and Sindh. The accord allocates the following share to provinces. (Table no.1)

Province	Kharif (MAF)	Rabi (MAF)	Total (MAF)
Punjab	37.07	18.87	55.94
Sindh *	33.94	14.82	48.76
NWFP (a)	3.48	2.3	5.78
(b) Civil Canals **	1.80	1.2	3.00
Balochistan	2.85	1.02	3.87
Total	77.34	37.01	114.35
**	1.8	1.2	3
* Including already sanctioned Urban and industrial uses for Metropolitan Karachi.			
** Ungauged Civil Canals above the rim stations			

- The NWFP/ Balochistan projects, under execution, were provided their authorized quota of water as existing uses.
- Balance River supplies (including flood supplies and future storages) were to be distributed as below :( table no.1.1)

Punjab	Sindh	Balochistan	NWFP	Total
37	37	12	14	100%

- Industrial and Urban Water supplies for Metropolitan City, for which there were sanctioned allocations, was to be accorded priority.

- The need for storages, wherever feasible on the Indus and other rivers was admitted and recognized by the participants for planned future agricultural development.
- The need for certain minimum escapage to sea, below Kotri, to check sea intrusion was recognized. Sindh held the view, that the optimum level was 10 MAF, which was discussed at length, while other studies indicated lower/high figures. It was, therefore, decided that further studies would be undertaken to establish the minimal escapage needs downstream Kotri.
- There would be no restrictions on the provinces to undertake new projects within their agreed shares.
- No restrictions were placed on small schemes not exceeding 5, 000 acres above elevation of 1200 ft. SPD.
- No restrictions were placed on developing irrigation uses in the Kurram/Gomal/Kohat basins, so long as these do not adversely affect the existing uses on these rivers.
- There were no restrictions on Balochistan, to develop the water resources of the Indus right bank tributaries, flowing through its areas.
- For the implementation of this accord, the need to establish an Indus River System Authority was recognized and accepted. It was to have headquarters at Lahore and representation from the entire four provinces.

- (i) The system-wise allocation would be worked out separately, on ten daily bases and attached with the agreement as part and parcel of it.

(ii) The record of actual average system uses for the period 1977-82, would form the guide line for developing a future regulation pattern. These ten daily uses would be adjusted pro-rata to correspond to the indicated seasonal allocations of the different canal systems and would form the basis for sharing shortages and surpluses on all Pakistan bases.

(iii) The existing reservoirs would be operated with priority for the irrigation uses of the Provinces.

(iv) The provinces would have the freedom within their allocations to modify system-wise and period-wise uses.

(v) All efforts would be made to avoid wastages. Any surpluses may be used by another province, but this would not establish any rights to such uses.

(Source:

<http://www.presidentofpakistan.gov.pak/media/water/1991>; accessed, 24 September, 2006)

Ironically, this Accord of 1991 only intensified the conflict between Sindh and Punjab. The dispute arose over the clause 14 (a-b) of the agreement concerning the system-wise allocation on the basis of 1977-82 water-sharing arrangement. The problem emerged when country first experienced severe shortages of water in 1994 and by then the shortfall of water in the system simply precluded the operation of the 1991 principle. Acrimonious exchanges resulted, with Sindh attributing the charges of then and profligate use by Punjab. As the lower riparian Sindh traditionally has had two complaints against Punjab that in the dry season when Sindh needs water, Punjab does not release enough downstream; and during floods when Sindh does not needs water, Punjab flushes out surplus water downstream (Mansur, 2002).



Since the allocation principle of 1991 was instrumental in accentuating an existing problem it obviously had to be superseded and a new compromise arrived at. Consequently, a ministerial level meeting in 1994, presided over by federal Minister Gulam Mustafa Khar, and formulated the principle of historic use as the new basis of allocation. Under the scheme the provinces would share water according to the record of aggregate use in the seven years prior to 1991. This new arrangement favoured Punjab, and Sindh repudiated it on the grounds of bias from the time it was introduced (ibid: 2002). As the water situation shows no sign of improving matters have tended to get out of hand, even resulting in street riots. In fact the situation has deteriorated to a point where the federal government found it necessary to call a in-camera meeting of provincial representatives in 2002. The meeting failed a solution and the IRSA secretary Hussain Ali Khan, conceded “Both Punjab and Sindh have out rightly rejected each other’s proposals to resolve the water dispute” (Mansur; 2002).

It’s not only that only Sindh has its complaints against Punjab but also NWFP and Balochistan too have their complaints against Sindh over the issue of release of water to their provinces. The Balochistan-Sindh dispute has acquired such serious proportions that at an Advisory Committee meeting of 2002 of the Indus River system Authority (IRSA) were called off by the representatives of Balochistan and NWFP and Punjab walked out in protest over the issue. Balochistan’s irrigation secretary, Abdus Salam, said that the Government of Sindh had released 2000 cusec out of its IRSA allocated share of 6100 cusec a day, a 40 percent reduction in supply (Mansur; 2002). Though the representatives of Sindh and countered this allegation by scooping that they themselves are at the receiving end and they blames Punjab for all this Interestingly, this has opened a new dimension in Indus-water sharing problems where Balochistan has come up against the Sindh.

### **3.5. New Water Policy**

The draft National Water Policy seeking the setting up of a permanent National Water council led by the Prime Minister to take decisions on water-related issues and

inter-provincial conflicts has been submitted to the federal cabinet for approval in 2005. An official statement of the Ministry of Water and Power said that the draft policy had been submitted to the cabinet for placing it before the next meeting for approval to ensure sustainable utilization of water resources. Information gathered by Dawn suggests the policy envisages comprehensive reorganization of water sector institutions through their mergers.

Currently, the agriculture sector uses over 90 percent of water, contributes to the tune of about 24 percent of the Gross National Product and employs 80 percent of the labour force in the rural areas.

Pakistan is faced with an emerging water crisis in various forms, including increasing demand of water for drinking and sanitation, and the policy will provide national direction for sustainable use of these resources. The policy envisages that national water resources planning and development should be undertaken in a holistic, integrated and sustainable manner. The water supplies should be of good quality, equitably distributed and meet the requirements of all water users through an efficient management and an institutional and legal system that would ensure sustainable utilization of the water resources.

The NWC, to be headed by the Prime Minister, will comprise chief ministers of the four provinces, federal ministers for water and power, food and agriculture, finance, environment, law and justice, federal secretaries of a number of ministries, provincial irrigation and agriculture ministers, experts and other stakeholders. Similar bodies with regulatory powers with the name of provincial water regulatory commissions would also be set up at the provincial level to take policy and regulatory decisions. The provincial commissions will handle all water-related provincial matters, including irrigation, domestic water and sanitation, industrial water, groundwater, and wastewater disposal to prevent contamination.

The National Water Commission will be formed through the merger of chief engineering adviser organization, planning institutions of WAPDA and the federal flood organization. The policy recognizes the quality of drinking water as “problem number one of Pakistan” and notes 22 million acre feet (MAF) of balance water availability for future development.

The policy says that to meet the year 2025 water requirement, with a nominal annual increase of two percent in export agriculture goods, the agriculture water requirement at farm gate is estimated to be about 20 MAF of additional water, assuming 50 percent increase in crop yields due to non-water inputs.

For comparative purposes, the requirement for agriculture will be around 40 MAF at the farm gate assuming a 25 percent increase in yields. The policy is based on an assumption that the population would grow to 168 million by 2010 and 221 million by 2025, with an average annual increase of 1.81 percent.

The National Water Council will adopt the principles of integrated and unified river basin development to ensure that all aspects of water and areas are properly taken care of in decision making of water resources development and prepare water resource plans for development.

The policy also covers issues like irrigated agriculture, municipal, rural water supply and sanitation, maintenance of supply systems, water for industry, water for hydropower, water rights and allocations, economic and financial management, groundwater, drainage and reclamation, water quality, wetlands, ecology and recreational water, information management and research, trans-boundary water sharing and institutional and legal aspects.

