

**GENDER, ENVIRONMENTAL CRISES  
& MANAGEMENT**

**Dissertation Submitted to Jawaharlal Nehru University  
in partial fulfilment of the requirements for the  
award of the degree of**

**MASTER OF PHILOSOPHY**

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## CERTIFICATE

This is to certify that the dissertation entitled "GENDER, ENVIRONMENTAL  
CRISES & MANAGEMENT" submitted by MS. KAVITA ARORA, in partial fulfilment  
of the requirements for the award of the degree of MASTER OF PHILOSOPHY of this  
University has not been previously submitted for any degree of this or any other university.  
This is her original work.

We recommend that this dissertation be placed before the examiners for evaluation.

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## ACKNOWLEDGEMENT

I am greatly indebted to Professor R.C. Sharma under whose supervisions this work was carried out. His able guidance constant support and encouragement throughout the dissertation work enabled me to complete all the required work.

I am also grateful to my friend Gauri who through her invaluable suggestions upgraded my work giving it a viable shape. I thank my friends Shivani, Jarin & Shubham for going through the manuscript and giving valuable suggestions.

Finally inadequate as my words are, I would like to express my gratitude for the support, trust and care, I received from my Papa, Mummy and friends (Meenu, Jarin, Pragya and other friends).

I also thank Mrs. Kameshwari who typed my manuscript efficiently.

17.7.97

KAVITA ARORA

*To*

*MA*

*You are always in the  
field carrying  
Loads on the head  
A baby asleep on the back  
Pounding  
Tilling  
My mother, you are always  
Working  
So much that I can't even  
tell the difference  
Between  
You and the fields  
What a strange beauty)*

**A.R.H. Attar, Ghana**

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# CHAPTER I

## INTRODUCTION

Women are almost Neglected, by Geography. Although geographers now recognize the existence of women; they make little effort to investigate the role they play in the society other than the terms of adjustment to a male dominated and male determined order.

So **Gender Geography** examine men's and women's spatial behavioural patterns. The perception of space indicates that they differ. It also explicitly takes into account the socially created Gender structure of society; and in which a commitment both towards the alleviation of gender inequality in the short-term and towards its removal through social change towards real equality in the longer terms is expressed.<sup>1</sup>

**Place of Gender Geography in Political Geography:** The major objective of The major objective of Political Geography is to the analysis of countries and their interrelationship and internal adaptation to the environment. According to

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1. Feminism and Geography: theory and practice, Geography and Gender: An introduction to feminist Geography London; Hutchinson, 1984.

**Hartshone** - "The study of variations of Political phenomena from place to place in inter connection with variation in other feature of the earth as a home of man," is Political Geography. In spite of this Political Geography is a legitimate child of Human Geography. Both deal with inter play of physical and human factors with the interrelationship between earth and man. Both try to discover and explain the influence of physical world on human society and the limitations it puts on human societies. They deal with diverse manifestation of symbiosis of nature and man. So every aspect of man impinges upon politics. One way or the other, the aspects of human population are of direct concern to the Political Geographer. The balance between male and female population is very significant. *The variations of political phenomena from place to place depend on the sex composition and place of Gender in social, political and economic structure of that place.* That is why Gender is important factor in Political Geography. The insights provided by 'Gender Geography' are valuable in analysing the Political Phenomena which is an important aspect of Political Geography.

Along with this, as the scale of economic activity has proceeded steadily upward the scope of environmental problems triggered by that activity has transcended



geographic boundary. Global environmental problems can trigger very different effects on the countries that will sit around the negotiating table for solving these problems and that is why environment today forms one of the basis for cardeal or discordant international relations between nations.

*Business Finance* and the media are the emerging new powers that link political and economic influence. Since capital technology and information are no longer controlled by governments, worldwide, media and electronic communication are instantaneous and may engender- a sense of helplessness disempowering people. Taking into consideration all these factors have widened the gap between rich and poor and divide the world into two blocks: *The excluded and the included. The Majority of women of this world belong to the excluded one. Environmental degradation hits the underprivileged poor who are mostly women, being hardest hit. Women, however, have also been the key to restoring the environment in many parts of the world. But their limited access to decision making processes from local to the national and international levels- has denied them access to property, capital training and education which have traditional been reserved for men. Though The environment related problems of women both rural, and urban*

are different in North and South. But because of their similar low status their problem transcend geographical and political boundaries to become trans national and global problems. Therefore, in International conferences like Rio 1992, Beijing 1995, most diverse groups of women assembled on one platform. For example the international community has been engaged since long time in a debate about the development and environment. Now 'Sustainable Development' has become the latest stage in the development discourse.

In sustainable development Gender balance is a matter of efficiency.

1. Women bring a unique and indispensable perspective to management and policy analysis in sustainable development, because they are the primary educators in the homes society, women have an unparalleled ability to instil values and communicate concepts. So their resourcefulness, born of necessity, can and should be gainfully utilized.<sup>2</sup>
2. They are agents of change in their varied responses to environmental Crisis, Women, through their interaction and networking, are creating new areas outside the

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2. It is time women were heard at the United Nations, Rosario Green, page 12, Our Planet vol. 7, No. 4.

*traditional development projects and institutions which inspire alternative path for sustainable development.*<sup>3</sup>

3. They can become a significant force for integrating environmental concerns into economic and development policy and, together with their male partners, can develop the force needed to reconcile humanity with the capacity of the Earth.<sup>4</sup> Therefore significance of the study of this subject is beyond controversy.

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3. Elizabeth Dowdeswell, United Nations under Secretary General and Executive Director, UNEP, our planet, Vol.7 No.4, page 2.
  4. Who makes the decisions? Honorine Kiplogat, Page 17, Our Planet Vol. 7, No.4.

## CHAPTER II

### ENVIRONMENTAL CRISES

Before analysing the links between women and the environment and their role in sustainable development, it is necessary to know the state of environmental problems at present. Attempt has been made in this chapter to look at man nature relationship and the consequent environmental problem's in the global context. Before going into a detailed discussion of the relationship between man and environment it is imperative to know the meaning of environment.

Environment has been defined as the sum total of all conditions and influences that affect development and life of organisms. It thus includes the conditions with which man and other living organism interact.

According to the **New Encyclopedia Britannica**

*"Environment in biology comprises the whole range of external influence affecting the life and development of an organism."*<sup>1</sup>

According to **Webster's New collegiate dictionary**,  
*"Environment has been defined as the aggregate of all the*

-----

1. The New Encyclopedia Britanica, 1979, p.912.

*external conditions and influence affecting the life and development of an organism".*

On a broader perspective, Environment can be grouped into internal and external environment. External environment condition can further be subdivided into two basic groups- physical and social. Physical conditions "include all objects, forces, situations and relations of the Physical World to which individuals are sensitive and which produce reaction in them."

The external environment also includes social conditions standards of living institutional and cultural phenomena. The external environment, infact include the life sustaining forces of nature-air, soil, water, forest and other physical aspects, and man is also a part of the environment.

Man came into existence as a separate being about one to two million years ago. His evolution was due to the changes in the physical environment. He gradually spread to different parts of the world and adopted his modes of life to the varying environments, so that man and environment are closely related since the origin of men on the earth.

However there are two dimensions of man nature relationship.

- (1) Environmental influence on Man
- (2) Man's impact on Environment.

**(1) ENVIRONMENTAL INFLUENCE ON MAN-** For more than 30 thousand generations the environment has dominated over man, shaping him according to its properties. Man lived in harmony with nature. But since less than the last ten generations man has begun to develop considerable control over nature through the progress of physical sciences.

Early people lived at low population densities, were mainly **tree dweller**, in the sense of taking shelter from his enemies in the branches and also sleeping there at night.

After that, the basis of scientific development was laid in the control of fire, the descend from the tree to the cave, with elementary control over wild animals, and this change developed man as a hunter and gatherer **Hunting and gathering** could only support a very sparse population but they were practised for tens of thousands of years in environments from tropical forests to the high Arctic and some remnants exist even today in remote and external locations. They have existed in balance with their

environment for long periods, taking only a proportion of the yield of fruits, vegetables and animals.

Till the **era of agriculture**, man believed in harmony with nature for example in India from the Vedic times, We came to know of the concern of our ancestors about their surroundings as a **Vedic Hymn** says:

"Let there be peace in universe.

- Peace in Water

- Peace in flora-----"

In the last three hundred years there has been no bound to intellectual scientific and technical development so with these developments man is now seen as the transformer of this nature.

Inspite of the fact, that man with his skill can transform the environment in some way. However, in the **present human life** environment is a great deterministic factor.

For example the prevailing environmental conditions of Tundra region imposes special conditions on the life of man plants and animals.

In the hot and humid climates of equatorial region (Amazon and Congo Basins and island of South East Asia) the

life style of peoples is largely controlled by physical environment. Another example of man's adjustment to his environment may be cited from the mountainous area of the world, in the hilly and mountainous area. The life of people is closely being controlled by terrain and geo-climatic conditions. The mountains have however always given rise to close societies self centered orthodox, and preserving old customs.

Apart from material gains and cultural achievements, the food clothing, shelter tools, technology customs traditions, socio economic institutions higher needs like religion, faith, language, literature fine arts and folklore etc. are directly or indirectly influenced by physical environment. In other words man has moulded his habits and life style according to his physical surroundings and natural environments.

### **MAN'S IMPACT ON ENVIRONMENT**

Man has occupied the centrestage among all the species by contantly confronting nature. He has a history of fighting against nature.

In the **hunting and gathering stage** fire was one of the first major ecological tools used by human beings to change



the environment for their own benefit. Indeed, fire has been used around the world by early peoples to clear the land for improved travel and hunting or for farming.

The development of **agriculture** about 10,000 years ago which occurred in at least three separate locations-South West Asia, China Mesoamerica- led directly to the first settled societies. These societies were characterized by the expropriation of surplus food grown by farmers to feed and support a growing class of non-producers. Agriculture involves a massive disruption at natural eco-system, which are cleared to provide fields for growing crops and grazing domesticated Animals.

After the latter half of the **20th century** specially in the **industrial age** man has been fighting nature with all strength and power. This fighting is for short term materialistic gains. Today there is indiscriminate deforestation, mining, construction of dams, pollution of the atmosphere in complete disregard of the historical monuments or the flora and fauna or the health of animate and inanimate industrial waste. This has assumed serious proportions leading to adverse effect on the lakes and rivers and life on this earth.

Charles Darwin once said that nature cannot lie, and today Mother Nature says her story in two words that are "Environmental Crisis."

*"The Environmental Crisis of which many voices warn us, is an element of many dimensions. Crisis present itself on an areas scale running from local to global and on a time scale from the present to the indeterminable future point of time. The threat of crisis ranges in magnitude from deterioration of small eco-systems to the total destruction of the biosphere."*<sup>2</sup>

## **ENVIRONMENTAL CRISIS: THE ISSUES**

### **(A) AIR POLLUTION**

Air is the precious natural resource without which life can not last for more than a few minutes. The problem of air pollution derives its importance and severity with the increase of activities of the human race. Industries, Vehicular traffic and domestic use of fuel, result in the release of hazardous emissions when these emissions are absorbed into the atmosphere the composition of air is charged and the presence of any solid, liquid or gaseous

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2. Strahler, A.N. and strahler, Allan. H. (1973), Interaction between natural systems and man (Macmillan), p. 496.

substances in the atmosphere in such a concentration which may tend to be injurious to human beings plants or other living creatures is called "Air Pollution".

### **Causes**

- (i) *The Thermal Power Station* rank among the worst air pollutants. These stations are mostly coal based. Coal has 1% Sulphur content and the main effluents from these plants are fly-ash, soot and sulphur dioxide. Pollutants like fly ash in small counts can reduce visibility whereas higher count cause respiratory stress diseases like T.B.
- (ii) *The Fertilizer Factories*- generate large quantities of air pollutants like sulphur dioxide, Sulphur trioxide ammonia, hydro carbons etc. from their nitrogen based plants. The fumes that are let out, causes breathing difficulties and irritation of the eyes.
- (iii) *Textile Mills* handle a variety of organic chemicals in large amounts. Their major effluents are cotton dust, smoke and other combustion wastes, kerosene vapours sulphuric acid fumes, oxides of nitrogen, chlorine etc. Continuous inhalation of these, causes hyssinosis weakens respiratory functions and reduces resistance to lung diseases such as TB and chronic bronchitis.

- (iv) *Traffic*- Their emissions contain carbonmonoxide, oxides of nitrogen hydrocarbon and lead oxides. The black smoke emitted by diesel engines contain more particulate matter than the exhaust of petrol engines. Motor vehicles are the main source of carbon-monoxide this gas decreases the capacity of blood to carry oxygen from the lungs to the tissues. Constant inhalation in dense traffic areas causes cardio-vascular problems. A survey indicate that lead concentration in the blood and urine of traffic policemen and road side shopkeeper's is higher than that of unexposed people.
- (v) *Domestic* to a large extent atmospheric pollution has been thought of as a problem of cities and industrial towns only. But latest evidence shows that air pollution within rural households is an acute problem. Over 90% of small households use dung and crop residues as fuel for cooking. Burning of cooking fuels within homes envelops is the entire indoor environment with heavy-smoke which is polluting it when fire wood, cattle dung and crop residues are burnt. Smoke containing poisonous emissions like carbon monoxide, sulphur dioxide, oxide of nitrogen particule matter and hydro carbon are released which when inhaled cause lung

and heart diseases, cancer etc. Women who do the cooking daily exposed more pollutants than industrial workers in extremely polluted environment.

**Effects:** some of the most harmful effect of air pollution are as follows.

**(A) Acid Rain-**

Every source of energy that is used be it coal fuel wood or petroleum products contains sulphur and nitrogen. These two elements when burnt in the presence of atmospheric oxygen get converted into their respective oxide sulphur dioxide and nitrogen oxide Sulphur dioxide and nitrogen oxide, which are highly soluble in water. During rain, these oxides reacts with large quantities of water vapour of the atmosphere and produce acids like, sulphuric acid, sulphurous acid nitric acid and nitrous acid, which then return to the earth surface with rain water. This is known as acid rain. Acid rain can play havoc with the human nervous system by making the person an easy pray to neurological diseases. This is because these acids produce highly toxic compounds.

