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ENVIRONMENT POLICY

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DEPARTMENT OF SCIENCE & TECHNOLOGY Government of Himachal Pradesh

FORWARD

This document is the result of participatory process involving technocrats, professionals and citizens, who have in the course of experience formulated distinct impressions on the State of Environment of Himachal Pradesh.

The main purpose of this document is to develop approaches to conserve mountain eco-systems and its unique aspects such as fragility, marginality, diversity, climatic peculiarities, etc. The policy covers important areas such as Land, Water, Air, Mineral Resources, Horticulture, Agriculture, Horticulture, Energy and Tourism etc.

It is hoped that the implementation of Policy guidelines will involve strengthening of the existing departmental policies so that the activities become not only comprehensive but sustainable. While it discourages mindless exploiting of natural resources, it also encourages conservation and preservation. It would be imperative to ensure the participation of all stakeholders for successful implementation of these guidelines. The action of all the concerned departments, institutions and individuals will be required to achieve environmental enhancement and sustainable development.

Deputy Secretary
Deptt. of Science & Technology

(Part-I)

1. PREAMBLE

1.1. Himachal Pradesh Government shall help to promote the development of an economically and environmentally sound eco-system while endeavouring to improve the living standards of the people in the State. The Govt. is conscious of the value of the environment and of the ecological, genetic, social, economic, educational, cultural, recreational and aesthetic values thereof. It recognises the importance of environment for evolution and for maintaining

systems.

1.2. The Govt. of H.P. expresses its resolve to conserve a environment and follow a policy of sustainable development. B central role in forging and directing the development on a sustaina upon people, Panchyati Raj and local bodies, institutions, and t State for extending their full co-operation in this effort.

2. THE AREAS OF ENVIRONMENTAL CONCERN

2.1 The term environment encompasses air, water, soil, f communities, their habitats and livelihoods etc. and is a comple inter relationships, which these facets of environment have amor Environment is generally considered in three broad classification and Sociocultural and it is essential to examine the effect of deve on all the three components. The concern today is not only preser present generation but also ensuring 'its use by our future generat

2.2. The following characteristics and special features of the identification of issues of environmental concern :

- i. Inaccessibility
- ii. Fragility
- iii .Marginality
- iv. Diversity
- v. Hostile climate
- vi. Scattered population and small agricultural holdings

2.3. In the light of the above, the following areas have been identi environmental significance and need attention on a priority basis:

- i) Construction of highways, massive buildings and big dams.
- ii) Extension of orchards into environmentally sensitive agricultural
- iii) Destruction of forest cover.
- iv) Deep Channel cutting for minerals and open cast mining for bui
- v) Pollution and garbage.

3. DEVELOPMENT IN HIMACHAL PRADESH

3.1.The fragile environment of the Himalayas has seen developmei which are replication of the development patterns of the plains. I itself has undergone transformation from subsistence centere commercial horticulture based development. The developmental pa last thirty years has been a mixed success. While one can legit pride about a reasonably good road network, educational and h problems in the shape of depleting forests, increasing pressure on resources such as water, pastures etc., deterioration in water anc matter of concern. Overall, there is a threat to the quality of life ai the base for an economically sound and environmentally safe futu of the State's geographical, geological and cultural nat

overemphasized today.

3.2. It is in the State's interest to rethink its approach and strategy and the measures of economic progress. The questions that would be:

- i) What is wrong?
- ii) Where has it gone wrong?
- iii) Are policies and programmes in consonance with the nature of the State?
- iv) Have policies been implemented in their correct perspective?
- v) Have people's perceptions been built into the development process?
- vi) What direction should our policies take and what do we hope to achieve from them?

4. NEED FOR POLICY

4.1. India was one of the first countries, where the Constitution required for harmonizing environmental concerns with development. Article 48 directs, 'The State shall endeavor to protect and improve the environment and to safeguard the forests and wildlife in the country' and Article 51A Indian citizens a Fundamental Duty " to protect and improve the environment including forests, lakes and rivers and wildlife, and to protect the living creatures."

4.2. The National Conservation Strategy and the Policy Statement on Environment and Development are in response to the need for laying down the framework which will help to weave environmental considerations into the fabric of the economy and of our development process. It is an expression of our reorienting policies and action in unison with the environmental perspective.

4.3. At present, the State of Himachal Pradesh does not have a Policy of its own. The developmental vis-a-vis environmental mode of the State is generally directed by central policies and laws which do not take into account the requirements and unique aspects of mountain areas.

5. THE APPROACH

5.1. While recognising the fact that the legal regime put in place by the State Govt. is sound, the approach adopted in this policy document is to identify issues and to prepare guidelines, which could lead to formulation of a Policy for the State of Himachal Pradesh. The specific effort has been to:

- i) To identify issues which need immediate attention of planners and to provide a framework for both spatial and sectoral development.
- ii) To redefine indicative and operational roles for the Government in environmental problem solving.
- iii) To define policy frames and the implementation mechanism for a coherent implementation.
- iv) To identify the role of people in general & women in particular.

conservation, protection and rehabilitation.

6. OBJECTIVE

6.1. The objective is to develop sustainable development approach which take into account the special features of mountains. Sustain means "meeting the needs of present generation without compromise of future generations". From this definition, the following principles of development emanate:

- i) The Govt. and public perspective must shift towards ecological development.
- ii) Mindless exploitation of natural resources, which are not being stopped.
- iii) State needs to conserve resources and use technologies, minimum waste.