The National Water Commission will also be the secretariat of the proposed National Water Council to be headquartered in Islamabad. For the purpose of requisite

freedom of operation, the commission will have an autonomous corporate body to be covered by law.

The policy calls for encouraging and supporting the combination of appropriate provisions of various water-related provincial acts into one comprehensive act. Such an act would replace the existing provincial acts, framed from year 1873 to 1997 and would make the water-related laws concise and clearer, more-readily understandable and less susceptible to misinterpretations.

The commission shall implement the national water policy and strategy and assist the National Water Council in taking crucial decisions on water-related issues and conflicts. It will be responsible for integrated planning of national water resources and activities in the fields of irrigation and drainage works financed by the federal government, improvement of water quality and monitor functions pertaining to federally-financed activities in irrigation, drainage, food, droughts, water supply and hydropower sectors and oversee utilization of water resources at the national level particularly in terms of sub-sector wise prioritization.

The provincial commissions will comprise government ministries, organizations, agencies, experts and farmer representatives for high-level policy making, periodic review, coordination and monitoring.

The provincial commission will be responsible for enhancing the capabilities of provincial irrigation and drainage authorities (PIDAs) and area water boards (AWBs) in engineering design and construction of provincial irrigation and drainage schemes, thereby leaving WAPDA's water wing to concentrate on the inter-provincial construction work.

In case a province feels that services of WAPDA are mandatory for the implementation of a particular project, PIDA and AWBs as a client would enter into

proper consultancy or construction management agreements with WAPDA for services to be rendered.

WAPDA's water wing will continue to perform the design, construction and operation and maintenance function on all inter-provincial projects, including hydropower development and other works of specialized nature.

(Source; retrieved from the website of DAWN Group of Newspapers; [www.dawn.com](http://www.dawn.com); accessed on 12 December 2006)

### **3.6. Kalabagh Dam**

The Kalabagh dam is a mega water reservoir that Government of Pakistan planning to develop across the Indus River, one of the world's largest rivers. The proposed site for the dam is situated at Kalabagh in Mianwali District of the north-west Punjab province, bordering NWFP.

The dam project is a highly controversial and has been so since its inception. In December 2005, General Pervez Musharraf, who became the President of Pakistan after a 1999 coup, announced that he would definitely build the dam in the larger interest of Pakistan.

According to the PC-II of the Project, Kala Bagh dam was initiated by GOP in 1953, and until 1973, the project was basically considered as a storage project for meeting the irrigation needs, and consequently, rapid increases in the cost of energy have greatly enhanced the priority of the dam as a power project.

The project's paperwork was finalized in March, 1984, with the assistance of the United National Development Programme; supervised by the World Bank, for the client Water and Power Development Authority (WAPDA) of Pakistan.

### **3.6.1 Controversies**

The proposed construction of the Kalabagh Dam triggered an extremely bitter controversy among the four provinces of Pakistan, namely Punjab, Sindh, North-West, Frontier Province, and Balochistan. The only province which is in favor of this dam, is Punjab that is the most strong among all four provinces, as usually the government is mainly centralized in it. The other three provincial assemblies pass unanimous resolutions condemning the proposed dam. Hence, the project is still under consideration.

The delay is also being caused by the fact that according to international water distribution law, the tail ender has a legal and natural right on river and that is why no mega construction or reservoir can be built without permission and endorsement of the tail ender i.e. Sindh. In the case where the tail ender is not using water i.e. building a water reservoir, a reservoir can be made upstream.

Impact assessments of the proposed dam have shown that while it will provide storage and electricity, the dam will also have adverse impacts on the environment, as can be expected from any large dam. It will also displace a large number of people. While proponents point to the benefits, the dam has been stalled by claims and counterclaims since 1984. The controversy can be best understood by looking at the viewpoints of each of the four provinces.

### **3.6.2 Punjab Viewpoint**

Punjab-the granary of Pakistan-desperately need more water to keep up with the growing population and industrial demands on its agriculture. A dam at Kalabagh would also supply cheap hydro-electric power.

The annual outflow of water into the Arabian Sea is considered a “waste” in Punjab, which feels that water can be used to irrigate Pakistani infertile lands.

Punjab wants not just Kalabagh, but also two more large dams on the Indus, at Bhasha and Skardu/Katzarah. It feels that the Kalabagh site is the most favourable, compared to the other two, and that it should be built finally.

### **3.6.3 Sindh's Viewpoint**

Sindh, the first province to point KBD project a blame game, is the lower riparian and strongest opponent of KBD. But its case mainly against Punjab is more on a conceptual basis of what Sindh thought it to be "theft of water by Punjab" rather than locating actual incident of theft. Sindh supports its argument by stating that by virtue of its name and history of water rights of the province, Indus River belongs exclusively to it. Therefore, claiming the construction of dams, Tarbela and Mangla and now KBD actions of theft of water at the irrigation cost of Dinsh. Further, Sindh presents many objections at the proposed dam, some of the important are as follows:

- First, Sindh objects that their share of the Indus water will be curtailed as water from the Kalabagh will go to irrigate farmlands in Punjab and NWFP, at their cost. Sindhis hold that their rights as the lower riparian have precedence according to international water distribution law.
- Second, the coastal regions of Sindh require a constant flow of water down the Indus into the Arabian Sea so that the flowing water can keep the seawater from intruding inland. Such seawater intrusion would literally turn vast areas of Sindh's coast into an arid saline desert, and destroy Sindh's coastal mangroves.
- With the construction of dams, such as Mangla Dam and Tarbela Dam across the Indus, Sindhis have seen the once-mighty Indus turned into a shadow of its former glory downstream of the Kotri Barrage up to Hyderabad. They fear that there simply is not enough water for another large dam across the Indus, let alone three.

- The Kalabagh site is located in a highly seismic zone near an active fault, and the underlying rocks are likely to contain numerous fractures, causing the reservoir water to seep through the catacomb of fractures and discharge at the lowest point around the reservoir and the Indus River.
- Damming the Indus has already caused a number of environmental problems that have not yet addressed. Silt deposited in the proposed Kalabagh dam would further curtail the water storage capacity of Manchar Lake and other lakes and of wetlands like Haleji Lake.
- President General Musharraf and other leaders, such as Prime Minister Shaukat Azia, have promised ‘iron-clad’ constitutional guarantees to ensure that Sindh gets its fair share of water. However, these assurances mean little to most Sindhis.

Even the earlier 1991 Indus Water-Sharing Accord which is a document already guaranteed by the constitutional body, council of common interest, has been violated, and that Punjab has “stolen” their water. The objection to Kalabagh in Sindh is widespread. Even political parties of Sindh that are in the central cabinet and are supported by General Musharraf, such as the MQM, have strongly denounced the dam.

#### **3.6.4 NWFP Viewpoint**

The NWFP has two main objections to the dam:

- While the reservoir will be in the NWFP, the dam’s electricity-generating turbines will be just across the provincial border in Punjab. Therefore, Punjab would get royalties from the central government in Islamabad for generating electricity. Contrary to this, however Punjab has agreed not to accept any royalties from the Kalabagh dam. The fact that the NWFP will suffer the adverse consequences of the reservoir but not get royalties is seen as unfair.



- Concerns that large areas of Noushera district would be submerged by the dam and even wider areas would suffer from water logging and salinity as has occurred with Tarbela dam.

### **3.6.5 Balochistan Viewpoint**

The Baloch are not directly affected by the dam as such. Rather, most Baloch see the dam as another instance of Punjab lording it over the smaller province. By opposing the dam they are signaling their disaffection with being the poorest province and most neglected of all in development.

### **3.7. Conclusion**

The problem in Pakistan is mainly political. The leaders of the provinces must come out with a viable solution to the problem of water-sharing. Punjab and pro-Punjab policies by the federal government needs a much-required change, so that the regionalism can be tackled out easily in Pakistan, which is a source of grave concern to the Pakistani-policy-makers.

