Environment Master Plan
Service Sector
(Environment & Social Guidelines)

Government of Himachal Pradesh
Department of Environment, Science & Technology

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Chapter 1: Introduction

Introduction: Develop Sectoral Guidelines: These would aim to ensure that sectoral development has minimal adverse environment impacts, and would typically include the following:

- ⇒ Typical environment issues for each sector and an impact matrix.
- ⇒ Guidance on carrying out Environment Assessments (EAs),
- ⇒ Terms of Reference (ToR) for carrying out Environment Assessments (EAs)
- ⇒ Good practice examples to illustrate innovative solutions for identified issues while balancing economic, social and ecological considerations

Typical environment issues for each sector and an impact matrix.

Predicated on baseline data, environment and social issues have been identified. The identified issues, causes and impacts/risk have been addressed in the Sectoral guidelines by way of proposed actions, type of response and inter-sectoral responsibilities.

Guidance on carrying out Environment Assessments (EAs)

The Environment Impact Assessment in India is being done as per Environment Impact Assessment (EIA) notification, 2006 and subsequent amendments namely 1. SO 1737(E), dated the 11th October, 2007, 2. SO 3067 (E), dated the 1st December, 2009, 3. SO 695 (E), dated the 4th April, 2011, 4. SO 2896 (E) dated the 13th December 2012 and 5. SO 674 (E), dated the 13th March, 2013 and 6. amendment dated August 22, 2013 [File no. 21-270/2008-IA.III].

Stages in the Prior Environmental Clearance (EC) Process for New Projects and Activities as per EIA notification, 2006 (and subsequent amendments) are described below:

The following projects or activities shall require prior environmental clearance from the concerned regulatory authority, which shall hereinafter referred to be as the Central Government in the Ministry of Environment and Forests for matters falling under Category 'A' in the Schedule and at State level the State Environment Impact Assessment Authority (SEIAA) for matters falling under Category 'B' in the said Schedule, before any construction work, or preparation of land by the project management except for securing the land, is started on the project or activity:

(i) All new projects or activities listed in the Schedule to this notification;
(ii) Expansion and modernization of existing projects or activities listed in the Schedule to this notification with addition of capacity beyond the limits specified for the concerned sector, that is, projects or activities which cross the threshold limits given in the Schedule, after expansion or modernization;
(iii) Any change in product - mix in an existing manufacturing unit included in Schedule beyond the specified range.

Categorization of projects and activities:-
(i) All projects and activities are broadly categorized in to two categories - Category A and Category B, based on the spatial extent of potential impacts and potential impacts on human health and natural and man made resources.

(ii) All projects or activities included as Category 'A' in the Schedule, including expansion and modernization of existing projects or activities and change in product mix, shall require prior environmental clearance from the Central Government in the Ministry of Environment and Forests (MoEF) on the recommendations of an Expert Appraisal Committee (EAC) to be constituted by the Central Government for the purposes of this notification;

(iii) All projects or activities included as Category 'B' in the Schedule, including expansion and modernization of existing projects or activities as specified in sub paragraph (ii) of paragraph 2, or change in product mix as specified in sub paragraph (iii) of paragraph 2, but excluding those which fulfill the General Conditions (GC) stipulated in the Schedule, will require prior environmental clearance from the State/Union territory Environment Impact Assessment Authority (SEIAA). The SEIAA shall base its decision on the recommendations of a State or Union territory level Expert Appraisal Committee (SEAC) as to be constituted for in this notification. In the absence of a duly constituted SEIAA or SEAC, a Category 'B' project shall be treated as a Category 'A' project;

Screening, Scoping and Appraisal Committees:-

The same Expert Appraisal Committees (EACs) at the Central Government and SEACs (hereinafter referred to as the (EAC) and (SEAC) at the State or the Union territory level shall screen, scope and appraise projects or activities in Category 'A' and Category 'B' respectively. EAC and SEAC's shall meet at least once every month.

(a) The composition of the EAC shall be as given in Appendix VI. The SEAC at the State or the Union territory level shall be constituted by the Central Government in consultation with the concerned State Government or the Union territory Administration with identical composition;
(b) The Central Government may, with the prior concurrence of the concerned State Governments or the Union territory Administrations, constitutes one SEAC for more than one State or Union territory for reasons of administrative convenience and cost;
(c) The EAC and SEAC shall be reconstituted after every three years;
(d) The authorised members of the EAC and SEAC, concerned, may inspect any site(s) connected with the project or activity in respect of which the prior environmental clearance is sought, for the purposes of screening or scoping or appraisal, with prior notice of at least seven days to the applicant, who shall provide necessary facilities for the inspection;
(e) The EAC and SEACs shall function on the principle of collective responsibility. The Chairperson shall endeavour to reach a consensus in each case, and if consensus cannot be reached, the view of the majority shall prevail.

Application for Prior Environmental Clearance (EC):-

An application seeking prior environmental clearance in all cases shall be made in the prescribed Form 1 annexed herewith and Supplementary Form 1A, if applicable, as given in Appendix II, after the identification of prospective site(s) for the project and/or

activities to which the application relates, before commencing any construction activity, or preparation of land, at the site by the applicant. The applicant shall furnish, along with the application, a copy of the pre-feasibility project report except that, in case of construction projects or activities (item 8 of the Schedule) in addition to Form 1 and the Supplementary Form 1A, a copy of the conceptual plan shall be provided, instead of the pre-feasibility report.

Stages in the Prior Environmental Clearance (EC) Process for New Projects:-

The environmental clearance process for new projects will comprise of a maximum of four stages, all of which may not apply to particular cases as set forth below in this notification.

These four stages in sequential order are:-

Stage (1) Screening (Only for Category 'B' projects and activities)
Stage (2) Scoping
Stage (3) Public Consultation
Stage (4) Appraisal

I. Stage (1) - Screening:

In case of Category 'B' projects or activities, this stage will entail the scrutiny of an application seeking prior environmental clearance made in Form 1 by the concerned State level Expert Appraisal Committee (SEAC) for determining whether or not the project or activity requires further environmental studies for preparation of an Environmental Impact Assessment (EIA) for its appraisal prior to the grant of environmental clearance depending up on the nature and location specificity of the project . The projects requiring an Environmental Impact Assessment report shall be termed Category 'B1' and remaining projects shall be termed Category 'B2' and will not require an Environment Impact Assessment report. For categorization of projects into B1 or B2 except item 8 (b), the Ministry of Environment and Forests shall issue appropriate guidelines from time to time.