**(B) Injury to Human Health**

- (i) *Due to Domestic Pollution-* The ill effect of wood smoke on health of rural women is evident from heart disease, chronic lung diseases, heart diseases like cor pulmonale cancer acute weights of children born to mothers exposed to wood smoke are the major effects of exposure to smoke.
- (ii) *Due to Industrial Pollution-* T.B. and respiratory ailments are the biggest killers in industrial areas. Sulphur dioxide and Nitrogen dioxide gases are responsible for colds, cough breathlessness, dyspnea, chronic heart and lung diseases, skin and eye irritation.
- (iii) *Due to Vehicular Pollution-* Vehicles exhaust certain carbon monoxide (CO), lead (Pb), sulphur dioxide (SO<sub>2</sub>) etc. CO is toxic even in small doses and can damage brain tissues.

The rising number of Cardio vascular deaths is attributed to the tremendous traffic congestion in Bombay. Cancer can be linked with Benzopyrene levels, which are high in Bombay. Because of the number of cars.

**(C) Damage to Plants-**

Plants, show reduced photosynthesis in the presence of pollutants. Hence the purifying action of plants absorbing

carbon dioxide and releasing oxygen is reduced resulting in, increased air pollution. Air Pollution affects crops too researchers in Japan feel that rice production has decreased with the increase in  $\text{SO}_2$  in the atmosphere. The 440 MW thermal power plant in Bhatinda, Punjab is damaging crops of thousands of acres in its vicinity.

**(D) Damage to Property by Corrosive Gases**

- (1) An extensive study of *Hyderabad's Charminar* has revealed the environmental hazards facing this important monument. Vibrations from surrounding traffic and settlement activity and exhaust fumes from automobiles have virtually eaten into the massive monument.
- (2) 40 km. from the priceless *Taj Mahal* a gigantic oil refinery has been set up outside Mathura city. The Pollution caused by this refinery will slowly destroy the *Taj Mahal*.

**(E) Smoky Fog-**

Toxic pollutants like sulphur, dioxide and carbon monoxide released into the atmosphere in the form of smoke smog is formed, which is nothing but smoky fog. Smog is toxic to plants and animals and is a great health hazard.

It is very common in Europe but rare in India.

**(F) Increase of Carbon Dioxide and Depletion of Ozone Layer in the Atmosphere-**

The production and release of CO<sub>2</sub> into the atmosphere by burning of fossil fuels, industrial activity, changing land use pattern and deforestation is on an increase. The ultra violet rays come from the sun into the earth's surface. Part of this gets converted into infra red rays and it reflected back to escape into space. This action is reduced by the presence of excessive CO<sub>2</sub> in the atmosphere as CO<sub>2</sub> absorbs radiation and thereby increases the temperature of the atmosphere and the earth surface. This is known as the "green house effect". On the other hand we have the problem of depletion of ozone in the earth's atmosphere.

The ozone layer outside the atmosphere cuts down most of the ultra violet rays coming from the sun to the earth. These harmful ultra - violet radiation would kill plants, animals, produce genetic defects and cause skin cancer, if the ozone layer filtration was absent.

The other implications of the "green house effect" would be, rise in the sea level, increase in temperature of the season. Because CO<sub>2</sub> is a natural fertilizer, most



plants would grow large and faster one may think that this phenomena would be beneficial because there would be higher yields, but there would also the many complicating effects. Weeds would also get bigger, plants would be less rice in a nitrogen and perhaps more susceptible to pests and soil might become impoverished.

In addition, natural eco-systems would be disrupted forests would 'Vanish as some plant species may adopt easily to the new condition while other would dwindle or die out.

(G) **Cancer** - As a result, radio active wastes in the atmosphere (like strontium) have increased due to atomic tests. These wastes settle on the grass where animal graze and through these animals, the waste enter the human body and bones and cause blood cancer.

## **B. WATER POLLUTION-**

Water is as essential as air for life. But the water we use is polluted in various ways which cause health hazards. Water pollution is defined to mean such contamination of water of such alternation of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or any other liquid, gaseous or solid substance into water that is likely to create a by

way of physical appearance, odour taste or render such water harmful and injurious to public health, for the pupose of domestic commercial industrial agricultural or other legitimate uses or to health of animals or aquatic life.<sup>3</sup>

**Causes** - The water is mainly polluted due to the following factors:

1. Dumping of domestic wastes like sewage in rivers or lakes or open places.
2. Industrial wastes dumped into rivers lakes or just left on the ground.
3. Excessive use of fertilisers and pesticides in agricultural practices..
4. The gaseous effluents changes into acids on coming with humid atmosphere and acid rains.
5. Bathing of human being and animals and cleaning of in pond.

**Effects** - There are a number of effects caused by water pollution.

The water borne diseases are carried mainly by mosquitoes. Mosquitoes born diseases are mainly malaria. Japanese encephalitis, dengue, filariosis etc. in India. The other water born diseases are cholera, typhoid,  
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3. Rao, J., 1988, Water in What's Environment all about, secunderabad, CES.

conjunctivitis, amylases diarrhea the spread mainly due to contaminated drinking water.

In poor communities diarrhea and dysentery have become a part of life. Wherever poverty crowding lack of hygiene and contamination of drinking water Co-exist, there are Parasites. Children in poverty victims and the main agents of transmission of these diseases. Children excrete parasitic eggs and cysts into the soil and water where they play and where they can pick up the infection. These worms drain the nutrients from the child's body and cause oral Polio vaccine to lose its effectiveness. Hence, they increase the number of Polio victims.

Water pollution also cause dental flourosis, stomach diseases, skin infection, lung diseases, pain in the joints etc. Water containing fluorides in large amounts, in likely to cause mattling or Brown staining or pitting of teeth of growing children and a lesser degree, among adults.

Water pollution has resulted in fish bills in lakes like Hussain Sagar in Hyderabad city. It is due to pollutants reducing the oxygen level in water. "Fish Kill" is also due to the sudden change in temperature of water before, during and after rains. Fisher develop a disease by consuming excess mercury which left into water with high

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dosage of mercury are effected by a disease called 'Minamata'. 'Minamata' may cause paralysis loss of speech and vision, coma numbness of limbs and finally death.

Vineyards and Papaya plantation have withered away and vegetables grown there have turned bitter. The said composition in those areas has undergone a rapid change killing plant life. Even cloths washed with this contaminated water have decoloured, shrunk and turned into rags.

**Some of the examples of water pollution around the world are as follows:**

- (i) The Kedah Palm oil mill in Malaysia is discharging its effluents into the Sungai Jarak river in Kampong, as a result of which people find the well water only. Children fall sick when they swim in the river and marine life is wiped out.
- (ii) Timber merchants in East Kalimantan in Borneo pollute the river water by polluting the logs of wood (sprayed with insecticides) down the river.
- (iii) Bombay's Minamata: The village population that consumes fish from the Kalu river (on the outskirts of Bombay) which receives effluents (from over 150 industries) like mercury, lead etc. showed symptoms of Minamata's legs, coma and death.

- (iv) Orient paper mills, Mmli: This is a Birla Concern which pollutes the some river in Madhya Pradesh due to which milk yields have gone down, and incidents of foot infections and cattle death rate have gone up.
- (v) Harihar polyfishers in Harihar, Karnataka and Gwalior Rayon together produce 45,000 cum (measure for effluents) of untreated effluents which are let into the Tongabhadra polluting the water. It also releases gases like Sulphur dioxide, carbon monoxide etc. Which affect the lungs of the villagers. The problem here is more serious because of both air and water pollution.
- (vi) Gwalior Rayans Mavoor: This is another Birla concern which has converted the Chaliyar river in Kerla into a black cess-pool due to which skin infections are spreading and dead fish float down the Chaliyar.

C. **NOISE POLLUTION** - Noise is any unpleasant or unwanted sound. It is any disagreeable or undesired sound. Noise is a class of sounds generally of a random nature. The effect of noise on human ear depends on intensity frequencies and duration. Noise levels are expressed in units called decibels (DB).

- (i) *Traffic is the main cause of noise pollution* - Research at the all India institute of Medical sciences, New Delhi

indicates that the average noise of a 3 wheeler ranges between 95 to 100 decibels and motors cycles between 100-106 decibels.

Added to this is the high level of noise generated by old cars, state transport buses and at times, vehicles without silencers or with faulty silencers. It has been found that at the rate of 20 vehicles on the road in a minute the amount of noise goes upto 105 decibels which is well above the endurance limit. Apart from the traffic resulting in noise pollution Blaring music over loud speakers during festivals and marriage processions. Jet planes and helicopters in and around the airport areas add to the already existing noise pollution.

(ii) *Industrial Noise* - Noise in industry is recognised as a major health hazard. The average worker however sees noise only as a minor nuisance. But evidence shows that excessive noise can cause long term damage to health, that had not been suspected before. Nearly 65% of industries generate noise ranging from 90 to 120 decibels. A large number of industries come under the 80 to 90 decibels levels. Statistics show that hearing impairment on account of noise pollution among the Industrial workers is on the increase.

The levels of noise which cause this kind of harm to health are quite common in industries. Heavy Industry Engineering Manufacturing, Construction Transport, ship yard and Printing Press are just some examples of these industries.

### **Effect**

- (a) *On Health* - High level of noise causes high blood pressure, loss of appetite, peptic ulcers headache, increased irritability, slower reaction time asthma, and lack of sleep. Prolonged exposure to intense noise leads to fatigue giddiness fainting, loss of weight and anaemia are serious complication can be 'tinnitus' or ringing in the ears. In some cases this can be so loud, that it does not allow sleep.
- (b) *On Auditory System* - Noise of greater intensity may cover less intense noise and make it less audible. The effect of noise of greater intensity covering noise of less intensity is called masking. The former is called 'masking noise' and the latter or 'masked noise'. As a consequence of this hearing signals would not be heard. Accidents occur in industries in this manner. High level of sound becomes intolerable and at about 130 dB auditory sensation is replaced by pain in the ear.

D. **LOSS OF FOREST** - Loss of forest can be understood as deforestation. According to Hansen (1962) forest is: a "a stand of trees, growing close together with associated plants of various kinds."

The loss of plant growth which may occur due to a number of causes those bring about an imbalance in the ecosystem as a whole. A hundred year ago, one third of the global land surface was under forest cover. The present area is one fifth and at the current rate of deforestation, it will be one-sixth by the end of the century.<sup>4</sup>

The tropical forests nearly 3B ha World-Wide<sup>5</sup> their rate of disappearance is high, between an average of about 7.5 (UNEP/FAO 1982) to 11.3 M ha per year (FAO Common Forestry April 27, 1986). These are unable to re-establish themselves when large areas are involved due to the consequent ecological and climatic changes.

Plantation ratios of reforestation to deforestation are 1:4 in Asia as against 1:10 in South America and 1:25 in

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4. Council on Environmental quality the Global 200 Report to the President, 1989 US Govt., Printing Office Washington D.C.

5. World Resources 1986, p.62, Basic Books Inc. New York.



## America<sup>6</sup>

In India according to the Ministry of Agriculture, the present day forest cover is around 67.22 M ha (22.1% of the total land mass)

### Causes

- (i) Trees are cut down for obtaining timber.
- (ii) Forest are destroyed for extraction of Resin from coniferous trees.
- (iii) Thousands of trees are felled for the construction of roads.
- (iv) Millions of trees are destroyed by snowfall and avalanches (Mass of rock, ice and snow forcefully coming down a mountain) which are caused by massive felling of trees.
- (v) Ruthless cutting of trees for grazing and cultivation on steep islakes.
- (vi) Industries like cotton, textile, rubber soap, sugar, jute, chocolate, food producing and packaging paper etc. need a lot of wood. Hence, a lot of forests are cut down to provide raw materials for these Industries.

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6. UNEP/FAO 1982, The Global Assessment of Tropical Forest Resources GEMS PAC Information Series, No. 3, UEP, Nairobi, April 1982.

(vii) Extensive Swidden cultivation by the tribals.

**Effects-** The effects of deforestation are many.

- (1) Acute fodder shortage has affected the cattle.
- (2) Tribal population and millions of forests dwelling. People have been displaced and deprived of their possessions.
- (3) Destruction of forests is posing serious ecological threat of floods water shortage, famine land slides, soil erosion, starvation desertification apart from threat to wild life.<sup>7</sup>
- (4) In 1986 it was estimated that various species Viz 406 mammals 593 bird species, 209 reptile species 242 fish species and 807 of the best known insect species such as butterflies would be threatened permanently with extinction.<sup>8</sup>

#### **E. DAMAGED AND SCARCE RESOURCES**

Apart from polluted resources scarcity of resources is a major problem at present.

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7. Rao. N., 1986, Environment Education Band book, Hyderabad Centre for Environment Concerns.

8. Suchitra, M., 1988, 'Forest and Wild Life', Secundra- bad, CEC.

Some communities have adopted ways of life that involve high levels of resource consumption waste is prevalent others by trading manufactures and skills in exchange for primary products are able to support higher numbers than their primary resources would warrant. At the other extreme, some poor communities, where numbers are increasing rapidly, can meet their basic need only by overexploiting their resources, sometimes with irreversible consequences.

(I) **Biological Diversity** five million species inhabit the earth all of which have a right to survival, of these, at least two third occur in the tropics. Almost entirely through loss of habitat, which in turn reflects the upsurge in human numbers and consumption species are becoming extinct at a rate of hundreds and perhaps thousands each year- the majority of these extinctions occurring in the tropics. Within the coming few decades the extinction rate is likely to accelerate rapidly.

This represents an irreversible loss of unique genetic materials.

(II) **Cropland resources**

Throughout the World, the quality of arable land is

being impaired by a combination of urbanization, and in most countries the rate of soil loss from croplands is far in excess of the rate of soil formation.

