Chapter III

ENVIRONMENTAL PROTECTION: THE POLICY PERSPECTIVE

1. INTRODUCTION

The molestation of environment, as it has been elsewhere, is quite apparent in India, too. The major environmental concerns we see here are air pollution resulting from industrial development; water pollution from industrial and domestic effluents; soil erosion, deforestation, desertification, and loss of wildlife because of imprudent and unplanned use of land and resources; and ugly landscapes, urban sprawl and city slums resulting from a burgeoning population. The protection of environment presents a most fundamental challenge to the nation's desire to industrialise faster, to be self-sufficient in food, and to be capable of fulfilling certain basic needs of the growing population.

This stupendous challenge has to be tackled in a planned manner and must be reflected in policy pronouncements of the state. The commitment so reflected must consequently be put into action with the aid of instruments of implementation. Hence, policy formulation becomes indispensable because policy is an instrument of transformation of a given environment into a preferred environment. It is through a policy that we can precisely identify the problems; fix priorities to form alternative approaches and solutions; make a choice among alternatives on
the basis of comprehensive analysis of benefits and costs; articulate the choice in terms of goals expressed; provide organisation, personnel and resources to ensure effective implementation; and to lay down a mechanism for a continuous monitoring of the policy. It is with this purpose proposed here to explore the environmental policy in India in this chapter. The main questions proposed to be answered in the chapter are: What has been the government's response to the environment concern and how effectively this concern has been put into action? What transformations have taken place in the government's stance in the environment protection approach over the years and whether the shift in approach is further likely to improve the cause of environment in the coming years?

2. ENVIRONMENTAL POLICY DURING THE PRE-INDEPENDENCE ERA

It is difficult to explore the environmental policy in India prior to British invasion of this country. Such exploitation has to be done largely from ancient Indian theology, writings on Indian History and writings of the colonial administrators. These writings provide an insight into the policy perspectives on resource conservation in India. The environmental policy in pre-independence era can be studied under three sub-heads:

A  Environmental policy in Ancient India
B  Environmental policy in Medieval India; and
Environmental Policy During the British Period.

The environmental policy in pre-independence era is principally reflected in the resource conservation, particularly, the forest conservation and the wildlife.

ENVIRONMENTAL POLICY IN ANCIENT INDIA

In ancient India, protection and cleaning up of environment was the essence of Vedic culture. The environment conservation formed an ardent article of faith, reflected in the daily lives of the people and also enshrined in myth folklore, art, culture and religion. In Hindu theology forests, trees and wildlife protection held a place of special reverence. The theology prescribed for temple forests\(^1\) and trees were worshipped as a ritual.\(^2\) The Vedas, Upanishads, Purnas and other scriptures of Hindu religion give a detailed description of trees, plants and wildlife and their importance to the community. The Rigveda highlights the potentialities of nature in controlling the climate, increasing fertility and improvement of human life emphasising for intimate kinship with nature. Atharva Veda considers trees abode of various Gods and Goddesses. Yajurveda emphasises that relationship with nature and animals should not be that of dominion and subjugation but of mutual respect and kindness.\(^3\)

Similarly in Narsimha Puran trees have been personified as God (Brahma) Himself.\(^4\) It is said in Skandpuran that Peepal is supreme to all other trees as Lord
Vishnu is to all other Gods. Varahpuran advocates regular plantation as a means to achieve heaven. In Matsyapurana plantation of a tree has been equated with progeny of ten sons. Mahabhasya says by giving water to a mango tree our ancestors are pleased. While Vishnudharmasutra says that if you plant a tree it will be your son in the next generation.

The plantation of trees was treated in Hindu culture not only as a sacred ceremony or a religious activity but regular protection and patronage was also prescribed. Cutting green trees was prohibited and punishment was prescribed for such acts. For example, in Skandpurana, a long list of trees is given the cutting of which is prohibited. Further, in Yagyavalkya Smriti, cutting trees and forests was a punishable offence and a penalty of twenty to eighty pana (old coin) was prescribed. Even in Ramayana and Mahabharata where we find reference of beautiful forests of Dhandakaranya, Nandavana and Khandavana, destruction of forests was considered to be a great sin.

Hindu society, in the Vedic era, was conscious of adverse pollutional effects of indiscriminate destruction of plants and forests. For example, in Charak Samhita destruction of vegetation was treated to be the cause of ruin of a state. In Devi Karacham of Durga Saptasi it has been clearly said that so long as the earth has mountains, forests, trees, plants etc. human race will continue to survive. In Srimadbhagavatam, it has been appropriately said that a man who with exclusive devotion offers respect to
sky, water, earth heavenly bodies, living beings, trees, rivers and seas and all created beings and considers them as a part of the body of the Lord attains the state of supreme peace and God's grace.  

Under the Hindu culture moral injunctions acted as guidelines towards environmental preservation and conservation. Such injunctions were propounded and propagated, in addition to scriptures, by the seers as well. Manu, for instance, warned the people not to take rotten food which may cause diseases. To maintain the quality of water and to avoid the water pollution, he advised not to contaminate water by urine, stool or coughing, unpious objects, blood and poison. Tattariya Aranyak, advocated environmental ethics and advised not to cause pollution of waters by urinating and defecating, spitting in water or taking bath with clothes on. Yagyavalkya Smriti and Charak Samhita give many instructions for the use of water for maintaining its purity. Kautilya in his Arthashastra highlights the importance of forestation for the progress of a nation. In its second canto it is said:

"On non-agricultural land of about 4 crosh size, a forest should be caused with a single door trees of fruits, beautiful groves and attractive flowers should be planted. Trees should not be any cactus type trees. A small pond should also be there. Deer and other such animals should be familiar to people."
Nails and teeth of hunting animals, should have been extracted. Elephants male, female, children should be there.\textsuperscript{17}

In addition to forests and other components of nature under the Hindu theology, animals stood to human beings in a relationship of mutual respect and kindness. As given in \textit{Yajurved}, they have been worshiped by Hindus.\textsuperscript{18} There are various stories regarding the peaceful co-existence of beasts and other animals in Rishis Ashramas. \textit{Bridha Smriti} advise every Hindu to respect Vedas, deities and cows.\textsuperscript{19} Ancient Hindu scriptures strictly prohibited the killings of birds and animals. In \textit{Yajurveda} it is said no person should kill animals, but being helpful to all and by serving them, should obtain happiness.\textsuperscript{20} In \textit{Yagyavalkya Smriti} it is said, "The wicked person who kills animals which are protected has to live in Ghor Narak (hell-fire) for the days equal to the number of hair on the body of that animal."\textsuperscript{21} In \textit{Vishnu Samhita}, it is told that "he who for his own pleasure, kills harmless beasts, should be regarded as dead in life; such a man shall know no happiness, here or hereafter. He who desists from inflicting pain on any animal either of death or confinement is really the well wisher of all the creatures, such a man enjoys extreme felicity."\textsuperscript{22} Similarly, in \textit{Skandhapuran} it is said:

"How wonderful it is that a person who cuts trees, kills animals and create bloodshed, aspires for Svarga
only offering oblations in fire." The same, almost is said in Narsimhapuran: 'O wicked man if you roasted a bird then your bathing in sacred rivers, pilgrimage, worship and Yajanas are useless.'

Thus, as is obvious from the teachings of the Hindu scriptures, we see that environment protection has been an important facet of Hindu way of life. This ancient tradition has been followed in the civilizations of Mohenjodaro, Harappa, Channudaro, and Dravidian civilization, which flourished and perished in India in between 2000 and 5000 B.C. There is no record to tell us as to what exact environment protection policy in the above civilizations had been. But it seems that these civilizations lived in consonance with its ecosystem and the harmony with the environment was maintained by their small populations and their needs.

The period of history before Chandra Gupta Maurya's reign, also does not provide us a precise idea of environmental conservation. It is, however, known that before Chandra Gupta Maurya established a relatively big empire about 300 B.C., the territory in India was divided among various rulers whose regimes extended to small geographical units. They were far too occupied fighting wars against each other, to evolve any pattern of resource management in their respective kingdoms. This period was marked by destruction rather than any attempt on conservation of nature, particularly the forests. The losers in wars,
took refuge in previously undisturbed forests and cleared them to create new abodes for them and therefore every war took a toll of a new forest. The civilization, though was dominated by natural resources but the settlers regarded the forests an obstacle in their way and tried to remove them in their urgent need for a few acres of cleared land for carving out fields. Migratory cultivators did a great deal of forest damage.  

The Mauryan period was perhaps the most glorious chapter of the Indian history from environment protection point of view. It was in this period that we find detailed and perceptive law provisions found in Kautilya's *Arthashastra* written between 321 B.C. and 300 B.C. The necessity of forest administration was realised, in this period by Chanakya, the witty Prime Minister to Chandra Gupta Maurya and the process of administration was actually put into action with the appointment of a superintendent of forest and the classification of forests on a functional basis. The pattern of functional classification of forests was:

(i) Forests set apart for the study of religion,
(ii) Forests reserved for the supply of forest produce,
(iii) Forests set apart for grazing of royal elephants.
(iv) Forests reserved for hunting by the Royalty.
(v) Forests open to public for hunting.

State assumed the functions of maintenance of forests, regulation of forest produce and protection of wild life
during the Mauryan reign. Under the *Arthashastra* various punishments were prescribed for cutting trees, damaging forests, and for killing animals, fish, deers, etc.\(^{28}\)

The superintendent of forest was authorised to cause forest produce to be brought in by 'guards in produce-forests'; to establish factories for forest produce and fix adequate fines and compensation for damage to any productive forests. Timber forests and elephant-forests were permitted to be exploited by none other than the ruler. Spies in the guise of traders were entrusted with a duty to ascertain the quantity and price of the royal merchandise obtained from forests.\(^{29}\)

As regards the protection of wild life, there were prohibitions on killing of animals and birds. The officer in charge (superintendent of slaughter house), was authorised to impose a fine up to one thousand panas on those who were found guilty of killing deers, birds and fish declared to be under state protection. One sixth of live animals and birds were required to let off in forests under states protection. Care was taken that animals from reserved parks or protected areas if found grazing in a field, were to be driven out without being hurt or killed, after intimating the forest officer. For causing injury to them, the fine was imposed. Wild life in sanctuaries enjoyed complete protection from being killed except when they turned harmful.\(^{30}\)

*Arthashastra* also prescribed punishment for causing pollution and uncivic sanitation. It provided that the
officer in charge should punish those who throw dust on the roads by one eighth pana for causing muddy water one forth pana, and if both acts were committed, the punishment should be double. If faecal matter is thrown or caused to be piled up near temple, well or pond, sacred place or state building, then the punishment was to increase gradually by one pana in each case. For urinating in such places the punishment prescribed was only half of the above punishments.  

The environment conservation, as it existed during Mauryan period continued more or less unaltered in subsequent reigns until the end of Gupta empire in 673 A.D. Prohibitions for forest destruction and animal killing were announced by other Hindu kings. For example, the king Ashoka, in Pillar edict expressed his viewpoint about the welfare of creatures in his state. He prescribed various pecuniary punishments for killing animals which included even ants, squirrels, parrots, red headed ducks, pigeons, lizards and rats as well.  

The end of Gupta empire in 673 A.D., saw reversion of the environment conservation movement as established in Mauryan era to the situation prior to it. Political instability as caused by local conflicts, division of the country into many small states, foreign invasions led to a great deal of destruction to forests and wild life.

To sum up, ancient India had a philosophy of environmental management principally enshrined in old injunctions as they were contained in many scriptures and
smrities. Abuse and exploitation of nature for immediate gains was considered unjust, irreligious and against environmental ethics under the Hindu culture. The environmental ethics of nature conservation were not only applicable to common man but the rulers and kings were also bound by them. Despite the injunctions in the scriptures and the preachings of saints, resource conservation was not taken very seriously as the natural resources under a common belief were considered to be inexhaustible and too formidable for man and his tools to need any protection themselves.

B ENVIRONMENTAL POLICY IN MEDIEVAL INDIA

It is noteworthy that the Indian peninsula suffered substantial ecological loss due to destruction of forests resulting from political instability that prevailed in the country for over nine centuries that elapsed between the fall of Gupta dynasty in the latter years of the seventh century and the consolidation of the Moghul empire by Akbar about the close of the sixteenth century.

During the Moghul period environment conservation did not receive much attention. The Moghul emperors, though were great lovers of nature and took delight in spending their spare time in the lap of natural environment, made no attempts on forest conservation. They did not even realise the need. To Moghul rulers, forests meant no more than wooded lands where they could hunt and to their governors, properties which yielded some revenue. A few species of
trees were specified in their reign, as 'royal trees' and enjoyed patronage from being cut except upon a fee. There was, however, no restriction on cutting of other trees. In the absence of any protective management, forests during this period shrank steadily in size on account of fellings made for cultivation both shifting and settled.33

From environment conservation point of view, a significant contribution of Moghul emperors has been the establishment of magnificent gardens, fruit orchards and green parks, round about their palaces, central and provincial headquarters, public places, on the banks of the rivers and in the valley and dales which they used as holiday resorts or places of retreat or temporary headquarters during the summer season. The famous moghul gardens which dot every nook and corner of the country even today are thus a pleasant cultural heritage of the Imperial Moghals.34 Additionally, the religious policy of Akbar based on principle of complete tolerance also reflects concern for protection for birds and beasts in so much so as endeavours were taken during his reign to stop their unnecessary killing. The religious policy of Akbar was pursued in principle though sometimes differing in details, by Jahangir and Shah Jahan.

As regards the position of forest economy during the Moghul empire the rural communities by and large, enjoyed untrammeled use of forests and wastes in their vicinity. The waste and forest lands were treated as open access resources.35 The native rulers, however, did subject the
produce of the forests (such as medicinal plants) to a small cess as and when these were exported. The products of the forests conserved by the local people themselves were exempted from cess. Untrammeled use of forests and other natural resources, however, did not mean that they could be used or misused by one and all without any restraints. Rather they were quite effectively managed with the help of a complex range of rules and regulations woven around the socio-cultural features as well as the economic activities of local communities. 36

C ENVIRONMENTAL POLICY IN BRITISH INDIA

The invasion by the British and the establishment of their rule in India ushered in an era of plunder of natural resources. At the same time, this regime saw the beginning of organised forest management. It was the forestry, wildlife and water pollution which attracted their attention in particular. We can study the policy perspectives on forest management during the British period at some length as it illuminates a much wider field of governmental policy and practice and provides an insight into the politics of resource conservation in India.

(a) Forest Conservation in British Rule

The early days of British rule in India were characterised by a total indifference to the needs of forest conservancy. Unlike the Moghuls who simply took no steps to conserve forests, the British administrators proved
predators-causing a "fierce onslaught" on India's forests. The onslaught on forests was primarily due to the increasing demands for military purposes, Royal Navy, supply of teak and sandal wood for export trade and extension of agriculture in order to augment revenue. A striking thing of this policy has been that the people's rights in forests and wastes continued to be exercised unrestrictedly. The destruction of forests continued unabated and no concrete steps were taken for the management of forests.

The process of state empowerment vis-a-vis people on the question of control over forest started only in 1806 when a commission was appointed to enquire into the availability of teak in Malabar and Travancore by way of appointment of Conservator of Forests. This move failed to conserve forests as the appointed conservator plundered the forest wealth instead of conserving it. Consequently, the post of so-called Conservator of Forests was abolished in 1823.

Thus, under the imperial considerations and in the absence of any conservative policy, the Indian forests were used for the supply of wood for export; for British Navy; for local construction (such as roads and railways) and development of agriculture and had to suffer a great deal of brunt till about the middle of the nineteenth century. Private contractors, Indian and European, were chiefly responsible for the devastation of forests.

It was the second half of the nineteenth century which marked the beginning of an organised forest management in
India with some administrative steps taken to conserve forests; the formulation of forest policy; and the legislations to implement the policy decisions. The systematic management of forest resources began with the appointment of first Inspector General of Forests in 1864.40

The immediate task of Forest Department under the supervision of Inspector General was that of exploration of resources, demarcation of reserves, protection of forests from fire; and assessment of the growing stock in valuable reserve by sample enumeration and prescription of yields which could be sustained. The objective of management of forests thus, changed from obtaining of timber for various purposes to protecting and improving forests and treating them as a biological growing entity.41 Also, simultaneously, with the appointment of first Inspector General of Forests, the necessity of treating forests as state property was felt.

The enactment of the Forest Act, 1865 was the first step at asserting the state monopoly right over the forests. This facilitated the acquisition of forests by the state. The Act was revised in 1878 and extended to most of the territories under the British Rule. The provisions of the 1878 Act ensured that the state could demarcate tracts of forests, needed especially for railway purposes and retain enough flexibility over the remaining extent of forest land to revise its policy from time to time. The customary rights of rural communities to manage forests were also curtailed by the same Act. It also expanded the powers of the state by
providing for reserved forests which were closed to the people and by empowering the forest administration to impose penalties for any transgression of the provision of the Act. The Forest Policy Statement of 1894 further consolidated the position of states by enabling it to forcibly take over all forests. 42

The first Forest Policy of 1894 made two major enunciations: first, permanent cultivation was to come before forestry i.e. the claims of the former were considered stronger than the claims of forest preservation; and secondly the public (material) benefit was the sole object of forest administration. 43 The policy had the following objectives:

(a) Promoting the general well-being of the people in the country;
(b) Preserving climatic and physical conditions in the country; and
(c) Fulfilling the needs of the people. 44

The policy also suggested a rough functional classification of forests into the following four categories:

(a) Forests the preservation of which was essential on climatic or physical grounds;
(b) Forests which offered a supply of valuable timber for commercial purposes;
(c) Minor forests which produced only the inferior sorts of timber; and
Pastures which were forests only in name.\textsuperscript{45} The policy suffered from many deficiencies. The important among them were: (1) The policy denied recognition to the legitimacy of conventional conservation practices of local communities and favoured regulation of the rights and privileges of people living in and around forests. This was done in the name of 'public benefit'.\textsuperscript{46} (2) It allowed unchecked diversion of forest land to agriculture and other uses. (3) The policy lacked: (a) the minimum prescription of area under forests; (b) the mention of concept of sustained yield which forms the mainstay of scientific forest management; (c) the mention of protection/preservation of wildlife and (d) the mention of private forests, forest education and training etc.\textsuperscript{47}

To provide teeth to the provision of the Forest Policy of 1894, the \textbf{Forest Act} of 1927 was enacted. This legislation specifically denied people any rights over the forest produce simply because they were domiciled there.