II. Stage (2) - Scoping:
" Scoping" refers to the process by which the Expert Appraisal Committee in the case of Category A projects activities, and State Expert Appraisal Committee in the case of category 'B1' projects or activities, including applications for expansion or modernization or change in product max of existing projects or activities, determine detailed and comprehensive Terms of Reference (TOR) addressing all relevant environmental concerns for the preparation of activity for which prior environment (EIA) Report in respect of the project or activity for which prior environmental clearance is sought and the Expert Appraisal Committee or State level Expert Appraisal Committee concerned shall determine the terms of reference on the basis of the information furnished in the prescribed application Form 1 or Form 1A including terms of reference proposed by the applicant, site visit by a sub- group of Expert Appraisal Committee or State level Expert Appraisal Committee concerned only if considered necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, terms of reference suggested by the applicant if furnished and other information that may be available with the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned:
Provided that the following shall not require Scoping

all project and activities listed as Category 'B' in item 8 of the Schedule (Construction or Township or

Commercial Complexes or Housing) all Highway expansion projects covered under entry (ii) of column (3) and column (4) under sub-item (f) of item 7 of the Schedule:

Provided further that-

the projects and activities referred to in clause (i) shall be appraised on the basis of Form I or Form IA and the conceptual plan;
The projects referred to in clause (i) shall prepare EIA and EMP report on the basis of model TOR specified by Ministry of Environment and Forests;

(ii) The Terms of Reference (TOR) shall be conveyed to the applicant by the Expert Appraisal Committee or State Level Expert Appraisal Committee as concerned within sixty days of the receipt of Form 1. In the case of Category A Hydroelectric projects Item 1(c) (i) of the Schedule the Terms of Reference shall be conveyed along with the clearance for pre-construction activities .If the Terms of Reference are not finalized and conveyed to the applicant within sixty days of the receipt of Form 1, the Terms of Reference suggested by the applicant shall be deemed as the final Terms of Reference approved for the EIA studies. The approved Terms of Reference shall be displayed on the website of the Ministry of Environment and Forests and the concerned State Level Environment Impact Assessment Authority.

(iii) Applications for prior environmental clearance may be rejected by the regulatory authority concerned on the recommendation of the EAC or SEAC concerned at this stage itself. In case of such rejection, the decision together with reasons for the same shall be communicated to the applicant in writing within sixty days of the receipt of the application.

III. Stage (3) - Public Consultation:

(i) "Public Consultation" refers to the process by which the concerns of local affected persons and others who have plausible stake in the environmental impacts of the project or activity are ascertained with a view to taking into account all the material concerns in the project or activity design as appropriate. All Category 'A' and Category B1 projects or activities shall undertake Public Consultation, except the following:-

(a) Modernization of irrigation projects (item 1(c) (ii) of the Schedule).
(b) All projects or activities located within industrial estates or parks (item 7(c) of the Schedule) approved by the concerned authorities, and which are not disallowed in such approvals.
(c) Expansion of Roads and Highways (item 7 (f) of the Schedule) which do not involve any further acquisition of land.
(d) All Building /Construction projects/Area Development projects and Townships (item 8).
(e) All Category 'B2' projects and activities.
(f) All projects or activities concerning national defence and security or involving other strategic considerations as determined by the Central Government.

(ii) The Public Consultation shall ordinarily have two components comprising of:-

(a) A public hearing at the site or in its close proximity- district wise, to be carried out in the manner prescribed in Appendix IV, for ascertaining concerns of local affected persons;
(b) Obtain responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity.

(iii) the public hearing at, or in close proximity to, the site(s) in all cases shall be conducted by the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) concerned in the specified manner and forward the proceedings to the regulatory authority concerned within 45 (forty five) of a request to the effect from the applicant.

(iv) in case the State Pollution Control Board or the Union territory Pollution Control Committee concerned does not undertake and complete the public hearing within the specified period, and/or does not convey the proceedings of the public hearing within the prescribed period directly to the regulatory authority concerned as above, the regulatory authority shall engage another public agency or authority which is not subordinate to the regulatory authority, to complete the process within a further period of forty five days.

(v) If the public agency or authority nominated under the sub paragraph (iii) above reports to the regulatory authority concerned that owing to the local situation, it is not possible to conduct the public hearing in a manner which will enable the views of the concerned local persons to be freely expressed, it shall report the facts in detail to the concerned regulatory authority, which may, after due consideration of the report and other reliable information that it may have, decide that the public consultation in the case need not include the public hearing.

(vi) For obtaining responses in writing from other concerned persons having a plausible stake in the environmental aspects of the project or activity, the concerned regulatory authority and the State Pollution Control Board (SPCB) or the Union territory Pollution Control Committee (UTPCC) shall invite responses from such concerned persons by placing on their website the Summary EIA report prepared in the format given in Appendix IIIA by the applicant along with a copy of the application in the prescribed form , within seven days of the receipt of a written request for arranging the public hearing. Confidential information including non-disclosable or legally privileged information involving Intellectual Property Right, source specified in the application shall not be placed on the web site. The regulatory authority concerned may also use other appropriate media for ensuring wide publicity about the project or activity. The regulatory authority shall, however, make available on a written request from any concerned person the Draft EIA report for inspection at a notified place during normal office hours till the date of the public hearing. All the responses received as part of this public consultation process shall be forwarded to the applicant through the quickest available means.

(vii) After completion of the public consultation, the applicant shall address all the material environmental concerns expressed during this process, and make appropriate changes in the draft EIA and EMP. The final EIA report, so prepared, shall be submitted by the applicant to the concerned regulatory authority for appraisal. The applicant may alternatively

submit a supplementary report to draft EIA and EMP addressing all the concerns expressed during the public consultation.

IV. Stage (4) - Appraisal:

(i) Appraisal means the detailed scrutiny by the Expert Appraisal Committee or State Level Expert Appraisal Committee of the application and other documents like the Final EIA report, outcome of the public consultations including public hearing proceedings, submitted by the applicant to the regulatory authority concerned for grant of environmental clearance. This appraisal shall be made by Expert Appraisal Committee or State Level Expert Appraisal Committee concerned in a transparent manner in a proceeding to which the applicant shall be invited for furnishing necessary clarifications in person or through an authorized representative. On conclusion of this proceeding, the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned shall make categorical recommendations to the regulatory authority concerned either for grant of prior environmental clearance on stipulated terms and conditions, or rejection of the application for prior environmental clearance, together with reasons for the same.