The combined effects of agricultural stagnation, unequal land tenure unemployment, and population growth are forcing large number of the rural poor on to marginal land tenure. This extensive spread of agriculture is the major cause of deforestation and its many consequent ecological stresses.

(III) **Water Resources-** Demand for water is growing several times faster than the population, as agricultural industrial and domestic uses increase. The reliability of water flow is being disrupted in many areas as watersheds are deforested. More than half the population of developing countries, excluding China, lacks convenient access to safe water supplies the resulting poor sanitation, in combination with under nutrition accounts for the daily deaths of 40,000 infants and small children.

(IV) **Energy Resources-** For some 200 years, humans have harnessed fossil fuels to improve their quality of life. But global output of the most convenient fossil fuel petroleum has peaked, and the per capita supply

will continue to fall as the global population rises. Coal is more plentiful, but large increases in its use will contribute to severe environmental problems, such as acid rain and the build-up of atmospheric carbon dioxide which may alter the climate. All nations, but especially the more developed nations that account for such a disproportionate share of fossil fuel consumption, face urgent challenges of energy conservation and development of alternative energy sources. As the Industrial World struggles with the end of the petroleum era. The poorest half of mankind still relies on wood and agricultural residues for cooking and home heating. This too is unsustainable since in many regions the cutting of fire wood, which is increasing with human numbers out paces new wood growth contributing to deforestation, desertification and soil erosion.

The above environmental crisis has plagued humanity today and is threatening its very survival. But now realising this fault, the majority of inhabitants of this earth women and men are seriously struggling to survive. But there is a difference between how men survive and how women struggle, which would be analysed in the next chapter.

## CHAPTER III

### GENDER IN ENVIRONMENT

In the shift from traditional to modern society development processes in the world have neglected both women and the environment. In spite of the rich heritage which worshipped both women and the environment, both were sidelined until recently.

Where for Women the prophet of Islam said :*The heaven is under the feet of the mothers,*" and *Manusmanti* said:

*"yatn Naryastu Pujyante*

*Ramante Tatra Devata:*

and also the earth is known to all early civilization and culture as the great Mother Goddess for example.

**Gaia (Greek Goddess)** is the source of all benefits. Goia was the Greek goddess of the earth. Gaia as a symbol for a scientific theory that sees the planet as a living organism. The approach implying that Women and nature are both super - green cleaners who will take care of environmental problems.

**Eve (in the Christian religion)** is a female symbol with a variety of potential implications for the environment. As virgin Eve represents pristine untouched nature; as fallen Eve, she symbolizes a barren desert wanting improvement; as mother, she implies a planted garden, an improved land, a ripened, fruitful world yet each symbol contains within it a narrative trajectory that propels colonial and capitalist development of the new world and third world land. The fall from Eden into wasteland sets up western culture's project of recovering the garden, using science, technology, and capitalism to recreate it on earth. The whole earth is developed and improved via the removal of its forested wild lands, the irrigation of its deserts, and the cultivation of its soils, not for usufruct by the many but for profit by the few.

**Isis, (Egyptian bringers)** of new life as the Nile floods and crops are planted each spring becomes for western science a symbol of knowing nature by extracting the secrets hidden beneath her role. Science's method of knowing through the disembodied mind's eye of calculation combines logical positivism with ocularetrism.<sup>1</sup>

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1. Merchant. C., Earthcare: Women and environment, Routledge, New York 1995.

**In India,** the Vedas are the figures of mother Earth goddess in the form of ring stones. The Vedas dedicate many hymns to Prithvi. The Prithvisutra being one of the greater hymns. She is invoked as born of the water of the ocean surrounded by space. She is the creator and the sustainer. In the Atharva Veda there is a Prayer which draws attention once again to ecological balances Man says, "I am the son of the earth, the rains are my father let him the Lord of the rain, fill the earth for us, Oh Earth, give as sweet words. The snowy mountain heights and thy forests, oh earth shall be kind to us and we to them."

Her fertility is symbolised through the image of the brimming vase, the bowl of plenty. Foliage and the Lotus emerge from the bowl: The water below the life giving forces of regeneration and energy of the sun blossoms as the vegetation is the sap of life (The rasa) water, earth, plant, animal human and the divine came together in images of the goddess Prithivi also identified as Devi.

Water, earth, tree provide the basis of three distinct types of goddesses and women in myth and art. The sky although the father is the atmosphere which sustains other



goddesses."<sup>2</sup>

It is one of the curious facts of social and cultural history that when civilizations advanced, the original creator and early promoter i.e. women were degraded and debased by those to whom she gave birth and whom she brought up with great care and affection. Progress of civilization says Edward Wester Mark has exercised infavourable influences on the position of the women" and the same situation stands for nature too.

"Women and men are equally dependent on the health of the world's ecosystems, but have developed different perspectives on environmental issues".<sup>3</sup> Because of the pre-existing gender differences in society the impact of environmental crises on women can be seen separately. Before analysising the place of gender in society it is cogent to know **WHAT IS GENDER**.

"Quite often 'Sex' and 'Gender' are used as synonyms though 'Sex' basically indicates biological and physical

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2. Ecology and Indian myth, Kapila Vastasyayan page 171-175, Indigenous vision peoples of India attitudes to the environment. Edited by Geeti Sen, Sage Publication, New Delhi/Newbury Park London and India International Center.

3. "Who makes the decisions? "Honorine Kiplagat calls for a programme to empower women to achieve sustainable development.

differences between members of the same species whereas 'Gender' is a socially constructed perception of an individual based on expected behaviour and specific roles assigned to him/her by the society."<sup>4</sup> Gender roles are taught and learnt within a complex set of relationships in the family and are reinforced within the socialisation process of each society. Thus children born in the society are constantly taught (by the edders) and monitored simultaneously for the ultimate goal of becoming a man or a women with gender ascribed roles and duties as per the norms of the particular society. Gender differences are perpetuated in clothing, behaviours and conduct. In addition to the informal process, the formal sphere of education also tries to reinforce the socialisation process of preparing girls to be soft, delicate polite peaceful, tolerant, passive and submissive. These processes imbibe stereo - typed roles. In most of the societies of the world, a female child is taught to look pretty and be submissive, passive docile, adjustable and to accept the male superiority of intelligence understanding and decision making.

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4. "Towards Gender Equality," Dr. Manjula Chakravarty, page 29, Yojana, April 1995.

Therefore *Simone de Beauvoir* writes in her book, "*The Second Sex*", 'One is not born but rather becomes a woman?'

**PLACE OF GENDER IN SOCIETY** Human society and social behaviour has undergone many changes over the centuries. The structure and function of societies as well as roles and duties of their members have changed according to the given situation. The more egalitarian, primitive societies gave way to hierarchical societies with unequal members - men and women depending on class (occupation and monetary status) and specially on 'Gender'. With the introduction of agricultural economy and settled life, the division of labour within the family and society at large became more prominent. The changing productive relations of agrarian society identified women more in their reproductive roles. The job of procreation (child bearing and rearing) became more important and confined women within the four walls of the house although their invisible hands were giving substantial support to agricultural economy, mostly in the form of home based tasks of agriculture and allied activities. However in this process they lost access to market and resources. The money based economy in many cases even deprived them of land and property rights. This led to private ownership of women initially to the father and subsequently to the husband and son.

As in Indian, Vedic hymns, Manu is stated to have remarked. "Day and night, the women must be kept in dependence by the males (of) their (families). Her father protect (her) in childhood. Her husband protect (her) in youth and her sons protect (her) in old age; a women is never fit for independence." Not only in India but in Europe also the degradation of the women began with Greece and from there it spread to all the European countries since the advancement of civilization till the middle of the 19th century the women was denied her proper place in society. She was deprived of common human rights.

Today, the human civilisation has made revolutionary technological advancement. The simple agricultural economy of one time has accommodated industrial development: Development of trade and commerce; advancement of communications and so on.

Unfortunately the social change especially in relation to women's position in society has not kept pace with other advancements. Gender inequality is a Global Phenomenon: only the manifestations vary in form and degree in different cultures. However, there are some Pre-existing inequalities notably:

(A) An unequal Gender division of labour and low wages - "women do two-thirds of the World's work but earn only 2 % of its income and own only 1 percent of its property. Worldwide one third of all households are headed by women. And they are disproportionately poor."<sup>5</sup>

If we take the example of developed countries - though more than 80% of British women are earning members majority of them are confined to low paid, low skilled part time jobs or are in secretarial posts. The situation in U.S.A. and Japan is also not very different and encouraging.<sup>6</sup>

In developing countries women and female children in rural areas do much of the gathering and fetching from forests, village common, rivers and wells. A poor peasant women's daily work routine can total 12 to 13 hours, many hours more than worked by men. In spite of this, their work is not recognized as work.<sup>7</sup> Women also have fewer earning opportunities, enjoy lesser job-search mobility and

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5. Elizabeth Dowdeswell, United Nations under-secretary General and Executive Director, UNEP, Our Planet, Vol. 7, No.4.
  6. Towards Gender Equality, Dr. Manjula Chakravarty, page.29, Yojana, April 1995.
  7. Women and Natural resources Feminist environmentalism of ecofeminism? BINA AGARWAL, The Hindu Survey of Environment 1995, page.7.

typically receive lower pay for the same or similar work.

(B) Gender inequalities in the intra household distribution of available resources: There is a systematic anti-female bias in access to health care and to some extent also food within rural families, especially in developing countries.

"Obscured also is the fact that each year an estimated 500,000 women die from causes related to pregnancy and childbirth. They die of hemorrhages, infections Toxemia accentuated by malnutrition and anaemia. Ninety Nine percent of these deaths take place in underdeveloped countries."<sup>8</sup>

(C) Women's unequal access to knowledge systems predicated on modern science and technology and a low valuation of their traditional knowledge systems.

(D) Women's unequal access to decision making authority at all levels including decisions about natural resource use.

(E) Gender inequalities in access to productive resources especially arable land, and associated technology. Given the limited access to private property resources

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8. Elizabeth Dowdeswell. United Nations under-secretary General and Executive director, UNEP, our planet vol.7, no.4, page 2.

to cash and to marketed goods, their dependence on common property resources has always been much more substantial than that of men of the same households.

(F) Along with these inequalities, the figures relating to crimes against women such as torture, eve-teasing and rape during the last some years have been on the rise.

In opposition to this inequality and inferior status of women, two decades ago, the new movement for women's liberation came into focus. Traditional attitudes towards women were everywhere under attack, this was the emerging point of feminism.

**FEMINISM** is usually defined as an active desire to change women's position in society. "Any group that has tried to change the position of women or ideas about women, has been granted the title 'feminist'. In her faces of Feminism (Martin Rabertran, Oxford 1981), 3. Linked to this is the view that feminism is par excellence a social movement for change in the position of women.

Feminism as a *Philosophy* shares with all tradition of progressive thought, the principle of the equal worth of all human beings. The unequal treatment of women simply because of their sex has come to be called 'Sexism'.

Sexism carries the same basic meaning for all feminists. They differ on how it originated and how it is institutionalised in culture, but all consider it as a shorthand way of describing prejudice against women. Feminism as a *Movement* was defined in the introduction as any form of social personal or economic discrimination which women suffer because of their sex.

One final concept arising from feminism is 'Sisterhood' as a symbol for the solidarity of all women, both within and outside the movement.

There have been two great waves of feminist activity in recent history. The first began in the U.S.A. in the 1830s, spread rapidly to Europe and ended when women achieved the voting right in the 1920s. The second wave also appeared first in U.S.A. in the early 1960s and has its major cultural impact there soon afterwards a new feminist movement appeared in Britain which took some of its inspiration from the American experience, but developed along very different lines. At the same time, in many other countries, women launched campaigns for their own equality which took their forms from their different cultural settings.



The major questions facing feminists today are the unity of the movement. In a period of crisis the most effective form of organisation for the future and the kind of society which the women's movement aims to create, is the ultimate goal to reform existing society, or to change it in revolutionary ways, to integrate women into man's world or to erase the differences between women and men (androgyny), or to separate women from men?

How can goals like these be achieved by the existing forms of feminist organisation?

Related to this there are many feminist theories.

**Liberal Feminism-** The distinction between liberal feminists and the rest is that liberals believe progressive reforms can lead to real and substantial equality for women as individual without the need for revolutionary changes in the economic, political or cultural realms.

**Socialist Feminism-** The work of Friedrich Engels on the origins of the family, private property and the state (1884) provided a starting point of socialist feminism.

Socialist feminist does not point to men as the main enemy of women, though they are recognised as enemies in fact. Their conflict is a shadowed reflection of a much

greater conflict women are exploited within the context of capitalism, and in the sense men are merely the agents of an exploitative system and are oppressed in their turn.

**Radical Feminism** Liberal and socialist feminism had a long intellectual history, the radical analysis of the 1960s was new.

When radical feminism first appeared, its distinguishing feature was the way in which it located the origins of women's oppression, Liberals blamed the system of learned sex roles. Socialists blamed the economic and cultural exploitation of capitalism, radicals blamed men.<sup>9</sup>

Feminist claim that of the three movements, viz Ecology, Social and Women's Movement, the Women's Movement is holistic.

All the three movement however recognise that "There are limits nature strikes back because it is not limitless, and because humans are also limited and part of nature. They criticize the exploitative character of the development of the productive forces and the reduction of nature to mere

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9. Mixed Messages: The Ories of Modern Feminism, page 62-92.  
The Feminist Challenge, David Bouchier.  
The Macmillan Press, Ltd., London.

matter to be dominated and exploited."<sup>10</sup>

The belief rests on the assumption that the primary form of exploitation is that of women by men, and once this grievance is addressed, all other forms of exploitation social inequity and ecological destruction will be simultaneously dealt with. So "The femaleness of nature and its exploitation by scientific culture, has been a source of inspiration to some feminists and has given rise to what has been dubbed '*Ecofeminism*'.<sup>11</sup>

**ECOFEMINISM** - The term 'Eco-feminism was coined by the French writer Françoise d'Eaubonne in 1974. It was meant to represent Women's potential for bringing about an ecological revolution to enhance human survival on the planet. Such an ecological revolution would entail new gender roles, relations between women and men and between human nature.<sup>12</sup>

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10. Mies, Bennhaldt Thomson and Werlof 1988:3-5.