The problem is an old one. Though various half-hearted attempts have made in the past but were of no use. The person at the local level suffers at most due to water problem. Water is one of the important constituent of the human security. It is not only availability of water but it's the need of fresh water which is important to the life. The Government of Pakistan must carry out its responsibility. Pakistan have a huge amount of good fertile land which must not allowed to lack water. The agriculture production can do a wonder for Pakistan's economy, it must be supported by genuine and rational water policy.

## **CHAPTER- 4**

# **WATER MANAGEMENT IN PAKISTAN**

## 4.1. Introduction

Chapter sixth of the *Human Development Report, 2006*, under the title *Managing Trans-boundary waters*, highlights the issues pertaining to managing river water. Its focus is on Trans-boundary water, flowing, between the two sovereign states. It also provides a glimpse of intra-state rivers which could be is source of tension between provinces.

The main message of the report is that water is the ultimate fugitive resource, crossing political boundaries without documentation or passports. The fear that trans-boundary water competition which becomes a source of conflict and future wars is exaggerated: cooperation remains a far more pervasive fact of life than conflict. “Water wars” are entirely preventable if the right political choices are made now. Water is in fact a bridge for peace. But where cooperation fails, countries which bear the costs of environmental disaster, decline in human development standards, causing increased political tensions.

We live in hydrological interdependent world. Two in every five people in the world live in river and lake basins that are shared by more than two or more countries. 145 countries, with more than 90% of the world’s population, share trans-boundary water basins. For 39 countries, with 800 million people, at least half their water originates beyond their borders. Increased conflict and cooperation are both possible. Since the Second World War there have been fewer than 40 incidents of inter-state violence over water. In the same period over 200 treaties have been signed.

By 2025, nearly 3 billion people are expected to live in countries that find it difficult to mobilize sufficient water resources. Growing competition has the potential to increase political tensions between countries. The challenge is largely political. Cooperation is not a given of the world’s 263 Trans boundary basins, of which 157 have no co-operative framework. The world’s governments need to stop thinking about water as a “national” resource in the narrow sense of that term and start thinking about

managing shared water at the basin level.

The challenge is also institutional. At the national level, competition for water is mediated through national legislatures and institutions. There is no equivalent institutional structure to manage competition for water that crosses international borders.

The report presents various features of the problem which is being related with water management at international level by the national institutions. The report talks about judicious use of water and for good management of it through various institutions.

## **4.2. Water scarcity and its management**

Water scarcity in popular terms suggests a state of immediate or impending crisis resulting from an inadequate supply of water to meet the varied demands of humans and their environment. Scarcity is relative. Freshwater hydrologic cycle is characterized by the amount of water entering the system; the volume of water captured and stored in surface and subsurface reservoirs; the amount of water that runs off land, enters rivers and streams, and is eventually lost to the oceans; and the amount of water held by vegetation and released into the atmosphere through vaporizations. Scarce supplies of fresh water is a consequence of human activity. Some 69 percent of the world's fresh water budget is used for irrigated agriculture which in turn is responsible for 70 percent of the world's water pollution (UN water year report; 2003). Freshwater may be in abundance, but safe drinking water may be scarce as a result of biological and chemical contamination from agriculture, industry and urban life.

Management of water can be put into two categories-supply-side and demand side. Supply side implies more large number of dams and large water transfer projects. Aid agencies are increasingly reluctant to fund such projects because they have a history of heavy cost over-runs; poor financial returns and ecological and social damage through flooded valleys and disrupted fluvial eco-systems. They have concluded that demand side solutions offer much better returns and less collateral damage. Economic analyses

have demonstrated that investment in industrial and domestic water-saving devices (such as low flush lavatories), in-lining irrigation canals and in-drip-feed irrigation saves more water more cheaply than can be generated from dams and other supply scheme.

### **4.3. Water in Pakistan**

The Indus River is one of the largest in South Asia, with a drainage basin covering 1 million km<sup>2</sup> and a length of 3000 km. The river and its major tributaries originate in the Himalayan and Karakoram mountains ranges of Tibet and India, and the Hindukush ranges of Afghanistan. The main stream of the river flows through both Indian-controlled and Pakistani-controlled Kashmir. The Indus basin covers 70% of Pakistan's territory-the provinces of Punjab, Sindh and the North-West Frontier Province (NWFP) and the eastern portion of Balochistan. Among the large nations of the world, perhaps only Egypt is more dependent than Pakistan on a single river-basin (Faruqui: 2004) Ninety percent of the country's agricultural output, which represents about one-quarter of the Gross Domestic Product and most of the export earnings, depends on irrigation water from the Indus.

At the time of its birth Pakistan was rich in water resources. In 1947, it had 35 million people and essentially the same annual renewable water availability as now, for a per capita availability of 5600 meters per person. Pakistan now has approximately 140 million people, and current availability is 1000 m<sup>3</sup>/ person per yr (United Nations office for the coordination of Humanitarian Affairs Integrated Regional Information Network (UNOCHAIRIN) 2002 a). Pakistan is experiencing 'water stress'; below 1000 m<sup>3</sup>/ person per year, a country is likely to experience chronic water scarcity on a scale sufficient to impede development and harm human health (Falken mark and Sindh; 1974).

UNDP report presents a negative picture and image of water situation in Pakistan. Though Pakistan has huge underground water but in the absence of adequate domestic water supply, people will begin to dig their own wells. Indiscriminate groundwater exploitation will increase many-fold, leading to further pollution and drainage problem

with no provision for sewage treatment. It will lead to further pollution of freshwater, drinking supplies without water-quality monitoring and testing, incidence of water borne diseases will continue to increase and diseases like guinea worm, which had been eradicated from Pakistan, will resurface (South Asia Regional Water Vision, 2000).

Reduction in forest resources could reduce carbon sinks in upland areas and drive the temperatures up. Increased temperatures from diminishing carbon sinks and global warming could speed up snow melt in the summer and increase of flows being discharged during short periods in the Indus River System. Increased seasonal variability will increase drought during winter and flooding during the summer (South Asia Regional Water Vision, 2000).

Deforestation also leads to erosion, which increases the sediment levels in rivers, further diminishing the storage capacity of the reservoirs. The storage capacity of Tarbela and Mangla dams are slowly decreasing due to siltation-according to the UN's update on the drought situation in September 2002. Capacity at Tarbela has declined from 9.7 to 7.3 million acre feet (MAF) and capacity at Mangala has fallen from 5.3 to 4.6 MAF (Resident Coordinator of the United Nations, Pakistan; 2002). Seepage from ageing canals and irrigation, without adequate drainage, have caused massive water losses and water logging, which reduces crop output (UN OCHA IRIN, 2002 a). Inadequate drainage has caused widespread salinization of soils, which are then unfit for production. Projections of grain production in Pakistan's water vision 2025 shows a shortfall of 11 million tons by 2010 and 16 million tons by 2020 (South Asia Regional Water Vision, 2000). By 2025, Pakistan will be short of major food crops by 28 million tons and the government will be forced to import edible oils and large quantities of wheat (South Asia Regional Water Vision, 2000). Yet with growing external debt, little hard currency and an inadequate industrial base, it will be difficult if not impossible, for the government to finance the rising import bill. Food scarcity could create famine-like conditions in the country.

There are serious political implications to the Pakistani water crisis as well. It is

already leading to tensions in both rural areas and urban centre. Most of the refugees resulting from the US 'War on Terrorism' in Afghanistan are staying in camps in arid Balochistan and Northwest Frontier Province. Yet the fossil aquifers in Balochistan are being mined, resulting in a groundwater table that is dropping by 15 feet/yr (UN OCHA IRIN, 2002a). This had led to warnings that the fossil water reserves around the provincial capital of Quetta could be depleted by 2025 (UN OCHA IRIN, 2002b). With over a million people living there now, many of whom are Afghan refugees, the possibility of confrontation over decreasing water resources, or even mass migration from city, is all too real. Such potentially destabilizing population is already occurring elsewhere in the country. Internal strife and instability caused by declining natural resources, such as water could affect Pakistan due to creation of refugees.