The Act of 1927 also embodied land use policy whereby the British could acquire all forest land, village forest and other common property resources through simple notification, without getting into problems of compensation or equity.

\textbf{(c) Pollution Control in British Rule}

Apart from the management of forest resources through the formulation of Forest Policy and the Forest Laws, attempts were made during the nineteenth century to regulate
water pollution, wild life and land use by legislating laws by the British Government. These laws, however, had a narrow purpose and limited territorial approach.

The **Shore Nuisance (Bombay and Kolaba) Act** of 1853, **Oriental Gas Company Act**, 1857, the **Indian Penal Code**, 1860, **Indian Easement Act** of 1882, **Indian Fisheries Act**, 1897 were the relevant legislations containing provisions for the regulation of water pollution by providing penalties for the nonobservance of the provisions thereof. Similarly, **Bengal Smoke Nuisance Act** of 1905 and **Bombay Smoke Nuisance Act** of 1912 were the earliest laws, enacted during the British raj, aimed at controlling air pollution.

In the field of wild life protection, early legislations were limited to specific areas and species. In 1873, Madras enacted the first wild life statute for the protection of wild elephants. The **Elephants Preservation Act** of 1879, the **Forest Act** of 1878 and **Wild Birds and Animals Protection Act** 1912 were other legislations which introduced the practice of closed hunting seasons, bag limits and permits. The colonial state also established wild life preserves in Kaziranga in 1926 and Hailey (now Corbett) National Park in 1936.

As regard the land utilization policy, land was not properly utilized because of inadequate water resource management during the British rule. However, the British Government took initiative to consolidate land holding in 1920 with the help of cooperative consolidation societies and
To sum up, the environmental policy during the British rule was not directed at the conservation of the nature but rather was directed at the appropriation and exploitation of common resources with a primary objective of earning revenue. Neither were there effective laws for the protection of environment.

3. ENVIRONMENTAL POLICY DURING THE POST-INDEPENDENCE ERA

In early years of independence, there was not any precise environmental policy in India. But it does not mean that the environment absolutely remained a neglected field. The concerns for environment protection were, however, reflected in the national planning process and the forest policy.

A EARLIER POLICY CONCERNS

(a) Forest Development During First Three Five Year Plans

The national planning process was started in 1951 in India with the formulation of First Five Year Plan. The first three five year plans laid thrust on the promotion of agriculture and industrialization. Environment related issues pertaining to the improvement of human environment such as sanitation, public health, nutrition, water supply and housing got due priority in national programmes under the three five year plans. However, environment protection...
did not receive any significant recognition under the development planning except the forest development and soil conservation.

(i) First Five Year Plan

The First Five Year Plan (1951-56) showed maximum concern about rehabilitation of forest areas, which had been over exploited either to meet the second World War needs or indiscriminately destroyed by the quitting zamindars at the time of abolition of the zamindari system. Little effort was made to help stabilise soil in highly eroded areas through afforestation. In response to the Forest Policy of 1952, the Central Board of Forestry, constituted in 1950 to provide guidance to the Central Government in the formulation of policy and programmes in the field of forestry, was asked to indicate the portion of areas that ought to be under forests, after taking note of the nature of terrain and principle of proper land use in states. The plan outlay on forestry was Rs. 9.7 crores which comprised 0.49 per cent of the total plan outlay. The means of communication in forests were also improved during this plan. The wastage in conversion and felling of trees was minimised. Besides, man made forests of economic species were raised over 52,000 hectares.

(ii) The Second Plan

During the Second Five Year Plan, the programmes of consolidation of areas under forests continued. Additionally, construction of forest roads and economic
plantation received more emphasis. To improve the quality of forests products, plantation of industrially and commercially valuable species were undertaken. The plantation of industrial wood area was further expanded to over 164,000 hectares. Forest resources were further heavily utilized on account of developmental activities e.g. creation of industrial complexes for communications and other development projects vital for the developing economy and the major river valley projects. The conservation of wild life, too, received special attention as several wild life sanctuaries were established.\textsuperscript{54} The plan outlay on forests was further increased to Rs. 19.3 crore just double of the First Plan.\textsuperscript{55}

(iii) The Third Plan

The Third Five Year Plan enticed special interest in meeting the long term requirement of the country in order to reduce the yawning gap between the demand and the supply of forest produce and in order to ensure more economic and efficient utilization of valuable forest products. The main objective of the plan was to increase the output from the existing forests by using better techniques of timber extraction, improvement of communications and popularising the use of less commonly known Indian timber after proper preservative treatment. In order to attain self-sufficiency in industrial timbers, fuel wood and other forests products, large scale plantation of industrially valuable species, through centrally sponsored schemes of "Plantation of Quick Growing Species" was undertaken and the states were
encouraged to follow the schemes. The target of new plantations was fixed at an all time high figure of 280,000 hectares.

A new scheme "Pre-investment Survey of Forest Resources" was also started during the plan in 1965 in collaboration with the United Nations Special Fund (UNSF) and Food and Agriculture Organization (FAO) with a view to investigate the availability of raw materials in the possible industrial catchment areas and determine their economic viability. It was accepted as a matter of policy that in order to obtain higher timber yields from the forest areas under exploitation and to reduce wastage, improved logging tools were to be used. Training of forest officers and field executives in the state governments and of lessees and forest contractors in logging planning and efficiency studies was started with the establishment of logging training centres set up with the assistance of the UNSF. The total plan provision for forestry was Rs. 51.4 crore.

While the third Five Year Plan for forestry was grandiose, the same could be said of its achievements. The actual expenditure in this sector of the economy was about Rs. 31.7 crore. Against the target of 280,000 hectares of plantations, hardly 180,000 hectares were raised. Similarly, under the centrally sponsored schemes plantation were raised on 52,000 hectares as against the target of 55,000 hectares. Only 7,6999 miles of roads could be constructed as against the target of 10,017 miles. Rehabilitation of degraded
forests fared a little better. The actual achievement was 206,000 hectares against a target of 212,260 hectares.\textsuperscript{58}

Thus, evident from the forest development under first three five year plans we can say that the 'fifties marked a decade of introspection both for the foresters and planners, while the sixties were the one for shaping those dreams into realities."\textsuperscript{59} The policy perspective during the fifties put greater thrust on survey, demarcation and rehabilitation of forest areas while the sixties emphasized to achieve self sufficiency in industrial and commercially viable timber and forests products.

(b) The National Forest Policy, 1952

Having seen great destruction of forests during the British rule in this country, after independence the necessity to have concerted efforts to improve the management of forests was greatly felt. The country adopted a national festival of tree planting- \textit{Van Mahotsava}, in 1950 which was started with the objective of creating mass awareness about the value of forests in human well being. At the same time, the drawback of the Forest Policy of 1894 necessitated a fresh look at the forest policy. The earlier forest policy was revised in 1952 and a new National Forest Policy was formulated.

The new Forest Policy enunciated in 1952 made good the inadequacies of the old policy substantially. It involved the following basic principles for proper management of forests of the country to maximize the benefits - direct and
indirect:

(i) Forests are valuable both in the physical field such as prevention of soil erosion, conservation of moisture and in the economic field of development of agriculture, industry and communications.

(ii) Classification of forests according to their primary functions.

(iii) Regularization of uncontrolled and excessive grazing to ward off its ill effects on the forests.

(iv) Evaluation of a system of balanced and complementary land use to produce the most and its deterioration the least.

(v) Discourage extension of arable land from the forests.

The main objectives of the policy were:

(i) Cover one third of total geographical area with forests, 60 per cent in hilly regions and 20 per cent in the plains.


(iii) Guarding National interests on top priority basis.

(iv) Curbing indiscriminate extension of agriculture.\(^{60}\)

It is interesting to note that the Forest Policy of 1952 retained the concept of 'reserved forests' which was enunciated under the earlier Forest Policy of 1894 and placed them under the exclusive control of state. Although, the policy accepted the category of "village forests" to serve
the needs of people in surrounding villages, it did not grant them the right to manage these. As during the British rule, the approach of state continued to reflect a lack of faith in the capacity of people to manage or protect their forest resources without state intervention and support, people were in fact seen as a major threat to forests.\footnote{61}

It is also noteworthy that in addition to the recognition of the state control over forests, the British legacy of use of forest resources for the realization of maximum revenue and the relevance of forests to meet the needs of defence, reconstruction schemes (such as river valley projects), development of industries and communications etc. was also asserted by the National Forest Policy of 1952. Under this policy, maintaining a sustained supply of wood for industry was considered a vital concern of the state. It was not surprising therefore that the state went to the extent of subsidising the industrial consumers, the forest products in the name of national interest. This, in fact, contributed to the very opposite effects, as the subsidies encouraged them to not only maximise their exploitation of forest resources but also pay little attention to avoiding waste and thereby led to fast depletion and degradation of forest resources.\footnote{62}

The Forest Policy of 1952 was also against the interests of the general public. It not only prohibited them from using forest resources even to meet their needs from the areas reserved to serve the needs of commercial interests but
also made them pay higher prices in the market when compared to the highly subsidised prices for the commercial interests. Such a discrimination has the effect of alienating people who were traditionally involved in protecting the forests and joining hands with forces destroying these, thus, turning them hostile to the cause of conservation.

There was yet another outcome of the expending powers of state, the weakening control of community and increasing commercial interest in respect of forests under the Forest Policy of 1952. It was the growth of relation of exchange between commercial interests and corrupt state elites - politicians as well as forest administration personnel. Their growing alignment, often at the cost of the poor and marginalised forest dwellers, had adverse implications on the state of forests not only because politics devalued in implementation spaces but also because policies were shaped and reshaped to accommodate these interests. Thus, when resource use politics resulted in fast depletion of forest resources, afforestation work did pick up. But priority was given to planting a few commercial trees to serve interests of industry and contractors, whereas planting of ecologically and socially useful varieties of usufruct based trees was ignored to the great disadvantage of the people who subsisted on the biomass based economy.

Even in the implementation, the policy dicta could not be followed fully. The functional classification of forests
could not be adopted since forests had multiple uses and could not be divided into water tight compartments. Due to various constraints, primarily financial, no systematic programme could be drawn up to extend the tree land or establish new ones in good measures. The target of one-third of the country's land area under forest remained a distant dream.

Also, grazing policies remained unimplemented and increasing cattle population continued to affect forestry's conservation principles. By and large, forests were accorded low priority in the states on account of other needs of more immediate concern. The indiscriminate use of forest land for non-forest purposes increased considerably. There was inadequate appreciation of the role of forests though the country occupied 22.8 per cent of its geographical area under forests at the beginning of the policy, in various fields complementary to forestry activities, particularly, in preserving and conserving the ecological balance and environmental stability. The removal of forest cover for fuel wood and domestic consumption far outstripped the planting programmes and denudation of forests, decimation of forests habitat of wild life and loss of rich genetic diversity in India's natural forests continued.

Industrial and domestic demands put a great deal of pressure on forest leading to serious shortages of wood and sharp increase in firewood prices. Shortages of wood and price rise led to massive illegal felling and inevitable
tensions between rural communities and Forest Department. These developments necessitated a fresh look at the national Forest Policy of 1952.

B ENVIRONMENTAL POLICY DURING THE SEVENTIES

The Seventies mark the beginning of the history of environmental policy in India. The developments taking place during this decade gave a new direction to the policy concerns in the field of environment protection. A brief survey of the policy perspectives is made here under:

(a) Policy Perspective in the Fourth and Fifth Five Year Plans

The concern for preserving the quality of life and promoting the environment while undertaking the task of development was stressed for the first time in the Fourth Plan (1969-70 to 1973-74) in the chapter "on long term perspective." The Plan drew pointed attention to environmental issues in the following words:

"It is an obligation of each generation to maintain the productive capacity of land, air, water and wild life in a manner which leaves its successors some choice in creation of a healthy environment. The physical environment is a dynamic, complex and interconnected system in which any action in one part affects the other. There is also the interdependence of living things and their relationship with land, air
and water. Planning for harmonious development recognises this unity of nature and man. Such planning is possible only on the basis of a comprehensive appraisal of environmental issues particularly economic and ecological. There are instances in which timely, specialised advice on environmental aspects could have helped in project design and in averting subsequent adverse effects on the environment, leading to loss of invested resources. It is necessary therefore to introduce the environmental aspect into our planning and development. Along with effective conservation and rational use of natural resources, protection and improvement of human environment is vital for national well being.67

The concern on environmental planning was turned into concrete actions, during the Fifth Plan (1974-75 to 1978-79), by launching several programmes for enhancing the quality of life and incorporating environmental concerns while assessing economic and technical feasibility of a project.

The plan emphasised that the pursuit of development goals does not cause a reduction in the quality of life through deterioration in environmental conditions if a link and balance between development planning and environmental management are maintained.68 In this context, a number of programmes for enhancing the quality of life under the Minimum Needs Programmes (elementary education, rural health
and sanitation, nutrition, drinking water, provision of house site, slum improvement, and rural education) received a fairly high priority. These were expected to minimize environmental pollution and degradation in the rural areas and reduce poverty levels.

As regards the development of forest during these plans, three main objectives were aimed at during the Fourth Plan. These were: (a) to increase the productivity of forests, (b) to link up forest development with various forest based industries, and (c) to develop forests as a support to rural economy. Emphasis was laid down on measures to meet the immediate and long term agricultural and industrial requirements. In response to the objectives, efforts were made at creating large scale plantation of valuable quick growing species and species of economic and industrial importance. The object, the plan stated, "is to achieve self sufficiency in forest products as early as possible, especially for major forest based industries such as pulp, paper, news print, wood panel products and matches so that the imports of some of items may be replaced and some sizable exports of paper and wood panel products build up." Hence, the forest dwellers or their needs hardly occupied any place in the reasoning of planners and policy makers.

The major objective identified in forestry in the Fifth Plan was the creation of large scale man made forests through institutional financing. The plan proposed a network of state Forest Corporations for establishment and management
of man made forests. The birth of Forest corporations and the economic considerations, further pushed the ecological consideration to secondary place. The second important objective of the Fifth plan was to develop farm forestry and to improve degraded forests so as to increase the fuel and timber supply in rural areas. Wild life protections also was attended to during this plan. Programmes for development of national parks, strengthening of research on endangered animals including project Tiger were taken during this plan.

(b) The Stockholm Declaration on Human Environment 1972

The year 1972 marks a watershed in the history of environment management in India. It was the year in which a conference on Human Environment was held in Stockholm under the aegis of the United Nations. The conference is of particular significance to India as it expressed the Policy concern of our country on environmental protection, as a member state, and at the same time, it influenced the process of environment management in the following years.

Late Mrs Indira Gandhi, our then Prime Minister, addressed the conference wherein she attracted the attention of the world community toward our peculiar environmental problems. Pointing out the causes of environmental degradation, she asserted that 'poverty and need' are the biggest polluters. She added that 'the environmental problems of developing countries are not the side effects of
excessive industrialization but reflect the inadequacy of development. The rich countries may look upon development as a cause of environmental destruction, but to us it is one of the primary means of improving the environment for living or providing food, water, sanitation and shelter; of making the desert green and the mountains habitable."  

Hence, rejecting the viewpoint of the developed countries that environmental problems were an affliction of industrialization and their suggestion for no growth policy as the only viable means of protecting the biosphere, India shared the view along with other developing countries that environmental problems are mostly due to lack of development rather than excessive development. India asserted its stand that "the solution to these problems cannot be isolated phenomena of marginal importance but must be an integral part of the unfolding of the very process of development."  

The views expressed at the Stockholm conference forms a core part of the basic environmental philosophy of India that found expression in various Governmental policy pronouncements in subsequent years.

(c) The Constitutional (42nd Amendment) Act of 1976  

The constitutional 42nd Amendment is also significant from environmental protection point of view as it was through it that the national commitment of environmental protection and improvement was explicitly incorporated into our constitution. The overriding concern for environmental
protection with this amendment has now been steered in Directive Principle of State Policy. The newly added Article 48-A declares, "The state shall endeavour to protect and improve the environment and to safeguard the forests and wildlife of the country. The amendment Act introduced a new chapter on Fundamental Duties. Article 51A (g) of this chapter imposes a similar duty on the citizens "to protect and improve the natural environment including forests, lakes, rivers and wild life and to have compassion for living creatures . . . "

The environment protection now gets a constitutional mandate after its amendment by the 42nd Amendment Act in 1976. Thus, during the seventies, the environmental policy in India had taken shape. The policy perspectives were reflected in the Forth and Fifth Five Year Plans; the Stockholm Conference of 1977; in the constitutional provisions, and the Forest policy of 1952. The raison d'être of environmental policy emphasised upon was "development with conservation."