11. On Female Nature Women, Feminism and Biology The feminist challenge, page 116, 1986 WHEATSHEAF Books Ltd.

12. Refer Judith Plant (ed.) Healing the Wounds: The promise of Ecofeminism, Santa Cruz: Now society Publishers, 1989:  
Irene Diamond and Gloria Orenstein Reweaving the World: The Emergence of Ecofeminism San Fransisco: Sierra Club Books, 1990.

The ecofeminist perspective has been enriched by the liberal, radical and socialist school of feminist thought which have been concerned with the human/nature relationship.

**Liberal Ecofeminism** is consistent with the objective of reform environmentalism to alter human relations with nature through the passage of new laws and regulations.

**Radical Ecofeminism** analyses environmental problems from within its critique of patriarchy and offers alternatives that could liberate both women and nature.

**Socialist Ecofeminism** grounds its analysis in capitalist patriarchy and advocates a total restructure through a socialist revolution the domination of women and nature which is inherent in the market economy's use of both as resources can and thus.<sup>13</sup>

It is the belief of ecofeminism that feminism instead of just focussing on women's rights, must define itself in terms off "the reality we inhabit," and this 'reality, in

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13. Charlene Sprtnak, "Histories and mysteries: in the Beginning" in Irene Dimond and Gloria Orenstein (eds.). *Reweaving the world: The Emergence of Ecofeminism* San Fransisco: Sierra club Books, 1990, pp 12; Ynestra kind, "Feminism and the Revolt "Heresis B, (Special issue on feminism and Ecological), 1981, pp. 12-16.

present times is the fact that "we are moving fast towards an ecological catastrophe and\an nuclear Armageddon" (Dinnerstein 1889:192)

Further, as different from radical or socialist feminism (to which it seems to be the closet), Ecofeminism stands for spirituality sound materialism. Thus it attempts to go beyond the limits of previous feminist studies, and gives a modest historic perspective.<sup>14</sup>

**The Movement** As a political movement ecofeminism is about fifteen years old with the publication of **Suran Griffin's** book 'women and nature' in 1978, and Corolyn merchant's. The Death of Nature : Women, Ecology and the scientific revolution in 1980. The later is an important contribution to the feminist perspective on the scientific revolution of the Enlightenment era.

In the late 1970s, Ecofeminist work and study groups sprung up. Their work has been two fold (a) confronting sexism in the daily work and process of mixed movement and (b) insisting on a broader ecofeminist analysis of the social origin of the ecological crisis.

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14. Ynestra king, "Healing the wounds : feminism, ecology, and the nature \ culture Dualism," In Irene diamond and Gloria Orenstein (eds). op. cit, pp.98-112.

In 1979 Donna Wornock began an ecofeminist resource clearinghouse (feminist resources on energy and ecology). In 1982 the Heresis collective initiated a special issue on "Feminism and Ecology", and in the late 1970s Pat Hymms and several other ecofeminists founded Women in Solar Energy' (WISE),. Article by Ynestra King, ecological feminism, (n.d.) Source: Centre for science and Environment.

In Amherst, Massachusetts, in April, 1980, a 'conference on women and life on earth : Ecofeminism in the 80s was held. It marked the beginning of an ecofeminist political context. There were more than 200 workshops and three major plenaries, which addressed feminist perspectives on ecological issues ecofeminist theory, and directions for further actions. Also from the final session come the idea for the women's Pentagon Action, a feminist Anti militarist Political Action. The focus of the first women's pentagon action held in November, 1980 was militarism. Their unity statement connected feminism ecological peace, and other issues into a holistic, anti-rhetorical stand. The ecofeminist movement was not confined to the west. In 1983, 'women and life on earth' in England, held a one-day ecofeminist conference to commemorate the publication of the book 'Reclaim the Earth' edited by Stephanie Leland and

Leonie Caldicatt. There were native American women, Madhu Kishwar of Manushi, black feminist greenham women artists, poets, and ecological campaigners. The same year the Japanese women for Life on Earth held a conference also. The New York group of women and life on earth met with the Tokyo women at the UN Disarmament Conference. Meanwhile India had already witnessed the Chipko Andolan where women had taken the initiative to save the trees from felling. It heralded the 'transfer' of the concept to the Indian context. The debate over the concept of ecofeminism began with the book 'Staying Alive' (Shiva 1988).

### **Inspite of its relevance it has some loopholes**

The discourse on ecofeminism tends to trace the connection between women and the environment either to female biology (the process of reproduction as life giving), or to ideology (that symbolic identification of women and nature) while neglecting the material basis of the connection of gender division of labour, property and the power of decision making (it is also partial and incomplete because it ignores the role of men of gender relations. It presents a partial and glorified picture of the past and over emphasises the blame on capitalism. The categorisation of women as friendly to a sustainable environment, and men

as exploiters makes ecofeminism fall into the same trap of establishing hierarchy. 15

## **GENDER IN ENVIRONMENTAL CRISES**

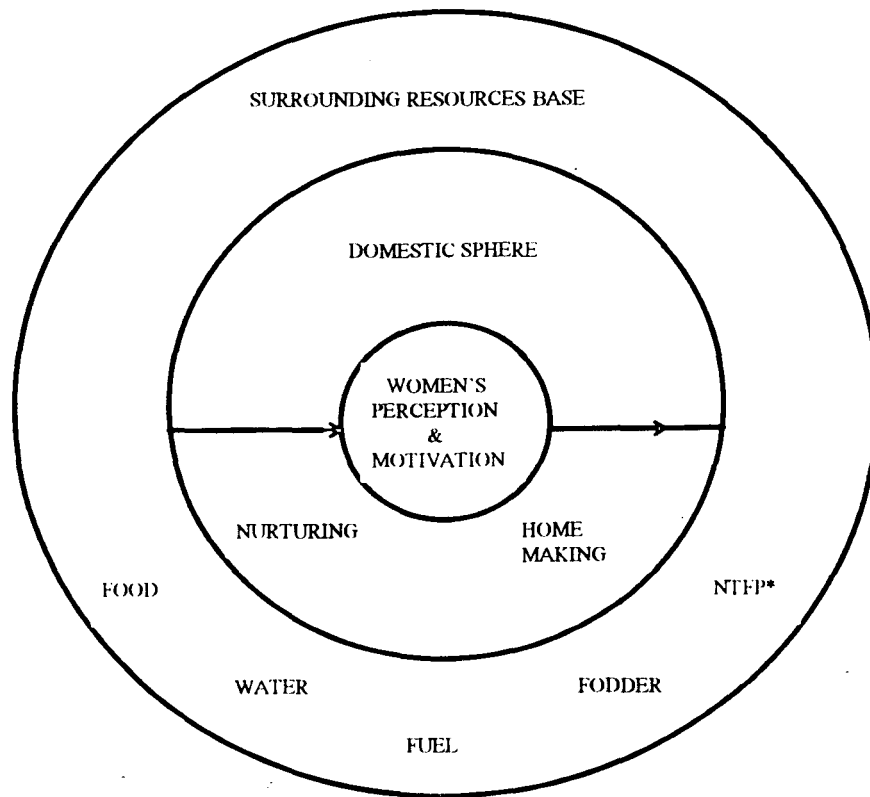
The state of the world's environment is of growing concern. Its present deterioration has come about mainly as a result of human activities especially those concerned with industrialization and urbanization. Over the years industrial processes have been responsible for pollution and degradation of air, water and land. Besides environmental degradation is also the result of unsustainable exploitation of natural resources. Degradation of environment is further diminishing the means of livelihood of poor people particularly women. As a result there is growing perception of the link between the two, i.e., gender perspective within environmental concerns. Women play a predominant role in activities related to natural resources. This in turn has a proportionate impact on women.

But the relationship between women and the environment could vary considerably across different socio economic groups or categories of Population.

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15. Nita Mishra, ecofeminist critiques of Development : An Evolution page 77.



**Figure - I**



\*Non-Timber Forest Products

**Explanation-** The figure indicates that women's perception and motivations are circumscribed by the domestic sphere of life where they have lots of roles and responsibilities related to nurturing and home making. Fulfilling the roles and responsibilities of the domestic sphere is dependent on the surrounding resource-base from where they collect food, water, fuel, fodder and minor forest produce.

The close association between women and natural resources is then different in rural and urban context. Women in urban areas may not have the same close relationship with the natural environment as those in rural areas. Consumers became agents of environmental degradation in urban areas. But they are still affected by its degradation, being faced with problems such as poor housing overcrowding and inadequate water supply and sanitation.

*In rural areas, because of socio economic roles through generations women are required to provide food, water, fuel, fodder and income from the surrounding resource base for survival (Fig.1).<sup>16</sup>*

Fulfilment of these goals has given them a special understanding of natural resources and led them to adopt a more sensitive attitude towards environment. So women are more dependent on nature that is why the degradation of an environment effects the women most but because of this dependency somehow she can also create the problems for environment. Therefore the place and role of Gender in environmental crises needs to be examined under the following three categories.

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16. "Women and the environment: from empowerment to sustainable development", Dr. Porul Rshi, pp. 52-53, Kurukshetra-Jan-Feb, 1997.

1. *Women as the problem*

2. *Women as victim*

3. *Women as saviours*

In this chapter attempt has been made to see only how women became as the problem for environment and how she is facing problems because of environmental degradation.

### **WOMEN AS THE PROBLEM**

Increasing pollution and resource depletion are the two broad causal problems associated with present global environmental crisis. Excessive consumption and the population increase, in both these 'problems' areas women may be identified as bearing particular responsibility.

(I) *Excessive Consumption* is the major cause of increasing pollution and resource depletion the problem of over and inconsiderately consumption in the world have focussed around the women, because women make up the largest group of users, who use and consume the products and services which originated from the environment.

As users, many women in **developing countries** have direct contact with the natural environment as they

collect essential items for their every day needs. Wood is the main fuel used in developing countries, women collect and sell fuelwood, often as a sale means of livelihood and fuelwood collection is now often referred to as a cause of deforestation. However, as women mostly collect dead wood, which is easier to cut, their work does not damage the trees.

But today the problem is different.

1. New Technologies are changing land use, reducing the availability of minor forest products, that women have traditionally used as a source of additional income. So they have now become more dependent on fuel wood collection for their income.
2. In many areas, traditionally useful multipurpose trees species are becoming increasingly scarce because of desertification and deforestation, this scarcity has raised the price of fuelwood. So many women now add to their incomes by selling fuel they gather for others.
3. Many rural people has been displaced from their land, because of new technologies and the development projects so women now cut wood illegally from their surrounded forests in order to ensure the survival of their families.

In this way women are forced into damaging the environment through their own desperate circumstances and need for survival.

**In urban areas** although women form the largest group of consumers it is not always easy to consider them separately from the consumer body as a whole, but some of the area in which women consumer action have relevance to the environment.

In the household, women are consumers of energy and water either directly or by the use of cookers, washing machines, refrigerators and other domestic appliances as household managers.

So excessive and inconsiderate use of fuel and water create scarcity of energy and water and degradation of these resources.

Women are consumers of wide a range of goods made from forest products. In many countries they have the option of choosing furniture made from wood, toilet tissue made from pulp. These are not the main causes but in many cases may lead to deforestation.

Fashion in the past especially those relating to women's clothes and ornaments, were responsible for the exploitation of certain species. For example the animals that were trapped for their furs and skins and products such as ivory and tortoise-shells.

Consuming products made from gendered species is still an issue today, although not necessarily related to the demands of women, often the objection is on the ground of cruelty.

Many household products however contain chemicals which when discharged, damage the environment. Phosphates in detergents remain in the water and cause algae bloom which kill many species of aquatic life.

Biodegradable substances such as certain plastics used in packaging are environmentally deteriorative, certain products used by women not only have environmental implications but are also known to be harmful to health. For example, sanitary towels and tampons which contain harmful dioxins, formed as by products of the bleaching process. Dioxins in the effluent from paper and pulp mills kill fish and other wildlife and build up in the food chain, whilst dioxin contaminated tampons and sanitary towels come into intimate contact with the body. Sanitary towels and

tampoons biodegrade over time but dioxins and plastic liners do not, and they persist in the environment. (The Ethical Consumer (July/August 1990) Manchester ECRA Publishing Ltd).

Another important issue of direct concern to women is that of the use of powdered baby milk formulas in developing countries. When the bottle feeding trend was spread by massive advertising campaigns from industrialized countries to developing countries, the consequences were devastating to infant health. Aside from the natural benefits of breast milk, the absence of safe drinking water, failure (often due to illiteracy or misunderstanding) to comply with instructions, inadequate sterilizing precautions, and the inability to afford sufficient supplies were responsible for causing infant diarrhea and led to under and malnourishment.

According to the international Baby Food Action Network (IBFAN) compared to the natural process of breast feeding, bottle feeding is in itself a non-environmental practice, using water, and energy to boil it. (IBFAN (1989) Fighting for infant survival, information Kit, Geneva, International Baby Food Action Network.)

The above are some examples of have women as consumers having an influence on the environment.

This problem has focused around the notion of green consumerism.

## II. Women As Workers in the formal and informal sectors

In developing countries, Women Workers have a link with the environment. In many cases they are involved with the environment directly. For example, they may make use of the natural environment for Women Working on construction modification. On the other hand factories where Women Work may cause environmental damage and expose the workers to harmful products.

III. **Population Pressure** is a key factor in environmental degradation. The Work of biologists Ann and Paul Ehrlich for example sees an approach which identifies population environmental ills:

*"Global Warming, acid rain depletion of the ozone layer, vulnerability to epidemics and exhaustion of sails and ground water are all related to population size ..... we should not delude ourselves: The population explosion will come to an end before very long. The only remaining question*



*is whether it will be halted by the humane method of birth control or by nature wiping out the surplus. (Ehrlich P. and Ehrlich A. (1990) The Population Explosion, New York; Simon Schuster).*

In many societies, a Woman's status depends on her bearing many children, especially sons so the population explosion is closely related to Women.