Declining Indus river flows into the Arabian Sea in Sindh Province have led to seawater intrusion up the delta, causing land inundation and saline intrusion of aquifers. This has resulted in the migration of thousands of farmers and fisherman from the Indus Delta, where the water is salty and unfit to drink in Karachi and other cities. This urban migration has put additional pressure on already over-stressed urban resources. Frustration over a lack of access to services in poorer areas can lead to violence as can the forced close proximity of diverse and contending societal groups (Cizlwiski and Homer Dixon; 1998).

Issues of water allocation have also caused ongoing tensions, both between and within provinces. It took 8 years for India and Pakistan to agree on Indus Water Treaty, but over 30 years for the four Pakistani provinces to agree on the 1991- Water Apportionment Accord and they are still wrangling over it. The water dispute between Punjab and Sindh has even brought together warring ethnic groups within the latter province, such as the *Muttahida -Quami -Movement* representing urban Urdu-speaking migrants to Pakistan, from India and the *Jeay- Sindh*, a militant Sindhi nationalist group. At the same time, tensions within NWFP are growing over scarce water resources being monopolized by a few families-whose entitlements date back to the colonial period-leaving the majority to deal with persistent water shortages (Matthew, 2002).

#### **4.4. Responding to Crisis**

The Government of Pakistan is in concert with multi-lateral and bilateral agencies, non-governmental organizations (NGO's) and a research group has taken steps to tackle the complex issue of water scarcity.

In 1992, the Government adopted a National Conservation Strategy (NCS), with 14 core areas. Only two of these- 'increasing irrigation efficiency' and 'protecting water sheds'- specifically addresses water issues. More recently, in February 2001, at the ninth meeting of the Pakistan Environmental Protection Council, a National Environmental Action' (NEAP) was approved. It set out four areas of focus, one of which is clean water (Government of Pakistan 2001). What must be kept in mind when considering any of these government plans and statements however is the gap that often 'exists between rhetoric and reality. Richard Matthew's Statement that the NWFP is constrained by "external pressures, population growth, and weak institutions [which] simultaneously enable destructive practices while also making it very difficult to implement effective conservation management", could almost certainly apply to the rest of the country as well (Matthew, 2001).

Nonetheless, some action is being taken. The government's stated water priorities are reflected in the projects of a number of international organizations For example, The World Bank and Asian Development Bank have both initiated projects to improve irrigation management and increase agricultural production, while the UNDP is working to support water conservation measures (World Bank in Pakistan, 2002). Mean while, the International Water Management Institute (IWMI), a non-profit scientific research organization is investigating the economic and health repercussions of waste water irrigation. Also the International Developmental Research Centre (IDRC) and the Canadian International Development Agency (CIDA) have supported the Snow and Ice Hydrology Project an operational flow forecasting system that allows better prediction of the inflows into the Tarbela and Mangla Reservoirs (2001).



#### **4.5. Supply Side Option to Manage Water**

Supply side includes building of big dams and reservoirs in order to manage the water from the river system or river. Pakistan has large number of dams, barrages, tanks and reservoirs. During pre-partition and pre-independence days Sukkur barrage came into effect which played an important role in further aggravating, the conflict between Punjab and Sindh over sharing of water from the river Indus. Sindh complained that Punjab diverts the water from river Indus into its own territory, leaving Sindh water-scarce area.

India-Pakistan dispute over sharing of water from river Indus and construction of Baglihar dam is a source of great concern for Pakistan. Although Indus water Treaty between India and Pakistan had been signed in 1960, through mediation by the World Bank, the problem is yet to be sorted out completely. In 2007 the neutral Swedish advisor Raymond Lafitte, who was appointed by the World Bank, gave his advice on the issue of conflict over the Baglihar. According to his advice the height of the proposed dam has to be reduced from 4.5 mts to 3 mts. The sluice gates, demanded by India, can be built and the amount of spills has to be reduced. Both India and Pakistan have welcomed the advice. (The Hindu: 28 February, 2007).

As a part from the conflict over the issue of sharing of water, one of the major issues which one has to address is the efficacy of dams. People who do not support the supply side way to manage water feel that dams cannot sort out the problem of water-sharing etc. They find that they are the source of various tensions in the society like displacement of people, environmental degradation etc.

Post world war, North America and Europe modernized water control and supply system for high efficiency of water use. Adequacy of water supply included development of infrastructure building, surface reservoirs, providing river training, lining of water courses from rivers to the field channels and the drainage systems. International donors

appreciated the economic benefits of investment in water projects across the world.

The first reservoir of the Indus basin- Mangla, was built “as a replacement works”, storing and transferring water from the river Jhelum to the command areas of two eastern tributaries, Ravi and Sutlej. As a part of the replacement works, India built four reservoirs on these two rivers storing finally all of their flows, except for heavy floods. The second big reservoir of Pakistan Tarbela on Indus, is also contributing to the “replacement works” through two big link canals, Chasma-Jhelum and Trimaue-Sidhnai. The replacement work means that the people who were dependent on agriculture are moving out of it due to large number of agricultural land taken over for the purpose of dam-building. It also means that Tarbela was mainly for generation of electricity while the other two are mainly for irrigation.

Pakistan’s water sector went through an important planning process between 1960 and 1965, which is hardly quoted in its real context. World Bank experts carried out and “Indus special study” on the estimation, development and management of water and power resources of West Pakistan. The experts, headed by Pieter Liefnick, A. Robert Sadone and Thomas C. Creyke, produced a Report titled “A study in sector planning the development of irrigation and agriculture”, which suggested three major changes to the philosophy of water management in the Basin:

- High feasibility of surface storage in the irrigated agriculture and power sectors of Pakistan recommending full storage and use of Kharif (Monsoon) surplus water in Indus till the year 2000. Surplus water means water which comes as a surplus release from the source or due to heavy rain in the area.
- Shifting agriculture towards high input-high yield crop systems-making system as much crop demand based as possible.
- Basin level water ownership and management resulting into the creation of

After 1978 Pakistan could not continue with reservoirs. The reasons were local as well as international. Donor's interest in funding big irrigation schemes, especially big reservoirs, decreased in the eighties and the nineties. The environmental and demographic consequences of big dam along with the low economic efficiency of agriculture within the country, regional water sharing conflict and the objection of lower riparian to up-stream water control could not be fully addressed. Despite satisfactory performance of two reservoirs Tarbela and Mangla built between 1967 and 1978 in Pakistan (recommended by the World Commission), an effective Indus Basin approach could not be evolved and implemented. The impact of developments inside and outside agriculture could not be synthesized and integrated in the planning and management of water resources in general. (Habib; 2005)

#### **4.6. International Debate on Dams**

When the World Commission of Dams (WCD) completed its report in 1990s more than 40,000 dams were criticized for disturbing nature and generating inequitable benefits. The report listed out negative impacts of reservoirs and inequitable distribution of economic benefits of reservoirs across the globe. The report says,

“The impact of dams upon natural ecosystems and biodiversity has been one of the principal concerns raised by large dams. Over the course of the past 10 years in particular, considerable investments on measures to alleviate these impacts have been made. Yet today widespread concern remains that despite improvement in dams planning, design, construction and operation, they continue to result in significant negative impacts to a wide range of natural ecosystems and to the people that depend upon them for their livelihood. Each river Basin contains many natural ecosystems including not only the aquatic habitats associated with water in the river channel, but all of the elements of the river catchments that contributes water nutrients and other inputs to the river. These ecosystems include: the headwaters and the catchments landscapes; the channel from the headwaters to the sea riparian areas; associated groundwater in the channel/banks and floodplains; the estuary and any near shore environment that is dependent on freshwater inputs. These ecosystem yield products such as wild life, fisheries and freshwater inputs. Diverting water to dams alters the natural distribution and timing of stream flows. This in turn changes sediment and

nutrient regimes and alters water temperature and chemistry with consequent ecological and economic impacts. Reduction in downstream annual flooding, in particular, affects the natural productivity of floodplains and deltas” (World Commission on Dams Reports; 2000).