(d) Institutional Measures taken During the Seventies

(i) Pitambar Pant Committee on Human Environment

The Governmental response to the environment concern has in fact, begun at the beginning of the seventies even prior to the Stockholm conference, as was expressed in the Forth Five Year Plan. But the process of implementation started in 1972. Prior to 1972 subject areas of
environmental concern such as sewage disposal, sanitation and public health were fragmented between different ministries of Government of India without any proper coordination at the federal or the inter-governmental level. When the 24th UN General Assembly decided to convene a conference on the Human Environment in 1972 and requested a report from each member country on the state of environment. India set up a committee on Human Environment under the Chairmanship of Pitamber Pant, member of the planning commission, to prepare these reports. The reports of this committee formed the basis upon which India's policy concern on environment was presented at the Stockholm conference. The Pitamber Committee stressed the need for establishing greater coordination and integration in environmental policies and programmes.

(ii) National Committee on Environmental Planning and Coordination

In pursuance of the recommendations of the Pitamber Committee in February 1972, a National Committee on Environmental Planning and Coordination (NCEPC) was set up in the Department of Science and Technology to plan and coordinate environmental programmes and polices and advice various ministries in all matters relating to environmental protection and improvement. The committee consisted of 14 members at the beginning, drawn from various disciplines concerned with environmental management. The committee did a
valuable work in a number of areas related to environmental planning. These included environmental appraisal of development projects, human settlement planning, formulation of environmental guidelines and creating environmental awareness at various levels.

The committee enjoyed some political clout in the beginning years of its formation but the clout was lost in subsequent years due to changes in its composition, and bureaucratisation with the result different departments started viewing the committee not a planning and coordinating body but as a competing body. Thus, it failed to receive the desired cooperation from other departments.

(e) Legislative Measures taken During the Seventies

Legal mechanism, in pursuance of the policy perspective was also evolved during the seventies. In 1972, comprehensive national law, the *Wild Life (protection) Act* 1972 was enacted, intended solely to protect wild life. The Act was promulgated out of a long-felt need to have a central legislation dealing not only with the hunting but also with the creation of protected areas and the control of trade in wild life products. A centrally sponsored scheme "Project Tiger" was launched in 1973 to ensure maintenance of a viable population of tigers in India for Scientific, economic, aesthetic, cultural and ecological values and to preserve for all times, areas of such biological importance as the national heritage for the benefit, education and enjoyment of
the people.

For the control of water pollution, Water (Prevention and Control of Pollution) Act, 1974 was passed. This Act resulted in the formation of Central Board for Prevention and control of water Pollution with primary duties of setting standards, monitoring and legal enforcement. In 1977 Water (control of pollution) Cess Act was enacted with a view to give financial incentive to the industries following the pollution control standards and to raise finances for the water pollution control boards. Water pollution control boards were also constituted in the states in subsequent years.

Thus, seventies have been the years in which India's environmental policy took a new turn from environmental indifference to environmental concern which, in fact, guided it into an era of comprehensive environmental regulation in the subsequent years. This period has been primarily of institutional building and evolving legal mechanism, though not very strong, for environmental protection.

C ENVIRONMENTAL POLICY DURING THE EIGHTIES

The eighties mark a period in the history of environmental policy wherein the concern of environmental protection was turned into concrete actions by launching programmes for enhancing the quality of life and further strengthening of the institutional and legal mechanism. The policy perspectives were reflected during this period in the
Sixth and the Seventh Five Year Plans; the Forest Policy; and other governmental policies and programmes and the consequent legislation.

(a) Policy Perspective in Sixth and Seventh Five Year Plans

The over-riding concern for ecological balance has been emphasized in the National Policy for socio-economic development. The Sixth Five Year Plan framework document as approved by the National Development Council states, "It is imperative that we carefully husband our renewable resources of soil, water, plant and animal life to sustain our economic development." The document also mentions the following as one of the objectives of plan: "bringing about harmony between the short and the long term goals of development by promoting the protection and improvement of ecological and environmental assets."

A full chapter on 'Environment and Development' has been included in the Sixth Plan. This chapter was devoted to the discussion on problem of environmental degradation such as land use, agriculture, forestry, wildlife, water, air, marine environment, minerals, fisheries, renewable resources, energy and human settlement, with a view to evolve sound environmental and ecological principles. This chapter provides a guidance to administrators and other resource managers formulating and implementing development programmes and projects for taking into consideration environmental
aspects and laying down an institutional arrangement for environmental administration and protection of the environment. The approach expressed in the document is alarmist but nonetheless it provides a good basis for improvement in the already degraded environment in India by pointing out the nature\(^{84}\) and causes\(^{85}\) of environmental problems.

In addition to the thrust on environment protection, with the beginning of the eighties, the pendulum of forest thinking swung from economic considerations to ecological perceptions. 'Development without destruction' was the theme of the *Sixth Five Year Plan*, which laid emphasis on the ecological and social security. The major thrust of the plan as regards forest management and protection was, saving the natural forests from further depletion, formation of new fuel and fodder reserves to meet the growing needs of local population and creation of more National Parks and wildlife sanctuaries. A special feature of the plan proposals was an attempt to link forest development with the growth of tribal economy, though, as it happened, a large gap stayed between the aim and the achievement.\(^{86}\) In conformity with the above objectives the major area of thrust was the promotion of a people's forestry movement.

Perceiving the richness of the natural resources and the need for their adequate management so as to harness their potential to meet the material needs for the present and for time to come, the *Seventh Five Year Plan* emphasised on the
need to manage the resource base in such a manner as to enable sustainable development. Therefore, the basic approach to the Seventh Plan has been "sustainable development in harmony with the environment." Towards this end, it has been stressed that all development programmes, in all sectors should take environmental considerations fully into account.\(^{87}\)

Pointing out the necessity of urgent remedial measures, the plan emphasised that official and voluntary agencies must work together to create the needed awareness for resource conservation. The plan also called for involvement of the entire population at all levels in resource conservation. Thus, environment management, a term encompassing environmental planning, protection, monitoring, assessment, research, education, conservation and sustainable use of resources, is now accepted as a major guiding factor for national development in India.\(^{88}\)

As regards the policy perspective on forest management, the Seventh Plan envisaged "Forests for survival" as its theme. The plan, giving highest priority to restore the forest cover with 33 per cent of the geographical area of the country being brought under forests from the present level of about 23 per cent, asserted for preserving biological diversity, increase the vegetal cover by massive afforestation and developing afforestation into a people's movement (social forestry); enhance the productivity of existing forest areas reducing costs and generally improving
the rural economy; to undertake forestry development in order to meet the industrial raw material requirements with the help of appropriate policies for licensing, royalty payment and regeneration costs so that industries do not operate at the cost of permanent damage to the ecology of large areas; to develop grazing land with priority given to identification, development and conservation of such lands; and to devise forestry based programmes in biomass based economy areas so as to be in consonance with socio-economic fabric of tribal culture and ethos.89

(b) The National Forest Policy of 1988

The failures of the National Forest Policy, 1952, particularly, inadequate management of forests; negligible efforts made to improve the availability of fuel wood and fodder to forest dwellers which resulted in social conflicts on forest resource use, the shortcomings of social forestry programme initiated as a part of afforestation programme in 1970s, and the dwindling forest cover necessitated a fresh look at the Forest Policy of 1952. The state came under increasing pressure in order to involve people in the protection and management of forest resources and therefore to reorient its earlier polices. In 1988, a National Forest Policy was formulated90 with principal aim of ensuring environmental stability and maintenance of ecological balance.

The salient features of the new Forest Policy are:
(i) Maintenance of environmental stability through preservation and restoration of the ecological balance.

(ii) Conservation of the natural heritage of the country by preserving the remaining natural forests and protecting the vast genetic resources to maintain biological diversity.

(iii) Checking soil erosion and denudation in the catchment areas for soil and water conservation irrigation floods, droughts and for the retardation of siltation of reservoirs.

(iv) Checking the extension of sand-dunes in deserts areas and along coastal tracks.

(v) Increasing forest cover through massive afforestation and social forestry programmes.

(vi) Meeting the basic requirement of the people such as fuel wood, fodder, timber for rural and tribal populations.

(vii) Increasing the productivity of forests to meet essential national needs.

(viii) Encouraging efficient utilization of forest produce and maximising substitution of wood; and

(ix) Creating a massive people's movement with the involvement of woman for achieving these objectives and to minimise pressure on existing forests.
The principal aim of forest policy is to ensure environmental stability and maintenance of ecological balance including atmospheric equilibrium which are vital for sustenance of all life form. The derivation of direct economic benefit, according to policy must be subordinated to this principal aim.\(^{92}\)

The policy outlines the following approach for forest management and achievement of objectives:

(i) the existing forest land and forests should be fully protected and their productivity improved. Emphasis should be given to enhance forest cover on hill slopes and catchment areas of rivers.\(^{93}\)

(ii) Diversion of good and productive agricultural land to forestry should be discouraged.\(^{94}\)

(iii) For conservation of biological diversity, a network of national parks, sanctuaries, biosphere reserves and other protected area should be extended and properly managed.\(^{95}\)

(iv) The people should be actively involved in programmes of protection, conservation and management of the forests.\(^{96}\)

(v) Forest based industries are expected to raise raw materials through a tie up with private cultivators, specially small and marginal farmers. The supply of forest produce to industries at concessional prices should cease and natural forests should not be made
available to industries for undertaking plantations. The policy rejected two central planks of earlier policies viz., the emphasis on revenue generation and industrial wood production from natural forests respectively. Measures enunciated in the policy for management of forests include full protection of existing forests and forest lands, afforestation, social forestry and farm forestry programmes with incentive to panchayat, and local communities, and individuals. Incentives include sharing of revenue generated from afforestation programmes; the vesting in individuals, particularly, from the weaker sections (such as landless labour, small and marginal farmers, scheduled castes, tribal woman) of certain ownership rights over trees and forest produce subject to appropriate regulations; securing usufruct rights of those people who are responsible for the security and maintenance of forests; making available the degraded forest land on lease or tree patta scheme to facilitate and motivate individuals and institutions to undertake tree-farming and grow fodder, grasses etc. and to ensure protection of customary rights and concessions to the communities who subsist on forest produce for their daily needs. Other measures envisaged are: restrictions on clear felling of adequately stocked natural forests; compensatory afforestation in projects involving diversion of forest land; revegetation of mines and quarries in forest land, containment of shifting cultivation within already affected areas, non-regularisation of encroachment on
forest lands, use of improved and modern management practices for preservation and complete protection of young plantations and regeneration areas against grazing.\textsuperscript{103}

Thus, the revised policy envisages a declaration by the state emphasising that forests are not to be commercially exploited for industries but must contribute to the conservation of soil and environment and meet the subsistence needs of the local people. The revised policy also advocates the role of people's participation in the protection and development of forests from which they derived benefits like fuel wood, fodder and small timber. To give their formal support to this policy, state after state have promoted facilitative rules or orders specifying the institutional mechanisms of the execution.\textsuperscript{104} The welfare of forest dwelling communities has been accepted as a major objective of the revised policy.

While the perspectives as enshrined in new Forest Policy are welcome. The proper implementation of the policy objectives are however, still to be seen or evaluated. However, organizational initiatives taken by the central Government especially in the area of social forestry\textsuperscript{105} and the functioning of the National Waste Land Development Boards (NWDB) started in 1985 have not yet yielded the desired results.\textsuperscript{106}

The afforestation programmes under the social forestry and NWDB have failed to achieve its chief objective of "people's movement for afforestation" due to less public
participation in afforestation schemes, commercial bias in selection of species planted and lack of access to forest land. There are certain other future possibilities particularly, in the area of Joint Forest Management (JFM) initiated as a part of policy implementation process, which put a question mark on the success of the revised policy in achieving the objective of people's participation in forest protection by making protection an economically rewarding activity from the viewpoint of the people and improving the overall state of environment by integrating the local forest management practices with their own development needs. The new policy on JFM does suggest to end an era of state dominance over the forests and the beginning of a new era of people's power. But the JFM is likely to fail in the areas where people have not suffered so much because they may take less interest in participatory management, and in cases where people do resort to participatory activities but the worst features of crisis to be managed from their point of view, are very high.

Further, as evident from the practice of various states is that the new policy simply succeeds in offering the common avenues for participation such as in the form of Forest Protection Committees, resource management societies etc. and incentives to participation such as usufructory rights, share of minor forest produce etc. The participation as a process of empowerment and self realisation which is valued as both a right and a responsibility is missing.
The lack of People's empowerment in the JFM is evidenced by the fact that in most states formation of Forest Protection Committees (FPCs) by the people is regulated and controlled by the Forest department. The FPCs constituted only in respect of degraded forests, have limited role confined only to assist forest department in preventing trespass, encroachment, grazing, theft, damage and fire, etc. They don't enjoy power to punish or decide (except in Haryana and Bihar) the nature of punishment for those caught indulging in any of these prohibited activities. They don't enjoy the right to decide timely execution of forestry work, selection of species of plants to be planted. People, thus, are subjected to direct state control in the matters of their right to organise committees and membership choice and therefore, remain aliens to decision-making process. Another issue which reflects poorly on the issue of people's empowerment is the gender bias against the woman participation in the JFM system. The women are not adequately represented in the FPCs. Also, the people's participation in forest management as employed by various states seems to have less effectivity in view of restricted autonomy enjoyed by the participatory bodies. The forest department supervise and monitor such participation and permit or restrict the rights of the people to participate or acquire certain benefits.

There is conflict between the policy provisions and the provisions of the Forest (Conservation) Act, 1980, as
amended in 1988. The Forest policy resolution, tries to balance the disparate forest interests by adopting sympathetic attitude towards the needs of the forest dweller but on the other hand, forest laws (Forest Conservation Act, 1980) restrict access of these people to the forests. The new forest policy (as per para 4.2.4) provides that wherever possible, degraded lands should be made available for tree farming on either lease or on the basis of a "tree patta" scheme. While the provision as contained in section 2(a)iii of the amended Forest Conservation Act, prohibits state governments to assign by way of lease or otherwise any forest land or any portion thereof to any private person or to any authority, corporation or agency or any other organization not owned or managed or controlled by the government, without the previous sanction of the Central Government. The amended provision specifically nullifies all the platitudes of giving degraded lands to tribal cooperatives and organizations for the purpose of afforestation. Moreover, the current law and the policy governing forests allows wholesale destruction of forests for mega projects undertaken or cleared by the central government and does not encourage or facilitate potentially less harmful uses of forest products by the people or ecologically productive development schemes.

(c) Institutional Measures taken during the Eighties

In early seventies it had become very clear that the concern for environment is essentially a desire to see that
national development proceed along rational sustainable lines and environmental conservation is, in fact, the very basis of all development. To this end administrative and legal measures had begun in the seventies. The eighties mark a decade of introspection and further improvements in the institutional and legal measures directed at the environment protection. Certain administrative and legal measures taken during this decade are noteworthy, for they, in fact, now form comprehensive regulatory mechanism for the protection of environment.

(i) The Tiwari Committee

In recognition of the need for a fresh comprehensive look at the administrative and legislative aspects of environmental protection, the Government of India constituted a High Power Committee under the Chairmanship of the Deputy Chairman of the Planning Commission, Mr N.D. Tiwari in 1980. This committee which submitted its report to the Prime Minister in September, 1980 made far reaching recommendations on administrative and legal measures for environmental protection. Identifying, environmental pollution, Land and Water resources management, Natural living Resources, Human Settlement, Environmental Awareness and Education as the major areas of environmental concern, the committee recommended the following administrative measures:

(i) The committee expressed the need for creating a Department of Environment (DOE) at the centre that
could explicitly recognize the pivotal role of the environmental conservation in sustainable national development.

(ii) In order to conserve the nation's ecological base it recommended that a Central Land Commission should be set up.

(iii) For effective and scientific management of reserves, other than Biosphere Reserves, a sub-cadre of scientific personnel should be created within the Forest Departments of States and Union Territories. Personnel of this Sub-cadre should be given intensive training and a research institution to be established for the purpose. These personnel should not be interchangeable with those in the forest services.

(iv) A sound well informed interest in nature among our people needs to be cultivated. Nature education at all levels of education and public communication, must be efficiently organised especially in our schools and other educational institutions.

(v) Fuel and Fodder supply should be included in the Minimum Needs Programmes of the Central Government; and

(vi) Diversion of forest land to non-forestry uses would need prior approval of the Central Authority Constituted for the purpose. 114

Some of the important recommendations of the Tiwari Committee
were forthwith accepted and put into action by the Central Government.

(ii) The Department of Environment (DOE)

On the basis of the Tiwari Committee recommendations, the Government of India set up a Department of Environment (DOE) with effect from November 1, 1980. The functions of the DOE have been identified as:

(a) Nodal agency for environmental protection and eco-development in the country.

(b) Carrying out of environmental appraisal of development projects through other ministries/agencies as well as directly;

(c) Administrative responsibility for;

(i) Pollution monitoring and regulation;


(iii) Conservation of marine eco-systems.

During the early eighties a new mechanism to protect environment was initiated with the creation of DOE. Now Planning commission's approval and a review report by Department of Environment (even in cases of private sector projects) is necessary for clearing any major project. There is no legal requirement for environmental impact assessment of major projects in India. However, Environmental appraisal committees, under the aegis of DOE for assessing all major hydro-electric irrigation projects, thermal power projects and industrial development projects
have been set up to review the impact statements prepared by project proponents and to suggest safeguards to be followed during the implementation of the projects. Monitoring committees, are established as and when necessary. Expert Committees are set up for on spot assessing of the project, if in the opinion of the committee, detailed studies are required. The Department of Environment examines the recommendations of the appraisal and forwards them to the Planning Commission. During the eighties, projects such as hydroelectric, irrigation projects and thermal power plants were appraised from environmental angle and appropriate safeguards were recommended during the Sixth Five Year Plan.

(iii) National Committee on Environmental Planning (NCEP)

On the recommendations of the Tiwari Committee, the NCEPC was replaced by National Committee on Environmental Planning in April 1981 with the functions similar to its predecessor. The NCEP was formed with the authority to prepare an annual "state of environment" report; to arrange public hearings or conferences on significant environmental issues; and to establish a nationwide Environmental Information and communication system to propagate environmental awareness through mass media.