(ii) The appraisal of all projects or activities which are not required to undergo public consultation, or submit an Environment Impact Assessment report, shall be carried out on the basis of the prescribed application Form 1 and Form 1A as applicable, any other relevant validated information available and the site visit wherever the same is considered as necessary by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.

(iii) The appraisal of an application be shall be completed by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned within sixty days of the receipt of the final Environment Impact Assessment report and other documents or the receipt of Form 1 and Form 1 A, where public consultation is not necessary and the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee shall be placed before the competent authority for a final decision within the next fifteen days.

Prior Environmental Clearance (EC) process for Expansion or Modernization or Change of product mix in existing projects:

All applications seeking prior environmental clearance for expansion with increase in the production capacity beyond the capacity for which prior environmental clearance has been granted under this notification or with increase in either lease area or production capacity in the case of mining projects or for the modernization of an existing unit with increase in the total production capacity beyond the threshold limit prescribed in the Schedule to this notification through change in process and or technology or involving a change in the product –mix shall be made in Form I and they shall be considered by the concerned Expert Appraisal Committee or State Level Expert Appraisal Committee within sixty days, who will decide on the due diligence necessary including preparation of EIA and public consultations and the application shall be appraised accordingly for grant of environmental clearance.

Analysis of Sectors, Sub-Sectors and departments identified for preparation of Environment Master Plan of Himachal Pradesh in relation to projects or activities

requiring prior environmental clearance as identified in the EIA Notification 2006, under Environment Protection Act, 1986, MoEF, Government of India is given below in table. The specific recommendations and activities for engaging with public and other stakeholders related to sectors/ subsectors and which do not require public hearing as per EIA notification is given below in table. For sectors/ subsectors as identified for Environment Master Plan, which do not require public hearing as per EIA notification, progressive levels of Public Participation can be followed to engage with public and consult with stakeholders at large. These could also be dovetailed in the existing mechanism of public hearing for projects/ activities as mandated by EIA notification.

Analysis of Sectors and Sub-Sectors identified for Environment Master Plan of Himachal Pradesh in relation to projects or activities requiring prior environmental clearance and public hearing and those which do not require public hearing as per EIA notification

Services sector

Subsectors	Corresponding project/ activity and no. as per EIA notification and need for Public Consultation	Recommended Public Consultation mechanism and activities in the context of Himachal Pradesh and Environment Master Plan for sectors not requiring Public hearing as per EIA notification, 2006
15 Education, and Vocational training	Public hearing not required.	Though Public Hearing is not mandatory as per EIA notification, even the building educational infrastructure facilities [8(a) Building /Construction projects, 8(b) Townships and Area Development projects] , Department of Higher Education, Universities, Vocational Training Institutes and other concerned departments may consultant stakeholders at the time of formulation of master plans and revisions of the existing master plans. Discuss site locations, provision of environment services in the new education infrastructure facilities, waste management (solid/ liquid), e-waste management and other locale specific issues
16 IT and Telecom	Public hearing not required.	Department of IT and BSNL HP Telecom Circle may consult stakeholders at the time of formulation of department's/sector master plans and revisions of the existing master plans. Discuss site locations, provision of environment services in the new infrastructure facilities, waste management (solid/ liquid), e-waste management and other locale specific issues
17 Livelihoods	Public hearing not required.	All sectoral policies, plans, programmes projects, schemes, mission related to livelihoods mooted by the State Government should be discussed with concerned departments and communities at PRIs and ZP level. Integrate all Livelihood activities with District Planning process.
18 Waste disposal	7(i) Common Municipal Solid Waste Management Facility (CMSWMF) 7(d) Common hazardous waste treatment, storage and disposal facilities (TSDFs) Common Effluent Treatment Plants (CETPs)	IPH and other concerned departments may consult with concerned PRIs, ZPs and other stakeholders on the issues relating to site selection of the locations for Sewage Treatment Plants (STPs), other proposed infrastructural facilities, treated waste disposal facility and other locale specific issues with public.

Terms of Reference (ToR) for carrying out Environment Assessments (EAs)

As per EIA notification 2006, Ministry of Environment and Forests has issued ToR of sectors for 8 broad categorization of projects or activities requiring prior environmental clearance as given in Schedule for the purpose of scoping required for EIA.
Ministry of Environment and Forests, 2009 issued Terms of Reference of 8 sectors for Environmental Impact Assessment of 1. Ports and harbours, 2. Airport development/ expansion / modernization, 3. Highway projects, 4. Building construction, Township and area development, 5. Mining of minerals, 6. Mineral beneficiation, 7. Asbestos based industries and 8 Coal washeries. Sector wise detailed ToR can be accessed on: http://envfor.nic.in/sites/default/files/so2561-050913_2.pdf

Development activity-specific ToR of Twelve sectors namely Cement Plants, Chemical Fertilizers, Chemical Effluent Treatment Plants, Common Municipal Solid Waste Management Facility, Distilleries, Industrial Estates, Offshore and onshore oil and gas exploration development and production, Pulp and Paper industry, Ship Breaking Yards, Sugar Industry and Thermal Power Plants for EIA studies have been prepared by IL&FS for MoEF. Sector wise detailed ToR can be accessed on: http://environmentclearance.nic.in / writereaddata/Form-1A/HomeLinks/12%20Model%20TORs.pdf

Besides, MoEF has issued Model ToR for River Valley and Hydel Projects, Guideline Manual for River Valley Project sector, Coal sector and general instructions for submission & consideration of ToR/EC applications of coal sector projects which can be accessed on http://environmentclearance.nic.in/writereaddata/Form-1A/HomeLinks/ommodel.html

Besides, 37 sectoral manuals under EIA Notification, 2006 has been prepared for providing guidance to the project proponent and developers seeking environment clearance. MOEF has issued 10 sectoral manuals for sectors namely Mining, Mineral Beneficiation, Ports and Harbours, Airports, Building and Townships Construction, Asbestos, Highway, Coal Washery, Aerial Ropeways, Nuclear Power Plants, Nuclear Fuel Processing plants and Nuclear Waste Management Plants. Besides, IL&FS (for MoEF) has prepared 27 EIA manuals for Thermal Power, Cement, Ship Breaking Yards, Chemical Fertilizers, Sugar, Distilleries, Leather/Skin/Hide Processing Industry, Offshore and On-shore Oil & Gas Exploration, Development & production, Common Effluent Treatment Plants (CETPs), Industrial Estates, Pulp & Paper, Common Municipal Solid Wastes, Petroleum Refineries, Petrochemical Plants, Pesticides and Pesticide Intermediates, Chlor Alkali Industry, Synthetic Organic Industry, Petrol-chemical based production, Coke Oven Plants, Soda Ash, Integrated Paints, Man-made Fibre, Oil & Gas Transportation pipe-line, Isolated Storages and handling of hazardous chemicals, Metallurgical Industries, Induction/Arc Furnaces and Common Hazardous Waste Treatment, Storage and Common Hazardous Waste Treatment, Storage and Disposal Facilities

Good practice examples to illustrate innovative solutions for identified

issues while balancing economic, social and ecological considerations.