7. STRATEGY

7.1 The purpose of Environment Policy Guidelines for Himachal Pradesh

- i) Taking stock as it were of the development process pursued - pitfalls.
- ii) Identification of remedies and interventions as may be required at Regulatory and ultimately policy and implementation levels.

7.2 The Policy Guidelines comprise parts covering subjects of Agriculture, Forest, Horticulture, Water Resources, Industries, Energy, Health, Biodiversity and Pollution in relation to the environment in each area. The present status of each sector including its environmental has been indicated.

7.3 Himachal Pradesh being a small, hilly State needs not only to develop land, water etc., but also make development humane, ecologically sustainable. Presently most departments have their own policies in Forest, Tourism, Power etc. All these policies have certain safeguards inbuilt in them to cover ecological issues. Through this document, that the guidelines are considered and adopted by the Govt. departments their policies and activities more ecologically sound and better regulated. Existing lacunae could be plugged and the present developmental approach upon to sustain itself and ecology. Such a development strategy better ecological assessment of projects/schemes, better coordination result, a better and safer life for the people of the State.

7.4 It is important to recall at this stage that the environmental damage quite often caused due to pressures of social or economic expediency possess original blue prints of Nature, therefore, it would be necessary that any action, in order to be ecologically sound, must have for and detailed evaluation of competing options and parameters.

complexities arising out of technological, social and economic variations, it is necessary to always have a structured approach while dealing with such related issues and evaluations. For this, a step by-step approach should be followed, in the sequence in which it is mentioned:

- i) Technological parameters.
- ii) Social, including political, parameters
- iii) Cost and economic parameters.
- iv) Over-all reasonability parameters.

(Part-II)

8. SECTORAL GUIDELINES:

8.1. The sectoral guidelines, as described here-in-after have emerged from the Environmental Status Report. The choice of sectors has been influenced by factors which are important not only for making developmental activities sustainable but also by a core concern to minimise damage in such and human activities as are of core concern for the preservation of the environment. The rationale for prescribing these sectoral guidelines is sufficiently explained in Para-I of the policy guidelines, it is necessary to clarify here that these guidelines should be adopted and followed by all so as to make the sectoral planning more sensitive to the needs of environmental sustainability and enhancement.

8.2.1. All government departments should start addressing these issues immediately through their plans.

8.3. As a necessary run-up to serve the objectives and sectoral guidelines of this policy, it will be essential to suitably augment skills of state's Government departments should reappraise the current nature of their work to see how they offer offence to environment. The departments should appreciate as to how their existing work processes be modified to be environmentally sensitive. Such an exercise ought to be followed by a revision of technical prescriptions and procedures. Alongside, the necessary to have new orientation should also be suitably prescribed. In view of the mandated tasks and objectives of this policy in view, some departments should be set up environment cells consisting of suitably trained

8.A. LAND USE:

8.A.1. Land is the prime resource of the State. The availability of land is comfortable. Yet, current pattern of land use is marked by isolated departmental approaches. There is a need to have an integrated approach for land use optimisation in the State for sustaining and improving agriculture, horticulture development, animal husbandry and forestry. To achieve the adoption of micro-water shed principle is extremely important.

8.A.2. Disturbances to the land surface, as necessary for executing public developmental works, have necessarily to be followed by restoration. This calls for a sustained inter-sectoral coordination

agencies.

8.A.3. ISSUES OF CONCERN:

- a. 21,648 Sq. Km. i.e. 38.9% of the area remains unsurveyed.
- b. Prevalence of feeling among the village communities that preservation and regeneration of forests which are in their village only the State Government duty.
- c. Lack of policy of proper management of the wastelands and resources.
- d. Lack of proper policy for extraction of forest produce which lead soil erosion.
- e. Encroachments on the forest land.
- f. Shifting the management of the common lands from the society culminated into diminishing the involvement of the people management of such resources.
- g. Lack of methodology for recording and ascertaining the actual crops and hence lack of proper production estimates.
- h. The land use data thrown up by the annual season and crop insufficient credibility in view of the fact that neither have the changes been recorded properly nor have the changes relating to irrigation in cropping pattern been brought on record. Apart from the infir details, this shortcoming also constraints the estimation of state dc
- i. A variety of settlement operations are going on which need to unified system of doing the work on record of rights.

8.A.4. ACTION REQUIRED:

1. Survey of the remaining unsurveyed area i.e. 39% should be on revenue record.
2. Change in the traditional mode of livelihood of grazers by helping new agro-economic activities such as off season vegetables, horticulture etc.
3. Provision of a suitable legislation so that village communities ignorant of their obligations towards upkeep and protection of deprived of their rights on forests.
4. Coordination and strict monitoring of the demarcation program management of the wastelands.
5. To control soil erosion, through adequate engineering and veget
6. Encroachments on the forest land must be expeditiously dealt w
7. Strict implementation of provision of H.P. Land Preservation A Forest Conservation Act, 1980.
8. Need to identify the extent of under utilisation of irrigation by optimum utilisation and to augment the irrigation base substantiall
9. Rejuvenation of land use Board so that proper land use plan implementation of guidelines by various depts. is ensured.
10. Village societies should be motivated to actively participate in and regeneration of common lands.
11. Specific schemes should be formulated so that area under cult can be reclaimed.
12. Need to formulate methodology for recording and ascert production of fruit crops.