(iv) Other Organizations

Besides NCEP and DOE other organizations, for various functions, existed during the eighties, for instance, National Eco-Development Board; Botanical Survey of India;
Zoological Survey of India, National Museum of Natural History; Central Board for Prevention and Control of Water Pollution; National Ambient Air Quality Monitoring; National Remote Sensing Agency; Centre for Earth and Science Studies; Environmental Information System (ENVIS) Eco-Development Task Force of Ex-Servicemen; Indian National Man and Biosphere Committee (MAB); Environmental Research Committee; Integrated Action Oriented Eco-Development Research Programme; Centre of Excellence for Environmental Education; and National Environmental Advisory Committee.

In addition to the above institutions, some states, namely Karnataka, Uttar Pradesh, Punjab and Madhya Pradesh also established separate departments of environment at the state level. At the behest of NCEPC, almost all the states and the Union Territories have established environmental Boards under terms similar to those of the national committee which act as nodal agencies within their respective regions.

The continuing decline in the quality of environment and the Bhopal gas tragedy in 1984 spurred the Central Government and a few state governments to make major changes in the administrative set up of the environment protection mechanism and to adopt more stronger environmental policies in the second half of the eighties.

In 1985, the Department of Environment was replaced by an integrated Department of Environment, Forests and wildlife. In addition to this, two powerful agencies were
created to tackle specific environmental problem: they are namely, the National Waste Land Development Board and the Central Ganga Authority, to further improve the implementation of environmental law and policy directions.

(d) Administrative Action taken during the Eighties

The steps taken to preserve/improve the environment in pursuance of the policy directives during the eighties have been as follows:

(i) Pollution Control

The Central Pollution Control Board (formerly Central Board for Prevention and control of Water Pollution) together with the state Pollution Control Boards completed a country wide rapid inventory of pollution from large and medium industries. This was in execution of the "Control of Pollution at Source" programme. Minimal National Standards (MINAS) for Polluting discharges from specific industries were formulated and control measure implemented in stringent manner. Fourteen river basins of the country were monitored for water pollution till the end of eighties. About 50 per cent of large and medium industries have reportedly installed pollution treatment plants during late eighties. About 400 water quality monitoring stations under Global Environmental Monitoring System (GEMS) and Monitoring of Indian National Aquatic Resources (MINARS) and Ganga Action Plan were established by the end of reporting year.
With the coming into effect of the **Air Pollution Act**, 1981, Programmes, after the framing and notification of rules under the Act were completed during eighties which included strengthening of administrative support systems, inventory areas for declared air pollution control zones, evolution of ambient air quality standards as well as industry specific emission standards. The Central Pollution Board and the state Boards are now responsible for assessment, survey, monitoring and enforcement of standards of air and noise pollution.

**(ii) Land Resource Management**

Notable efforts have been made to plan, organize and provide funds to improve desert environments. To improve ecology as also to meet the requirements of the local cattle and human population, forestry has been taken up relatively extensively. With a view to meeting the basic and economic needs of community, the programme of social forestry initiated in 1981-82 remained continuing. The social forestry programme which **inter alia** includes Farm Forestry, Extension Forestry, Reforestation in degraded forests and Recreation forestry, these programmes were assisted by several external agencies, including the World Bank, United State Agency for International Development and Overseas Development Agency of United Kingdom. These programmes envisaged tree planting and afforestation of 19,84,600 ha. of waste land with a total investment of Rs. 911.73 crores.
The 20-Point Economic Programme of late Prime Minister Mrs Indira Gandhi also included afforestation social forestry and farm forestry programmes.

The National Waste Land Development (NWDB) was set up in May 1985 with the main objectives (i) to increase tree and other green cover on waste lands, (ii) to prevent good farm land from becoming wastelands; and to formulate within the overall National Policy Perspective, plans and programmes for the management and development of wasteland in the country. The board has been made a nodal agency to coordinate and monitor the Afforestation Programmes under the 20-Point Programme being implemented through states. The important activities of the NWDB are Rural Fuel Wood Plantation Scheme, Operation Soil Watch, identification and mapping of wasteland, decentralized people's nurseries scheme, People's Participation encouragement schemes, Tree Patta Schemes, Tree Growers Cooperatives, and Silvipastural Farms Scheme. Afforestation activities by the NWDB were completed in a total area of 1.48 m.ha. as against the target of 1.7 m.ha.

A National Afforestation and Eco-Development Board (NAEB) was also set up during late eighties to achieve sustainable economic and social development through national utilization of natural resources including water, soil, plant and animal life. Apart from assisting in a massive afforestation effort, the Board also encourages participation
of the community at grass root level in the protection and management of forests on the basis of "care and share" through a systematic planning, implementation and monitoring approach.

(iii) Natural Living Resources

India has started the formulation of a National Conservation Strategy. During 1983-84 it adopted a National Wild Life Plan and set up the task force on "Eliciting Public Support for Wildlife Conservation." The National Wild Life Action Plan as endorsed by the Indian Board for Wild Life has the following 10 main components:

(a) Establishment of Protected Areas and Habitat Protected areas.
(b) Management of Protected Areas and Habitat Restoration.
(c) Wild Life protection in Multiple Use areas.
(d) Rehabilitation of Endangered and Threatened species,
(e) Captive Breeding programmes;
(f) Wildlife Education and Interpretation,
(g) Research and Monitoring,
(h) Domestic Legislation and International conventions,
(i) National Conservation strategy; and
(j) Collaboration with Voluntary Bodies.

Implementation of the 10-Point National Wild Life Action Plan (NWAP) was started during the Seventh plan. During the sixth and the seventh Five Year Plans, Government of India launched
a number of centrally sponsored schemes to supplement the state Governments programmes for wild life conservation: under Project Tiger Scheme, the number of Tiger Reserves rose from nine at the beginning of the project in 1973, to eighteen covering over 28,017 sq. kms. forest area of the country by the end of eighties. During 1986-87, alarmed at the steadily increasing poaching of the Indian one-horned rhino, the Govt. of India launched a Rs. 500 lakh centrally sponsored scheme for conservation of Rhinos in Assam. Besides this, centrally sponsored schemes, for example, Control of Poaching and Illegal Trade in Wildlife," Wildlife Education and Interpretation Programme, and Captive Breeding and Rehabilitation of Endangered species, were introduced during 1986-87. The main thrust of conservation did continue on strengthening the protected areas comprising 399 sanctuaries and 69 National Parks including 18 Tiger Reserves during the entire period of eighties.

(iv) Environmental Impact Assessment

Environmental impact assessment (EIA) involves evaluation of environmental implications and incorporation of necessary safeguards against environmentally harmful activities. EIA is essential so as to ensure that plans for development in all sectors are in harmony with the objective of maintaining the health of life sustaining eco-systems and other environmental resources. The NCEP and the DOE and later the central integrated Department of Environment,
Forest and Wildlife of the Ministry of Environment, Forests and Wildlife have introduced environmental appraisal of projects of a varied nature. The DOE through multi-disciplinary ad hoc committee study the project. Questionnaires for eliciting information on environmental aspects of development projects in selected sectors such as industry, multi-purpose river valley schemes, thermal power generation, shipping and harbours and mining have been prepared. The project authorities are required to incorporate a chapter on environmental aspects in their feasibility reports.

The impact assessment procedures, during the late eighties were streamlined by devising a single window machinery for speedy environmental and forest clearance. During 1985-90, 1464 development projects were appraised, in all, in the areas of river valley, mining, thermal power industries and others.134

Environmental Information System

An Environmental Information System (ENVIS) is essential for collection, processing and dissemination of environment information to planners, design makers and research. The scheme for setting up of Environmental Information System with a national network of Distributed Information Centres and a focal point in the Department of Environment was proposed in the Sixth Plan.135 The ENVIS became operational through installation of a Computer
Terminal linked with the Computer System of the National Informatics Centre (NIC) to serve as the focal point facility for storage, and dissemination of information to the users. Distributed Information Centres were set up during eighties at the Industrial Toxicology Research Centre Lucknow, the Central Pollution Control Board, Delhi and 17 ENVIS centres for information services in specific subjects in other parts of the country. Besides the ENVIS is carried out in coordination with the 'Environmental Quality Monitoring and Environmental Information System programmes with the help of institutions such as the Geological survey of India, the Botanical and zoological survey of India, and the National Remote Sensing Agency, etc.

Besides the above administrative measure certain other actions such as the environmental Research, Environmental Awareness Programmes etc have been initiated by the Central Government to promote the cause of environment in India.

(e) Legislative Measures taken During the Eighties

The environmental regulation in India was given a new look with the passing of exclusive legislations on Wildlife Protection Act 1972, the Water (Prevention and Control of Pollution) Act 1974 and the Water (prevention and control of Pollution) Cess Act, 1977 during the seventies. The regulating system was however, not comprehensive and lacked the efficacy to deal with other aspects of environment protection. In order to have an introspection of the
regulatory mechanism with a view to further strengthen it, the Tiwari Committee was constituted in 1980. The committee pointed out the weaknesses of the existing regulatory system and made some valuable suggestion for improvement. The Tiwari Committee suggested the following legislative measures.138

(i) Biosphere Reserves:

The Government may consider comprehensive legislation to give effect to the objectives to be served by Biosphere reserves. Such legislation should include provisions for designating areas characterised by considerable genetic diversity in economic plants or are valuable for serving as "hot spot screening nurseries for screening material for detection of genes for resistance to pests as "Gene Sanctuaries."

(ii) Protection of Grazing Lands

The States be persuaded to enact suitable legislative support for protection of grazing lands.

(iii) Protection of Endangered Species

Supporting Indian legislation to effectively implement the Convention of International Trade in Endangered species of wild Fauna and Flora (CITES) to which India is a party.

(iv) Toxic Substances Control Act

This required to ensure the protection of the environment from the sale, manufacture, use and disposal of
chemicals other than pesticides.

(v) Scientific Land Use

The existing regulations relating to the use of fertile soil for brick making, mining, etc. require careful scrutiny. Suitable legislative provisions will have to be made to prevent the growing abuse of land and for enforcing strict reclamation regimes after the soil is removed for brick making.

(vi) Prevention of Noise Pollution

Comprehensive legislation is required to cover the outmoded bits and pieces of related unimplemented legislation at present on the statute books.

(vii) Prevention of denudation of forests

Legislative measure should be devised to curb the degradation caused by the greed of commercial interest through severe punishment, while appropriate steps should be taken to meet the needs of those below the poverty line for fuel and fodder.¹³⁹

Many of the recommendation of the Tiwari Committee have been put into action. In early eighties, consequent to the Forty second amendment Act 1976 by which forests were transferred from state list to the concurrent list of the constitution, the central government passed Forest (Conservation) Act 1980 to further strengthen the forest
management. The **Air** (Prevention Control of Pollution) **Act** became effective from May 1981. During mid eighties the pace of legislative measures was considerably accelerated with the passing of a comprehensive legislation the **Environment (Protection) Act 1986** which empower the Central Government to take all necessary measures to protect and improve environment. The amendments made in the environmental legislations beyond 1987 have spawned new enforcement agencies and strengthened the old one and brought with its the gamut of regulation fields hitherto unregulated. A new chapter regulating hazardous industrial processes was introduced into the **Factories Act**. The amendments to the **Air Act** in 1987 and the **Water Act** in 1988 improved the enforcement mechanism by incorporating citizen's suit, stringent penal provisions and vesting of wide enforcement powers in enforcement agencies. The **Forest (Conservation) Amendment Act 1988**, the **Motor Vehicles Amendment Act 1988** are other important legislation of eighties.

In the area of delegated legislation, effluent and emission standards were specified for 24 industries and general standards for effluent discharge and for noise pollution have been prescribed under the **Environment Act**. For the analysis of water and air samples about seventy environmental laboratories were established across the country. Rules for the manufacture and transport of hazardous substances and for the management of toxic wastes
were issued by the Central Government.

To sum up, during the eighties the policy perspectives on environment protection got added impetus with the adoption of stronger policies, expansion of administrative agencies and enactment of fresh legislations which guided our country into an era of comprehensive environmental regulation. The measures taken during this period have by and large come from the Central Government. The measures so adopted however, do not suggest Government's absolute and unswervingly commitment to environmental protection. The environmental considerations have been utterly disregarded in cases of major environmentally disruptive projects sanctioned since the mid 1980s. The Narmada valley project\textsuperscript{141} and Tehri Dam Project\textsuperscript{142} are the living examples of the government's ecological neglect.

D. ENVIRONMENTAL POLICY DURING THE NINETIES

The policy directives on environment protection during the nineties are reflected in the Eighth Five Year Plan, the policy formulations of the Ministry of Environment and Forests and the recent legislations passed.

(a) The Eighth Five Year Plan (1992-97)

In Chapter 4 on "Environment and Forests," the Eighth Plan after taking an overview of scenario of environment and forests in India identifies 8 major tasks to meet the challenge of environmental degradation they are:
1. "To protect the natural environment.

2. To regenerate and restore degraded ecosystems and increase their productivity and to generate employment through these activities,

3. To decentralize control over nature and natural resources.

4. To develop and share an understanding of nature on natural processes;

5. To formulate a national policy for environment and an appropriate institutional and legal framework in support of the policy;

6. To ensure coordinated and integrated Governmental action aimed at conserving nature and sustainable use of natural resources.

7. To make individuals and institutions more accountable to the people for their actions impinging on environment and ecosystem, and

8. To monitor the state of environment."

To ensure the protection of natural environment the plan suggests preventive and regulatory strategies. The strategy of prevention involving raising of public awareness, strict enforcement of laws, statutory assessment of environmental impact of projects, and efforts to regenerate the productivity of ecosystem, can be useful in many cases of environmental degradation. The raising of public awareness can prove effective in some cases by making the public
apprised of the potential dangers of environmental degradation and restrain them from committing harmful activities. Stringent laws, rigorously implemented, through stringent punitive measures and by making an undesirable action expensive for the offender, can prevent environmental destructions. The Plan calls for the necessity of Statutory environmental impact assessment of all projects and activities before their implementation, as such would prevents environmental degradation by making it obligatory on the part of executing agencies to undertake compensatory measures.  

On strategy of regulation, the plan points out that it is best applicable where activities have already started or projects have come up. An effective regulatory mechanism should include the following:

(i) "a detailed report should be prepared identifying the source of pollution by the project or activity and indicating, in a realistic and time bound manner, the measures required to be taken.

(ii) a similar report should be prepared about domestic and agricultural pollution, especially from pesticides, locating sources and suggesting remedial measures,

(iii) functioning of the central and state pollution control Boards should be strengthened and be made more open,

(iv) Comprehensive and realistic standards should be formulated for environmental pollution and for
procedures and standards for assessing environmental damage.

(v) industries should be made to recognise, if necessary by a dialogue with Government, the cost on economy of environmental effects and be persuaded to start greater leadership and responsibility by controlling pollution at initial stages through built in measures,

(vi) Public participation and involvement of NGOs in prevention and control of pollution and environmental degradation should be facilitated by providing necessary technical help through designated institutions, obliged to provide information and technical advice, and by the central, state and local governments setting up appropriate machinery for speedy response to investigation and disposal of public complaints.

(vii) for encouraging public vigilance, incentives should be offered for reporting instances of violation of laws relating to pollution, forests, wild life and other environmental issues, and

(viii) the regulatory functions of the Government should be decentralised, especially in relation to pollution with essential training and equipment being provided to representatives of communities." 145

The plan emphasises for conversion of the Ganga Action Plan into the proposed National River Action plan, financial
assistance for establishment of common effluent treatment plants by small and medium industries, regeneration and restoration of degraded ecosystems for sustainability through regeneration reclamation and restoration programmes, decentralisation of control over natural resources through creation of appropriate local bodies and institutional structure; development and sharing of an understanding of nature and natural processes through traditional wisdom of rural and tribal communities, search and training programmes; formulation of comprehensive national policy on nature and natural resources in consultation with people, environmental needs of the society and the rights of the weaker sections in terms of giving access to and control over natural resources, in particular, coordination in Government action through formulation of a natural resource policy for sustainable development covering irrigation, energy, agricultural, rural development and industry as the areas of coordinated action; and fix accountability though "concerted efforts to internalize environmental related costs and benefits into the calculus of viability" which calls for development of suitable methodology for quantifying environmental costs and benefits.\textsuperscript{146}

Many of the directives enunciated in the Eighth Plan have been put into action.

(b) Policy Resolutions

The nineties are significant in the sense that it has
added two important policy resolutions to the framework of policies pertaining to forestry and environment framed earlier during the eighties. The newly formulated policy resolutions are, the Policy Statement for Abatement of Pollution and the National Conservation Strategy and Policy Statement on Environment and Development released by the Ministry of Environment and Forest in February and June, 1992, respectively. A brief outline of the policy statement is as hereunder;

(i) Policy Statement for Abatement of Pollution 1992

The policy statement in its preamble enshrines the commitment of the Government on abatement of pollution for preventing deterioration of the environment. The chief objective of the policy statement "is to integrate environmental considerations into decision-making at all levels." To achieve this, suggested steps to be taken are:

(i) Prevention of Pollution at source
(ii) encourage, develop and apply the best available practicable technical solutions;
(iii) ensure that the polluter pays for the pollution and control arrangements,
(iv) focus protection on heavily polluted areas and river stretches, and
(v) involve the public in decision-making.
The key elements for pollution control according to the policy statement for Abatement of pollution are, the adoption of best available, clean and practicable technologies; mass based standards, Fiscal measures; integration, environmental audit; environmental statistics and public participation.