The Environment and Social guidelines includes existing and documented good practices (relating to identified issues, threats and impacts) from Himachal Pradesh, Himalayan and other regions, including relevant international good practices to address and mitigate negative impacts and strengthen the services in the sector through awareness programmes, training and capacity building.

Background

The initiation of Government of Himachal Pradesh to prepare Environment Master Plan (EMP) is to mainstream environmental concerns into the development process for the next three decades and beyond. The preparation of EMP entails numerous tasks including development of Eighteen sector / sub-sector specific guidelines other than collection of baseline environmental data related to the sector, conduct spatial vulnerability assessment, develop public consultation and communication strategy, institutional mechanism, establish training and capacity enhancement, develop monitoring and evaluation protocol for implementation of Environment Master Plan.

It is expected that sector / sub-sector specific guidelines will be either guided by or will get influenced by state level EMP (see Figure 1). The vulnerability assessment of different environmental components will guide the preparation of the state level EMP. There is a possibility that all the environmental and social issues that are sector specific or are of cross-sectoral nature might not be addressed in the EMP. The sector specific guidelines will aid in main streaming such gaps and strengthening of the EMP. In practice, the guidelines will also encourage inter-sectoral coordination between various state departments and other relevant agencies to ensure enhanced outcomes.

Beside, the guidelines will address sector specific environmental and social issues and their management. The guidelines will also delineate good practices measures to mitigate the negative impacts and strengthen the services in the sector through awareness programs, training and capacity building under specific sector / sub-sector.

1.1 Education & Vocational Training

Need for the present guidelines

Education and training in Environmental Science and Engineering is quite limited in the state and is imparted as a subset of other courses both at secondary / tertiary level of education in the state. The state has 1500 seats in polytechnics and 1500 seats in various engineering colleges. However, no Diploma / Bachelor's Degree in Environmental Engineering cause is available in the state.

The time taken by fresh engineers and diploma holders to find employment after the completion of their courses is much higher as compared to graduate engineers. Nearly 22% of the graduates and almost 27% of the diploma holders get their first jobs after a period of one year or may be more than that. However, the increasing

trend in Himachal Pradesh is to go for short term coerces / diploma as is evident from the 8500 applications received for 1500 seats in polytechnics compared to a mere 1800 applications for an equal number of seats in engineering colleges.

An increasing number of ad-hoc / temporary faculty is also leading to dilution in the standards upto same extent. No upper limit for admission in degree colleges is leading to pressure on the existing infrastructure. There is no importance given on developing the personality and other soft skills amongst students. There is also a shortage of staff in some of the educational institutes and has limited focus on faculty training to enhance their skills. The industry feels that the courses taught at the undergraduate colleges are outdated and dose not have adequate applied orientation. There are gaps in educational standards across colleges in the state - students coming from smaller towns and rural areas dose not have sufficient knowledge and are shy in spoken and written English. Majority of students dose not possess basic computer application education.

There are insufficient numbers of instructors in ITIs due to freeze on recruitments by the Government become of resource constraints of the total 413 posts, approx 362 are filled. On account of the inadequate number of faculty members, instructors from one trade are rotated across other trades for which some time dose not) have adequate knowledge / understanding. Though faculty members are allowed on contract basis, the compensation terms are not very encouraging and then fails to draw people employed in the industry who may bring a applied orientation along with them.

Professional instructors devote very little time in developing industry relations or forging other avenues of revenue generation because of involvement with teaching and other administrative work due to extension pressure. Contract faculty program has severely affected the quality of training to some extent. In certain ITIs, machines are lying unused, as trained faculty members are not available to train students. The process for changing the course curriculum is a long process, which in turn affects the relevance of the course content as significant changes in the course structure is taken up only at the NCVT level.

Limited resources lead to inadequate and obsolete training in ITI's. Inadequacy of funds affects availability and quality of equipments. Funds for students training are not adequate as many a times students re-work on used materials and practical trainings are reduced for improper & inadequate raw materials. Delay in funds is mostly for capital expenses like purchase of equipments, construction of buildings etc. The plan / non plan funds utilization a major gap in development of such institution.

There is insufficient initiative for revenue generation from this institution. Very few ITIs have taken initiatives to generate revenues for themselves (such as, ITI Paonta Sahib manufactured the furniture for an engineering college in Kala Amb. ITI Solan and ITI nahan have also been involved in such activities). Lack of clarity in revenue sharing and incentive schemes for faculty results in low interest in these activities.

Objectives

The objectives of the guidelines are as follows:

- Develop awareness about the issues related to environmental education and develop capacity by imparting environmental education at primary, secondary and tertiary levels.
- Provide information on key policy, plans and regulations.
- Introduce good practices to enhance sector development & associated services.
- Encourage coordinated planning among state departments.
- Address vulnerability related aspects of educational services

Target audience

The key players for the guidelines include the following:

- State and Local Government (Panchayati Raj Institutions), Department of Education which also includes the Technical Education Department, All India Council for Technical Education (AICTE), Pharmacy Council of India (PCI), H.P. University, Shimla, Central University of Himachal Pradesh Y. S. Parmar University of Horticulture & Forestry National Council for Technical Education (NCVT), Delhi, State Council for Vocational Training (SCVT), H.P. Board of School Education Dharamshala, Ministry of Human Resource and Development (MHRD) including Department of School Education and Literacy, Department of Higher Education, Ministry of Labour and Employment (MoLE).
- NGos, Civil Society or Community Based organization (CSOS) in CBoS and other training institutes for awareness development.
- People of Himachal Pradesh specially student seeking the higher education and vocational training facilities.