8.B GEOLOGY AND MINING:

8.B.1. Fragility of rock structure, forest cover, surface slopes, drain inadequacy of soil cover are key factors to be borne in mind environmental repercussions in mining and quarrying operations.

8.B.2 ISSUES OF CONCERN:

- a. Land damage, landslides, flow of waste material and soil erosion
- b. Deforestation and visual pollution.
- c. Damage to flora and fauna.
- d. Water pollution and disturbance of the water regime.
- e. Air pollution.
- f. Noise pollution & vibrations.
- g. Human displacement and social problems.
- h. Extraction of land, stone and grit from nalla and river bed environmental impacts. Haphazard extraction leads to erosion flooding.
- i. Though the mining leases are understood to have given an experience shows that rehabilitation plans are not implemented. In this, it is necessary to set apart a corpus out of the total project as the rehabilitation effort and take this money as an advance on the mining lease. This deposit could be considered as a security which in the event of the mining leasee not implementing the rehabilitation the satisfaction of the regulator.

8.C. FORESTS:

8.C.1. Forests are a basic ecological and natural resource. The essential life support system besides being a source of timber, medicines etc. They ought to be recognised as water reservoirs, soil nutrition, soil creators and soil binders. There is a natural need to create public stakes and to involve communities in the development and scientific exploitation of forests and all lands classified as for unlimited scope exists for intensification and diversification of forests.

8.C.2. The total area of Himachal Pradesh is 55,6773 sq. km. out of the area of the state is legally defined as forest land. Actually, out of the area is pasture/alpine land or above tree line where no conventional forest can generally be grown. Therefore, we have only 29.5% of the area there can be conventional forests. Out of this, only 22.49% is under per National Forest Policy, the forest cover in hilly areas should be the actual forest cover is only 22.49%. Therefore, a mass programme is needed to achieve 29.5% which is the maximum possible in Himachal Pradesh, ecologically within the legal forest area.

8.C.4. ISSUES OF CONCERN:

- a. Forest cover and forest depletion areas assessment.
- b. Choice of the afforestation species.
- c. Regulation of minor forest produce and TD rights.
- d. Collective management of natural resources.

- e. Grassland and pasture management practices.
- f. Review of protected area network (Sanctuaries and National Park)
- g. There is an urgent need for taking a realistic view on what area forested. The policy prescription under the National forest Policy of policy at 50% seem to be unrealistic.

8.C.5. ACTION REQUIRED:

1. Under the National Forest Policy norms, there is an immediate remaining portion of the optimum forest are under tree cover.
2. Critical evaluation and appraisal of existing programmes of deriving meaningful path finders from such evaluation.
3. Development of plantation models that meet the needs of the edaphic exactness of species.
4. Identification of policies that lead to the degradation of forest & conversion of forest ecosystem to other less valuable uses.
5. Training of forest officials at all levels for achieving participatory management orientation for mutating of the existing set.
6. Patronage of Panchayats, NGOs, Mahila Mandals and Volur afforestation programmes. The allocation of plantation targets to expedite the greening process.
7. 36.84% of the forest area is situated above tree line and can tree cover. Yet this area is the repository of very valuable resource assessment of the resources of the Alpine Zone needs to be priority to initiate strategies for enhancing land use of this vast area of vegetation that could be grown in this zone.
8. Assessment of forest fire damage and inventory of technology/methodology for prevention and control.
9. Popularization and expansion of the programme on the use of energy sources, improved chullahs, use of Solar Energy Systems, kerosene and Kerosene oil as a special drive in villages falling in five km forest.
10. Assessment of the impact of over grazing of cattle and identification
11. Timely regeneration efforts for certain plant varieties like the chestnut is of immense social forestry importance.
12. To compensate TD rights with raising some or more number of trees it mandatory that every TD right holder plants new trees.
13. Encourage people participation and formulation of appropriate strategies for high rate survival success of afforestation programme.
14. Checking the erosion of genetic diversity by laying more biosphere reserves, establishing demonstration plots and resource medicinal plants.
15. Making cultivation and proliferation of medicinal and aromatic plants prominent choice under Participatory Forest Management efforts in
16. Check on the indiscriminate lopping and removal of herbaceous plants
17. Preparation of comprehensive and timely Forest working plan involvement of people.
18. Improvement in the technology of road construction, and developmental technologies in the forest areas.
19. Proper coordination between the Animal husbandry and Forest conservation of pasture lands.

8.D. WILD LIFE CONSERVATION:

8.D.1. Wild life conservation is a function of natural habitat protection. Conservation will receive boost once our ecological management communities are sensitized towards the protection of natural habitat and should play active and useful role against poaching.

8.D.2. The existing network of Protected Areas (PA) has 32 Wildlife Sanctuaries (5664 sq. kms.) and 2 National Parks (1440 sq.kms.) covering an area of 7031 sq. kms. The management of a protected area Management plan prepared by a planning officer. New Management plan be prepared in view of the new approach to PA management conservation.