The report adopts a cautionary approach in concluding that “high degree of uncertainty and limited predictive capacity argue forcefully for adoption development. Wherever possible, dams and their impacts should be avoided where avoidance is not possible capacity to manage the dam in a flexible manner and so adapt to improved understanding of ecosystem requirements, should be incorporated into dam design. This precautionary approach should be recognized as a central feature of planning design and management of dams especially as many are probably irreversible” (WCD; 2000).

The report suggests eight measures while taking up a reservoir:

- Recognize the important role of natural ecosystems in contributing to sustainable development. Conserve and enhance these ecosystems and their value to society. Recognize the importance of biodiversity and promote its conservation.
- Recognize and manage for uncertainty.
- Adopt environment friendly measures.
- Maximize adaptive capacity.
- Promote incorporation of environment management features into dam design.
- Promote the development of national legislative frameworks.
- Promote application of tools to foster ecosystems’ health. In this context, Environmental Flow Releases (EFR). EFRs are being used in 25 countries and today serves as the single most important tool for managing the ecosystem and associated impacts of dams (WCD: 2000).

Apart from the Report of the World Commission on Dams (WCD) there are many other researches which focus on the individual case studies of some prominent dams and

their ill-effects. In his book, related to, *Political-economy of Dams*, Satyajit Singh has done a case study of *Bhakra-Nangal Dam*, situated in India. The dam used to be considered as a great miracle in the history of dams in India, before this study came up with its negatives. Dr. Singh points out that the dam has done great damage to the environment and fertility of soils. The spillways deposited near the floodgates had been in effective in stopping floods in the near-by areas and flow of the spillways sands had reduced the fertility of the soil in near-by areas. In conclusion he, with the help of data, showed that the production of crops per hectare has gone down after the dam built. The ground water in Punjab plains has also gone down.

In 2006 the Government of India has set-up *Parthasarathi Committee* to study the impact of big dams. The Committee too finds that big dams are hazard to the health of environment. They disturb the natural flow of water and thus disturb the ecological balance.

Other than the ecological disaster big dams are also causing the problem of displacement of millions of people. In China the Three Gorges Dam Project the largest in the world, on Yangtze River, has led to displacement of 1,200,000 people. The construction has also made the region vulnerable to the problem of natural disaster like earthquake, drought and flood. Sardar Sarovar project in India too has led to massive displacement of people from their villages. The problem of rehabilitation is yet to get solved. The displaced are fighting with the Government of their states as well as with the central Government on the issue related with dam and displacement (Frontline; August, 2006).

Besides the negative sides, which have been mentioned above, dams have positive impacts also. It is a source of cheap and pollution-free generation of electricity. Due to its pollution-free production of electricity it is seen as the best controller of pollution. It also helps in regulating the distribution of water. It helps the dry land to get ample water for its requirement. It also helps in stopping and controlling the wastage of water.

After going through both pros and cons of dams it appears judicious to go for small dams or medium height dams on cost-benefit analysis. Dams must be environment-friendly and should not disturb the ecological balance. The problem of displacement and rehabilitation must seriously be addressed before going for dams.

#### **4.7. Dams and Water Debates in Pakistan**

In Pakistan the conflict between Sindh and Punjab over the issue of dams is not a new one. Starting from building up of Sukkur barrage, the conflict between the two provinces over the issue of water-sharing has been continuing. The recent conflict over Kala Bagh dam has re-surfaced the old problems once again. Sindh always blames Punjab for its problems of drought and flood. Due to its political strength Punjab dominates over the process of decision-making in Pakistan so it always keeps a big pie of a cake with it and distributes the rest amongst the others. The central government must authoritatively and impartially sort out the problem in order to pave a way for better management of limited water-resources of the Indus.

#### **4.8. Demand Side Option to Manage Water**

One of the greatest opportunities for managing water through demand side is going for privatization of water-supply, in order to check the misuse and wastage of fresh water. In 1968 *Garret Hardin* proposed, a particularly influential, model to explain why communities may over-exploit shared environmental resources even when they know that they are doing so and are aware that it is against their long-term demand interests (Hardin; 1968). This is known as the 'tragedy of commons'. Following the idea that public owned resources tended to be over-exploited the new UN Convention on the Law of the Sea agreed in 1982 to transfer effective ownership of much of the world's ocean resources to coastal states with broad obligation on these states to manage.

The Government of Pakistan with the help of the Asian Development Bank set up the water resources strategy study. It was undertaken by the Ministry of Water and

Power, the Office of the Country Engineering Advisor and the chairman of the Federal Flood Commission. The study's main objective was to prepare a roadmap for the future development of the water sector towards more efficient service delivery and the optimum utilization of resources to meet the competing demands of all water users in the future. The strategy and the medium term investment plan prioritize planning in water allocation, improving and maintaining the quality of water, the conservation of the country's water and the need for efficiency and financial sustainability in water service delivery. These terms means privatization and full-cost recovery with higher tariffs for the consumer.

The government has pointed to the massive losses that the public sector makes; and the World Bank has stressed correctly that it is the poor who bear the burden of these public sector losses because Pakistan has regressive taxation system. However the only thing that Government can do is to bring in the private sector and replace public corruption with private profit. If the Government guaranteed similar profits and salaries to the public sector it would do just as well. Pakistan's main problem is lack of fund as an enormous share of budget over a third of it goes to the military and another third or more goes for debt repayment and remainder is for running the government.

The urban *Lei* River consists of a catchments area of about 211 km<sup>2</sup>. About 55% lies in Islamabad (population about 3 million) and the rest in Rawalpindi (population about 3 million). The city of Islamabad is growing without considering its hydro geological set-up which is creating further flood problems in Rawalpindi. Even after the drought of 1994, ground water is being privately exploited without any central legal control measures for increasing the amount of available ground water, hoping that, it would improve drinking water both qualitatively and quantitatively and reduce loss through uncontrolled runoff and aquifer depletion which, in turn would lead to improved monitoring. The Chessboard Regional City Planning of Islamabad, as laid down, in the master plan (1960), has to ripened water problem through inter-disciplinary topographical, geological, metro logical, hydrological land hydro geological investigations. Sustainable ecological solutions ought not to be sacrificed to political short-sightedness. (Malik: 2000)

Privatization of water resources is seen as an easy option to control the over-exploitation of it. Governments of many countries have followed it. In the developed countries it is the private companies which manage the supply of water. In the developing countries also the private multinational companies like Thames international, Bechtel are making their presence felt. The World Bank and other International Financial Institutions are forcing the governments of the developing countries to go for privatization of water resources.

But the million dollar question is “Whether the developing countries should go for it”? This question is important because the developing countries have a huge mass of poor people who depends on the various welfare programmes of the government. In the wake of privatization of water, they will be at receivers end. The logic of privatization is to earn more and more profit. The MNCs will sell the water at high prices which the rich and middle class would able to afford while the poor would not.

Now the time has arrived to think out for a third alternative besides public and private sector corruption and mismanagement. Both public sector and private sector serve the interest of the rich and middle class, while the poor people are left to fend for themselves. People’s protest movements against privatization have evolved alternative ways to use and distribute water more efficiently in many parts of world. For instance:

- *Cochabamba, Bolivia:* After protests in Cochabamba, against private company, Bechtel, in 2002 the city’s water company is being restructured into a transparent public utility with high public participation. The trade union has a permanent seat on the Board. Local water committees organize supply in the poorest parts of the city.
- *Saveluges, Ghana:* The national water utility supplies water in bulk to communities which are in turn responsible for pricing, distribution and pipe maintenance. Between 1998 and 2002, the percentage of households with access to safe water increased from 9 percent to 74 percent. Geenica worm



diseases have been reduced over 98 percent.