1.2 IT & Telecom

Need for the present guidelines

The Department of Information Technology (DoIT) has been setup in the State in January, 2004 to ensure the process of furthering the development of IT education & capacity building in Himachal Pradesh. The State has an excellent telecommunications infrastructure established by the Department of Telecommunications. All the telephone exchanges in the State are digital and are interconnected with each other. Overall (wireless & wire line) telephone subscribers in the state as of June 2010 are about 5.8 millions with a teledensity (numbers of telephone lines per 100 people) of 86. The urban tele-density is 332.89, while rural tele-density is 55.63(numbers of telephone lines per 100 people). Both the tele-densities are much higher than national urban and rural tele-densities of 128 and 26.43. The state has 19945 numbers of PCos as of 30th June 2010.

Around 174 acres of Government land has been made available in Solan District, along the Kalka-Shimla national Highway which is about 25 kilometers from Shimla marked for developing of IT park, the IT Sector Investments with the necessary infrastructure in terms of approach road, power and water.

The IT industry is primarily divided into three categories: category 'A' - Software Product and Technology Services; category 'B' - IT Services; and category 'C' - IT Enabled Services (ITES). For categories 'A' and 'B', the qualifications required are M.Sc/M.Tech/B.Tech in Computer Science, MCA or B.Tech. from the non-computer stream with training of one to two years in specialised IT technologies. For category 'C', the qualifications required are BA/B.Sc./B.Com./MA/M.Sc./Diploma/ ITIs with a specialised six months training in ITES. In this context, the state has undertaken computer/IT education as its top priority.

In the State, there are 4 major Universities, IT University (JPUIT)-1, Engineering Colleges (Including nIT), UIIT, Shimla, Polytechnics and ITIs. Computer Teaching and Computer Aided learning is being implemented in more than 700 Schools throughout the state, computer labs have been proposed set up in most of the colleges (26 completed out of 70) for hands on training and BPO/ITES training. IT training is being provided to all State Government employees.

The State government has established a Software Technology Park and an Earth Station at Shimla which are proposed to be co-located with the Hi-Tech City later. An international gateway has also been commissioned at Shimla for providing reliable speed data communication. The State Government has proposed to establish an IT Park at Waknaghat, District Solan.

The management of e-waste comprises of wastes generated from used electronic devices and household electronic appliances which are not fit for their original intended use and are thrown on waste for recovery, recycling or disposal etc. Such wastes encompass a wide range of electrical electronic devices such as computers, hand held cellular phones, personal stereos, large household appliances such as refrigerators, air conditioners etc. The e-wastes contain over 1000 different substances, many of which are toxic and potentially hazardous for environment and human health, if not handled in an environmentally sound manner.

Composition of e-waste is very diverse and differs in products across different categories. It contains more than 1000 different substances, which fall under "hazardous" and "non-hazardous" categories. Broadly, it consists of ferrous and non-ferrous metals, plastics, glass, wood & plywood, printed circuit boards, concrete and ceramics, rubber and other items. Iron and steel constitutes about 50% of the e-waste followed by plastics (21%), non ferrous metals (13%) and other constituents. Non-ferrous metals consist of metals like copper, aluminum and precious metals like silver, gold, platinum, palladium etc. The presence of elements like lead, mercury, arsenic, cadmium, selenium, hexavalent chromium and flame retardants beyond threshold quantities in e-waste classifies them as hazardous waste

The e-waste has been categorized into three main categories, viz. large household appliances, IT and Telecom and consumer

equipments.
Refrigeratorsandwashingmachinesrepresentlargehouseholdappliances; personal computers, monitors and laptops represent IT and Telecom, while television represents consumer equipment. Each of these E-waste items has been classified with respect to twenty six common components which could be found in them. These components form the "Building Blocks" of each item and therefore they are readily "identifiable" and "removable". These components are metal, motor/compressor, cooling element, plastic, insulator, glass, LCD, rubber, wiring/electrical, concrete, transformer, magnetron, textile, circuit board, fluorescent lamp, incandescent lamp, heating element, thermostat, BFR-containing plastic, batteries, CFC/ HCFC/HFC/HC, external electric cables, refractory ceramic fibers, radio active substances and electrolyte capacitors (over L/D 25 mm).

The possible usable component / material, that ..... be found in e-waste items, are given below:-

Table 1: Substances found in E-waste Item

Component	Possible Hazardous Content
Metal	
Motor/Compressor	
Cooling Element	ODS
Plastic	Phthalate plasticize, BFR
Insulator	Insulator oDS in foam, asbestos, refractory ceramic fiber
Glass	
CRT	Lead, Antimony, Mercury, Phosphors
LCD	Mercury
Rubber	Phthalate plasticize, BFR
Wiring/electrical	Phthalate plasticize, Lead, BFR
Concrete	
Transformer	
Circuit Board	Lead, Beryllium, Antimony, BFR
Fluorescent lamps	Mercury, Phosphorus, Flame Retardants
Incandescent lamp	
Heating Element	
Thermostat	Mercury
BFR-Containing Plastic	BFRs
Batteries	Lead, Lithium, Cadmium, Mercury
CFC,HCFC,HFC,HC	ozone depleting substance
External electric cables	BFRs, plasticizers
Electrolyte Capacitors (over L/D 25 mm)	Glycol, other unknown substances

The substances/material within the above mentioned components, which cause most concern are the heavy metals such as lead, mercury, cadmium and chromium (VI), halogenated substances (e.g. CFCs), polychlorinated biphenyls, plastics and circuit boards that contain brominated flame retardants (BFRs). BFR can give rise to dioxins and furans while incinerated during disposal & this could be hazardous. Other materials and substances that can be present are arsenic, asbestos, nickel and copper. These substances may act as a catalyst to increase the formation of dioxins during incineration.

The guidelines prepared here under Environment Master Plan provide ways to the target audience for addressing and managing identified environmental and social issues in order to augment their efforts to reduce the burden of issues. The guidelines delineate various good practices

and measures to overcome the present issues in the state.

Objective:

The objectives of the guidelines are:

- Develop awareness about the issues related to IT and Telecom sector considering environmental issues like e-waste management, health hazards and infrastructure issues related to the IT sector.
- Provide information on key on going policy, plans and regulations.
- Introduce good practices to enhance sector specific development & associated services related to environment management.
- Encourage coordinated planning among state departments.
- Address vulnerability related aspects of I.T. & Telecom Sector.

Target audience

The key players for the guidelines include the following:

- Department of Information Technology (DoIT), Government of Himachal Pradesh, Department of Telecommunication (DoT), ULBs and private sector for future planning. nGos, Civil Society community based organization (CBos) and other training institutes for awareness development.
- People of Himachal Pradesh to adopt new technology and waste disposal and management practices.