The policy statement emphasises in the critically polluted areas, for evolving strategies whereby the existing units in such areas will be targeted for effective action and the new units will be required to comply with location specific standards for stringent environmental quality objectives, which includes matching waste generators with waste buyers with the objective of solving waste disposal. Further, setting up of industrial estates and cluster of small industrial units in rural areas, will include Pollution abatement measures as an essential component of infrastructure. Under the policy the main emphasis is for the adoption of clean and practicable technologies rather than end of the pipe treatment. The focus is, therefore, on source reduction and substitution of chemicals with safe alternatives. These programmes go beyond identifying changes in disposal techniques. The thrust has, therefore, been for considering process changes which involve significant improvement in energy and water conservation. The obvious benefit of this economic approach is that when wastes are reduced or eliminated, cost savings in material are ensured. The policy thrust, in addition to adoption of clean and environmentally friendly technologies is for
evolving norms to lay down mass based standards which will set specific limits to encourage the minimisation of waste, promote recycling and reuse of materials, as well as conservation of natural resources. Standards, the policy statement, points out should not be merely regulatory tools but be a mechanism to promote technological upgradation to prevent pollution, conserve resources and regulate waste. For this purpose codes of practice and guidelines are proposed to be evolved for specific processes." The policy calls for taking into consideration the environmental effects of hazardous and toxic products right from production stage to disposal, in regulations. It also calls for supplementing regulations for liability and compensation for damage with standards so as to promote greater care and caution in management of hazardous waste and remedial action in case of contamination of soil and ground water. The policy statement also calls for introduction of fiscal measures for considering market choices, recognizing at the same time the necessity of regulatory measures for effectiveness of the policy. The aim of introduction of the new approach is to give industries and consumers clear signals about the cost of using environmental and natural resources. The expectation is that market oriented price mechanisms will influence behaviour to avoid excessive use of natural resources. With this objective in view, economic instruments are proposed to be investigated to encourage the
shift from curative to preventive measures and internalise
the costs of pollution and conserving resources. Effluent,
emission and solid waste disposal charges are proposed to be
levied to provide a continuing incentive towards optimal
releases. The charge so collected will be used for
enforcement, collective treatment facilities, research and
promoting new investment. 152

Another thrust in the policy for the achieving the
objective of pollution abatement is on integration of
environmental concern more effectively in all policy areas.
In this direction steps will have to be taken to strengthen
governmental and institutional structures dealing with
environmental management, especially within the ministries
dealing with sectors of energy, industry, water resources
transport and agriculture who would develop specific
programmes in regard to pollution prevention. An integrated
overview and organisational structure for decentralised
environment impact assessments and environmental law based on
cooperation with local authorities is also called for. A
long term policy for pesticides use, through the
collaboration with ministries concerned and policy for
fertilizer use is stressed to be formulated in order to cover
the non-point Pollution from agricultural activities. As a
part of integration approach, the ministries are required to
include a chapter on action taken to follow up the policy
statement in their annual administration reports. 153

Industrial concerns and local bodies, are as per the policy statement, are required to submit an Environmental Audit Statement in which they are required to provide information on the water and raw material consumption, pollution generated, information on hazardous wastes and solid wastes along with the disposal practices. They are also required to specify the impact of Pollution control measures on conservation of natural resources. This scheme is expected to promote not only smooth monitoring of industrial activities but also adoption of low waste technology and minimization of resource consumption. In addition, it will help in identifying and focusing attention on areas of concern, practices needed to be changed and plans to deal with adverse effects and providing better information to the public. 154

There is also a provision in the policy statement for Environmental statistics. Authoritative statistical data on environment, especially to integrate natural resource accounting into the development decision-making is of vital necessity. The collection and integration of environmental, economic and health data will be done to determine the statutes of pollution to develop a concise set of environmental indicators for monitoring the effects of pollution and to disseminate the necessary information to all concerned. 155
Public partnership is another key element of the policy. The stress is for making public aware of the environmental risks, the economic and health dangers of resource degradation and real cost of natural resources through education. The policy asserts the participatory role of affected citizens and NGOs in environmental monitoring, and suggests to supplement the regulatory system with their expertise, commitments and vigilance. Seeking public participation in environmental management will be cost effective. To promote their role in environmental management access to information is also stressed upon. There is also a scheme in the policy of labelling of "Environment friendly Products" for household and other consumer products to meet certain environment criteria along with the quality requirements of Indian standards. The label prescribed is "Ecomark." Such certification of goods is expected to encourage manufacturers to produce goods that are more environment friendly as well as encourage recycling and adequate waste management.

The other areas of thrust under the policy are setting up of special legal institutions to redress the deficiencies of present system of jurisprudence which does not provide for compensation to individuals for Environmental damage, and make adequate arrangements for interim relief; promoting environmental awareness through education, training programmes in educational and training institutions, and
promotion of social action through education, training camps and public information campaigns for discouraging pollution causing common practices of society, such as reckless use of loud speaker, indiscriminate disposal of wastes and dumping of dead bodies in water sources.

To achieve the policy objectives, a mix of instruments including legislation and regulation, fiscal incentives, educational programmes and information campaigns are to be used.


The national conservation strategy and policy statement on Environment and Development has been prepared and adopted by the Central Government in June, 1992 after extensive consultations at various levels of the central and state Governments, universities, academic institutions, non-governmental organizations and informed individuals. Sustainable development is the key phrase in the agenda for action and the preamble. The preamble of the policy statement highlighting the nexus between development and environment says:

"The survival and well being of a nation depend on sustainable development. It is a process of social and economic betterment that satisfies the needs and values of all interest group without foreclosing future options. To this end we must ensure that the demand on the environment..."
from which we derive our sustenance, does not exceed its carrying capacity for the present as well as future generations. ... The national conservation strategy and policy statement on Environment and Development are in response to the need for laying down the guidelines that will help to weave environmental considerations into the fabric of our national life and our development process. It is an expression of our commitment for reorienting policies and action in unison with the environmental perspective."

After reviewing the nature and dimensions of environmental problems, the policy statement stresses for reorientation of the developmental process and the need for devising a conservation strategy. It states, "we can meet the challenges only by redirecting the thrust of our developmental process so that the basic needs of our people are fulfilled by making judicious and sustainable use of our natural resources. Conservation, which covers a wide range of concerns and activities, is the key element of the policy for sustainable development. Framing a conservation strategy is therefore, an imperative step. Development requires the use and modification of natural resources: conservation ensures the sustainability of development for the present and in future. The conservation strategy is to serve as a management guide for integrating environmental concerns with development imperatives."158
The main objective of the strategy and policy statement "is to reinforce our traditional ethos and to build up a conservation society living in harmony with Nature and making frugal and efficient use of resources guided by the best available scientific knowledge."\(^{159}\)

To achieve the objective an agenda for action is provided for in the policy statement which includes the following:

(a) to ensure sustainable and equitable use of resources for meeting the basic needs of the present and future generations without causing damage to the environment,

(b) to prevent and control future deterioration of our life support systems,

(c) to take steps for restoration of ecologically degraded areas and for environmental improvement in our rural and urban settlements;

(d) to ensure that development projects are correctly cited with least adverse environmental consequences,

(e) conservation and protection of coastal areas and marine eco-systems;

(f) to protect the scenic landscapes, areas of geomorphological significance, unique and representative biomes and ecosystems and wildlife habitats, heritage site/structures and areas of cultural heritage importance.\(^{160}\)
The instruments for action are set in the agenda for the achieving proposed actions. They include the following:

(a) Environmental impact assessment of all development projects right from the planning stage and integrating it with their cost-benefit considerations.

(b) Compulsory prior environmental clearance of all projects above a certain size and proposed to be constructed in ecologically sensitive areas.

(c) Incorporation, in policies, planning, site selection, choice of technology and implementation of development projects like agriculture, water resource development, industry, mineral extraction and processing, energy, forestry, transport and human settlements, of environmental safeguards and protection measures;

(d) To encourage research development and adoption of environmentally compatible technologies, and to promote application of the modern tool of science and technology for conservation, bridging of large gaps in supply and demand as well as control and monitoring of natural resources;

(e) To encourage public participation in environmental improvement programmes and for integrating the environmental concerns in planning and implementation of development programmes,

(f) To create environmental consciousness through education and mass programmes,
(g) To aim at moderation of process of demand unleashed by the development process itself by taking measures to recycle waste materials and natural resources, conserve energy, conserve use of natural resources in industrial products by measures like wood substitution and generally try to reach moderations in lifestyle consistent with sustainability and human dignity;

(h) To develop appropriate organizational structures and a pool of professional manpower to serve as the cadre for environmental management service; and

(i) To effectively implement the various environmental laws and regulations for environmental protection through creation or strengthening of requisite enforcement machinery.  

The policy statement points out the strategies for actions in different fields, the initiative taken under them are expected to resolve the conflicts which often arise between the environmental concerns and development pursuits. The strategies pertain to population control and conservation of Natural Resources (Land and Water, atmosphere, biodiversity, biomars).

On population control the thrust in the policy statement is for adoption of stern legislative measures and for better incentives which includes launching of a time bound national campaign for population stabilisation with the small family as a socially responsible objective; increased support for female education, employment and social security;
easier access to the means of family planning and health care facilities; added incentives in terms of taxation and other benefits of family planning.

Under the conservation of natural resources, the strategies for sustainable use of land include; classification, zoning and apportionment of land for different uses based on assessment of their capabilities and environmental considerations; enactment of laws to protect the soil from erosion, pollution and degradation; measures to ensure equitable access to sustainable use of land and water resources; micro level planning to develop appropriate methodology and implementation of action plan through public participation at village level in land use planning and afforestation programme; country wide campaign to minimise soil and run off losses by soil conservation techniques; restoration and reclamation of degraded areas such as weed infested and mined areas, grazing lands etc., prevention of wind erosion in desert areas by conservation and afforestation programmes; development of suitable agro-silvipastoral techniques with special emphasis on hilly areas and in arid and semi-arid zones; building up a network of permanent assessment and monitoring of soil and water agencies; measures for water conservation, recycling and optimal conjunctive use of surface and ground water for specific uses; legislative measures to check over exploitation of waters; conservation of wet land for ensuring sustainable ecological and economic benefits; encouragement
to and improvement in traditional rain water harvesting and storage methods; stringent measures to prevent and control of land pollution through discharge of solid wastes, effluents etc. in land and water courses; control and abatement of pollution of water bodies from municipal and industrial wastes; classification, of zoning and regulations for maintaining the quality of water bodies to protect; and enhance their capabilities to support vigorous designated uses and adoption of low cost sanitation technology for prevention of pollution of water courses. 163

For control and prevention of air pollution, the strategic thrust is on use of clean technologies; energy efficient devices, and noise control systems; setting up of source specific and area wise air quality standards and time bound plans to prevent and control pollution; proper location of projects; incentive for environmentally friendly technologies substitutes and energy conservation; raising of green belts with pollution tolerant species; developing coping mechanisms for future climatic changes as a result of increased emissions of carbon dioxide and greenhouse gases, and appropriate action to control adverse impact due to ozone depletion and other gaseous effects. 164

Actions for conservation of biodiversity be directed towards intensification of surveys and inventorisation of biological resources; conservation of biodiversity through a network of protected areas including biosphere Reserves, Marine Reserves, Natural parks, sanctuaries, Gene
conservative centres, wetlands, coral reefs etc., protection and sustainable use of plants and animal genetic resources through appropriate laws and practices; protection of domesticated species of animals and plants to conserve indigenous genetic diversity; emulation and support for protecting traditional skills and knowledge for conservation; development of methodologies to breed, multiply and conservation of threatened species through modern techniques; discouragement of monoculture and plantation of dominating and exotic species in areas unsuited for them; and restrictions on introduction of exotic animal species without adequate investigations. 165

For biomass requirement the strategies provided are: devising ways and means by which local people can conserve and use thereafter the resources of common lands and degraded forests so that they have a stake in the continuing productivity of the resources; regeneration and development of wastelands by encouraging private individuals and institutions; raising of fuel wood and provision of alternatives to reduce dependence on fuelwood, taking measures to raise fodder production; increasing biomass to meet essential requirements of biomass based industries; better regeneration and improved productivity through extensive research and development in forestry; development of technologies for enhancing the productivity and efficiency of uses of all biomass resources; institutional and technological systems to enable rural artisans to sustain
biomass based crafts; and curtailment of the supply of subsidised biomass resources to industrial consumers. Environmental conservation and sustainable development will need integration and internalisation of environmental considerations in the policies and programmes of development in other sectors. Hence the policies in other sectors need to be reoriented and must entail environmental considerations which curtail consumerism and encourage environment friendly products, low waste generating technologies, appropriate economic policies including pricing of natural resources and fiscal incentives and disincentives. The policy statement provides certain guidelines to be followed in the policies relating to sectors such as agriculture, irrigation, animal husbandry, forestry, energy generation and use, industrial development, mining and quarrying, tourism, transportation and human settlement. For the implementation of the aims and the objective specified action points are provided in the policy itself.

In agricultural sector the action points relate to *inter alia* development of pesticides and insecticides policy, pest management; adoption of methods of sustainable farming such as organic and natural farming; efficient use of inputs including agro-chemicals with minimum degradation to environment; promotion of environmentally compatible pesticides and cropping practices such as crop rotation; restrictions on diversion of prime agricultural land to other purposes; evolving cost effective and efficient methods of
water conservation and use; strengthening of local bodies like Zila Parishads, panchayats etc. to ensure effective decentralization and optimal resource management and anticipatory programmes and contingency plans for disasters such as drought, flood, etc.  

For irrigation, the action points are: priority to small projects for irrigation; revival of traditional water management systems and development of alternative irrigation systems; measures for provisions of drainage as an integral component of irrigation projects and to prevent water logging and leaching; watershed management through catchment treatment of drainage areas, protection of vegetal cover and measures to prevent siltation in an integrated manner with the irrigation authorities fully accountable for such functions; adoption of command areas development approach for all irrigation projects to ensure optimal utilization; critical assessment of irrigation projects and delivery systems to ensure optimal utilization of water resources along with measures to mitigate environmental and social damage; focus on decentralized network of small irrigation and water projects with minimum environmental disruption; design and implementation of irrigation projects which are environmentally sustainable, based on the lessons learnt from a critical analysis of all past projects; and continuous and on going evaluation and monitoring of all projects.
The activities relating to animal husbandry be addressed to development of an animal husbandry policy for the country; check unsustainable growth in livestock population through intensified sterilisation programmes; improvement in genetic variability of indigenous population; propagation of wild life and wild life resources management on sustainable basis; promotion of stall feeding and rotational grazing; restoration and protection of grazing lands; involvement of local people in policy planning relating to pasture lands and stall feeding to avoid fodder scarcity; and incentive for growing fodder crops and establishment of fodder banks.\textsuperscript{169}

As outlined in the National Forest Policy 1988 also, the action points for forest conservation as suggested in the policy statement are: maintenance of environmental stability through preservation, regeneration, conservation of natural forests, increasing sustainability of forests cover through afforestation, social forestry in degraded areas involving local people by giving them tangible economic motives and employment opportunities; meeting the rights and concessions for requirements of fuelwood, fodder, minor forest produce and timber of the rural and tribal population with due cognisance of carrying capacity of forests; increasing the productivity of forests to meet the essential national needs; afforestation of common lands by local communities through usufruct sharing schemes; substitution of wood by other alternatives of energy sources; supply of forest produce to
industrial consumers only at its market value and not at concessional rates; involvement of local people and dedicated NGOs in afforestation and protection schemes; and creation of land banks for compensatory afforestation. In energy generation and use sector, the action points include environmental impact assessment prior to investment decisions and site selection; choice of practicable clean technologies for energy production and processes including waste utilization, treatment and disposal of solid wastes, effluent and emissions; location of energy generation projects based on environmental considerations including pollution, displacement of people and loss of biodiversity; decentralised small projects for meeting the rural energy needs and incentives for use of non-conventional energy sources; incentives and punitive measures (including proper pricing) to prevent abuse and to promote use of energy efficient devices in the production and distribution systems and for energy conservation in all sectors including households, agriculture, industry, power and transportation; and setting up of biogas plants and development and propagation of non-conventional renewable energy sources. In industrial sector, environmental considerations should be integrated while encouraging industrial growth. In this sector a mix of promotional and regulatory measures should include inter alia incentives for environmentally clean technologies, resource recycling and reuse of wastes and conservation of natural resources; operationalization of
"polluter pays principle" by introducing effluent tax, resource cess for industry and implementation of standards based on resource consumption and production capacity, location of industries as per environmental guidelines for siting industries; giving priority to compatible industries in site selection in such a manner that wastes from one could be used as raw material for the other so as to reduce net pollution to minimum; enforcement of pollution control norms in various types of industries depending upon their production technology and pollution potential; introduction of "Environmental Audit" and reports thereof to focus on environment related policies, operation and activities of industrial concern with specific reference to Pollution control and waste management; preparation of onsite emergency plans and hazardous industries and off site emergency plans for districts in which hazardous units are located; public liability insurance against loss or injury to life or property; dissemination of information for public awareness on environmental safety aspects and stringent measures to ensure safety of workers and general public against hazardous substances, setting up environmental cells in industries for implementing environmental management plans and for compliance of laws; internalising the environmental safeguards as integral components of total project costs; environmental impact assessment right from planning stage and selection of site for location of industries; and compulsory clearance by Ministry of Environment of all projects above a
certain size and in certain fragile areas.  

To prevent and mitigate environmental impacts from mining and quarrying operations actions of safeguards should include mined area rehabilitation and implementation of environmental plans concurrently with the ongoing mining operations to ensure adequate ecological restoration of affected areas; rehabilitation of abandoned mines areas to restore the productive land use; laying down of requisite stipulations for mining leases and other conditions to ensure systematic extraction of minerals with due regard to environment protection; emphasis on production of value added finished products from mining so as to reduce indiscriminate extraction, upgradation and beautification of minerals at the source to the extent possible in order to ensure utilization of low grade mineral resources and to reduce the cost of transportation, processing and utilisation; environmentally safe disposal of the byproducts of mining, restrictions on mining and quarrying in sensitive areas; and environmental impact assessment prior to selection of site for mining.  