8.D.3. ACTION REQUIRED:

1. Fragmented sanctuaries require a clear policy.
2. Encasement of wildlife personnel and their training with employment inventory and management.
3. Research and documentation. Expansion of the data base of Preparation of species inventories and vegetation maps for the Himachal Pradesh.
4. Total protected area in Himachal Pradesh be raised to at geographical area after a review exercise.
5. Status of "Sacred Groves" to be maintained and strengthened.
6. Participation of the local people and other stake holders in planning, mainly eco development and benefit sharing.
7. Integration of PA concerns into eco development and establish integrate PA concerns into regional development plans.
8. Need to formulate a clear cut policy on crop damage by the wild
9. Linking wildlife research to the wildlife conservation.

8.E. AGRICULTURE:

8.E.1. In H.P. out of 55.7 lac hectare area, only 6.21 lac hectare is i.e. only 11% is under cultivation. Out of this, 3.35 lac hectares are only 50% of this area is being irrigated and rest is rain fed. Present grain production is 14 lac tonnes which is not sufficient.

8.E.2. The strategy of Agriculture production has to be oriented towards enhancement and production diversification through eco-friendly methods.

8.E.3. ACTION REQUIRED:

1. Emphasis on formulation of a strategy to discourage the use of chemical fertilizers by popularizing and demonstrating the use of biopesticides.

2. Documentation of traditional agriculture practices and crops were based on low input system.
3. Initiate steps to increase the areas under irrigation by adopting harvesting practices and by developing other irrigation facilities.
4. Identification and documentation of traditional food crops and crops regarding their food value.
5. Check on expansion of urbanisation and industries on prime agricultural lands.
6. Increase in production per unit area.
7. Promotion of agroforestry with local people's participation.
8. Promotion of cultivation on the basis of watershed management.
9. Promote dry land farming.
10. Himachal Pradesh has a lot of potential for commercial horticulture (Production 32,000 tonnes) and off season vegetables. Therefore, it should be further promoted and making linkages should be developed.

8.F. HORTICULTURE:

8.F.1. H.P. has done commendable work in the field of horticulture. The production of various fruits is 4.6 lac tonnes. Out of this, major share is nearly 3.3 lac tonnes. Another area of concern is that the production is 57,450 hectares in 3.3. lac tonnes which is 5.6. tonnes per ha. It is below world average.

8.F.2 Horticultural production has to endeavour towards intensification and diversification of production through eco-friendly methods. These operations are pre-eminently suited to Himachal's topography. Initiatives to fill existing gaps in the variatal coverage. Horticulture specific attention to bring medicinal and aromatic plants under the activities on private lands.

8.F.3. ACTION REQUIRED:

1. Horticulture has to be made more profitable and economical. Diversification of production in traditional horticultural developed areas and intensification of horticulture in remaining areas of the State.
2. Documentation, evaluation and identification of nutritional and medicinal values in Horticultural produce and the fruit processing technologies to small scale units markets. Training programmes through various departments, universities and NGOs.
3. Identification and formulation of viable packaging strategies.
4. Evolving a strategy for improving per hectare production of crops, like apple and citrus fruits which at present is less than the world average.
5. To educate growers about other varieties of fruit viz, Kiwi, Strawberry etc.
6. To improve and popularise grass, floriculture and other traditional horticulture.
7. To identify and promote the use of environment friendly pesticides.
8. Check on the expansion of horticulture at the cost of forest resources.
9. Encouraging horticulture in available cultivatable waste lands.
10. Need for undertaking meteorological studies in horticulture.
11. Introduction of plant biotechnology for the improvement of horticulture.
12. Developing suitable varieties of plant which can be grown in cold climate.

13. Much more research is necessary to evolve better quality environmental friendly varieties of stone fruits/kernel fruits and the

8.G. WATER RESOURCES:

8.G.1. Hydrological sustainability is a big challenge. Conservation of water resources is a complex task for the Govt. as the population and the demand for water to support modern life style increases. To increase availability of potable water would be necessary. Similarly, there is a need for re-cycling water, to the extent possible, besides developing economical and cyclic water use. There is a need to generate a plan for this purpose.

8.G.2. Judicious management and conservation of the water resources of the State to augment the water based irrigation and hydel power capacity.

8.G.3. As far as irrigation activity is concerned, there is a maximum potential created and area effectively irrigated. Also, the irrigation techniques being propagated are water intensive leading to enormous wastage. There is a need for appropriate innovations for introducing water conserving irrigation. As regards water for drinking, the quality of water supply should be desired and there are several instances of dangerous contaminants being emptied into river system leading to degeneration of water quality as well as damage to the fauna systems in the rivers.

8.G.4. ACTION REQUIRED:

1. Implementation of the Rain Water Harvesting Guidelines in all areas of the State to enhance the conservation of water resources.
2. Efficient use of drinking water resources.
3. Preparation of guidelines for impact assessment of water resource projects with specific reference to hill areas is to be taken up on priority basis.
4. Preparation of inventory of traditional drinking water sources and their utilizable status needs to be taken up.
5. Rehabilitation strategy for the traditional sources needs to be taken up on priority basis.
6. Generation of base line water quality data around drinking water sources and identification of contamination level and their impact on riverine ecology.
7. Conjunctive utilization of surface and ground water resources and functioning of drinking water supply schemes.
8. Collection of Hydrological and Hydro geological data for the exploration and ground water resources.
9. Development of ground water resources in the various water stressed areas identified as pilot projects in the drought hit areas.
10. More priority for drinking water in comparison to its use for agricultural purposes. Augmentation of source where there is scarcity of supply at least 120 LPCD in urban towns.
11. The distribution network should be simultaneously relaid, augmented and remodelled wherever necessary.
12. Proper monitoring of surface and ground water quality.