- *Dhaka, Bangladesh:* When the employees' trade unions opposed Dhaka's water privatisation plans in 1997, the Dhaka Water Supply and Sewerage Authority tried an experiment in which it gave one zone to the union and one to local private company for one-year trial period. After a year, the Employees Cooperatives results were much better. So the water authority gave the private company's contract to the union. Not only water supply, but also revenue collection improved and wastages were reduced.
- *Rajasthan, India:* In the desert people harvest rain in large kundis meant for community use. They are large concrete saucers where water is collected and this sustains them through the dry season. Besides this there are many other water harvesting systems as well as many villages where people maintain their traditional water systems even after the arrival of piped water supply eliminating drinking water scarcity. But villages that did not retain old water systems have acute shortages.

(Source: Frontline dated April 21, 2006).

In various European countries like Austria, Netherlands, France etc. There are River Boards, with elected representatives of people from local areas to manage the water of rivers. These Boards are example of people's participation in the management and distribution of water. They do not have strong links with the central governments and work with full autonomy in their areas (Vaidhnathan; 2002).

These examples provide ample proof that besides public sector and private sector there is a third way also to manage resources through community's participation. This is a better system than the two. It empowers people and makes them accountable. More protests all over the world against dams or privatization of water have taken place because people who are going to be affected the most have not been consulted or made

part of the policy-making process.

In Pakistan due to weak civil society and lack of democratic participation at local level, the community level participation in resource management has not taken place. The strong nature of the central Government has prevented any voice from periphery. The central Government dominates over the process of policy making. They have all tools to impose their decision which they think they should. Many times their policies are biased towards a particular community or a particular region, which leads to eruption of sectarian or regional protests. These protests had never been allowed to be settled down in democratic manner. The military and coercive machinery of the state is being used to suppress the protest. The controversy regarding the Kala Bagh dam is good example of this kind of governmental attitude.

From 1990s imitative have been taken by the government with the help of International Financial Institutions and on the advice of various donors' organization to have community level participation in water management to some extent. The Government was not enthusiastic to it initially but later on it went for it under the pressure of the IFIs. In Sindh and Punjab community level participation system have been initiated under the IFIs and under the control of government (Action-Aid-Pakistan; 2002).

The Indus Basin irrigation system of Pakistan, the largest and the most complicated in the world is now aging and facing multiple problems like high conveyance losses, inequitable distribution, low efficiency in delivery, water logging salinity and low collection of operation and maintenance expenditure etc. Considering these problems, the World Bank in the early 90's proposed commercialization and privatization of the system as the only choice for its rehabilitation. However, after a series of negotiations, the Government of Pakistan agreed upon the institutional reforms through conversion of Provincial Irrigation Departments to Provincial Irrigation and Drainage Authority (PIDAs), setting up of Area Water Boards (AWBs) at canal command levels and formation of Farmer Organization (FOs) at distributor/minor levels.

It was decided to launch pilot projects in each province to test the transformation, keeping in view the complexities involved in the systems. The institutional reforms were intended to promote the participation of farmers in the operation and maintenance of the system of distribution of water and in the collection of water charges (Action-aid-Pakistan; 2002).

PIDA's acts were promulgated in all four provinces of Pakistan in 1997 followed by the planning and setting up of pilot AWBs one in each province. However, formation of farmer's organization of Water Users Federations (WUFs) was started at a few water distributaries in Sindh and Punjab even before 1997.

Community based institutions for local management of water resource focusing on "Farmer managed irrigated agriculture" was being implemented by the International Irrigation Management Institute (IIMI) at three different locations in the left bank outfall drain (LOBOD) districts in the Sindh province of Pakistan. This action research is funded as part of the LBOD stage- I project by the World Bank and the Swiss Development Cooperation (ibid).

The major focus of IIMIs approach in mobilizing social organization efforts was on social context. Initial investigation during baseline surveys indicated that the community in the Sindh pilot sites was characterized by a skewed land distribution and fairly deep rooted mistrust of the strangers. The combined effect of these two factors meant that a few influential farmers would assert in most community decisions and a field ability to reach the people would be restricted. The small farmers and the large number of tenants were reluctant in providing information or in communicating with the outsiders. The land owner tenant relationships in terms of social interactions within the community had created a strong mistrust among these people regarding any interactions coming from visitors of the area.

The pilot project was based on two major objectives. First there was a need to test the viability of social organizations for irrigated agriculture in Pakistan, which is

perceived to be having a strongly hierarchical society and a well established irrigation culture. Second it was felt necessary to test the viability of organized water users managing parts of the large canal irrigation systems so that more efficient and equitable allocation and use of water could be achieved.(ibid;) This project is yet to produce concrete results and its effectiveness yet to be tested.

#### **4.9. Conclusion**

Great Australian medium pace bowler, who has just retired from the international cricket, Glenn McGrath, was once asked how he managed to bowl with great consistency over a long period of time. He answered “I just kept on doing simple things in best way without making them to be complex. Sometimes things started looking complex then also I used to do complex things in simple way (“Sport Star; 1-8 May, 2007).

Similar to the spirit of the Australian bowler, one need to do simple things in better way to make water resources available to all. The management of water needs simple conventional as well as modern techniques like harvesting of rain water, making eco-friendly ponds etc. These techniques are very simple cost effective and eco-friendly. There is nothing complex in following these simple things. They are result oriented in both long and short term. They have been effective in many parts of the world from generations.

Pakistan has a huge volume of water resources which can address the water related problems in this country. The absence of local participation and the presence of strong federal government make the problem complex for the people. The government must understand the importance of local participation and must encourage the sustainable use of water resources by following simple conventional ways. The decision making process needs to become flexible. Privatization is not a solution rather it adds to other problems. It benefits to haves and not to have-nots. So, third way or alternative to public and private management that is local participation must be encouraged by the policy makers.

## **CHAPTER-5**

## **CONCLUSION**

In secondary school I had read a couplet in a poem *The Ancient Mariner* by Rudolph Kipling. At that time I did not understand the in-depth meaning of the poem but as I started working on my research topic I have realized that the words of that poem had a deep meaning. It was talking about the agony of the human being in future. The, couplet of the poem reads:

*Water, water everywhere, not a drop to drink.*

In this couplet the poet indicates about the presence of huge volume of water in the oceans, but they are not suitable to drink. The water which we can drink is getting less and less in amount due to various reasons like overexploitation, mis-management, pollution etc.

In its recently publicized report on the status of rivers, World Wide Fund for Nature popularly known as WWF, has declared that five rivers in Asia- including the Ganga, Indus, Yangtze, Salween-nu and Mekong-Lancang are among the most threatened in the world, as dams, water extraction and climate change all take their toll (Indian Express dated 21 March 2007).

Climate change is one of the greatest challenges which we are facing at present. This problem is one of the 'gifts' of the modern polluting industries presented to human kind. Although series of meetings and treaties have been signed by the countries to tackle the problem of global warming and climate change, all the articles of the treaties are far from implementation. Countries and governments blame each other for the existing problems but they themselves have done nothing concrete in order to address the problem. International conventions and treaties on environment have been politicized. The recent example is of Kyoto protocol. This protocol mainly addresses the problem of global warming and wants its signatories to reduce carbon emission by 2012 by substantial amount. The US and Australia have not ratified it on the plea that it may reduce their economic growth and level of advancement.

Climate change has a deep impact on fresh water as the sources of fresh water would be deeply affected by it. The fourth assessment report of the intergovernmental panel on climate change (IPCC) warns about the rising of sea level and drying up of rivers due to global warming. Himalayan rivers such as Ganges, Brahmaputra and Indus are in deep trouble as the glaciers from which they originate are receding at an alarming rate in recent years (Frontline, April 13, 2001). Other than glaciers, rivers get water from precipitation. But due to climate change the amount of rainfall is also decreasing. The pollution of atmosphere also deprives the river to receive fresh rainfall water.