So as to ensure sustainable growth of tourism compatible with environment, the suggested actions include: promotion of tourism based on careful assessment of the carrying capacity and support facilities such as transport, fuel, water and sanitation; development of tourism in harmony with nature without affecting lifestyle of local population; restriction on indiscriminate growth of tourism and strict regulation of tourism activities in sensitive areas such as hill slopes,
islands, coastal areas, national parks and sanctuaries. 174

To prevent pollution from transportation system, the policy prescribes some steps that require to be taken and include: improvement in mass transport system to reduce consumption of fuel, traffic congestion and pollution; improved transport system based on bio-energy and other non-polluting energy sources; trail transport and pipeline transport instead of road transport; transportation of hazardous substances by pipelines; improvement in traffic flow through proper maintenance of roads, traffic regulation and strict enforcement of prescribed standards; enforcement of smoke emission standards at manufacturer and user level; phasing out the use of lead in motor oils; and regulation for environmental safety in transportation of hazardous substances. 175

Action points for human settlement include creation of gainful employment opportunities and provision for meeting the basic needs of health, education, communication in rural areas to check rural-urban migration; decentralization of urbanisation through establishment of secondary cities and towns with requisite infrastructural services and employment opportunities by developing human settlement perspective plan at national and state level; disincentives for industrial locations in existing urban centres which have exceeded their carrying capacity; improvement of infrastructural facilities in urban centres in an integrated manner; promoting the use of indigenous building materials and appropriate construction
technologies by revising building and planning codes; conservation of heritage sites and buildings through regulation to ensure that these are not demolished, encroached upon and affected by indiscriminate construction or pollution; deterrent measures to discourage indiscriminate growth of human settlement and polluting industries in valuable areas; certain other measures such as growing of open urban areas, propagation of urban forestry, raising of garden, parks and open spaces, botanical gardens in urban areas; environmental appraisal of projects related to urban development and regional planning; preparation of environment/ecodevelopment plans; better civic and health care facilities; and establishment of monitoring systems and epidemiological data to ensure adequate warning system for prevention and control of diseases. 176

Stressing the need of support policies and systems for filling up of the gaps in the existing institutional set up for effective implementation of the aims and objections of the environmental policy, the policy statement proposes improvements in the legislative instruments and for strengthening of institutions by making them more public participatory in decision-making process and cooperative in approach. 177 Equally important is a system of resource accounting along with other exercise of cost benefit analysis to access the impact of economic policies on the quality and productivity of environmental resources. In this regard the policy statement emphasises for inclusion in indicators of
growth such as GNP and GDP, the depletion cost and value judgements in terms of environmental resources which will require instruments and expertise for evaluation and conscious trade offs, when unavoidable, to meet the legitimate development needs.\textsuperscript{178} To this end it is provided that Government will prepare each year, a natural resource budget which will reflect the state and availability of resources like land, forests, water etc. and which will rationally allocate these resources in keeping with the principles of conservation and sustainable development.\textsuperscript{179} Promoting environmental awareness by creating a network of infrastructure for environmental education,\textsuperscript{180} promoting appropriate environmental technologies,\textsuperscript{181} rehabilitation of project oustees,\textsuperscript{182} role of NGOs, promotion of role of women at the grassroot level in conservation programmes\textsuperscript{183} and partnership role of central and state governments\textsuperscript{184} are some other subjects of thrust in the policy statement.

\textbf{(c) Administrative Actions Taken During Nineties}

After having formulated important policy statement, administrative and legislative actions in several key areas to achieve the objectives of the policy have been initiated during the nineties. As already stated the Department of Environment has been constituted in 1980 and an integrated Ministry of Environment and Forests was established in 1985. The Ministry of Environment and Forests serves as the nodal agency in the administrative structure of the Central
Government for the planning, promotion and coordination of environmental and forestry programmes. The main activities of the Ministry include \textit{inter alia}: conservation and survey of flora, fauna, forests and wild life; prevention and control of pollution; afforestation and regeneration of degraded areas; and protection of environment. These tasks are being fulfilled by environmental impact assessment, ecological regeneration, promotion of environmental and forestry programmes, research, extension, education and training to augment information, assistance to organisations implementing environment protection programmes, and creation of environmental awareness among all sections of the country's population. The tasks are being fulfilled by the vast organizational structure of the ministry which includes Secretary, Ganga Project Directorate, National Afforestation and Eco-development Board and various other Divisions and Boards allocated different functions to be performed.\textsuperscript{185}

The Ministry has done commendable job in the performance of its functions. Under the function of survey of natural resources, the ministry through Botanical survey of India and zoological survey of India, has conducted surveys of flora and fauna in many areas of the country. It has compiled a data on 125 rare and endangered species for inclusion in Red Book of India's Plants during the reporting year 1993-94.\textsuperscript{186}

Under the conservation of Natural Resources including forestry and wildlife programmes, the Ministry in order to
pursue its commitment of integration and coordination of functions, has issued directions to all concerned Ministries/Departments to take appropriate action to reorient their polices and programmes in conformity with the action points enunciated in the National conservation strategy and policy statement on Environment and Development. In forest conservation area, the afforestation programmes have been given impetus with the setting up of National Afforestation and Eco-Development Board. Various Centrally sponsored schemes to promote afforestation, wasteland development, fuel wood and fodder production, conservation of forest produce, aerial seeding etc. have been undertaken.

The Ministry claims that during the year 1992 an additional two million ha. was made green and that the states were asked to furnish district wise and block wise details to make feeding of statistics more efficient and precise. A detailed report on the State of Forests in India has been prepared in 1993 on the basis of a visual interpretation of satellite data and through computer analysis. The report shows a total forest cover of the country at 6,40,107 sq. kms. which constitutes 19.47 per cent of the total geographical area. An Eco-Task Force has been constituted to work in environmentally degraded areas. For encouraging participatory Forest Management, as per the directions of the National Forest Policy, 1988, the Government of India has issued guidelines in 1991 to the state Governments highlighting the need and procedure to be adopted for the
involvement of village communities and voluntary organisations in the protection and development of degraded forests on the basis of sharing of forest produce. Consequent to the direction, 14 states have started 'Joint Forest Management Programmes.' In consonance with its objectives as expressed in the National Forest Policy, 1988, the Govt. of India has decided to prepare a National Forestry Action Plan (NFAP) which is expected to address comprehensively the issues relating to sustainable management of forests and tree resources contributing to biodiversity and conservational and climatic needs. UNDP assisted project on the formulation of the NFAP has already become operational from July 1993.

In the area of wildlife conservation, under the wildlife Action programme, the network of protected areas in the country has increased to 75 national parks, 421 sanctuaries coverings an area of 1,40,675 sq.kms. till the end of reporting year 1993-94. The number of Tiger projects now stand 21. The preparation of a Tiger Action Plan and formulation of a Global Tiger Forum (GTF) have been initiated. India has been elected as the chairperson for the first meeting of the GTF. The Project Elephant, has been launched in 1991-92 which aims at ensuring long term survival of identified viable population of elephants and tackling the problematic elephant populations causing serious depredation. A steering committee on the Project Elephant was constituted in October, 1992 under the Chairmanship of the Ministry of
Environment and Forests which keeps a watch on the implementation of this project. The central zoo authority has been established by the Ministry after the amendment of the *Wild Life (Protection) Act*, 1972, in 1991, to support, oversee, monitor and coordinate the management of the zoos in the country. For animal welfare, which is one of the major items of work allocated to the Ministry of Environment, the States Governments have been advised by the former to constitute state Advisory Boards and appoint nodal officers, in order to implement effectively the *Prevention of Cruelty to Animal Act* 1960. Sixteen states have already formed state Advisory Boards.

As regards the management and protection of land and soil, survey by the All India Soil and land use Survey Organization are regularly conducted to assess the state of land and soil degradation. Treatment of catchment in selected river valley projects and integrated watershed management projects in catchment areas is taken care of by the National Waste Land Development Board. Various research projects on the effective management of wet lands and mangroves have been sponsored by the Ministry of Environment. A National Committee to oversee the implementation and monitoring of the Biosphere Reserve Programmes has been constituted in 1992.

Environmental Impact Assessment reports are to be made mandatory for 29 projects including industries, mining, irrigation, power, transport, tourism etc. as per the
notification of the Ministry issued on 27th January, 1994 wherein procedure for obtaining environmental clearance, constitution of expert committee, procedure for public hearing and a time schedule for taking a decision is provided. Post monitoring of projects is conducted through six regional offices of the ministry in different regions. The function of prevention and control of pollution is presently accomplished by the Central and state pollution control boards through establishment of water and air quality monitory stations in selected areas, notification and enforcement of standards for polluting industries, identification of critically polluted areas and highly polluting industries and under the rules for manufacture, storage, transportation and disposal of hazardous substances, on site and off site emergency plans for preparedness against chemical accidents, fiscal incentives and the centrally sponsored Ganga Action Plan. Under the action plan of the policy statement on Abatement of Pollution, the Central Pollution Control Board has completed environmental audits of 120 industries during the reporting year 1993-94. By an amended Gazette Notification on Environmental Audit 1993 of the Ministry of Environment all industries applying for environmental clearance are required to submit environmental statements for period ending on 31st March, before 30th September of that year, beginning from 1993, to the concerned state pollution control boards.
The Ministry has in February, 1991 identified 17 most polluting industries, who have been asked to install pollution control equipments or face punitive action including forcible action. The older units established before 1980 were given time till the end of year 1993 to comply with the regulations, while the deadline for the rest units having come up since 1981, expired in December 1992. As per a recent information communicated to the Ministry by the Central Pollution Control Board on March 30, 1993, out of a total of 1,629 units in the country falling under the above mentioned 17 categories, 805 have complied with the pollution control measures/standards laid down by the board/ministry, whereas as many as 76 units have been closed down following the action initiated by the State Pollution Control Bards. 555 unit set up before 1981 are yet to comply with the standards.

As a part of programme of controlling fresh water pollution, the ambitious Ganga Action Plan as launched in 1986, to clean the river Ganga, is still continuing. A new scheme for cleaning the river Yamuna and Gomti at an estimated cost of Rs. 421 crores has been approved by the expenditure finance committee. This will be a part of the second phase of the Ganga Action Plan where under Sewage and industrial effluent treatment works will be taken up in 15 towns along with these rivers. Another project for cleaning Damodar river and a comprehensive National River Action Plan to cover 18 major rivers of the country is on the anvil.
To reduce the automobile exhaust, oil refineries are being persuaded by the Government to reduce the lead content in the petrol. Future mass emission norms which would come into effect from 1.4.1996 have been issued for petrol and diesel driven vehicles under the Central Motor Vehicles and Conformity of Production Rules, 1989, by the Ministry of Surface Transport. The norms include emission standards for Type Approval and conformity of Production tests for vehicles in the manufacturing stage. Various state transport Authorities have been requested to take suitable measure for implementation of these norms. To explore the technical and economic feasibility of substitute of petrol and diesel with compressed Natural Gas, a pilot project is being implemented by the Gas Authority of India under the ministry of Petroleum and Natural Gas.

For management of Hazardous Substances, 'Safety Audit in Major Accidents Hazard Units' has now become mandatory with the finalization of amendment to Manufacture, Storage and Import of Hazardous Chemical Rules 1989. A basic infrastructure has been installed for setting up a National Register for Potentially Toxic Chemicals (NRPTC) at the Ministry. Proposal for establishment of Regional Registers for Pollutionally Toxic Chemicals (RRPTC) at Six regional offices of the Ministry is under its consideration. To regulate the solid waste Management, the National Waste Management Council has been reconstituted in October, 1992 under the Chairmanship of the Minister of Environment and
Forests. 'Waste Management' has been included as one of the themes for National Environmental Awareness Campaign 1993-94, with a view to increase awareness on proper waste management practices and undertake programmes at the municipal level.

Fiscal incentives are being proposed to be given to industries to adopt clean technologies. Companies making consumer products, such as soaps and paints have been invited to get their products assessed for allotting the "Eco-mark" label. To get such a mark, certain standards would have to be met, in regard to manufacturing, using raw material, and packing material, etc. It is expected that 'Ecomark' will become as recognised a mark of high standard as the ISI one.

Fiscal measures as potent weapons to ensure conformity with norms of pollution prevention are proposed to be imposed. The National Institute of Public Finance and Policy has been requested in this matter to suggest fiscal instruments for prevention of pollution.

Other measures to raise eco-awareness include various research programmes, education, training and information undertaken by the Ministry.

(ii) Legislative Measures Taken During the Nineties

During the nineties, until 1993, some steps have been taken by the Ministry of Environment to provide legal and institutional basis for management and protection of
environment by way of rules, notification of standards, delegation of powers, identification of agencies for hazardous chemicals management and setting up of Environmental councils in states.

In 1991, the Public Liability Insurance Act was enacted whereby public liability insurance cover has been made mandatory for all hazardous chemical industries. This Act was amended in March, 1992. It now stipulates compulsory payment of compensation to victims of industries manufacturing or using hazardous chemicals, in case of an accident.

By amending the Water (Prevention and Control of Pollution) Cess Act, in 1991, an incremental cess for industries which consume excess water and those whose effluents are not of prescribed standard, has been introduced. The Indian Forest Act, 1927 is proposed to be revised and a draft of the revised legislation has been circulated among the state Governments for comments.  

A Bill on Environmental Tribunals is pending before the Lok Sabha. The proposed legislation aims at creating a legal mechanism to compensate the victims involving hazardous substances in expeditious manner.

In delegation of powers, the Rules under the water and Air Act have been amended. As per these amendments, the consent order issued by the respective state pollution control Boards to the industries would be valid for a period of 15 years or till such time there is some significant
change in the process whichever is earliest. No conditional consent would be issued by the state Pollution Control Boards without complete installation of the required pollution control equipment. 212

A Gazette notification on environmental audit has been issued on 12th March, 1992 which has further been amended vide Notification GSR 386 (E) on April 22, 1993, whereby environmental audit has been made compulsory for all industries requiring environmental clearance under the Water Act, 1974 or Air Act 1981 or authorisation under the Hazardous Wastes (Management and Handling) Rules 1989. 213 This will eventually become part of company law. The Department of Company Affairs has agreed to amend the Companies Act of 1956 to include a statement on environment in the annual reports of the companies. It is expected that this provision will promote the industries to adopt eco-friendly technologies and practices.

Amendments to Manufacture, storage and Import of Hazardous Chemical Rules have been finalised, With the notification of these Rules, Safety Audit in major accident hazard units will become mandatory. The Forest (Conservation) Rules 1981 have been amended to further decentralise and streamline the examination of proposals received under the Forest (conservation) Act 1980. The Ministry has issued a notification on 27th January, 1994 making Environment Impact Assessment Statutory for 29 different activities in industries, mining, irrigation,
A notification consolidating all environmental standards including general effluent, emission and noise standards has been issued under the Environment (Protection) Act 1986. This notification also includes standards for waste water generation in respect of 11 categories of industries. Drafts Rules for Handling and Management of Biomedical Wastes have been prepared under the Environment (Protection) Act, 1986 and have been circulated to the concerned departments for comments.

(e) Environmental Policy: A Critical Evaluation

The environmental policy which existed until late eighties as was implicit in the International Declarations, official documents, policy formulations and legislations, was caught in the paradigm of protection mechanism relying principally on mandatory controls, standards, and legal enforcement. The policy enunciated a regulatory framework which suffered from many drawbacks and therefore had been a subject of criticism all through.

The policy suffered the following drawbacks:

First, the control approach was essentially reactive and curative. It identified the problem and tried to solve it after the damage to the support system has been caused. The regulatory mechanism came in force when the damage had already occurred. The Bhopal gas tragedy is a typical example of the reactive and curative control approach.
Second, in the paucity of economic sanctions/incentives, there was no concerted effort to internalize the environmental damages costs, for the polluters in such cases found it economically more advantageous to pay penalties rather comply with regulations. The non-compliance, despite the presence of stringent penalties was further hastened by complexity of legal process. Failure to internalise the environmental cost has another implication. It activated the whole market mechanism to work against the protection of environment, as polluters did not have to pay for the environmental damage, they did not seek solution to reduce the costs of environmental protection. This, in turn, has the tendency to inhibit the technological development necessary for protection of environment.217

Third, the policy approach was not cost efficient as it required all polluters to meet the same overall standards without considering the disparity in abatement costs. The same environmental results could be achieved if industries incurring low abatement costs were required to meet more stringent standards than those having higher abatement costs. The overall cost of environment could be much lower in such a case.218

Fourth, the approach did not induce pragmatic waste management provide for change in production process or change in raw materials. On the contrary, industrial production under the approach remained confined to imposing controls at the end of pipe except in some cases e.g. hazardous materials
at the beginning of the pipe. 219

Fifth, the policy did not recognize the interrelationship amongst various environmental media specific policies particularly, in regard to pollution control approach. There were inter policy conflicts as the environmental policy ignored the integrated approach and the impact of one policy decision on another sector of environment particularly, the industrial, energy, water and economic polices. The main reason for this was that environment protection was treated like a separate sector. Interactive nature of environment components and appropriate adjustment in sectorial polices was missing. 220 The obvious outcome of such an approach was that the policy tended to convert on ecological problem into another without resolving it at the source and proved expensive in the long run.