1.3 Livelihood

Need for the present guidelines

Agriculture happens to be the premier source of State Income (GSDP). About 18% of the total GDP contributed by agriculture and its allied sectors. Agriculture is the prime occupation of people of the state. It provides employment to about 71% of the population of the state. Out of the total geographical area of 55.67 lakh hectares, the area of operational holdings is about 9.79 lakh hectares and is operated by 9.14 lakh farmers. Theaverageholdingsizecomesto1.1hectare. Distributionoflandholdings according to 2000-01 Agricultural Census shows that 86.4% of the total holdings are of small and marginal farmers, 13.2% of the holdings are owned by semi medium/medium farmers and only 0.4% by large farmers. As per Agriculture Census 2001, the highest average land holding size (0.0214 sq. km.) was found in District Sirmaur and the lowest (0.0088 Sq.km.) in District Mandi.

The State of Himachal Pradesh consists often agro-ecological zones. This indicates a vast potential for growing diverse crops font & space. The major zones are as under: highly fertile valleys intercepting hills and mountains; subtropical sub mountainous hill areas; mid hills; high hills with high rainfall; high hills with scanty rainfall; cold desert high mountains. The prime land available for agriculture lies in Palam, Balh , Paonta Valley and small strips in nalagarh Chachyot, Kangra, Spiti and Saproon Valley which contributes to less than 5% of the total geographical

area. Total area available for agriculture is less than 17%.

The topography of the state is largely mountaineers, hilly where cultivation is mainly done on terraces. The cultivation in hills is subjected to soil erosion since crop cultivation is practiced on 5% to over 30% slopes. This also affects soil fertility status and changes in pH values as well. Cultivation is mainly (80.9%) rain dependent.

In the past, diversity in agriculture had been such that it fitted well in the prevailing agro-ecological conditions. For instance, cultivation of crops and varieties with good tolerance of drought conditions in the rain fed agriculture ensured minimum production levels. Clearly the sew ere low yielding but were tolerant to a particular soil conditions, insect/pest incidences, disease epidemics and climatic adversities and thus were rarely complete crop failures.

At present, high yielding varieties demand high input, better crop protection and good agronomic management to deliver in accordance with their potential. Moreover, some crops or varieties not finding favour with the changed life style of people have gone out of cultivation. The agriculture in hills is the mainstay of 66.7% of the people and expected to remain same in the years to come. The challenges in agriculture to meet food demands and increase livelihood scope to people have raised several issues.

The use of fertilizers has increased the production in the state to a great extent since the late fifties and early sixties. The use of fertilizers was introduced in Himachal Pradesh till this time and since then it has been consistently increasing. Consumption of chemical fertilizers has increased from 2000 metric tonnes (MT) (1966-67) to 23,664 metric tonnes (MT) (1985-86).The consumption of fertilizers in 1995-96 was 34,000 MT which increased to 57,363 MT in 2008-09. The increased use of fertilizer reduced the farm productivity in the long term thereby impacting the livelihood.

The consumption of foneface1977-78 was 50.63 MT which increased to 232 MT in 2000-01. Analysis of data clearly indicates that the pesticideconsumption has increased to four and half times since 1977-78.

There is limited scope of enhance production through expansion of cultivable land. Like the whole country, Himachal too has almost reached a plateau as far as cultivable land is concerned. Hence, the emphasis has to be made on enhancing productivity levels besides diversification towards high value crops. Due to an increased shift towards commercial crops, the area under food grains is gradually declining. The area under food grains in 1997-98 was 853.88 thousand hectares which has declined to 789.01 thousand hectares in 2008-09 thereby over all impacting the livelihood.

The total geographical area of H.P. is 55.67 lakh hectares, of which only 5.83 lakh hectares are sown while 9.70 lack hectares in the net irrigated area. of the total irrigated areas, 7.14% is irrigated by canals, 7.14% by wells & 85.71% by other sources of irrigation like kuhls, tube wells, shallow

wells, lift Irrigation, check dams, storage tanks etc. As a result of irrigation facilities, significant shift a major shift has taken place in the cropping pattern from cereal crops to vegetables. In addition to this, multiple cropping has also been introduced in irrigated areas.

The agro-forestry systems have been an essential component in the traditional farming systems. However, at present, farmers without realizing their significance, are removing the tree components rapidly from their farming lands because of small damages done by birds, shade etc. This has encouraged damage by rodents, wild beasts and insect/pests since birds were also feeding on later.

Nearly 70-75% rain occurs during monsoons which flow out as run-off without conservation. As a result, all areas without assured irrigation suffer from water stress & low productivity impacting livelihood.

There are 36,845 micro, small, medium and large enterprises out of which 444 are in medium and large scale, which provide employment to about 2,42,000 of the population. There are about 2, 33,894 workers registered under Factories Act and about 3, 07,551 workers registered under Employees Provident Fund Act, 1952. The difference in two figures is indicative of the Government sector as the major employer.
Inadequacy of water supply and sewage related infrastructure and gaps in health system has increased the burden of water borne diseases leading to increased health and decreased livelihood aspects. Self employment opportunities in the State - Craftsmen, Artisan or trade.

Objectives

The objectives of the guidelines are as follows:

- Generate awareness about the issues related to the Livelihood sector considering the toll on livelihood due to an impact on major sectors like agriculture, loss of horticulture, industries, infrastructure and environmental and health risks due to environmental issues like water pollution, soil pollution, air pollution.
- Provide information on key on going policy, plans and regulations of State.
- Introduce good practices to enhance sector development & associated services.
- Encourage coordinated planning within state departments.
- Address vulnerability related aspects.

Target audience

The key players for the guidelines include the following:

- The State and Local Government (Panchayati Raj Institutions) including Department of Agriculture, Department of Industries, Department of Horticulture, Department of Health and Family Welfare, Department of Panchayati Raj, Department of Rural Development, Irrigation & Public Health (IPH), State Pollution Control Board, Health Societies, and Private Sector for future planning.
- NGOS, Civil Society are community based organization (CSos) and other training institutes for creating awareness.
- People of Himachal Pradesh to adopt safe environmental and health

management practices related to the agricultural sector in the state.

Chapter 2: Key Environmental and Social Policies / Regulation

2.1 Education & Vocational Training

The policies and regulations applicable and/or related to the education sector of the State along with a brief description of their relevance are given below. These policies, laws, regulations, sub-programs & strategies provide the operational framework for the sector to address issues, causes and impacts. Detailed explanations can be obtained from concerned departments and line ministries like Ministry of Human Resource and Development (MHRD) including Department of School Education and Literacy, Department of Higher Education, Ministry of Labor and Employment (MoLE), Himachal Pradesh (http://himachal.nic.in/eleedu, http://educationhp.org).