13. Participation of local people in various irrigation management s
14. Regular chlorination of drinking water supply is mandatory. We be regularly monitored for any contamination.
15. All towns located on the banks of river or rivulets should have : plants and should not be allowed to discharge the urban waste \ into or on the banks of rivers.
16. Various hotels and tourists resorts coming up on the banks of proper sewage treatment plants.
17. No industrial units should bee allowed to discharge untreat rivers/khads/nallahs.

8.H. CONSERVATION OF WETLANDS:

8.H.1 Himachal pradesh encompasses a wide variety of natura water systems. These lakes or wetlands are spread in the various from the sub-tropical to trans-Himalayan regions, ranging from 4 altitude. Due to their location, these wetlands support unique biolo

8.H.2. Wetlands occupy 1% of the total geographical area in he number of wetlands (>2 ha.) in the State of Himachal Pradesh are 7 are man made and remaining 85 are natural.

8.H.3. The area of 85 natural wetlands is 1555.75 ha. and the area wetlands is 53210.25 ha. The total area under wetland is 54766 h monsoon season and 30366 ha. during the pre monsoon period. are 176 wetlands smaller than 2.25 ha. also.

8.H.4. Out of these, 3 lakes have been identified as Wetli Importance by the Ministry of Environment and Forests, Govt. of I Chandertal & Pong Dam lake. The conservation problems being these lakes are related to increased siltation in their catchr eutrophication leading to weed growth, because of excessive nutri lakes.

8.H.5. ACTION REQUIRED:

1. Regular study of physiochemical parameters.
2. Need to undertake bathymetric mapping of wetlands.
3. Reduction of sediment influx.
4. Increase in optimum biological productivity for fishing, so tha secure greater benefits.
5. Inventory of the biodiversity of the lakes and other freshwater b
6. Development of strategy for the protection and conservation of catchments.
7. Development of these water bodies as tourist spots with ad protection.
8. Need to set up a Coordinating body for all wetlands/lakes.
9. Catchments area treatment, weed removal and wetland monitc to be taken up.

8.I. GRAZING LANDS AND PASTURES:

8.I.1. In Himachal Pradesh 17.6% of the geographical area is pasture or grazing lands. The livestock population of the state is carrying capacity of grazing lands. This is causing soil erosion and the natural plantation.

8.I.2. In H.P. the live stock is 53 lacs and the fodder required (green) and 40 lac tonnes (dry), but only 16 and 30 lac to respectively (only 0.18 ha. is available to sustain one livestock unit is required).

8.I.3. ISSUE OF CONCERN:

- a. Low productivity of pasture.
- b. Less area under cultivated fodder.
- c. Lack of desirable composition of grasses and legume in grazing land.
- d. Lack of people participation in grazing land management.

8.I.4. ACTION REQUIRED:

1. Live Stock Management through shift in practice of free grazing stall feeding.
2. Grazing land management through deferred and rotational grazing.
3. Need to develop close coordination between the State Forest and Animal Husbandry Deptt. for management and development of pastures.
4. Introduction of desirable composition of grasses, legumes and fodders which are palatable and high in protein content.
5. Enhancement and restoration of soil fertility with the application of manure and biofertilizers.
6. Need to control weed and scrub growth invasive species.
7. Fodder development through People's Participation in grazing land management.

8.J. BIODIVERSITY:

8.J.1. Out of total 45,000 plant species found in the country, 3200 species (7.32%) are reported in the State of Himachal Pradesh. The biodiversity of Himachal Pradesh has been largely influenced by its unique geographical location. So far about 77,450 species of animal area are known from Himachal Pradesh harbours 5,721; amounting to about 7.4% in the country. It shows richness of faunal resources of the State considering its small area which is only about 1.7% of the country. Invertebrates [5,055 species] and vertebrates 11.6% [666 species] of the total species. Insects and other Arthropods from predominant group [464 species]. Invertebrates, whereas vertebrates are dominated by birds comprising 11.6%.

8.J.2. ACTION REQUIRED:

1. Simple and participatory monitoring methods are required to field testing in diverse locations for the assessment of biodiversity.

the forestry and wildlife sectors.

2. Recognition to the innovative farmers, indigenous communities their own survival.
3. Need to undertake ethno-botanical research in universities.
4. Management of medicinal and aromatic plants and to populariz for economic growth.
5. Extension of research in medicinal and aromatic plants knowledge and other Ayurvedic programmes.
6. Prevention of genetic material of superior trees by clonal pr orchards in vitro gene banks.
7. Maintenance of in situ gene sanctuaries and arboreta in diffe zones.
8. Provisions for researches in forest preservation plots.
9. Need to make management and protection of sacred groves mai
10. Establishment of nodal agencies for cultivation, collection utilization of the herbal resources.
11. Need to undertake population studies of majority of ir earthworms, nematodes, protozoans, microscopic zooplanktons.
12. Creation of biosphere reserves to conserve the genetic stor species.
13. Public awareness about benefits and importance of biodiversity
14. Setting up selective pilot projects for restoration of biodiversity
15. Evaluation of current status of endangered species.
16. Delineation of protected areas based on biodiversity representa
17. Immediate utilization of Biotechnology [Tissue Culture] for plant species propagation especially by the Forest Departm advantages in terms of time, cost and genetic purity.