In his new book *when the rivers run dry* Fred Pearce, New Scientist magazine's environment consultant, writes that global drying and rising coastal saline intrusion will lead to permanent global food deficit. He talks about four possible means of adapting to this crisis:

- To abandon regions that is drying up and shift production to the wettest parts of the world. But as these are generally the most forested places, this will lead to a great acceleration of climate change as the carbon in the trees is turned to carbon dioxide.
- To invest in desalination plants. But even the new desalination technologies produce expensive water and they use a great deal of energy. Again this means more global warming.
- Shifting of water on a massive scale, to the drying lands. But vast hydro engineering projects have seldom succeeded in helping the poor. Giant dams and canals are constructed at stupendous cost. For Mr. Pearce, perhaps the best method, which in the past has kept cities alive even in the Negev desert, is the small-scale capture of rain water in ponds and tanks. (Source: The Hindu, 11 October, 2006).

South Asia, the region with the largest population density in the world and widespread poverty has also been identified by many as an area of quickly emerging

water crisis (Molden et al, 2001). It supports 21 percent of world population with a meager 6.8 percent of annual replenishable amount of water, which it receives. In recent years regional collaboration in South Asia has progressed, gradually, in the context of economic relations, free trade, tourism etc. In the case of shared water, the progress has been slowed down by what can be called, the dominance of hydrological nationalism in the negotiating postures of various governments (Bandopadhyaya; 2007). This hydrological nationalism has become an indicator of the nationalist commitment of political leaders in South Asia. However, without arriving at an informed approach to the management of its water systems, a part of which needs regional collaboration, the South Asian countries may not achieve broader economic success and poverty alleviation would remain a very difficult national task.

South Asia is in a comfortable water availability situation when precipitation permit area is considered. The region gets enough rain. It has rivers, which contains water throughout the year. With its very large population close to 1.5 billion, it has quite an uneasy position when water availability is assessed on a per capita basis. Increase in population has led to a 70 percent decline in the per capita water availability in the region during 1950-1995 (ADB; 2003). The Monsoonal precipitation results in great temporal and spatial inequities in its regional distribution. This causes very large river run –offs during the monsoon period and very low flows during the rest of the year. Bangladesh receives heavy summer monsoon run-off and about 40 percent of the country is usually inundated when this run-off drains out into the Bay of Bengal. During the pre-monsoon months, large parts of the country face scarcity conditions. The temporal variation is difficult in the basins of non-Himalayan Rivers where the advantage of critical pre-monsoon flows provided by snow melting in the spring is not there. In addition across the lines of social divide, access to water is very much uneven and has caused chronic water insecurity for a great number of economically backward people.

As the Government of the South Asian countries having failed substantially in the proper management of water, the governments of South Asian countries are calling up the private sectors to manage the water. Privatization process has begun in Pakistan, India



and Bangladesh. Although the government working on the theory of structural adjustment programmes justifies the process of privatization but this process has serious drawbacks and disadvantages. One of the greatest problems with the privatization process is the discrimination it encourages, between rich and poor consumers. The rich could be at ease with this process while the poor would have to suffer due to their inability to pay for water. This experiment is not new in the developing countries as we have examples in some Latin American countries such as Bolivia. In some of the Latin American countries the governments have sold the river beds to the private companies which do not allow anyone to use the water of rivers without paying for it (Frontline; September 2005).

Privatization is not the solution to meet this danger rather it acts as a catalyst to ignite the problem further. The government and the enlightened civil society can do good management of the water resources. We have example of Magsasay Award winner Rajendra Singh, who has turned a drought affected region into water-efficient one. The traditional practices like conservation of rainwater in ponds, tube wells etc. should be effectively used by the governments in water deficient areas through NGOs and people's active participation.

Pakistan is a deeply politicized state. The problem of regionalism and provincialism are not a new thing in Pakistan. It has its birth in pre-partitioned India. The provinces of Sindh and Punjab were rivals in the past centuries also due to various differences in terms of cultural traits and habits. After the birth of Pakistan the rivalry between the two for supremacy started fiercely. Sindh bitterly opposed the shifting of Pakistan's capital from Karachi to newly founded Islamabad. Almost all provinces of Pakistan have their share of grievances against Punjab. They feel that they are being dominated by Punjab, which uses the resources of other provinces for its own benefit. The formation of sovereign state of Bangladesh in 1971, clearly, stated that religion cannot be the sole basis for formation and unity of the state. Pakistan is under the grip of militant provincialism. The province of Balochistan is fighting its fifth war against the Pakistan's military. NWFP is also a source of tension. The movement for Balochistan is going on. And finally the presence of Al-Qaeda operatives and other terrorist outfits is

creating problems for Pakistan.

The dispute over sharing of water from the river Indus has further heightened the underlined tensions and conflicts. The (in) famous Punjab- Sindh dispute has its beginning in the 19<sup>th</sup> century and yet to be sorted out. The problem is not that the dispute cannot be sorted out but the problem is that they do not want to sort it out. Punjab due to its dominance over the institution of the state, carves out the major share from the river Indus at the expense of Sindh. Even the independent observers feel that the Sindh is being discriminated by Punjab over the issue of sharing of water from the river Indus. The 1991 water apportionment accord has failed to satisfy the needs of Sindh and a fresh dispute over it has started once again. No party seems ready to compromise.

Due to democratic deficit and lack of participatory democratic culture and institutions, the Pakistani state plays a role of sole arbitrator. Thus it is the state which decides about all policies without taking into consideration the practical impact at ground zero level. I strongly recommend the role of people and civil society in sorting out the problem. Clue to it can be taken from the Netherlands and France, where river boards and river basin committees are working successfully to manage the water from the rivers. The members of these boards and committees are democratically elected by people from among themselves for a fixed period. The government has no substantial role to play in these matters.

Another area where the Pakistani state needs a second thought is over the building of big dams. It has been widely accepted now that big dams are posing great problems. They lead to eruption of problems like displacement of people, dangers to the fishes etc. and environmental destruction. The dams by diverting the natural flow of water disrupt the natural and environmental activities. Though they are source of cheap and non-polluted electricity, their disadvantages score over their advantages.

In Pakistan most of the dams and barrages are being built up for political reasons. Starting from Sukkur barrage to the proposed Kala Bagh dam, these are politically and

economically beneficial to Punjab at the cost of other provinces. The Sukkur barrage was built to divert the water from the river Indus to Punjab. The Kala Bagh is also going to provide the cheap electricity to Punjab. The Sindh NWFP and Balochistan are opposing its construction because they feel that further diversion of water would create drought-like situation in these areas. This dam is not alone in the river Indus, rather it is a part of series of dams and barrages that have been built on river Indus. Sukkur barrage, Jinnah barrage, Tarbela dam are already working. These dams have not succeeded in sorting out the problem of management of river Indus then what is the necessity of having another big dam on the same river?. The Pakistani authorities must understand that by doing so they are causing severe damage to the environment.

The global community has to take serious steps in the area of environment related problem before dusk. Some hard decisions and steps must be taken by the universal acts to save the planet earth. Profit at the cost of nature could be far too expensive in the coming days.

## **REFERENCES**

## PRIMARY SOURCES

Government of Pakistan (1991), *The Water Apportionment Accord-1991*, Government of Pakistan, Islamabad.

Government of Pakistan (2006), *Water Policy-Vision 2025*, Government of Pakistan, Islamabad.

Government of Pakistan (1956), *Constitution of Pakistan 1956*, Government Of Pakistan , Islamabad.

Government of India (1960), *Indus Water Treaty 1960*, Government of India, New Delhi.