National Level Policies/Regulations

National Policy on Education 1986: To promote socio- cultural identity and to meet challenges of the current times, the national Policy on Education was adopted by in 1986. The policy provides measures for the removal of disparities and to equalize educational opportunity parliament, education for women's equality, education for Scheduled Castes, education for Scheduled Tribes other educationally backward sections & areas, Minorities, Handicapped and adult education. It also provides the description for vocationalization, higher education, open University distance learning, rural university, technical and management education. The national Policy on Education (N.P.E.) brought the fundamental issue of equality centre stage. Section 4.9 of the policy clearly focuses on the needs of the children with disabilities. The objective should be to integrate the physically and mentally handicapped with the general community as equal partners, to prepare them for normal growth and enable them to face life with courage and confidence.

The Policy has the following principles

- Free and compulsory education
- Status emoluments and education of teachers
- Development of languages - Hindi, Sanskrit and International languages
- Equalization of educational opportunities
- Science education and research
- Education for agriculture and industry
- Secondary education
- University education
- Part time education and professional courses
- Spread of literacy and adult education
- The educational structure

University Grants Commission Act, 1956 (as modified upto the 20th December, 1985 and Rules and Regulations under the Act): This Act has been amended by the University Grants Commission (Amendment) Act, 1972 (no. 33 of 1972). This Act has been further amended by (i) The University Grants Commission (Amendment) Act, (1) 1984 (no. 59 of 1984) and (ii) The University Grants Commission (Amendment) Act, (2) 1985 (no.70 of 1985). It's an Act to make

provision for the coordination and determination of standards in Universities and for that purpose, to establish a University Grants Commission.

national Institutes of Technology Act, 2007: An Act to declare certain institutions of technology as institutes of national importance and to provide for instructions and researches in branches of engineering, technology, management, education, science and arts, advancement of learning and dissemination of knowledge in such branches and for certain other matters connected with such institutions.

All India Council for Technical Education Act no. 52, 1987: An Act to provide for the establishment of an All India Council for Technical Education with a view to the proper planning and co-ordinated development of the technical education system throughout the country, the promotion of qualitative improvement of such education in relation to planned quantitative growth and the regulation and proper maintenance of norms and standards in the technical education system and for matters connected there with.

National Policy on Information and Communication Technology (ICT) in School Education: The ICT Policy in School Education aims at preparing the youth to participate creatively in the establishment, sustenance and growth of a knowledge society leading to an all round socioeconomic development of the nation and global competitiveness. The mission is to devise, catalyse, support and sustain ICT and ICT enabled activities and processes in order to improve access, quality and efficiency in the school system.

Policy Goals

To achieve the above, the ICT policy in school education will endeavour to create:

- An environment in the states to develop an ICT knowledgeable community
- An ICT literate community, that can deploy, utilize and benefit from ICT and contribute to nation building.
- An environment of collaboration, cooperation and sharing, conducive to the creation of a demand for optimum utilisation and returns on the potentials of ICT in education.

Apprenticeship Act 1972: This Act may be cited as the Apprenticeship Act 1972. The act provides guideline for inspectors, trade panels and subcommittees. The Public Service Commission may appoint officers to be Inspectors of Apprentices, either on a full-time or part-time basis, for purposes of inspection of training facilities and the training of apprentices. Forth purposes of this Act, the Council may appoint persons to be member's of Panels of Trade Advisers in respect of an apprentice able trade. The Council may appoint subcommittees, as it deems necessary, for dealing with any specific trade or any matter concerning apprenticeship. The Act provides a standard for minimum age and educational requirements, apprentice able trades, investigations in to apprentice able trades, registration of contracts of apprenticeship, assignment and cancellation of contracts of apprenticeship, transfer of apprenticeship etc.

Apprentices Act, 1961: An Act to provide for the regulation and control of training of apprentices and for matters connected therewith. The Act provides the standard of qualifications for being engaged as an

apprentice i.e. a person shall not be qualified for being engaged as an apprentice to undergo apprenticeship training in any designated trade, unless he is not less than fourteen years of age, and satisfies such standards of education and physical fitness. It also provides for the reservation of training places for the Scheduled Castes and the Scheduled Tribes in designated trades. It decides on the period of apprenticeship training, which shall be specified in the contract of apprenticeship. The contract of apprenticeship shall terminate on the expiry of the period of apprenticeship training.

The Environment (Protection) Act, 1986: This is the most significant and diversified national level Act to safeguard the natural environment. Para 2 of the introduction of the same states that it is an Act to provide for the protection and improvement of human environment and the prevention of hazards to human beings, other living creatures, plants and property. section 2(a) & (c), of the Act states that 'environment' includes water, air, land and the interrelationship which exists amongst and between water, air, land and human beings, other living creatures, plants, micro-organisms and property. "Environmental Pollution" means any solid, liquid or gaseous substance present in such concentrations as may/tend to be injurious to environment. It is an umbrella act, which has several rules under it, to address different problems related to environment and pollution control.

The Air (Prevention and Control of Pollution) Act 1981/1987: This Act provides for the prevention, control and abatement of air pollution. Section 2(a) (b) defines "Air Pollution" as any solid, liquid or gaseous substance present in the atmosphere in such concentration as may/tend to be injurious to human beings, living creatures, plants, property or environment.

The Water (Prevention and Control of Pollution) Act 1974/1988: This Act provides for the prevention and control of water pollution and for maintaining or restoring of whole someness of water. Section 2 of the Act defines pollution as contamination of water or such alteration of the physicals, chemical or biological properties of water or such discharge of any sewage or any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to create a nuisance or render such water harmful or injurious to public health or safety to domestic, commercial, industrial, agriculture or other legitimate uses, or to the life and health of animals, plants and aquatic organisms.

STATE LEVEL POLICIES/ REGULATIONS

The Himachal Pradesh Private Universities (Establishment and Regulation) Act, 2006: An Act to provide for establishment, incorporation and regulation of private universities in the State for higher education and to regulate their functioning and for matters connected therewith or incidental thereto. It was enacted by the Legislative Assembly of Himachal Pradesh in the fifty-seventh year of the Republic of India. The Act provides / define the objects of the university, submission of proposal for establishment of a university and its evaluation, establishment of the university, incorporation of the university, university to be self-financed, Endowment Fund, officers of the university etc.