For a solution of this problem, World Bank, 1992 World Development Report advocated 'Expanding educational programs for girls to promote demand for smaller families, Although the emphasis on population control has further negative implications for Women. Cultural norms and socioeconomic factors particularly in traditional, rural societies, have generated a preference for male children, In such circumstances Women may be obliged to continue child-bearing until at least two male infants seem assured survival. In circumstances where this pressure conflicts with strong external pressure to reduce family size, as in China and India, the result has been widespread female infanticide or, more recently, foeticide.

**WOMEN AS VICTIMS** In this way sometime Women become agents of environmental crisis but there is no other group which is

# Table 1

## OVERVIEW OF WOMEN'S INTERFACE WITH THIS ENVIRONMENT AND RELATED CONCERNS

Resource/ Env. Prob.	Women interface with resource	of resource degradation/ Env. Prob and policy changes	Other issues
<u>Rural Context Crop Lands</u>	Most rural Women involved in agricultural activities either as wage labour, unpaid labour or supervisors of agricultural activity. Predominate role in terms of both number of activities and time spent. Women usually perform unskilled activities entailing greater drudgery.	Increase in Women labours and decrease in Women cultivators. Reduced availability of crop waste and animal waste as full and fodder with the green revolution technology. Increased demand for wage labour with irrigated agriculture. Increased work burden for marginal/small cultivators households with irrigated agriculture.	Gender differentials in wage earnings. Marginalised from extension services. Negligible access to land and credit.
<u>Common Land</u>	High Dependence for fodder fuel and food.	Erosion of rights and benefits with change in ownership and management. Decrease availability of fodder, fuel and food and increased work pressure adverse impact on livestock maintenance.	
<u>Forests</u>	(1) Gathering fuelwood forest produce. (2) Sale of fire wood. (3) Wage Employment (4) Production. (5) Management in plantations. (6) Predominant role in shifting cultivation.	Decreased availability of products for domestic consumption and income generation. Increased investment in time and effort for collection of products. Fall in tribal Women's economic role and status.	Exploitation in terms of returns from MFP collection.* Absence of processing technology, & marketing infrastructure to maximise returns on MFP*
<u>Water</u>	Principal collections of drinking water. Limited visible role in water management for irrigation.	Increased workload and drudgery on account of dried up and polluted water resources	Complete neglect of Women's knowledge relating to water quality and needs.
<u>URBAN CONTEXT</u> <u>Deteriorating urban</u>		Higher exposure to slum environment and therefore greater susceptibility to related problems.	
<u>URBAN/RURAL CONTEXT</u> <u>Pollution</u>		Women affected differently or disproportionately on account of the activities they perform which increases their exposure to pollutants or due to their biological functions.	

Source- Living on the Edge Women, Environment and development, Sandhya Venkateswaran.

\* MFP-Marginal Forest Products

more affected by environmental destruction than Women (Table 1).

But the significant diversity among women, between rural and urban Women and between different classes of rural women cannot be clubbed together (Mazumdar, 1989) No doubt there are common environmental problems and characteristics that all women might share, but there are significant differences in the priorities, consciousness and rules of different women across classes and regions.

So we can see the effects of environmental crisis into three categories,

- (i) Women in Rural environmental crisis (related to resource),
- (ii) Women in urban environmental crisis (related to resource and facilities,
- (iii) Women in environmental pollution.

### **Women as Victims in Rural Areas**

Probably no other group is more affected by environmental destruction than poor village women. Every dawn brings with it a long March in search of fuel, fodder

and water. It does not matter if the women are old, young or pregnant.

The following affected areas highlight Women as victims in rural areas.

**I Crop Land** In rural areas Women have traditionally played a key role in agriculture. Women's role in agriculture has traditionally involved integrating forestry and animal husbandry with farming. They supplied inputs from the forest as fertilisers to the soil or as fodder for the cattle which produces fertiliser for the soil.

## **Problems**

- (1) Women farmers of the third world are responsible for producing food for their families. Increasingly they face the problems of the degradation and reduced availability of cultivable land. With the greater emphasis on cash crop production, the cultivation of food crops by Women is being relegated to poor, marginal land. The Women find themselves working harder to produce food from increasingly overworked land, and unlike the men growing cash crops. They have limited access to fertilizers or modern farming techniques, insufficient access to and control over the vital

resource of land is a central issue in understanding the relationship between land degradation and the position of Women. It is stated that in the deeply degraded areas of **Northern India** Women suicide rates are higher than those of men, and this is possibility related to the deterioration of the natural resources base.<sup>17</sup>

- (2) Along with land degradation now in most of the developing countries policy changes in the form of technological interventions greater mechanisation and focus on higher capital intensity have attached impacted women in ways different from men. The green revolution, which focused on increasing yields of rice and wheat entailed a shift in the inputs from human to technical.
  - (A) With the onset of the green revolution technology many land owners evicted tenants and opted for self cultivation. This resulted in male labour displacement which would be the additional burden on women.
  - (B) The High yielding varieties (HYV) introduced by the green revolution have infact a low yield of fodder which increase women's work in its supply.

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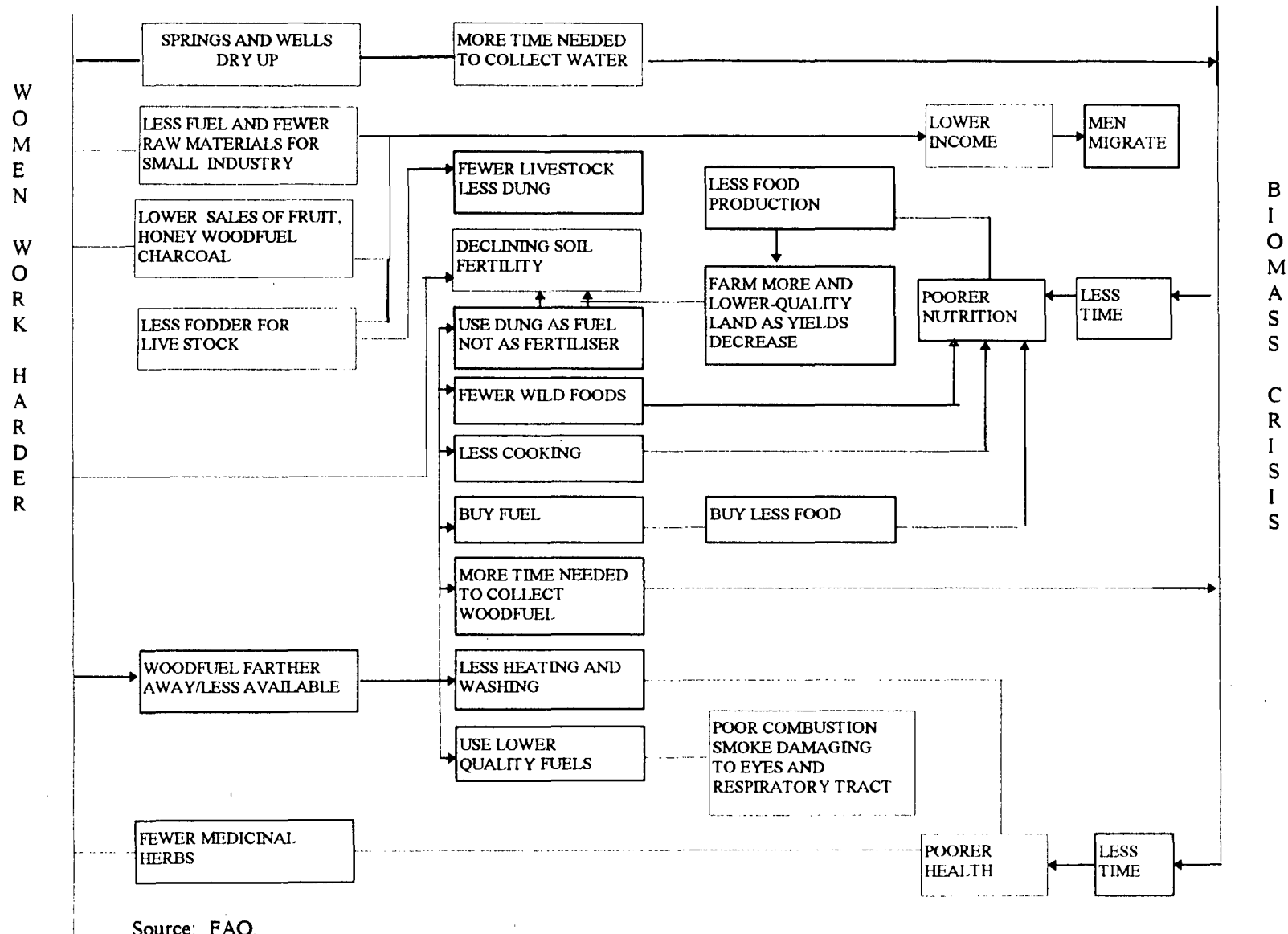
17. Van Dijk, Natasha (1990), Bath End's, unpublished paper, The Netherland.

- (C) The supply of dung for fuel has also been affected by the introduction of green revolution technology. With the spread of irrigation and HYVS it has become more profitable to use cattle dung as manure, leaving less for the labourer to forage for fuel.
- (D) Even the availability of food for household consumption has been affected by the introduction of the green revolution technology. Earlier grain was brought into the house after harvesting, thereby providing women some control on its usage. Now the commercial varieties are directly transported from the fields to the market. This results in reduced availability of grain at home, and also in a situation where the women have less decision making powers regarding domestic grain requirements and increased responsibility in providing food for the family.

II ✓ **Forest** Women in rural areas along with crop land depending on forest for subsistence and economic needs. This dependence and therefore an appreciation of the importance of forest resources has formed the basis for protection movements headed by women, such as chipko and Appiko.

Women as gatherers collect wood for sale and self consumption fodder for their livestock and minor forest

**Fig2. LINKAGES BETWEEN THE FOREST, FUELWOOD, WOMEN'S LABOUR AND HOUSEHOLD NUTRITION**



Source: FAO.

produce (MFP) for both consumption and sale. In fact, apart from fuel and fodder there is a very wide range of products that are collected from forests for domestic consumption. These include food, medicines, building materials, material for household items and farm implements, to name a few that are used to sustain the domestic economy. Since it is women who have traditionally been collecting these, they have a vast store of knowledge regarding the properties and potential uses of the range of products found in forests.

III. **Deforestation and desertification** result in a reduction in the variety and amount of biomass material available for fuel, fodder and supplementary foods (Fig. 2)

1. Lack of the *traditional source of fuelwood* causes many problems. In order to be able to cook, an alternative source of fuel has to be found and a different wood, or other biomass material may take longer to burn and produce less heat. In India, Women collect roadside weeds, try to dig out tree roots, or use cowdung as fuel.

The state of India's Environment 1984-85, centre for science and Environment, New Delhi, India. less efficient fuel makes cooking more time-consuming, and



the need to search for fuel sources also leaves less time for other tasks. Consequently Women may be forced to cook less frequently, or to change the traditional diet.

2. The diminishing amount and variety of foods available from wild plants tends to lead to a poorer quality diet with less diversity and a greater reliance on purchased foods. For example, in the African Sahel the severe reduction in the amount of supplementary food products to be gathered in the bush has affected traditional products such as vegetable butter
3. The range of roles that women perform within the forestry sector point towards the fact that not only are subsistence needs of women fulfilled through forests but also requirements of income and employment clearly deforestation then also results in loss of jobs for women specially in the case of self employment. In certain areas such as the forest regions of Orissa, it is the lack of jobs rather than lack of fuel wood which is of greater concern to the local women (World Bank, 1991).

IV. **Water** Women's traditional role in collecting and providing water is well established. Not only have they been the principle carriers of water, but it is they

who decide which water source to use for different purposes, how much water to use and how to transport, store and draw the water.

1. For many women the daily task of obtaining safe water for the family is their most pressing problem. As water sources dry up, become choked with silt or contaminated by pollution, the provision of this essential basic resource becomes how to walk further, and wait longer at the water points, but also the return journey, carrying the heavy load, can damage their health.

To save time nearer, unsuitable source may be used, such as ponds where children bathe and clothes are washed, or irrigation ditches polluted by agricultural chemicals.

In India, there was a dramatic increase in irrigated sugar cane cultivation in the early 1980s, As more water was consumed by this cash crop, women in a nearby village found their water supply diminishing <sup>18</sup>

Children's health is most at risk from lack of clean drinking water, but adult Women are more exposed to

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18. Shiva, Vandana (1985) 'Women and the water crisis', Ecoforum Nairobi, Environment Liaison center International.

hazards of polluted water than are men. They are the primary water carriers; they wash clothes and utensils; and when children are sick, women who must nurse them are more likely to succumb to the infection than are men. Clearly, poorer households suffer most, as they have less access to clean water sources and are less likely to have help in domestic chores.<sup>19</sup>

2. *Fish supplies* are diminishing as a result to environmental degradation and large-scale commercial fishing methods. Fishing is generally done by the men, but in some areas it is an important part of the Women's Work. Many Women are involved in fishing in the shallow waters of low lying coastal areas and their activities will be affected by any rise in sea level resulting from climate change. In southern Nigeria, where many rural creeks are being polluted by the oil industry. (Muduka, J. 'The better life programme', unpublished paper Nigeria, and in Sierra Leone). Local ponds fished by Women are sitting up. Women's income generating Work of processing and preparing fish is also affected by reduced fish supplies.

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19. The state of India's Environment 1984 - 85, centre for science and Environment, New Delhi India.