Sixth, the policy did not attempt to strike a proper balance between the environmental protection and economic development. 221 Neither in legal policy nor in implementing instruments, the aim of raising the level of ecological compatibility and economic efficiency ensuring sustainable development was emphasised upon. The laws for pollution control were enacted but without any explicit policy statement setting objectives or goals to guide the administrators in interpreting and implementing these laws. 222

Seventh, the Pollution Control laws contain only punitive sanctions which come into force only after the
violations have occurred and environmental damage is done.
Even the administrative sanctions at the disposal of
enforcement authorities lacked enough force remaining
confined to asking for immediate installation of abatement
equipment or revoke the consent order or take legal recourse.
These measure were not innovative and process oriented.

Eighth, Another drawback, of the control approach
under the earlier environmental policy has been the
inadequacy of institutional framework for implementation of
laws, poor monitoring machinery and lack of scientific and
technical expertise to assess and prevent the possibility of
adverse environmental effects. There were no adequate
facilities for orientation and training of the staff engaged
in environmental management, to undertake conscious pollution
control measures.

Ninth, even the policy instruments of the earlier
policy had many drawbacks. Standards for effluents under the
control mechanism were industry specific standards. The
approach of fixing standards took into account the capability
of the industry to bear the cost of pollution control but did
not give due consideration to the cost of environmental
damage or the source of emission. The documents
promulgating minimum national standards also did not contain
explicit discussion of policy goals.

In process of getting permits for establishing
industrial units, environmental review, though moved to an
earlier point in the process, remained ineffective, as the
NOCs were very quickly issued by the concerned state Pollution Boards due to considerable pressure on them arising from scarce resources and insufficient knowledge about the details of pollution control devices to be instituted in the intended industrial units. Hence, environmental review under uncertain and complex industrial licensing process no longer served as an effective means for implementing environmental policy.

Environmental Impact assessment has been the most controversial aspect of environment protection approach under the earlier policy. The administrative discretionary model of Environmental Impact Assessment (EIA) revealed "the hidden dangers of an environmental policy that (did) not strike at the source and prevent the evil but instead (made) an attempt to cushion the impact of environmental assault after the damage was already done." The environmental appraisal procedure instituted in the form of EIA with an objective to internalize environmental concerns in the process of planning for economic development, remained impotent in the absence of statutory requirement for implementation of EIA provisions and post-project monitoring and surveillance.

The malaise of not having a "legislative mandatory model of an impact study haunted almost all administrative decision making process right from at the level of the Ministry of Environment and Forest down to a state Pollution Control Board or a Local Panchayat institution." The administrative discretionary model of impact assessment
through filling in questionnaires and checklists or an environmental management plan along with Environmental Impact Statement, as followed by the Ministry of Environment and Forests did not provide for publicization of environmental information relating to the particular project under study nor did it seek the assistance of the expertise of scientists and environmentalists outside the government much less the cooperation of the members of the general public who were affected or benefited by the execution of a project. The location of industrial projects was, too, decided on parochial, regional, and political considerations rather than environmental factors. This represented the main flaw in the planning process. Economic instruments for implementation of the environmental policy were also meagre confined only to income tax deductions, exemption from capital gains taxes, increases in the depreciation allowance and investment allowance and rebates on water cess.

The new environmental policy as is expressed in the Eighth Five Year Plan, the national forest policy 1988 and other basic policy documents such as National Wild Life Action Plan, Policy Statement for Abatement of Pollution and the National Conservation Strategy and Policy statement on Environment, marks an improvement upon the earlier imprecise environmental policy. The formulation of Policy statements has fulfilled a long standing demand of devising a clear and precise national policy on environment protection and management. The policy directives are yet to be put into
action fully to test its utility. However, from academic point of view it is desirable here to study in brief its positive and negative features. The new environmental policy has the following positive features.

First, the new policy highlights the need on striking a proper balance between the economic development and preservation of environment by weaving environmental considerations into the fabric of our national life and developmental process. Hence, it is an expression of commitment for reorienting policies and actions in harmony with the environmental perspective, a positive feature which remained alien to the earlier environment protection approach.

Second, the new policy is a mix of regulatory and preventive approach as it not only emphasises for the need of strengthening the regulatory mechanism but at the same time, deals with the conditions that give rise to environmental problems and attempts to readjust these so as to obviate environmental damage. It contain set objectives and anticipative and preventive strategies that are addressed to prevention of spread of all harmful emissions or sources of pollution that exceed the assimilative capacity of the ecosystem emphasising on improved methods of preservation, conservation through cost efficient conservation techniques such as recycling, introduction of low emission technologies, pre-emptive substitution of environmentally harmful products and production of processes, conservation of non-renewable
resources and their efficient use and reduction of combustion processes.

Third, the formulation of new policy is a step forward in the ecological modernisation, for it contains perspectives which will help in devising norms and regulation for integration of environmental considerations in the traditional policy areas pertaining to development activities in various sectors such as industry, agriculture, energy, transportation, tourism, water resources, etc. and thus paving a way for achieving sustainable development. The policy enlists a few measures which need to be taken into consideration while formulating the various policies, serving therefore, as guidelines for better environmental conservation and sustainable development.

Fourth, the new policy, also stresses for strengthening of instruments of policy implementation in such a way as to prevent environmental damage. The central notification on Environmental Impact Assessment of 27th January, 1994 making environmental appraisal statutory for 29 different activities in Industries, Mining, Irrigation, power, Transport, Tourism etc. right from the planning stage to the selection of sites for locations, is a welcome decision and represents an ideal anticipatory policy instrument.

Planning aspects are also better taken care of with the land use planning addressing for the allocation of land spaces for various purposes, by taking into account
environmental perspectives in the strategies so as to bring a reconciliation between the developmental plans and the environment. Compensatory afforestation schemes, industrial zoning, reclamation of waste land, green belt, buffer zones etc. are some measures of improved planning.

As a preventive measure, adoption and development of technology that minimizes waste production at the source, substitution of raw materials, recycling, joint treatment of waste is also stressed upon by the new policy. As a strategy measure, environment audit is made mandatory for all industries whereby the industries have been subjected to a scrutiny of the total production cycle for identification of the points where the pollutants can be best tackled. Pollution audit is expected to involve testing of performance standards of equipment. Such a strategy is expected to not only cut down final investment in pollution control but also result in savings in the cost of production.

The new policy appreciates the role of economic concepts as useful instruments to internalise the environmental costs. In this background, there is a proposal for natural resources accounting along with other exercises of cost benefit analyses. Traditional indicators of growth such as GNP and GDP are to include a measure of depletion cost and value judgements in terms of environmental resources.

Fifth another positive feature of the new environmental policy has been its thrust for a change in
institutional mechanisms by providing for greater participation hitherto unrepresented public interest in all development planning procedures. Involvement of non-Governmental organisations, citizen groups, village level institutions and women in environment management can certainly be instrumental in the implementation of the conservative strategies and therefore, is an appreciable step.

Thus, we see that the new environmental policy is quite impressive in its objectives and strategies addressing to the various issues hitherto uncovered by the earlier policy. Its positive features like commitment to integrate environmental considerations into decision-making at all levels; prevention of pollution at the source; encouragement and development of preventive instruments (e.g. application of low emission technologies); internalisation of costs of environmental damage through economic instruments to ensure that the polluter pays for the pollution; statutory requirement of environmental appraisal for some selected industrial activities; and involvement of public in decision-making process, etc all are appreciable.

The chances of success or failure of a policy depend largely on the instruments of policy and its implementation. Many of the directives of this policy are still in the process of implementation. Therefore, it is too early to predict with reasonable precision the adequacy of the new policy to meet the stupendous task of protection of
environment. It has to be kept in mind, at the same time that the expectations regarding this preventive and regulatory policy should not be too ambitious, for the strategies though adequately implemented cannot avoid future environmental damage totally. It can, but, at the best, limit it more effectively than the pure earlier reactive and regulatory policy. There are still some negative features in the new policy which need to be further amended, and a few other implementational problems which too need to be corrected. The negative features of the new policy pertain to its instruments of implementation. They are as following.

First, the recent notification of the ministry of Environment and Forest, whereby some industrial activities thought to be most polluting, have been subjected to statutory requirement of Environmental impact Assessment right from the planning stage, is a welcome decision. It has, to some extent, filled the lacuna as regards the EIA, in the existing legal system. Still, the substitution of the notification with an impact legislation is felt as imperative necessity in view of the political opposition to the notification and some procedural drawbacks of the assessment. Until it is done, the notification needs to be modified so as to ensure functional and institutional freedom of the appraisal authority, with active public participation in a decentralised manner with inclusion of the NGOs, affected people and environmental groups in the decision-making process of appraisal. Further, the procedure of the
appraisal needs to be mended so as to necessarily require more detailed examination of alternative projects, for the notification does not provide for a detailed and intensive study into the alternatives to the proposed action or site. Without an indepth analysis into the alternatives, the EIA neither shall be complete nor would be adequately effective, for the developers will hardly apply their mind into the pros and cons of the proposed project and alternatives. Further, in the absence of statutory compulsion to study the scope of the alternative action or site, the chances are that the developer would submit a faultless environment impact statement or viable draft plan.  

Second, as per the new environmental policy, preparation and submission of an annual environmental auditing report to the environment protection/pollution control agencies concerned, has been made mandatory for all industries. This move is a good and can be useful to increase raw material and energy efficiency, and reduce the volume of wastes generated at the manufacturing (unit) level. But environmental auditing on its own cannot assure the environments' protection or generate sustainable industry. Realisation of the fullest potential of environmental auditing can be possible only when the problems of pollution and sustainability are addressed by an integrated approach. A multitude of strategies rather than just environmental auditing are needed which include, proper preparation and submission of environmental auditing report (EAR); by the
industry, preliminary review of the EAR; critical review of the EAR, recommendations upon EAR to the industry, preparation of feasibility report on the proposed measures; and fixing priorities and a time frame for implementation and ensuring implementation, by the controlling agency. Unless the industry is properly educated regarding the usefulness of the auditing in reducing manufacturing cost, it may not disclose the process details and provide correct information on materials and energy movement in the industry. Also, effective use of environmental auditing may become all the more difficult with the present sluggish, inefficient and impoverished pollution control agencies. Therefore, unless these agencies are made efficient and effective and environmental auditing is spread to all industries in a phased manner starting from the heavily polluting large industries to the least polluting smaller industries, the auditing may prove to be another futile exercise in the direction of pollution control.

Third, the new environmental policy has not discarded the role of regulatory instruments entailing standards, permits and licences. The complete discarding of regulatory mechanism in Indian industrial context is neither feasible nor prudent as the industry here is not expected to show social and environmental responsibility of its own. Regulatory mechanism further needs to be strengthened through improvement in the efficiency of enforcement, controlling and monitoring agencies, in addition to the improvement in the
regulating instruments. Apart from the amending of the EIA and environmental auditing, there is also a necessity of evolving technology/process based standards such as allowing only membrane cells for caustic soda manufacturing in new plants and product based standards such as limit the lead content in gosling and performance standards which mainly apply to sectors such as transport etc. Equally important is that in the process of standard setting, parallel supporting systems and facilities for effective implementation are to be given equal attention and frequent revision of pollution control standards should be avoided to the possible extent.

Fourth, the new policy emphasises for adoption of economic instrument as a preventive strategy for controlling the pollution and to internalize the cost of environmental damage. The economic instruments proposed are meagre. In addition to the existing economic incentives and the proposed 'effluent charge,' other pollution charges in the form of emission charges, user charges, product charges, administrative charges, tax differentiation; subsidies and tax incentives for the development and adoption of cost effective and efficient technologies for pollution control; enforcement incentives consisting of non-compliance fines, market permits etc. may be supplemented to the existing regulatory mechanism. The application of economic instrument can be useful in raising funds which can be conveniently kept as Environmental Funds by the Government of India. The funds so collected can be utilized to further
strengthening the administrative arrangements for monitoring and enforcing environmental standards by making funds available to the enforcing agencies to better equip themselves to conduct their functions efficiently, and for subsidising industrial pollution control activities.237

There are certain other implementational problems in view of which the success of implementation of the new environmental policy becomes doubtful. These problems essentially refer to the federal versus state dichotomy and the interpolicy conflicts.

As regard the first, we know that environment protection is essentially a state subject. Except a few environment related subjects which fall within the legislative authority of the federal government, majority of them belong to the category over which the state governments have legislative authority of ownership, management and the use of natural resources. Therefore, much will depend on how the states implement the various measures or strategies being taken or suggested under the new environmental policy. For an effective and friction free implementation of the policy the best course would be to include 'environment' in the concurrent list so as to enable the central government to legislate and take appropriate measures as and when needed.238

As to the second problem, the new environmental policy aims at integrating the environmental considerations in the various sectorial and other policies. Despite its commitment
inter policy conflicts still exist. Take for instance, the new economic policy, there is a clear conflict between the new economic policy and the new environmental policy. In the new economic policies and the structural adjustment programmes, there has not been any serious analysis of their implications on the environment. The components (e.g. liberalisation, privatisation and foreign investment) of the structural adjustment programmes (SAP) are likely to have immense environmental impacts which may manifest in the form of changes in the modes of agricultural production detrimental to the natural resources and small farmers; intensified extraction of natural and mineral resources to enhance foreign trade; favouritism to the urban or commercial sector to the detriment of rural development; the acceleration of tourism potential at the expense of damage to the fragile areas; the rise in unemployment which may eventually hit hard the urban environment and many others. There has not been any environmental or social impact assessment of these policies either by the government or the funding agencies. Neither has been the Ministry of Environment and Forest or other ministries consulted before the adoption of the new economic policies. Thus, the directive of the new environmental policy which provides for integrating environmental concerns and its integration in the other policy sector, seems to has been ignored in the adoption of the new economic policy.
The success of the new environmental policy will, to a great extent, depend on the success of the new economic policies. In view of there being least chance of backing out from the structural adjustment policy, the only alternative is to implement the new economic policies in such a way as to ensure a proper balance between the development and preservation of environment. Specific recommendations on how to strike this balance are difficult to be given at this stage. However, it may be suggested that the state must continue to play an active role in environmental protection, especially in a market economy driven period. Simultaneously there is a need for the upgradation of environmental friendly (decentralised) methods of production and management of natural resources through involvement of local communities, governmental agencies and voluntary organizations.

4. CONCLUSION

India has had a philosophy of environment management right dating back to the ancient Hindu period. Under the Hindu culture we had a great tradition of environmental conservation which taught us to respect nature and to take cognizance of the fact that all forms of life human, animal and plants are closely interlinked and that disturbance in one give rise to an imbalance in the other's. Moral injunctions acted as guidelines towards environmental preservation during the ancient period. Such injunctions were initially propagated by the religious scriptures, seers
and later enforced by the rulers. Under the Mauriyan regime and Ashoka's rule, forest conservation and wild life protection received the utmost attention. It was during this period that detailed and perceptive law provisions as contained in Kautalaya's *Arthashastra* were followed and enforced.

Environmental protection concern received a setback in the medieval India as there had been a great deal of ecological loss due to frequent invasions and political instability. During the Moghul period, after returning of political stability, the environmental policy did not take a precise shape and the natural resource management remained by and large a neglected field.

During the British Rule, the environmental concern took a new shape with the enactment of forest legislations and other legislation pertaining to pollution control, and reforms etc. and the first forest policy of 1894 whereby the state controlled forest administration initiated in India. The British period by far had not been a good period in the environmental history of India as it was during this period the natural resources were ruthlessly appropriated and exploited with a primary objective of earning revenue. The policy ignored the environment conservation.

In early years after Independence environment protection did not receive any serious attention though national programmes in sanitation, public health, nutrition, water supply and housing did found high priority in the
planning process. The Forest Policy of 1952 was promulgated but had various defects and failed in its objectives. Neither could it check the deforestation.

The 1970s mark a watershed in the history of environment protection in India as this was the decade in which the famous Stockholm Conference on Human Environment was held which highlighted the need for balancing of development with environment in the national policies. India, as a signatory state initiated a move to formulate a national policy on environment. Simultaneously, sustainable development found recognition in the planning process. The Fourth Five Year Plan emphasised for the introduction of environmental aspects into our planning and development. The Fifth Five Year Plan stressed for establishing a link and balance between the planning and environmental management. In the sixth Five Year plan an entire chapter on "Environment and Development" was included that emphasised sound and ecological principles in natural resources management and called for a need to strengthen the institutional and environmental management at the central and state levels. It was in this decade that Environmental protection was accorded a constitutional status by incorporation of Art. 48-A and 51 (A)(g) in the constitution by the Forty Second Amendment Act. Exclusive legislative process also initiated during the decade with passing of the Water (Prevention and Control of Pollution) Act 1974. Institutional mechanism with creation
of NCEPC and the Pollution Control Boards were also established.

The 1980 marked a period of transformation in government's environmental policy from an earlier indifference into an era of comprehensive environmental regulation. The Departments of environment at the central and the state levels were constituted in response to the recommendation of the Tiwari committee report. The administrative infrastructure was further strengthened and legislative activity intensified with the passing of exclusive environmental legislations on Air, Water cess and the comprehensive Environmental (Protection) Act. A new forest policy was formulated in the year 1988 to overcome the shortcomings of the earlier forest policy. Though, no exclusive draft on environmental policy came up during this decade but the environmental policy was visibly manifested in the seventh five year plan, the forest policy 1988 and other policy documents of the ministry of Environment and Forest which was created at the centre. The policy which remained in vogue until the end of 1980s, was essentially a reactive and curative which identified the problem and tried to solve it after the damage to ecosystem has been caused. Its approach was purely regulatory. The policy had defects not only with regard to the instruments used but law and institutional mechanism. This tended to convert one ecological problem into another without resolving it at the
source and proved expensive in the long run. The deteriorating environmental conditions reflected the failure of this policy in achieving its objectives and bringing out the need for innovative approaches to environmental management.