8.K. ANIMAL HUSBANDRY:

8.K.1. The total livestock population of about 53 lacs in Himachal 42.24% cattle, 13.76% buffaloes, 21.09% sheep, 21.90% goats 0.14% pigs, 0.11% yaks and also 6.64 lac poultry. This constitu country's total livestock and 0.26% of the poultry population.

8.K.2. In view of the limited carrying capacity of the pastures stock, it is necessary that upgradation programme should be r priority in this sector.- More emphasis should be given on impro cows through a well organised system of providing artificial insemi by providing high quality bulls to the communities.

8.K.3. Since goats are voracious grazers, it is necessary that on concentrate on replacing goats with improved breeds of sheep \ lesser denudation of pastures etc. and also provide possibilities of l

8.K.4. ISSUE OF CONCERN:

- a. Overgrazing- the incidence is 0.19 hectares per livestock un hectares which is recommended.
- b. Loss of grass cover leads to erosion and the pasture cannot reju

8.K.5. ACTION REQUIRED:

1. To maintain the livestock number, steps are needed to reduce l and morbidity.

2. Improvement in production through better utilization of available
3. Reduction in the incidence of infectious diseases and parasitic pr
4. Adoption of more intensive livestock production system.

8.L. WOMEN AND ENVIRONMENT:

8.L.1. WOMEN AS PROTECTORS AND MANAGERS OF OUR NATURAL

8.L.2. Women's work concerns three main areas all crucial to kee and at the larger level the rural economy alive. There are:

- a. Survival tasks- growing food crops, providing water, ga performing other work that sustain the family.
- b. Household tasks-cooking- that have to be done every day. Rura culturally required to be last in the family to eat more or less the l family members.
- c. Income generation- food processing, trading of agricultural pro of handicrafts. Women also spend more of their income on addition.

8.L.3. ACTION REQUIRED:

1. Need to create alternate income generating avenues for women management, floriculture, mushroom production, apiculture etc.
2. Need to undertake evaluation of programmes for women to ens is avoided.
3. Need to focus attention on simplifying access to credit by farm v
4. Strengthening of women's organisation/groups [mahila man environmental action.
5. Need to ensure strict implementation of provisions that favour w

8.M. HEALTH:

8.M.1. Morbidity and mortality profile of population shows th disease constitute a predominant and formidable health problem very factors responsible for most of the morbidity and mortali emerge out the development on various fronts like urbanisa horticulture, industrialization etc. It is further compounded v awareness and sanitation facilities, low socioeconomic status, scar bye-laws etc.

8.M.2. ACTION REQUIRED:

1. All towns should be covered with planned sewerage system in a Priority of course, has to be given to those towns having mc increased population and prevalence of waterborne disease.
2. There should be proper information, education and communicat to bring about a 'desired behavioural change' among service user handling and sanitation practices.
3. Vehicular pollution need to be controlled seriously and vigorous the bus stands and near roundabouts.
4. Need to ban burning of coal (Bukharies) in Govt. office for warm

5. Need to follow strictly anti-smoking instructions.
6. Proper surveys need to be conducted to find out the magnitude in rural areas, due to handling of domestic animal and natural man
7. Depending upon the local problems and requirements regional chemicals specific IEC strategy needs to be planned and implemented
8. Each industrial area should have a health institution to provide to workers and their families as envisaged under the ESI Act, 1948
9. The Factories Act 1948, provides elaborate measures for ensuring and welfare of workers. The State Govt. should ensure proper implementation of these measures through the appointment of Safety Officers in factories

8.N. ENERGY:

8.N.1. The judicious use and choice in sourcing energy is a concern for environmentalists. Himachal is fortunate in having a vast potential for hydro-electricity which when exploited will give this state a comfortable availability and also leave surpluses for sale. Yet a lot can be done by exploring non-conventional sources and technologies like solar passive heating. The burden on forest wealth of supplying fuel-wood can be reduced by exploring alternatives which are effectively propagated among people.

8.N.2. Out of the total hydro-electric potential of 97000 MW in the country, 32% lies in Northern Region. Out of this, as much as 21229 MW is in Uttar Pradesh only; in its five river basins of Yamuna, Sutlej, Beas, Ravi and Indus where various hydel schemes of different installed capacities have been implemented.

8.N.3. Out of above, 3974.74 MW already stands harnessed by various State Govt. agencies. The state has also achieved 100% electrification. The emphasis has shifted to "run of the river type" hydel projects and storage dams.

8.N.4. ACTION REQUIRED:

1. To give boost to micro/mini hydel power schemes, Govt. should give incentives for setting up of such schemes.
2. Renovation, modernization and upgradation of existing power plants for better performance and efficiency is an ongoing process.
3. There is not much scope for harnessing wind and geothermal energy as they are not available for harnessing solar energy (both solar thermal and photovoltaic).
4. The T&D losses are of the order of about 18% in H.P. and are higher than the national average. Further improvement in this requires investment.
5. Although there is a programme for replacing the traditional ghats with improved ones, the improved ghats have not been used for power generation since the state attained 100% electrification about 10 years back.
6. Incorporation of necessary compensatory measures such as provision of separate drinking water, irrigation arrangements, plantation, soil conservation, environment and ecology conservation at the time of formulation and execution of such components especially in the area of Project mode by the Project Authority should be ensured.
7. Environmental and forest clearance should be insisted upon for all projects.