**TABLE 2**  
**IMPACT OF NATURAL RESOURCE DEPLETION & ENVIRONMENTAL**  
**DEGRADATION ON WOMEN**

<b>Affects</b>	<b>Consequences on Women</b>
<b>TIME</b>	Extension in time and energy for collecting natural resources from greater distances.
<b>INCOME</b>	Reduced income from non timber forest products Improper cattle feeding leading to less milk yield. Reduced crop production time affecting crop income especially in hills.
<b>NUTRITION</b>	Contribution of gathered foods in the diets reduced. adverse effects due to firewood shortage Eating Cold, left over and less food.
<b>HEALTH</b>	Nutritional deficiencies More pollution of rivers and ponds with fertilizers and pesticides. Affecting health of expectant mothers & their babies.
<b>SOCIAL SUPPORT</b>	Population displacement due to resource depletion or dam construction.  Greater migration of males.

Source: Agarwal, B., 'Women and Natural Resources: Feminist Environmentalism of Ecofeminism?', The Hindu: Survey of the Environment, 1995.

So when these resource areas are degraded the poor rural Women are adversely affected. (Table 2)

### **Women as Victims in Urban Environmental Crisis**

Women in urban areas are also affected by urban environmental degradation they faced problem such as poor housing overcrowding and inadequate water supply and sanitations. The environmental conditions in urban areas in general and within slums in particular, are of extreme relevance within a gender context in view of the high proportion of the urban poor population constituting Women and children and the specific difficulties faced by them arising out of living in such conditions. It is estimated that 68 percent of the 50 million urban poor in 1984-85 constituted Women and children (UNSCEF 1990).

The number of Women in urban areas is increasing as more migrate from the countryside; of particular note is the increase in the number of Women-headed households. Many Women have to live in the poor, urban squatter settlements, located on unsuitable land, such as steep slopes susceptible to landslides badly drained, frequently flooded low lands, land dissected by gulleys and ravines.

(1) Even though the physical environment of slums and other low income urban settlements is the same for both men and women, it is the Women who spend almost the entire day within that environment. The men employed in other areas are away for the better part of the day whereas the Women, more often than not, even carry out their economic activities within the home environment. Most income-generating activities or skill development that takes place for Women is focused around activities that can be performed out of home.

This leads to continuous exposure to their polluted and unhygienic surroundings. The Women, along with their children, therefore face a much higher susceptibility to the adverse impacts of such an environment.

(2) Moreover, it is Women who are responsible for providing water food and several other requirements. Clearly, if this implies cooking on inefficient stoves in unventilated homes, it is they who are affected by the pollution much more than anybody else.

(3) Apart from the general health hazards arising out of these abysmal sanitation conditions, Women and girls doubly affected by the denial of privacy. Because defecation has to be done in the open, Women have to do so early in the morning or late at night. This often

requires their having to control themselves, which over along period of time has adverse health implications. Even where community toilets are provided, they are often at such a distance, that at night, in the absence of electricity, it is difficult to use them.

These are some issues that articulate the special needs and concerns relating to women in slums and pavement dwellings. In this context it is clear that even though urban environmental issues are of general nature, it is Women who are affected more severely and are therefore more concerned about improving these conditions.

It is with this realisation that the need for Women's involvement in shelter and basic services programmes has gained importance.

The depletion and degradation of natural resources in rural area's and the basic facilities in the urban areas is only one aspect of the deterioration of the environment. Another equally important aspect of this deterioration, which affects human health and other aspects of life, is the pollution of existing resources and use of hazardous products.

**Pollution and Women** Although pollution is the general health aspects, that is gender natural but the difference is that the high incidence of malnutrition present amongst Women and Women's low metabolism and other health problems affect the capacity of their bodies to deal with chemical stress. And also there exists a substantial paucity of studies on the impact of chemicals and hazardous substances on Women specially the difference is susceptibility to and impact of toxicity arising out of Women's special Physical and Physiological features.

Pollution and chemical hazards affect human health in several different forms, some of which are

(1) *Air Pollution*

- (a) Indoor air pollution through use of biomass fuel
- (b) Urban atmospheric pollution caused by surface transport
- (c) Industrial pollution

(2) *Water Pollution*

(3) *Noise Pollution*

(4) *Use of Hazardous Subsistences*

**1 AIR POLLUTION**

- (a) **Indoor Air Pollution** Combustion generated pollutants from biomass fuel used for cooking and heating are one of



the most commonly found indoor air pollutants, specially in rural areas, leading to severe health problems and in extreme cases even death.

Biomass fuels, In the form of wood, dung and crop residues are extensively used even today in a large number of households. These biomass fuels emit a large number of pollutants in high quantities.

The pollutants typically found in biomass smoke are suspended particulates, carbon monoxide, nitrogen oxides, formaldehyde, benzo (a) pyrene (BaP) and compounds such as polyaromatic hydrocarbons.

### **This has a detrimental effect on Women's Health**

Prolonged exposure to such high levels of pollutants, clearly has a very adverse impact on the health of women, who spend anywhere between three to five hours every day cooking with biomass fuels. These effects could include eye problems, respiratory problems, chronic bronchitis, lung cancer, ear, pulmonary and adverse reproductive outcomes (Table 3).

#### **(b) Atmospheric Pollution Caused by surface Transport**

People living in most urban areas specially the metropolitan cities are adversely affected by pollution

of transport. Not only people travelling on the roads but even those in their houses especially, where these are located in the centre of town, feel this pollution every day as it manifests itself in various small and major problems. And, whereas a large amount of pollution may be caused by industrial releases of gases and suspended particulates, a very significant part of urban pollution is the result of surface transport.

Transportation sources are responsible for contributing large quantities of hazardous substances such as carbon monoxide, hydrocarbons oxides of nitrogen, sulphur dioxide and lead to name a few, to the atmospheric environment.

Whereas these pollutants would be gender neutral, but studies on their impact on Women's reproductive function indicate the contrary. Carbon monoxide is known to cause foetal death and brain damage (GOI, 19850, carbon monoxide toxicity is aggravated by pregnancy as well as anaemia.

TABLE 3

Possible Health Effects of Biomass Fuels

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Effects of smoke (acute and sulacute)	conjctivities, upper respiratory irritation/inflamation acute and respiratory irritation/inflamation acute respiratory infection (ARI)
Efects of toxic gases	acute poisoning
Effect of smoke (Chronic)	Chronic abstructive pulmonary Disease (COPD), chronic bronchitis, cor pulmonale Adverse reproductive outcomes, cancer (lung)
Effects of heat:	
* Acute	Burns
* Chronic	Cataract
Erogonomic effects of croucing over stove	Arthritis.

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Source: WHO 1991, Sandhya Venkateswaran living on the Edge,  
Women Environment and Development, Page 140

Apart from producing anaemia, colic and neuropathy, lead exposure is known to result in premature delivery, abortion, sterility, infant mortality and mental retardation. Not only does it cross the placental barrier affecting the foetus but also finds its way to the mother's milk, affecting the child after it is born.

### **(c) Industrial Pollution**

The use of hazardous products in industry or toxic substances generated through product processes affect the population in two ways.

As workers in the industries coming in contact with hazardous products or as part of the community living around the industry, which uses the resources that are polluted from effluents and wastes generated by the industry.

The industries typically known to produce such wastes include fertilisers, dyes and pigments, thermal power plants, chemicals, pesticides, to name just a few.

The type of wastes generated could be either liquid or solid which are stored near the industry site or discharged into the surrounding environment.

Whereas it is true that certain effects would be gender neutral there is evidence which suggest that there does exist a difference in tolerance levels and endocrine effects. Women could be more adversely affected, not only due to the impact on their reproductive functions, but also because of their lower levels of general health and hemoglobin, which increases their susceptibility to toxicity.

There are numerous industries that discharge dangerous pollutants into the atmosphere on a regular basis. Thermal power plants for example, such as those in the Singrouli belt on the Uttar Pradesh, Madhya Pradesh border, release sulphur dioxide and fly ash emissions. Sulphur dioxide, in addition to human beings, is known to affect animals and vegetation. Fly ash contains many trace elements such as arsenic, cadmium, chromium, mercury, lead, fluoride and beryllium. Each of these affects Women's reproductive or general health. Cadmium affects placental metabolism adversely and leads to retarded faetal growth. Mercury has been detected in the amniotic fluid in case of exposure during pregnancy, Both mercury and lead cause

**TABLE 4**

**Examples of Environment Agnets that  
Affect Reproduction in the Female**

<b>CHEMICAL</b>	<b>KNOWN EFFECT ON CONCEPTUS OR REPRODUCTIVE FUNCTION</b>
<b>METALS</b>	
Lead	Abortion, mental deficiencies
Mercury	Abortion, menstrual disorders birth defects.
Cadmium	Related foetal growth
Selenium	Abortion
<b>PESTICIDES HERBICIDES ORGANIC SOLVENTS etc.</b>	
Dioxance	Abortion, birth defects stillbirth
Polychlorinated biphenyls	Retarded growth, natural depression
Pesticides	Birth defects, mutation neural alterations, overian dysfunction, abortion.
Herbicides (2, 4-D & 4, 5-T)	
Benzene, Tolcuene	Stillbirth, birth defects Menstrual dysfunction anemia.
<b>Gases</b>	
Carban monoxide	Factal death, Brain damage
Ozone	Abortion, birth defects
Anaesthetics	Infertility, birth defects.pa
<b>Radiation</b>	
X-Ray, gamma ray	Mutations, microencephally mental.
<b>Drugs and Hormones</b>	
Thalidomide	Birth defects
Diethylstillbestral	Vaginal adenocarcinoma in offspring
Alcohol	Neural deficiencies, growth retardation.

Source: Butcher (RL) and Page (RD) Introductory Remarks: Environmental and Endogenous Hazards to the Female Reproductive system. Environmental Health Perspectives: 35: 1981; 3517 in (GOI, 1984).

abortion and birth defects. Arsenicals and fluorine are known to cause aplastic anaemia and multiple haematologic abnormalities. Examples of environmental chemicals affecting Women's reproductive system are given in (table 4.)

## (2) WATER POLLUTION

A large proportion of industrial wastes and effluents, from the wide range of industries, are either discharged directly, or find their way, into water bodies such as lakes, rivers and ground water aquifers.

In addition of biological reasons which make Women more susceptible to health problems arising out of contaminated water, Women are more exposed to such problems arising out of contaminated water. Women are more exposed to such problems because unlike polluted air, their contact with polluted water is greater than men. As a result of the division of labour, both within and outside the house, they not only till water from the source and carry it, but also do most washing as well as stand in flooded fields for hours at a stretch during rice transplanting. Additionally of course polluted source of drinking water result in increasing Women's burden in terms of larger investments in supplying water from alternate sources.

### **(3) NOISE POLLUTION**

Prologed exposure to noise (continuous or intermittent) is possibly one of the most ignored forms of pollution, beyond the normal threshold of hearing is known to disturb the digestive system nervous system, emotional balance and cause mental illness, depending on the level of exposure. This gains significance in view of the fact that while WHO recommended noise exposure limits range from 45 dB (A) to 75 dB(A), but it is found that now specially in cities noise level ranging between 60 dB (A) to 90 dB(A) , at times exceeding 100 dB(A) .

For the Women in such cities this gains special significance in view of the fact that prolonged exposure to noise is said to have adverse affects on foetal development. Studies on babies born to Women residing close to international airports in support of correlation between birth deformities and exposure of pregnant Women to noise.

**(4) USE OF HAZARDOUS SUBSTANCES** Pesticide residues which, through crops, find their way into foods, chemicals, in detergents and in cosmetics, chemicals used in foods such as sweeteners and flavouring agents are some examples of chemicals that are consumed by



people every day as a matter of routine. Their impact on Women is distinct either because of Women's biological functions or as a function of the activities Women perform which brings them into greater contact with these chemicals.

**So Women are Victim** as human beings when the earth is affected by global environmental problems like the green house effect, ozone depletion, Acid rain etc., Women are victims as unequal human beings when their region affected by resource degradation and Women is also victim as Women by various pollution because of her reproductive function.

## CHAPTER IV

### ROLE OF GENDER IN ENVIRONMENTAL MANAGEMENT

Nature and women suffer equally when the development model is based on destruction of the environment and overexploitation of natural resources. It is true that, women are the hardest hit by deterioration of the Environment but they are also the greatest promise for its future. They have profound knowledge of natural processes and elements; Thus is why they are the main healers of communities and the earth itself. There are thousands of examples of women who have taken the initiative to manage, conserve, heal and protect the environment on which they are so dependent - despite the increased difficulties they face in their daily tasks.

Therefore feminists concern for environmental issues is frequently expressed through a saviour's approach, one stream of ecofeminism trace the connection between women and the environment to *female biology*. Women are traditionally believed to have a greater sense of the worth of relationship and as childbearers to be closer to the rhythms of biological and natural processes. In their traditional domestic and natural ruler they are in day to day touch with

tender caring and nurturing concerns. So women have apparently more positive role in nurturing biological diversity. *"But women's consciousness of the environment and therefore their conservative approach is not something inherent, arising out of their being women as it is often propagated. It is rooted in their roles and tasks, which led them to interact extensively with natural resources for survival".*<sup>1</sup>

As cultural guardian and the first educator, women value the environment in special ways. Over much of the Third World, they are the main environmental managers. So there is a need to recognise the potential of the women in environmental management because sustainability cannot be accomplished without the active, equal and just and equal participation of women.

## **I. ROLE OF WOMEN IN SUSTAINABLE DEVELOPMENT**

Development is the center point of present environmental crises, so now developmental & environment relation is at the center of the development discourse.

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1. Venkateswaran. S., Living on the Edge Women, Environment and Development, Friedrich Ebert Stiftung: New Delhi, 1992, p.2.

The **Ex Secretary-General of the United Nations, Javier Perez de Cuellar** Conceptualized the connections between environment and development in this way.

"The environment is where we live. It is the air we breathe the Water we drink, the soil that grow our food and gives us minerals. It is all living things that surround us. Development is what we do with these resources to improve our lives... We often damage our environment by having too much or too little. Over consumption leads to waste which pollutes our environment and use our resources... Crushing Poverty and growing populations create great pressure on the environment".<sup>2</sup>

So over the last few years, there has been in considerable 'development which has been criticized and the concept of environmentlly sound development or sustainable development has emerged.