The policy framework that is now reflected in the Policy Statement for Abatement of Pollution, and National Conservation Strategy and Policy Statement on Environment and Development. These documents constitute the basic core of environmental policy. The formulation of these policy documents has been a great contribution of 1990s. The new environmental policy tries to overcome the shortcoming of the past policy and have positive features in the sense that it takes into consideration. The technological considerations proceeding investment decision-making in such a way that resource utilisation as well as the cost of environmental protection and damage are minimised while economic productivity and industrial innovative capacity are maximised. In sum, it is aimed at raising the level of ecological compatibility and economic efficiency ensuring a sustainable development. It adopts a mix of regulatory and preventive pollution control approach. The instruments of policy for implementation are also improved. But it largely remains to be seen as how effectively it is implemented.
Notes and References

1. In Hindu theology there are seven types of temple forests. Shiva Panchayathana, Star forests, Nine planet forests, Zodiac forests, Vrata garden, Ashoka garden and Kadamba garden. Temple forests were situated in the western ghats (Kerala, Karnataka and Maharashtra) Aravalli Hills (Rajasthan and Haryana) Khasi Hills (Assam and Meghalaya) and some parts of Madhya Pradesh. For further details see, S.K. Sharma, "Temple forestry," The Tribune, Saturday Plus, July 24, 1993 at I.


3. Id., at 24.


5. Id., citing Shakndpuran, chapter 189, verse 65 at 24.

6. Id., citing Varahpurana, chapter 172, Verse 39 at 25.


8. Id., citing Mahabhasya at 26.


9a. Id., referring to Skandpurana, chapters XIV, XV, and XVII at 26.


12. Id., citing Durga-Saptashati-Devi Kavachem, 54 at 27.

13. Id., citing Sri Madbhagavatam, verse 41-43 at 27.


15. Id., citing Tattariya Aranyak, V, Verse 101 at 31.

16. Id., citing Charak sanila, Ch. 3, verse 7 at 31.
17. **Id.**, citing Kautilya Arthashastra, Adhyaksha Prachar, Ch. 2 Para 20 at 31.
18. **Id.**, at 27.
19. **Ibid.**
20. **Id.**, citing Yjurveda, chapter 13, verse 47 at 27.
21. **Id.**, citing Yanjna Valkya Smriti, Verse 180 at 28.
22. **Id.**, citing Vishnu Samhita, verses 68-69 at 29.
23. **Id.**, citing Sakandha puran, Kashi Khanda, Ch. 58, Verse 10 at 29.
24. **Id.**, citing, Narsimha puran, chapter XIII verse 44.
25. For an historical account of state of environmental policy in ancient India; see J.B.Lal, *India's Forests: Myth and Reality* (Natraj, Dehradun, 1989) at 15-17.
28. For cutting the tender sprouts of trees in city parks that bore flowers or fruits or yielded shade the fine was six panas, for cutting small branches twelve panas and for cutting stout branches twenty four panas. For destroying trunk the fine prescribed was the first amercement and for uprooting the tree the middle most amercement. Similarly, for cutting of plants which bore flowers or fruits or provided shade forests of hermits and trees of pilgrimage or of cremation grounds the fine imposed was half of the above fine. Whereas destruction of trees at the boundaries or that were worshiped or in sanctuaries, entailed a penalty double the above fines. See Gupta, *Supra Note*, 26 at 155.
29. **Ibid.**
30. **Id.**, at 156.
31. **Id.**, at 28.
34. The famous Mughal gardens are Mughal garden at Agra, laid out by Babar and named as Hashal Bibisht or Nur-i-Af Shan, Shalimar garden at Srinagar laid by Akbar, Nishat Bagh of Srinagar laid out by Asaf Khan, the brother of Nur Jahan.


37. Guha, Id, at 1883.

38. Lal, Supra Note 25 at 18.

39. Ibid.

40. Dietrich Brandis was the first Inspector General of Forests.

41. J.B.Lal, Supra Note 25 at 19.

42. See, Guha Supra Note 36 and Lal, Id at 20.

43. Lal, Ibid.

44. L.C.Sharma, Indian Economy and Environmental Pollution (New Delhi: Interest Publication, 1989) at 118.

45. Lal, Supra Note 25, at 20.

46. Dolly Arora, "From State Regulation to Peoples Participation: Case of Forest Management in India," Economic and Political Weekly, March 19, 1994 at 691.

47. Sharma, Supra Note 44 at 118.

48. The consolidation process could achieve little success as only 112,000 ha were arranged between 1920 and 1950. See Gian Singh, Environmental Deterioration - Causes and Control (New Delhi: 1991) at 95-98.

49. See, First Five Year Plan, Planning Commission, Govt. of India (1952), Chapters IX, XII, XVIII, XXVI, XXXII, XXXV.

50. Id., at 285.
51. Ibid.
52. Id., at 294.
53. Id., at 296.
54. Second Five Year Plan, Planning Commission, Govt. of India (1957), Chapter XV at 298.
55. Id., at 630.
57. See, Sharma, Supra Note 44 at 132.
58. See, S.D. Thapar, India's Forest Reserve (1975) at 29-30.
59. Sharma, Supra Note 44 at 131.
61. For defects in the National Forest Policy, see, Chatterpati Singh, Supra Note 35; and Environment and Law in G.S. Nathawat, Shastri and Vyas (ed.); Man Nature and Environmental Law (Jaipur: RBSA Pub., 1989) at 128-144.
67. Id., para 2.46.
68. Ibid.
69. Id., at 152.

70. See, Report of National Commission on Agriculture, Supra Note 56 at 14.

71. Fourth Five Year Plan, Supra Note 66 at 207.

72. Ibid.

73. Report of National Commission on Agriculture, Supra Note 56 at 15.

74. Supra Note 71 at 211.

75. The Stockholm Conference on Human Environment was held on June 14, 1972. A declaration was passed in the conference under the head, "The Magna Carta of Our Environment. The Declaration contains 26 cardinal principles casting obligations on the members of International Community relating to different aspects of natural resource management. For text of the Declaration; see Jain and Jain, Environmental Laws in India (Indore: The Lawyer Home, 1984) at 543-45.

76. For Address of Prime Minister Indira Gandhi at the United Nations Conference on the Human Environment held at Stockholm, see, Rosencranz, Divan and Noble (ed.), Environmental Law and Policy in India (Bombay: Tripathi, 1991) at 39.

77. Id., at 40.

78. Id., at 139.


80. Ibid.

81. Sixth Five Year Plan (1980-85), Planning Commission, Government of India at 34.

82. Ibid., Objective ix.

83. Id., at 343-348.

84. The Plan classified environmental Problems in India into two categories (a) Those arising from conditions of Poverty and under development and (b) Those arising
as negative effects of the very process of development, see Id., at 343.

85. The causes of degradation of environmental quality in India as implicit in the sixth plan are: (i) ignoring costs of environmental degradation at the policy making level. (2) Lack of long term perspective in development planning. (3) the tendency of all agencies to maximise their own profits and ignore the costs they impose on society at large. (4) ignoring of interests of those communities who depend on a resource for subsistence generation after generation and who have a stake in its conservation in preference to a entrepreneur with the option of shifting his investment is only interested in quick profits even if it leads to the destruction of the resource base. (5) cultivation of marginal lands, over grazing of pastures, cutting wood from dwindling forests and destroying the base of national resources to take out a subsistence; and (6) damage to soil productivity and scenic beauty as a result of mining, brick making and similar activities.

86. Supra Note 81 at 35.

87. Seventh Five Year Plan: 1985-90, Planning Commission, Govt. of India (1985) at 385.

88. Ibid.


90. The formulation of revised forest policy was the obvious result of a long debate extending right from the Central Board of Forestry was constituted in 1950, The Central Board of Forestry was supreme advisory body for review of national forest policy 1952, formation of detailed policy and its implementation. The Board had 22 meeting between 1951 and December 1987 and gave suggestions for the revision of the policy. Later Estimates committee (1968-69) of the Fourth Lok Sabha in its seventy sixth report emphasised for reappraisal of the national forest policy by an ad hoc body of experts in the light of experienced gained during the years of development plans, research and technological advancement in forestry. It also gave some important suggestions for effective forest management. Upon the recommendation of Central Board of Forests, a National Commission on Agriculture was created. The Commission published its report in 1986 and gave its own recommendation for the revised policy. the recommendation of the commission
were accepted by the Ministry of Environment and Forests and the National Forest Policy was finally formulated in December, 1988. For details of the recommendation and observations of CBF, Estimate Committee and National Commission on Agriculture see S. Kashyap, *National Policy Studies* (1990) at 324-26.


92. *Id.*, Para 2.2

93. *Id.*, Paras 3.1 and 4.3.1.

94. *Id.*, para 3.2

95. *Id.*, paras 3.2 and 4.5.

96. *Id.*, para 4.10.

97. *Id.*, para 4.9.

98. *Id.*, paras 4.4.1 and 4.4.2.

99. *Id.*, para 4.2.

100. *Id.*, para 4.3.4.

101. *Id.*, para 4.4

102. *Id.*, para 4.7.

103. *Id.*, para 4.8.

104. Joint Forest Management has started in various states. Orissa took the lead in this matter by issuing orders on Joint Forest Management in August, 1988. It has been followed by West Bengal which passed a resolution to support people's participation in forest management. The Central Government has also issued a circular in June 1990 which suggested the states to involve voluntary agencies/NGOs with the state forest departments and the local village communities in revival, restoration and development of degraded forests. The states of Bihar, Gujarat, Haryana, Jammu and Kashmir, Andhra, Maharashtra, Rajasthan, Karnataka, Madhya Pradesh and Tripura have consequent to central circulation, facilitated the implementation of this policy in their respective states by issuing enabling orders providing few details of the arrangement. For details and achievements of these various joint forest management regulations orders;
see, Joint Forest Management: Regulations Update, SPWD, New Delhi, 1992.


106. For details see, Guha and Gadgil, "Forest Policy: Missing the Woods for the Trees" Times of India, New Delhi, May 9, 1989.


108. Ibid.

109. Ibid.

110. Id., at 694-95.

111. Id., at 695.


114. Id., at 30-37.


116. Ibid.

117. Ibid.

118. During the Sixth Plan 30 hydroelectric and irrigation projects, and 15 thermal power generation schemes were appraised. See Annual Report 1980-81, Department of Environment, Government of India (1981).


120. Id., at 16; see also, Annual Report 1989-90, Central Pollution Control Board, Delhi (1990) at 6.

122. In view of the magnitude of pollution of river Ganga, the Government of India set up Central Ganga Authority in 1985, as a part of implementation of operation cleaning Ganga. The Ganga Act Plan was initiated with an objective to intercept, divert and treat sewage flowing into the river in order to improve the water quality and to compel industries discharging their effluents into the river to conform to prescribed standards. Two hundred and sixty one schemes of low cost sanitation, river front development and construction of electric crematoria spread over Uttar Pradesh, Bihar and West Bengal, at a cost of Rs. 256 crores, have been sanctioned of which 147 schemes were completed during the seventh plan. An independent evaluation of the Ganga Action Plan, Phase I has been sought from the Ministry of Environment and Forests. A monitory Committee of Ganga Action under the Chairmanship of Member, Planning Commission has been operational during the Seventh Plan, see Eighth Five Year Plan, Supra Note 121 at 97.

123. Supra Note 120 at 10.

124. For details see, Annual Reports of Central Pollution Control Board 1988-89 and 1989-90.

125. Eighth Five Year Plan, Supra Note 121 at 97.

126. Item 16 of the new 20-Point Programme 1986 referred to need to pursue vigorously programmes of afforestation, Social and farm forestry development while item 17 referred to Protection of Environment by enhancement of Public awareness of damage to environment and ensure judicious selection for projects and proper choice of technology see, "Twenty Point Programme 1986," Yojana, October 1-15, 1986 at 9.


128. For other objectives, functions and schemes undertaken by the NAEB; see, Annual Report 1993-94, Ministry of Environment and Forest, Govt. of India (1994) at 65-66.

129. See, Kashyap, Supra Note 127 at 337.

131. See, Kashyap, Supra Note 127 at 338.

132. See, Annual Report 1989-90 Supra Note 130 at 12.

134. Eighth Five Year Plan, Supra Note 121 at 95.

135. Sixth Five Year Plan, Planning Commission, Govt. of India (1980) at 349.

136. See Annual Report 1989-90, Supra Note 130 Chapter I at 12.

137. For details see Eighth Five Year Plan, Supra Note 121 at 96-98; and Annual Report 1989-90, Id., at 5-13.

138. The Tiwari Committee conducted a survey of 16 Central Acts dealing directly or indirectly with environmental protection and came to conclusion that many of the existing environmental laws have become outdated and poorly implemented. whereas many of the existing laws 'are primarily meant to promote development and resource utilization for specific economic benefits without a careful analysis of the potential short and long term detrimental effects on environment.'

139. Tiwari Committee Report, Supra Note 113 at 19-24.

140. See the Environment (Protection) Rules 1986 Schedules I, II and III.


143. The Eighth Five Year Plan, Supra Note 121 at 92.

144. Id. at 93

145. Id.

146. Id., at 94-95.

148. Ibid.

149. Id., para 4.

150. Id., paras 4 and 5.

151. Id., para 6.

152. Id., para 7.

153. Id., para 8.


155. Id., para 10.

156. Id., para 11.

157. Ibid.


159. Ibid.

160. Ibid.

161. Ibid.

162. Id., Para 5.1.

163. Id., para 5.2.1.

164. Id., para 5.2.2.

165. Id., para 5.2.3.

166. Id., para 5.2.4.


168. Id., para 6.1.2.

169. Id., para 6.2.

170. Id., para 6.3.
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188.  For details of state of Forests in various States in India; see, see Id., at 7-62.
190.  Supra Note 128 at 36.
191.  Ibid.
192.  Id. at 38-41.
193.  For details of the functions of Central Zoo Authority see Id. at 34.
Prevention of Cruelty to Animals Act 1960 was enacted to redress the suffering of animals. Under the provisions of the Act, the Animal Welfare Board of India has been established. This autonomous organisation is working for the cause of animal welfare in India and is entrusted with enforcement of the above Act, advise the Central or any other local authority on improvements in the design of vehicles so as to lessen the burden on draught animals, to advise central Govt. or any other local authority in design of slaughter houses and its maintenance, to advise the Government on matter relating to medical care and matters connected with animal welfare or prevention of infliction of unnecessary pain or suffering on animals.

Supra Note 128 at 43.

Id. at 30-31.

For details of status of Environmental Impact Assessment of Various Projects; see, Id. at 45-46.

For a detailed account of activities undertaken by the Central Pollution Control Board during the minutes; see generally Annual Reports 1990-91; 91-92 and 92-93 of the Central Pollution Control Board Delhi.

Supra Note 128 at 50-51.

The most polluting industries identified are: Sugar, fertilizer, cement, fermentation and distillery, aluminium, petrochemicals, thermal power, caustic soda, oil refineries, tanneries, copper smelters, zinc smelters, iron and steel, paper, dye, pesticides and pharmaceuticals. The central Pollution Control Board has in fact, identified 18 most polluting industries. See Annual Report 1992-93, Central Pollution Control Board, Delhi (1993) at 69.

Based on information collected from the Central Pollution Control Board, Delhi. For the status of Pollution Control in 17 Categories of Industries in 32 States/UTs, As on February 28, 1993 see, Id., Appendix X.

See, Annual Report 1993-94 of Ministry of Environment, Forests, Govt. of India, New Delhi (1994) at 63-64.

Id. at 58.

Id. at 59-61.
Fiscal incentives presently provided to prevent pollution include following: Incentives in terms of rebate on water cess payable under the water (Prevention and Control of Pollution) Cess Amendment Act 1991; Depreciation allowance at 100% for installing pollution control devices custom duty at reduced rates of 35% + 5% auxiliary charges levied on equipment and spares for pollution control; custom duty at reduced rate of 25% and full exemption from additional duty for kits required for conversion of petrol driven vehicles to compressed Natural Gas driven vehicles; excise duty at reduced rate of 5% on manufactured goods that are used for pollution control; excise duty exemption for bricks and blocks manufactured of fly-ash and photogypsum; exemption under Section 35 CCB of Income Tax Act to assesses who incur expenditure by way of payments on any sum towards association or institution which carry out programmes of conservation of natural resources; and financial assistance towards capital investment upto 25% or Rs.50 lakhs whichever is less is given as subsidy for setting up small scale industries and common effluent treatment plants. Id., at 53.


Also see, Hadden, "Statutes and Standards for Pollution Control in India," *Economic and Political Weekly*, April 18, 1987 at 710.

218. Ibid.
220. Hadden, *Supra Note* 218 at 709.
221. For instance, in the Seventh Five Year Plan, the conflict between environment protection and industrial development was perceived but proper balance between them was nowhere discussed.
222. For example, neither the preamble nor the provisions of the *Air Act* provide much concrete policy guidelines.
223. Industry specific standards are evolved by specifying a critical percentage of annual turnover of the industry that must be spent on pollution control. See Sarswat, N. *Supra Note* 218 at 51.
224. *Ibid*.
225. See, Hadden *Supra Note* 218 at 711.
226. *Ibid*.
228. *Ibid*.
231. See, P. Leelakrishan, *Supra Note* 227 at 561.
232. The strongest objections to the move of central notification on EIA have come from Chief Ministers of
Several States, industrial houses and export conglomerations, all of whom have argued that such a notification would create barriers to industrial development and freedom. See, Ashish Kothari and M. Kothari, "Structural Adjustment Vs Environment," Economic and Political Weekly, March 13, 1993 at 474.

233. For details see, Leelakrishan, Supra Note 227 at 561-62.


235. See, Supra Note 207.


237. Id., at 151.

238. Similar suggestion has been given by Prof. Paras Diwan to which the author concurs, see Diwan P. (ed.) Environment Protection: Problems, Policy, Administration, Law (1987) at 14.