- techno-economic clearance of the scheme by the competent authority.
8. For popularization of non conventional sources of energy, quantum of subsidy under different programmes needs to be looked that the subsidy amount is commensurate with the gains in terms of forests, protection of environment/ecology etc.
 9. Implementation of Solar Passive Building Technology in the State.

8.O. INDUSTRIAL DEPARTMENT:

8.O.1. With the infrastructural development, and implied industrial State plans, the number of registered industrial units has shown a steady increase. The number of registered factories increased from the mere 3 in 1981 and 1401 in 1993. H.P. Industrial Policy 1996, signals the State's commitment to rapid industrialization by creating an investor friendly environment by eliminating unnecessary delay and unwanted regulations. The State would focus on development of infrastructure and setting up of industries based on comparative advantages.

8.O.2. ACTION REQUIRED:

1. Creation of dense vegetation buffer around cement plants and cements plants so that pollutant practices are restricted to go beyond the certain limit.
2. Assessment of Impact of Industrial emissions and pollutants on human health and also on agriculture. Need to take appropriate steps to control standards to conserve climatological and pollution environment of the State.
3. Provision of incentives for ecofriendly industries. Inclusion of environmentally friendly industries of environmental clearance.
4. Standardise the guidelines of the Ministry of Environment and Forests and procedures at the State Level for scrutinizing the projects.
5. Identify agencies which are capable of carrying out EIA studies in the State.

8.P. ARCHAEOLOGY AND CULTURE:

8.P.1. The vast growth of human and cattle population, over utilization of land, establishment of various hydel projects, cement plants, construction of infrastructure, augmentation of development projects, setting up of new colonies and industrial units in geophysical situations has taken place without taking proper steps to protect the archaeological heritage of the State. Resultantly the available archaeological heritage prevailing among the communities is exposed to undue stress and strain. It is necessary to reasonably conserve the cultural heritage and also to protect the environment.

8.P.2. ACTION REQUIRED:

1. Need for proper guidelines to safeguard cultural heritage.
2. The fossil wealth found in the areas of watershed of various rivers requires to be handled carefully.
3. The ancient monuments, monasteries and shrines need to be protected. Definite plans to avoid environmental degradation due to human activities and climatic vagaries.
4. Revitalization of eco-friendly, cost effective and local specific activities.

architectural styles for sustainability.

5. Need for blending traditional technologies and modern ma results.

6. Promotion of traditional system of medicines as a primary health

7. Involvement of local artisans and traditional knowledgeable designing and construction of various irrigation schemes.

8. To study the extreme richness of biodiversity as well as the s ecological zones.

9. To study and document the symbiotic linkages that has community and nature. Need for adequate marketing systems and local products through promotion of cottage industries. Protecti knowledge to be ensured through intellectual property rights.

8.Q. TOURISM:

8.Q.1. Himachal Pradesh has been a traditional tourist destination root in the environmental features of the State. Tourism has al developmental thrust area of the State. While sustenance and en Environment is a major input for the growth of Tourism in the S advantageous to guide the tourism development efforts for gr participation of and benefit sharing by the people in order to enhar

8.Q.2. ACTION REQUIRED:

1. Need to develop new circuits and destinations in the State off li tourist flow.

2. Promotion of paying guest houses in the farm houses, orchards other scenic locations.

3. Ample forest cover, rich fauna and flora, established wild life parks, camping areas and nature treks are already available. Thus to promote eco-tourism in the State.

4. Promotion of adventure tourism e.g. skiing, water sports, hang gliding and helisking.

5. Use of mass media for environment awareness among the touris

6. Appropriate architectural design of the tourist facilities sl accordance with local culture and the nature environment.

8.R. SOLID WASTE AND GARBAGE MANAGEMENT:

8.R.1. There is a need for new systems, new technology and new this area. This is a challenge that local bodies and Panchayats because in times to come per capita garbage generation is bound with increasing population garbage and Solid Waste Manag problems unless timely initiatives are taken.

8.R.2. With the increase in per capita generation of Solid w corresponding change in the type of garbage (from biodeg biodegradable and biomedical waste), Solid Waste Management is focal area under environmental conversation and also for improv live in tribal, temperate and subtropical regions of the State.

8.R.3. H.P. NON-BIODEGRADABLE GARBAGE [CONTROL]

RULES 1996:

Himachal Pradesh is the first State in the Country to have enacted with solid waste management and the menace of coloured recy bags.

8.R.4. ACTION REQUIRED:

1. Waste Survey and Mapping of the towns. This involves partic garbage collection, transportation and disposal system with the formal sectors to develop Waste Management Plan in each locality/
2. Segregation of biodegradable, non-biodegradable and bion source.
3. Provision of paper recycling and plastic bags reusing.
4. Composting of biodegradable components of the waste into through aerotic composting, microbial conversion and verr research and development and Technology assessment.
5. Suitable disposal of Hospital [biomedical and clinic waste] throu other methods.
6. Information, Education and Communication campaign to c among policy makers, planners, field staff, NGO's and general publ
7. Effective envorcement of HP and Central Acts H.P. Non-Biode [Control] Act, 1995 and Bio medical Waste Rules, 1998.
8. Training of Urban Local Bodies staff in waste management, in transportation and disposal.