According to "our common future (1987 "The World Commission on Environment and Development, sustainable development is "... Development that meets the need of the present without compromising the ability of future

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2. Women and Sustainable Development: A International Dimension By Krishna Ahooja - Patel, Ashish Publishing House, New Delhi.

*generations to meet their own needs...in essence...a process of change in which the exploitation of resources, the direction of investment the orientation of technological development, and institutional change are all in harmony and enhance both the current and future potential to meet human need and aspirations".* Within this definition we can examine the connection between women, development and environment globally and locally, scientifically and socially in order to develop a sense of how women's own action affect the processes of development and nature now and in the future.

## 1. **WOMEN AS SAVIOURS**

Women around the world are playing a key role in the protection of environment.

- (A) **Protection** Women act as resource saviours. Women tend the field and grow the food that feeds their families. Women haul the water and collect the rainfall they gather the firewood and in case of crisis are the first to raise the alarm. The case of **Chipko Movement** in India and the threat of deforestation was enough to rally the local women to civil disobedience to protect the eco-system. They knew that the forest provided more than timber, that its dead limbs provided the heat

to cook their meals, that the living biomass of the forest provided pure water, that the trees held the soil along the hillsides. Also in the case of **Dongri-Paintoli** oak forest, the successful resistance by women to logging in the forest for establishing a Potato seed project.

- (B) **Restoration** - Other women around the world have also recognized the need not only to protect biodiversity but to restore and recreate it. Wangori Maathai founded Kenya's Green Belt Movement, involving over 80,000 women to date in the planting of trees. They maintained more than 1000 nurseries and plant not simply mono - cultural plantation but a variety of trees to provide for human and non human needs. In many societies, women have led the resistance to non-sustainable resource exploitation. Penan women and children have spent weeks on logging blockades in Sarawak, attempting to protect what is left of the worlds oldest rainforests on the island of Borneo. The rate of harvesting there, is clearly not sustainable and the rate of species extinction which accompanies it is appalling.

(C) **The Power of the Consumer** - In the North, women also play a significant role as consumers. many consumers choose to avoid non sustainably harvested products whether from *Canada's temperate rainforests* or the *Brazilian Amajon*. This Changes the economic realities of doing business. The Premier of *British Columbia* recently defended significant wilderness protection by saying that the consumers of their wood products in Europe expected no less.

But women of the North are not uniformly wealthy consumers. Indigenous women often have a subsistence livelihood where they are close to the land and its biodiversity. *Worma Kassi a G, Wichin* women and former member of the Yukon legislature has dedicated particularly through opposition to the proposal from the previous United States Administration to open up the porcupine caribou calving grounds on the United States side of the border to oil and gas development. Meanwhile, *Cree Women* of Canoe Lake Suskatcheacan spent months on Canada's longest running blockade against clear-cut logging. And *Innu* women from *Labrador* have toured Canada seeking support in their struggle to stop their territory which threaten the world's largest remaining caribou herd and several endangered

species.<sup>3</sup>

- (D) **Individual's Voice** - Many of the Voices, calling for the protection of biodiversity are women's voices.

*Vandana Shiva* of India is an internationally renowned expert on the risks of biotechnology and has raised awareness of the potential loss of genetic diversity as a result of the patenting of life forms. In Colombia, *Morgrita de Botero* has increased awareness of the need to protect biodiversity through the Green University.

*Colleen Mecrory*, Global 500 Laureate and Winner of the Goldman Prize, who has devoted her life to the protection of Canada's ancient forests has been another woman from this field. Late *Rachel Carson* in the United States raised the alarm three decades ago, about the dangers to biological diversity and human health from the indiscriminate use of chemical pesticides.

*Uly Sigar* and her "green guitar" are playing sweet conservational melodies throughout Indonesia, over the years. M.S. Sigar has gathered traditional music from Indonesian Villagers and developed the lyrics to teach

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3. May. Elizabeth., Women the resource managers, our planet, vol.6, no.4.



villagers about conservation. Uly Sagar is one person who has used her musical talents to motivate people world wide towards improving and protecting the environment. **Sister Maria Aida** is Benedictine nun from Manila, in the Philippines whose efforts in spreading the gasket of conservation through public awareness programmer training activities and field projects in urban and rural areas have achieved outstanding environment results. **Hina Cooper** (Global 500 Laureate 1989) is known as "Whoea te Muta" (Lady of the North) by the Maori population of New Zealand. During her lifetime she has contributed enormously to the well being of fellow maorics and to New Zealand's environment.

*So women have the solution the need is to listen to them and work with them.*

## 2. WOMEN AS ENVIRONMENTAL MANAGER

Sometimes women are too easily called "*Environmental Managers*" because of their tasks in the supply of food full fodder, water etc. There is a difference between save and management. *Management* implies that deliberate measures are taken to increase or sustain the resource and its yield. But it has been seen that they not only use but also manage the resources for example through their occupation with food

collection. Women developed knowledge on plant breeding which was a requirement for agriculture to settle. Probably rice, sorghum and other grains have been domesticated by women and techniques like hoeing, using the spade, mulching and terracing are probably inventions of women. They mainly manage the biomass flows from one "sector" (or part of the farming system) to another: fodder from the forest to the animals, natural fertilizers from the forest to fields, manure from animals to the fields, crop production to animals etc. these processes are essential for sustainability of agroecosystems. Denbelman and Davidson (1988) highlight, the roles of women in the management of land, water and forestry. As food and cash crop producers, women act as land managers, for example; by flexible cropping patterns, and seed selection. Women are responsible for water collecting, storing, purifying etc. With respect to forestry women are often involved in agroforestry development.

Traditional natural resource management often implies culturally bound environmental protection in which gender may play an important role (for example, only women may use a certain tree so that the resource is not over exploited, tasks are clearly defined etc.).

*Women's environmental management role vary from section to section, depending on the critical link between that sector and meeting the nutritional and survival need of the family and the importance of those sectors in elevating the economic status of women.*

Women's environmental management roles may take many forms, in terms of:

1. *Women's **activity**, as in the case of energy;*
2. *Women's **time** as in the case of water supply;*
3. *Women's **responsibility**, as in the case of health and healthy environment;*
4. *Women's **skills** and **expertise** as in the case of food preservation and food security example agriculture and fisheries activities;*
5. *Women's **knowledge**, as in the case of biological diversity;*
6. *Women's **relationships**, as in the case where they head households*

## **2.1 SOME SUCCESS STORY**

### **I FIELD : AGRICULTURE AND FISHERIES GLOBAL RELEVANCE :**

This sector could provide sustained improvement in the nutritional and economic well being of communities.

Globally the threats to the fertility and productivity of soils, increasing chemical inputs, and declining agricultural outputs, and widespread pollution of rivers and coastal areas now threaten the viability of these important life - sustaining sectors.

**GENDER DIMENSION :** Due to their crucial roles, there is a need for policies in this sector to make women equal partners and productive and self reliant participants.

**SUCCESS STORY :** Zambian Women Build Storage Bins to Enhance Food Security.

**COUNTRY :** ZAMBIA

**DESCRIPTION OF THE PROJECT :**

Food production in this part of Zambia faces difficulties brought on by floods, droughts, animal destruction, tsetse fly infestation and the lack of draught animals. In addition, families in the Laungwa Valley lacked appropriate and adequate food storage facilities. Thirty-five percent of the households in the Laungwa Valley are headed by women, and the food shortages caused by storage problems, exposed women and children to the risk of hunger, malnutrition and starvation. The women's program of the Luangwa Integrated Resource Development Project (LIRDP) was developed to help women improve their standard of living

through sustainable use of the available natural resources.

The crop storage project targets 6,000 farm families and is funded by the Norwegian Agency for Development cooperation (NORAD). The fund cover wages for instructors and the purchase of tools and materials. The construction materials include bamboo poles and various types of clay that are available locally. Through "Popularization" meetings and film shows, women were taught new and improved methods of constructing traditional grain bins. Women and their families collect materials and with help from instructors, build the bins on their own.

This ability to safely store grains for more than one season allowed the farmers to maximize the benefits of the hybrid corn and helped ensure food security for residents throughout the year.<sup>4</sup>

## II FIELD : FORESTRY

**GLOBAL RELEVANCE :** Forest represent highly diverse ecosystems with considerable capacity to support a variety of species support essential ecological processes such as

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4. All stories base on :- Women : Key Partners in Sustainable and Equitable Development, Resource Materials on Women on Sustainable Development Project on the development of training materials on Women and Sustainable Development, pp. 31-32.

regenerating soils, regulating hydrological functions, and stabilizing climate, provide essential natural resources for commerce, food and energy and support recreational, esthetic and spiritual values. Natural resource degradation in forests can undermine that ecosystem's ability to produce food, water and energy to meet the communities needs.

**GENDER DIMENSION** : In communities where subsistence rural lifestyles predominate, Women's knowledge and activities are vital to the integrity of forest ecosystem.

**SUCCESS STORY**: Community Institutes social Forestry Program in India.

**COUNTRY**: India

**DESCRIPTION OF THE PROJECT** :The Community Development Centre (CDC), registered in 1980, in Ramabhadrapuram, is an organization working with the rural poor, in of the foothills in of Andhra Pradesh for social justice. The villages population consists of indigenous people who have lived and survived in a subsistence economy for years. Their culture is now under threat due to rapid "modernization" and the influx of economy for years. Their culture is now under threat due to rapid "modernization" and the influx of "developers". The growing need for firewood,

coal and timber over the past fifteen years has led to deforestation and denudation in the area.

As coordinator of the women's wing of the CDC, Mr. Satapathy coordinates with women in twelve villages on environment programs. Ms. Satapathy started an environmental forum within CDC involving women from thirty villages.

Nearly 11,000 species were collected from various sources and planted in a five acre area. Through the social forestry program, an area of 130 hectares was reforested.

The three-year program involved the tribal people in developing sustainable agricultural practices and discouraging; shifting cultivation and deforestation. The participants planted a contiguous area covering more than 20 villages (about 130 hectares of land) with various trees such as cashew, guava, papaya, subabul, neem and agave (a plant which provides fiber that women can use to make rope for sale) which has been another accomplishment of the programme. At a meeting, some village women from these 12 villages expressed the need for basic education in understanding money and finance - as most of their trade had been on a barter basis. They organized to meet on a weekly basis. This is an ongoing component of the project.

The interesting characteristic of the CDC's social forestry and plantation program is the sequential and progressive nature of its work. Activities are designed in response to emerging problems. Participation in the global assembly in Miami and in the 1992 Earth Summit in Brazil has also resulted in increased visibility for the CDC project. Ms. Satapathy and the women from the project received an award for the best environmental project in the District. Also, after she returned to India from the Earth Summit, Ms. Satapathy received a youth award from the Andhra Pradesh state government.<sup>5</sup>

### **III FIELD : ENERGY SOLUTIONS (ALTERNATIVE AND APPROPRIATE TECHNOLOGIES)**

**GLOBAL RELEVANCE :** For the majority of the world's population that relies on biomass sources for their domestic energy needs, energy consumption has outpaced the generation of supply. Appropriate solutions need to focus on accelerating the replenishment of existing sources (eg., fuelwood), and the development and widespread adoption of new technologies that rely on renewable and environmentally-safe sources (such as solar, biogas, wind etc.,) and promote conservation and efficiency.

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5. Ibid, pp. 35-36.



**GENDER DIMENSION:** In developing countries, women are key energy managers - collecting, using and conserving fuelwood. Scarcity affects them the most.

**SUCCESS STORY:** Solar Box cookers help Indian women save time and fuelwood.

**COUNTRY:** India.

**DESCRIPTION OF THE PROJECT :**

Households in the Kangra District of the Indian Himalayas lacked effective energy sources for cooking because of expensive fuel eg. Kerosene. They had no means of obtaining an alternative source of fuel for cooking although they had a considerable amount of sunshine. Women were spending their time searching for wood to cook family meals. Some of which (like beans and pulses) take a long time to cook. These fuel shortages spurred new efforts to search for alternative energy sources. The Indian Government produces metal solar box cookers, and had been promoting them, but they were small and expensive. Using local materials and skills Didi contractor developed a solar cooker that has a cooking capacity more than twice that of government cookers, at half the price. After testing, 150

solar boxes were distributed in the region. She also provided training on how to use these to cook local foods. Local materials used included sundries mud bricks, bamboo poles rice husk and home-spun wooden fabric.

The cooker supplements traditional cooking facilities, as its use depends on the seasons and the time of day. The solar cookers also provide added health and environmental benefits. Use of the solar cooker is spreading primarily because most of India is in the equatorial zone of high solar intensity where there is sunshine, most of the year. In addition to the activities already described, Didi contractor has advised the Ecology and Energy Group, a non-governmental organizations that is funded by the Indian Government to make the cookers in the Una District. Her work has been funded by the German Agency for Technical Cooperation (GTZ). From 1885 to 1988, Didi Contractor helped to install solar cookers for the Indo-German Dhauladhar Project (IGDP), aimed at devising means to regenerate mountain region ecologies.<sup>6</sup>

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6. Ibid, pp.37-38.

**FIELD :** Water

**GLOBAL RELEVANCE :**

The quality and availability of water are prerequisites to human health. Yet in many communities there is a severe lack of access to clean, potable water. Billions of people lack access to safe and sufficient water, and intensified agricultural and industrial activities continue to contaminate many water sources. In many parts of the world, the safe supply, provision, and management of water is women's responsibility, taking up considerable amounts of their time and efforts.

**GENDER DIMENSION :** There is a need to design and implement policies that will equip and empower women to participate effectively in community water programmes.

**SUCCESS STORY :** Woman's campaign stops Ground water contamination, Antigua.

**COUNTRY :** Antigua & Barbuda

**DESCRIPTION OF THE PROJECT :**

Antigua is a small island in the West Indies, with a population of 80,000. The island has an arid climate and the only existing surface water is in the form of tiny seasonal streams or gushing gullies following heavy

downpours. Dams and reservoirs store the potable water which comes exclusively from rainfall. Over the years, a combination of human-made and natural pollutants had begun to contaminate the ground water aquifers. Moreover, more than 1,000 residents of the two affected regions had expressed alarm at the obvious health risks associated with the consumption of water from contaminated aquifers or wells.