Government of India (2006), *Parthsarthy Committee Report*, Ministry of water Resources, New Delhi.

United Nations (2006), *Human Development Report*, United Nations Development Programme, New York.

World Commission on Dams (2000), *World Dams Report*, Earth scan; London.

Stern Committee on economics of Climate Change (2007), *United Nations Panel on Climate Change*, United Nations: New York

## ARTICLES IN NEWSPAPERS AND MAGAZINES

Alam, I. (1998), "To Build or not Build Kala Bagh Dam", *News seminar*, Islamabad, 19 July 1998.

Amir, A. (2006), "Kala Bagh Dam and Politics", *The Dams*, Karachi, 15 April, 2006.

Ahmad, A. (2007), "Imperial sunset?" *Frontline*, Chennai, 6 April 2007.

Bajpai, K. Shankar, "Balochistan: the wider issues at stake", *The Hindu*, Chennai, 20 September, 2006.

Dandora, Isa Q. and Arshad. H. absai (2007), "Exchange Siachen confrontation for peace", *The Hindu*, Chennai, 20<sup>th</sup> March 2007.

Freeland, Jonathan, (2006), "Lesson of Gore eco film- don't vote on personality" *The Hindu*, Chennai, 20<sup>th</sup> September, 2006.

Kinani, Khaleeq (2005), "Draft water policy placed before the Cabinet", *Dams*, Karachi, 20<sup>th</sup> May 2005.

Pearce, Fred (2002), "Rivers running dry", *The Hindu*, 11 October 2006.

Puri, Balraj, "Beyond Border", *Frontline*, Chennai, 6 April, 2007.

Srinath, P. (2006), "Thirst for Profit", *Frontline*, Chennai 21 April 2006.

Ramachandran, R., (2007), "The heat is on", *Frontline*, Chennai, 9 March, 2007.

## ARTICLES IN JOURNALS

Bandhopadhaya, Jayanta (2007), "Water Systems management in South Asia", *Economic and Political Weekly*, Vol. No. xxvii; March 2007.

Canon, A. Kathleen, (2006), "Water as a source of conflict and Instability in China", *Strategic Analysis*, Vol. No. 30, No. 2, April- June 2006: pages 310-325.

Habib, Zaigham, (2005), "Water: Issues and Politics in Pakistan", *South Asian Journal*, issue no. 82; pages 35-43.

Habib, Zaigham, (2006), "Water Management and Reservoirs in Pakistan", *South Asian Journal* , Issue no.12Pages;183—197.

Mansur,Hasan,(2002)"Sindh's struggle for control of the Indus", *Himal South Asian* , Kathmandu ,6 july2002.

Rajamani, V. (2005), "Biological Management of water on land", *Current Science*, Vol. 89 no. 5, September 2005.

Sinha, Uttam Kumar, "Environmental stresses and their security Implications for south Asia", *Strategic Analysis*, Vol. 30, No. 3, July-September 2006: pages 598-615.

Varghese, B. G. (2006), "Dams Development Displacement And Tribals", *World Affairs*, Vol. 10 no. 4, winter 2006: pages 28-35.

## BOOKS

- Agrawal, Anil and Sunita Narain (ed) (1997), *Dying wisdom*, New Delhi: Centre for Science and Environment.
- Agrawal, Anil, Sunita Narain and Indira Kusana (ed) (2001), *Making Water Everybody's Business: A Practice and Policy of Water Harvesting*, New Delhi: Center For Science and Environment.
- Ahmad, Nasir (1993), *Water Resources of Pakistan*, Lahore: Mirajudin Press.
- Ahamad, Akbar's (1997), *Jinnah, Pakistan and Islamic Identity: The Search for Saladin*, Landon: Routledge.
- Chandio, A. Basher and Nuzhat Yasminted, (2000), *Achievements and Issues in 20<sup>th</sup> Century and Challenges for the Next Millennium*, Islamabad: Council for Research in Water Resources.
- Jalal, Ayesha (1992), *The sole spokesman: Jinnah, The Muslim league and Demand for Pakistan*, Lahore: sang-e-Meel Publications.
- Chitale, M.A. (2000), *I Predict a Blue Revolution*, Pune: Bharatiya Vida Bhawan.
- Clarke, R., and (1993) *Water: The International Crisis*, London: Earthscan.
- Cohen, P. Stephen (2005) *The Idea of Pakistan*, Delhi: OUP
- Devi, Uma and Naved Ahsan (ed) (2003), *Water and Wastewater; Perspectives of Developing Countries*, Delhi: Anaya Publications.
- Faraqui,naser,Asit k.Biswas and Murad Bino(eds)(2001),*Water management in Islam*,Tokyo:United Nations University Press.
- Gulathi, N.D. (1973), *Indus Water Treaty*, New Delhi: Allied Publishers.
- Green, Colin, (2003), *Handbook of Water Economics: Principles and Practice*, London: Willey Publication.
- Iyer, Ramaswami R. (2005), *Water: Perspectives, Issues, Concerns*, Delhi: Sage Publication.
- Mikiyasu, Jansky, Nakutama and Saul Wisk(ed) (2005), *International Freshwater Resources*, New York; United Nations University Press.

- Mows, Michael (2005), *Politics of Environment*, London: Earth scan Publication.
- Mol land, Sjolander (2005), *The Water Business*; London: Led Book Publications.
- Paneshwar, M.H. (2002), *Water Requirements of Riverine Areas of Sindh*, Hyderabad: Sindh Education Trust.
- Prasad. Kanta(ed), (2003), *Water Resources and Sustainable Development*, Delhi: Shipra Publications.
- Roy, Arundhati, (1999), *The Greater Common Good*, New Delhi: India Book Distribution.
- Selby, Jan (2003), *Water, Power and Politics in the Middle-East; the other Israeli-Palestine Conflict*, London: L.B.Tauris Publications.
- Sharma, Narendra ,Torbijan Damhaug,David Grey,Valentia Okaru,Daniel Rotheberg and Edeltraut Gilgan-hunt,(1996),*African Water Resources:Challenges and opportunities for sustainable Development*,World Bank technical Paper no.331,Washington D.C.:World Bank.
- Stigletz, Joseph (2006), *Making Globalization w\Work*, London; Penguin Books.
- Vaidyanathan. A and H.M.Oudshoom(ed) (2004), *Managing Water Scarcity; Experiences and Prospects*, Delhi; Manohar Publications.
- Varghese, B.G., (1990), *Water of Hope: Himalaya-Ganga Development and Cooperation for a Billion People*, Delhi: OUP and IBH Publishing Co. Ltd. For centre for Policy Research.
- Waseem, Mohammad, (1989), *Politics and the state in Pakistan*, Lahore; Progressive Publisher.
- Whit ford, Linda and scoff whit ford (2005), *Globalisation Water and Health*, New Mexico; School of American Research.



## **INTERNET SOURCES**

Benter, Fred, (2005), "Water and land resources", Accessed 15 September, [dnr.metrokc.gov/wtr/--21k](http://dnr.metrokc.gov/wtr/--21k).

Cairrus, Alexander, Geofferey .D. Dableko and Aaron Wolf (2005), "Water, Conflict and cooperation", Accessed 18 September, <http://www.usaid.gov/ourwork/cross-cuttingprograms/conflict/>.

Faruqui, A., (2004), "Pakistan's Inter-Provincial Rivalries and National security", accessed 12 September 2006, Faruqui @pacebell.net.

A' quick facts' brochure from the International Year of Water (2003), Accessed 12 September 2006, <http://www.un.org/events/water/brouchre.htm>.

"Kala Bagh Dam" retrieved from <http://en.wikipedia.org/wiki/kalabaghDam>.

"Water resources" retrieved from [http://en.wikipedia.org/wiki/Water\\_resources](http://en.wikipedia.org/wiki/Water_resources).

[www.Worldsindhi.org](http://www.Worldsindhi.org), accessed 28 March 2007.