8.S. POLLUTION:

8.S.1. Himachal Pradesh is basically a rural state 90% of the pop the villages. Secondly there are nearly 19,000 villages which refle is scattered all over the state. The total population of Himachal P out of which 45 lacs reside in the rural area. With an average fam are 9 lacs families in the rural areas.

8.S.2. Following are the main causes of river pollution:

- a. Human waste: Absence of planned sewerage and garbage dispo:
- b. Animal Wastes: Generated by 45 lac livestock units.
- c. Agriculture and horticulture based pesticide and fertilizer efflu water.
- d. Industrial waste.

8.S.3. Because of the above pollutants the water in most of the riv and has potential in spread various diseases.

8.S.4. Pollution prevention and control should be the mandator Govt., social institutions and the people. To begin with Deptts. of Institutions can be made responsible for environment conserval and prevention and precautions related to pollution in their resp activity.

8.S.5. The State Environment Protection and Pollution Control Boa primarily as an environmental police. This ought to be and can be a manner that this Board says a more wide, dynamic developm role as it being done in some developed countries. This will be ; effective mechanism whereby the clients being sensitive to the pu Board, will willingly respond to the workable suggestions giver choice of technology and environmental safety by this agency. F

need to enhance and suitably amend the structure and mandate Pradesh State Environment Protection and Pollution Control Board.

8.S.6. ACTION REQUIRED:

1. The present system for environmental clearance for projects under Water Act needs immediate review so as to accommodate conservation and maintenance and growth of floral and faunal diversity and the socio-economic. There assessments needs to be made multidisplinary and mandate smaller projects/ventures.
2. Accelerating the rural sanitation programme through voluntary Sulabh International to cover all 9.69 lac house holds in the State.
3. Creating awareness regarding the need and positive aspects of water and health education as instances are available where latrines are not used because of individual preferences for open fields.
4. Evolving ways and mechanism for improving poor drainage in villages where indiscriminate defecation is practiced especially by children.
5. Putting in place proper sewerage system for major towns in which the problem is likely to become more acute with increasing growth in urban areas.
6. All schools in the State need to be provided low sanitation facilities in school sauchalaya.
7. The State Govt. should ensure efficient implementation of Water (Prevention and Control of Pollution) Act, 1974, Environmental Protection Act, 1986, Himachal Pradesh Non-biodegradable Garbage (Control) Act, 1992 and Local Bodies.
8. Use of local material for urban housing.
9. Engineering staff trained to be sensitized to the environment.
10. Establishment of satellite townships around urban centres to relieve pressure on large towns.
11. Monitoring the Air and Water quality in the state and its public health of citizens.

8.T. ENVIRONMENTAL EDUCATION AND AWARENESS:

8.T.1. Environmental Awareness and Education is a key area in which the present education system is presently not able to fully utilize the capacity and sensitivity to local surroundings and the lack of curiosity of the environment.

8.T.2. ACTION REQUIRED:

1. Increase skills related to environmental management in all school programmes.
2. Respond to training needs to minority, isolated and marginalise them to participate more fully in developing sustainable work styles needed for greater collaboration and interaction in environment and training.
3. Enhance the understanding of the relationship between government management and good practices in business.
4. The quality of school life in terms of existing educational practices be improved by laying stress on the child centred, local specific and teaching learning methodologies.
5. Utilisation of expertise in teacher training institutions and University plan and diverse environmental related activities/programmes for

and also for providing necessary training for strengthening s interactions.

6. Formulation of a suitable environmental education resources i documentaries for sensitization of the different sectors.

7. Need of increasing the environment awareness in the elem system through the training of teachers and skill upgradation of th

8.U. NATURAL HAZARDS MANAGEMENT:

8.U.1. Himachal till date has experience the Great Kangra Earthqu 1905. Numerous other earthquakes of magnitude 5.5 to 7 e occurred during this century. These have caused extensive loss of Another major hazard is the landslide and avalanche activity, ofte flash floods. Some parts of the Higher Himalayas in District i Shimla, Mandi and Kinnaur are subjected to cloud bursts wh extensive suffering to people in remote regions.

8.U.2. ACTION REQUIRED:

1. Establishment of infrastructure for disaster management.
2. Need to avoid construction of buildings/settlements on the riv the current settlements to safer places.
3. Need to undertake afforestation along the river banks and embankments at a large scale to reduce the risk of soil erosior landslides.
4. Identification of water induced disaster prone areas.
5. Monitoring of geomorphic and all other related processe understanding of these hazards, estimation of risks and mit disasters.
6. Formulation of proper management plan in the river catchme occurrence of cloud burst and landslides.
7. Need for a close network of seismographs to record all the t regional implications for a correct understanding of the various pro
8. To initiate, support and commission activities that would ger high quality data and information for hazard assessment and risk e
9. To collate, commission and archive regulation codes for: i) Lan Buildings iii) Roads.
10. All development plans must have mandatory settlement on imp