In 1986, Veronica Yearwood, a hydrologist employed with the Antigua and Barbuda Public Utilities Authority (APUA), convinced the APUA to conduct a series of chemical tests on the regions groundwater aquifers to ascertain the extent of the pollution. She then persuaded her superiors to provide U.S. \$ 1,500 to fund a groundwater management program, with the argument that the APUA's long-term benefits of reduced dependence on more expensive desalinated water would outweigh the monetary cost of implementing the program.

Under the aegis of the APUA, a team of 25 staff members headed by Ms. Yearwood was given responsibility for devising and implementing the groundwater management project. The APUA has now instituted a permanent island-wide groundwater management program. All known aquifers have been identified tested for contamination. Groundwater systems throughout

the entire island are being monitored. In addition, the sources of contamination of groundwater have been identified and necessary steps were taken to eliminate those health hazards from the drinking water.<sup>7</sup>

## **2.2 International Recognition of Women as Manager**

As an explicit environmental strand in development, women, Environment and Development (WED) gradually emerged from the United Nations Conference on the *Human Environment in Stockholm, in 1972*; and within the subsequent United Nations Environmental Programme (UNEP). But almost upto the 1980's the role of women in the area of natural resources management has been almost completely neglected. The United Nations decade on women, which concluded with a workshop organized in 1985, during the NGO women's Forum in Nairobi by the *Environment Liaison Centre*, seem to be the first on an international level, which clearly indicated that women also had a crucial role to play in sustainable development, and that unsustainable development hits women and children first. After that occasion initiatives are undertaken to balance the gender dimension of natural resources management: International networks of women for environmental conservation were strengthened; research

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7. Ibid, pp 45-46

projects were executed; policy makers started to link up the issues in their policy statements and many conferences and workshops on women and environment have been and are being organized, also the SID conference in Amsterdam will not miss the issue: one of the global seminars will deal with "Women's Population and natural resources."

In 1987, with the report of the *Brundtland Commission (World Commission on Environment and Development, 1987)* the Environmental discourse shifted from a focus on remedial means to environmental degradation to a preventive and human centered approach to sustainable development but "The Brundtland report makes only a brief reference to women and the environment. Within the debate on sustainable development the wealth of women's traditional knowledge and sound resource management is ignored/forgotten".

Rodda, Annabel (1991) *women and the Environment* Zed Books, London.. Global concerns on Environmental issues reached a peak with the hosting of the United Nations Conference on Environment and Development (UNCED) at Rio de Janeiro in June 1992.

Issues concerning women and Environmental management by women in developing countries across the world share similar concerns. This was amply reflected by the issues relating

to women that were raised at the Global Forums that is the NGO conference at Rio, and to a limited extent at UNCED.

The Prime issues relating to women that were discussed in the adaption of two treaties by women NGO's. The first related to control their own lives. Women felt that Population Policies are a violation of their rights to their fertility and therefore rejected and condemned all forms of control of women's bodies by Governments or international institutions.

An appreciation of women's role in environmental management, specially so in developing countries where livelihoods are based around biomass economies, and their simultaneous exclusion from decision making process, led to the adoption of a Global treaty of NGO women in search of a "Healthy and just planet." The Agenda 21 endorsed an equal and beneficial integration of women in all developmental activities to a large extent. This related to the issues raised and demanded by over 1500 women from across the world who met at Miami during November 1991 to present a Women's Action Agenda 21.

*After 1992 the UN conference on women held from 4th September to 15th September 1995 at Beijing. In the conference the platform for action, covers 12 specific areas*

of concern. They are poverty, education, health, violence, armed conflicts, economic disparity, power sharing institutions, human rights, mass-media, environment and the girl child. The conference was one of the largest gathering of women ever held and the first conference of its kind to squarely confront the major challenges and underlying causes of women's low position today.

In the area of Environment the key recommendations are

- *Involve Women in Environmental decision making and integrate gender concerns in policies for sustainable development.*
- *Access the impact of development, environmental policies on women* <sup>8</sup>

This issue once again emerged in Rome.

**The World food Summit took place in Rome from November 13 to 17, 1996. In Rome, declaration commitment of an equity and participation refers to women's access and control over credit land and water in 16(b) but merely states in 16(h) that governments "will gather information on women's traditional knowledge and skills in agriculture, fisheries,**

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8. Special Report on Beijing Women Conference. Beijing Agenda: A New Commitment Mainstream Sep 30, 1995 page 13.



forestry and natural resource management". In other words, women's traditional knowledge is supposed to become "raw material" for corporate IPRs and women are supposed to handover their control and custodianship over seeds and chemical TNCs.

During the free trade region of the British, two million people had died in the *Bengal famine*. Following the famine, the peasant movement called *Tebhaga* uprising emerged 50 years ago. In *Tebhaga*, women were saying '*jan debo, dhan debo na* (we will give our lives but we will not give our rice).

At the NGO Forum at the Food summit, women from across the world had gathered for a Women's Day on Food Summit, the women's Day was charged with a strong will and commitment. In effect, 50 years after the *Tebhaga* movement, women were saying "*Jan Debo, Beej Debo na, Gyan debo na*" (we will not allow our seeds and our knowledge to be alienated from us as long as we live).<sup>9</sup>

But the question is, should it end up just with a recognition of the gender aspect of sustainable development,

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9. "Food security, Trade and the environment from Rio to Rome through Marrakesh, Vandana Shiva, *Mainstream* Nov 30, 1996, page 27-30.

with an awareness of women's roles and position in these?

The answer is that, in future there is need of women's active participation and empowerment in Development Programme and Policies.

### 2.3 Women's Participation and Empowerment -

Sustainable Development embodies a belief, that people should be able to alter and improve their lives in accordance with criteria which they take into account the rights and needs of others and which protect the planet for future generation developmental projects. Development Projects were designed without the involvement of the intended beneficiaries and they ailed. As a result, aid agencies realized the need to incorporate participatory principles into their projects. Consultations among NGOs prior to the 1992 Conference on Environment and Development (UNCED) identified five criteria for Sustainable Development : who initiates? who decides? who participates? who benefits? who controls? It was reported that if the answer to all these questions is 'people' including proportionate representation of women, then projects could be assured of sustainability. In some cases, women were given a say by way of consultation but no access to decision-making was

given. When this was found inadequate, participation was required for which the term 'empowerment' was coined which is operationally concerned with women's empowerment through ideas, through education, and through consciousness. This empowerment is frequently stimulated through participatory rural appraisal exercises giving women, a clear sense of how they can improve their lives in a practical way.

**2.4 STRENGTHENING INSTITUTIONAL BASE :** The following points should be taken into consideration to strengthen the institutional base for sustainable development at the **MICRO-LEVEL**.

*(i) Decentralization of decision-making.*

*(ii) Mobilization of local resources and better representation of women*

*(iii) Adaptation of externally designed programmes to local conditions; and*

*(iv) Importance of local organizations in shaping their environment and sustainable resource use.*

*At the MESO-LEVEL, there is a need for:*

*(a) Technical, managerial and information handling skills;*

*(b) Key interface between policy-makers and the mass of people;*

- (c) *Transfer of power and responsibility from central government to local level;*
- (d) *Improving the quality and resources of local government; and*
- (e) *Access of NGOs and other organizations representing people's interest to the policy making process.*

At the **MACRO-LEVEL**, there is a need to emphasize democratic systems and people's participation. Besides, clearly defined policies to promote sustainable development and strengthening the capacities in policy-making and in socio-economic research, is also required. Finally, the precondition for any sustainable future lies in the mobilization of human resources to plan and manage it. The **World Bank (1989)**, gave a very relevant statement that, absolute priority is to be given to human resource and institutional development. This is where sustainable development must have its roots. In **Agenda 21 of UNCED, 1992** conference at Rio certain directives for global action for women towards sustainable and equitable development were given which are note worthy to conclude this very relevant issue:

To increase the proportion of women decision-makers, planners, advisers and managers related to environmental management.

To consider developing a strategy by the year 2000 to eliminate various obstacles - constitutional, legal administrative, social and economic in nature - to women's full participation in sustainable development.

To establish the mechanism at the regional, national and international levels, to assess the impact of developmental and environmental policies and programmes on women.

To promote the dissemination of gender relevant knowledge and valuations of women's roles through formal and non-formal education.

Along with these steps there is need that women, too have accepted with apparent enthusiasm the responsibility for saving the planet:

*"We have the capacity to give life and light. We can take over brooms and sweep the earth..... We can seal up the hole in the ozone layer. The Environment is life and women must struggle for life with our feet on the ground and our eyes toward the heavens. We must do the impossible". (Merchant 1992:205)*

## CHAPTER V

### CONCLUSION

The present state of the World's environment is of growing concern. Its present deterioration has come about mainly as a result of human activities, especially those concerned with industrialization and urbanization, and in the process of this blind development even, women also get affected in three ways.

1. General Problems related to environment which men and women both face.
2. Women do more nature related work therefore they face some specific problems too.
3. The discrimination is already exist in the society, therefore these problems becomes more crucial and significant for women. Along with this the managerial works done by women and her knowledge related to nature. Conservation is not acknowledged in the society. These problems exist in the developed and developing countries with some differences. However more or less women suffer from these problems every where equally.

Therefore while working on this relevant issue, *firstly*, I have mentioned about the initial period of human civilization when each and every activity of men used to be determined by environment, Afterwards man developed himself and till the agrarian age he started to control over the environment to a large extent. But in the industrial age man expanded his development activities, so his control over the environment also increased. The present environmental crisis has emerge because of reckless exploitation of nature by men for his own short term gains. The *Second chapter* mentiones how gender inequalities exist in the society, and for the demand of women's rights. The ideology of feminism came in the society, afterwards relating to this concept with the environmental problems the concept of Eco-feminism has emerged.

After this, the second chapter has analyzed how women get affected by an environmental crisis in rural and urban areas. The *Third chapter* describes that because women do more nature related work so they get more badly affected by any kind of degradation in environment, therefore women are more aware of the conservation and management of environment. But the conservation work done by them has not been acknowledged. Every time in every context the question of **women's empowerment** and their role

in decision making for planning and various development programme has been raised. But till today the actual decision making process has excluded women. From various international (like 1972 Stockholm to 1992 Rio, 1996 Rome Conference) to different national and local level platform, All environmentalists agree that women's participation is necessary to tackle the environmental crisis. Ask the women first; give them a greater say in the planning projects, let them decide how the community will share the available resources and so on. Yet, curiously, almost all these modes of participation are limited to consultation, planning and management, avoiding the political question of women's control. For instance, even those environmentalists who advocate community control of local resources have neglected women's rights to land, which at least at present, is the critical resources.

The question of land rights also reflects the government patriarchal attitude to development programmes. Many instances of this can be cited for example in India the experience of a *Bhil tribal hamlet of Brahmno Ka Verda in Udaipur district, Rajasthan* is fairly typical. In 1984 the women applied under a government scheme for the allotment of government owned wasteland, only to find that there was confusion over whether the law allows transfer of land to



women. They did get the land a year later after the persistent intervention of *Seva Mandir*, an NGO working in the area.<sup>1</sup>

The problem of women's control over land has rarely figured even among the many agitation and protests that have marked the environmental movement in India. The *Gujarat Governments Rehabilitation Package* for those who will be displaced by the *Sardar Sarovar* dam on the *Narmada* provides for alternative land sites to each male householder, and to his adult son what of the rights of wives and daughters to land?

The *Narmada Bachao Andolan* led by *Medha Patker* arguably the most famous women environmentalist in the country, has not been able to integrate women's right into the campaign, although these are, no doubt recognised with some notable exceptions.<sup>2</sup> On the whole feminists too have concentrated on the human rights violations of women rather than on land and economic rights.

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1. *Developing India's Wasted Land*, Krishna Sumi, 1986, New Delhi center for science and environment.
  2. *A field of one's own: Gender and Land Rights in South Asia*, Bina Agrawal 1994, New Delhi: Cambridge University Press.

In focussing on women's ecological role in gathering and producing food, the environmental debate has also by passed women's **economic role** in local markets. It is apparent that for some tribal women, their control over the income from gathering forest produce has helped them also to retain a certain degree of social autonomy. For tribal women therefore, the market is an important social and economic space, a place for interaction and mutual bonding, and the means by which their status in tribal society is protected. This is quite unlike traditional Hindu society in which the market is virtually 'out of bounds' for upper caste village women. The Bazaar is perceived as being male territory. **Control of natural resources** needs to be taken a stage further to augment the value of resources by opening up new **avenues of employment** and income generation. There is one well documented case in West Bengal's Bankura district which goes same way towards this. But optimism about the Bankura experience has to be also tempered because this is a rather Unique Project. First it has had continued support from CWDS (Centre for Women's Development Studies). Second it has had assured high level of funding between 1981 and 1988 the ILO (International Labour Organization) project cost amounted to US\$ 350,000.

- > So, it is not enough to state that women have also a profound knowledge of environment. This knowledge should be one of the basis on which environmental conservation project and programmes are going to be built and developed.
- > It is not enough to recognize that the access of women to natural resources such as land is essential in order to reach sustainability. But development projects should whenever appropriate aim to analyze and improve the access of women over their resources.
- > It is not enough to train women in environmental conservation as they are the main users of, for example, fuel fodder and water resources, but also to train men in sharing responsibility for survival tasks.
- > It is not enough to place great importance and the need to support projects related to environment, but also to play an advocacy role in guaranteeing that really have a say in decision making processes which determine their development directions.
- > Along with these there is also necessity to recognize that women's environmental relations can not be understood in isolation from men's; Therefore for a prosperous & Sustainably developed planet. Policy perspectives require emphasis upon research, planning

and specification to identify target groups and design incentives which are not based upon gender stereotypes.

Now we no longer need to debate the role of women. According to the old saying 'women hold up half the sky' now we need the recognition for contributions they have long made to upholding and protecting if not the sky, at least the Earth.

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