The Himachal Pradesh Private Educational Institutions (Regulation) Act, 1997: An Act to provide for the regulation of private educational institutions in the State of Himachal Pradesh. It was enacted by the Legislative Assembly of Himachal Pradesh in the forty-eighth year of the Republic of India. The chapters of the Act provide guidelines for permission for establishing or running private educational institutions, accounts, audit, inspection and returns.

The Himachal Pradesh Prevention of Malpractices at University, Board or other Specified Examination Act, 1984: An act to provide for preventing malpractices at examinations of any University or the Board or any other specified authority in the State of Himachal Pradesh. It was enacted by the Legislative Assembly of Himachal Pradesh in the thirty- fifth year of the Republic of India. The Act provides guidelines for duties of persons entrusted with printing etc., of question papers and punishment for contravention, duties of persons entrusted with custody of question papers and punishment for contravention, prohibition of supply or publication of any question paper before examination is held, prohibition of copying and impersonating at examinations, punishment for refusal to work for the conduct and declaration of results of an examination, punishment for abetment of offences, offences to be cognizable and non-bailable and to be tried summarily.

Himachal Pradesh Policy on Re-employment of teachers retiring during the academic session: In order to ensure availability of teachers and all other officers during the academic session, the Governor of Himachal Pradesh notifies the Himachal Pradesh Policy on Re-employment of teachers retiring during the academic session.

Policy for transfer of teacher in Education Department: The Government of Himachal Pradesh has been issuing instructions and guidelines for transfer of Government servants latest being Department of Personnel oM no. Per (AP-B) B(7) 1/2008 dated 10th April 2008, which are also applicable to Education Department.

The aims of the Policy are:

- To ensure availability of teachers during the academic session.
- To ensure availability of teachers in educational institutions situated in rural, hard, difficult and tribal areas.
- To facilitate deployment of teachers in the educational institutions.

The Himachal Pradesh Board of School Education Matriculation Examination (Scheme of Examinations, Scheme of Studies and Courses of Study) Regulations, 2008: This rule defines "High School" as an educational institution preparing candidates for the Matriculation examination of the Board and recognized by the Board for this purpose. Further "Regular Courses of Study" means a course of study prescribed by the Board for the purpose of any of its examination. The syllabus in each subject for the examination setting out the detailed courses of study and scheme of examination shall be prescribed by the Board from time to time and shall be shown in the 'Courses of Study and Syllabi'."Himachal Pradesh Board of School Education Examination Regulations, 1994" shall also remain applicable and shall be read along with these Regulations. Under compulsory subject as part of science and technology,

natural resources is one of the themes along with conservation of natural resources, regional environment and source of energy as sub-themes. Under social sciences, natural resources, water resources, power resources and agriculture resources are the sub-themes. Natural Resources include: Land as a resource, soil types and distribution; changing land-use pattern; land degradation and conservation measures.

The "Himachal Pradesh Board of School Education Senior Secondary Certificate (Ten Plus one) Examination (Scheme of Examinations, Scheme of Studies and Courses of Study) Regulations, 2007": As part of the humanities group, geography (common with science and commerce groups), and sociology; as vocational group, environmental science is not taught as a subject; Unit VIII: Environment and Society.

The "Himachal Pradesh Board of School Education Senior Secondary Certificate (Ten Plus Two) Examination (Scheme of Examinations, Scheme of Studies and Courses of Study) Regulations, 2008":

"Examination" means the Senior Secondary Certificate Ten Plus Two Examination; "Senior Secondary School "means an educational institution preparing candidates for the Ten Plus Two examination of the Board and recognized by the Board for such purpose.

Centrally sponsored schemes in Education and Vocational Training

Sarva Shiksha Abhiyan: The 'Sarva Shiksha Abhiyan' (The 'Education for All' Movement), is a flagship program of the Government of India pioneered by Atal Bihari Vajpayee for achievement of universalization of elementary education in a time bound manner, as mandated by the 86th amendment to the Constitution of India making free and compulsory education to children aged between 6–14 (estimated to be 205 million in number in 2001) a fundamental right. The program aims to achieve the goal of universalization of elementary education of satisfactory quality by 2010. There are 8 main programs in SSA. It includes ICDS, Aangan Wadi etc. It also Includes Kasturba Gandhi Balika Vidyalaya Yojana (KGBVY) which was started in the year 2004 with a view to give primary education to all girls. Later on it was merged with SSA.

Mahila Samakhya Scheme: Initiated in the year 1989, a part from provisions for education, this program also aims at raising awareness by holding meetings and seminars at rural levels. The Government allowed` 340 million (US$.4 million) during 2007–08 to carry out this scheme in over 83 districts including more than 21, 000 villages.

Bal Bhavan Scheme: The scheme involves educational and social activities and recognizes children with a marked talent for a particular educational stream. A number of programs and activities are held under this scheme, which also involves cultural exchanges and participation in several international forums.

Common Service Center Schemes (CSC): The scheme provides a framework to enable the setting up of 100,000 ICT enabled access points through rural India. It targets all 638,000 villages and there is one CSC for catchments of 6000-7000 citizens. It is managed by trained manpower and is equipped with the State of Art technology and supported by Government of India/State Government.

Mid-Day Meal Scheme

The objectives of the mid day meal scheme are:

- Improving the nutritional status of children in Classes I-V in Government, Local Body and Government aided schools, and Education Guarantee Scheme and Alternative & Innovative Education centers.
- Encouraging poor children, belonging to disadvantaged sections, to attend school more regularly and help them concentrate on classroom activities.
- Providing nutritional support to children of primary stage in drought affected areas during summer vacation.

Program Intervention and Coverage

To achieve the above objectives, a cooked mid day meal with nutritional content as shown in column 3 of Table 1 below will be provided to all children studying in classes I-V:

Table 1: Cooked mid day meal with nutritional content

Nutritional Content	norm as per NP- NSPE, 2004	Revised norm as per NP- NSPE, 2006
Calories	300	450
Protein	8-12	12
Micronutrients Adequate	not Prescribed	quantities of micronutrients like iron, folic acid, vitamin-A etc.

Integrated Education of Disabled Children (IEDC.): This scheme provides educational opportunities for disabled children in common schools, to facilitate their retention in the school system and also to place in common schools, such children already placed in special schools after they acquire the communication and daily living skills at the functional level.

State and Central Sponsored Scholarship Schemes Run by Education Department Himachal Pradesh, 2010: The various scholarship schemes to different categories of Bonafide Himachalis students are being implemented by the education department, Himachal Pradesh to encourage them to improve their merit/performance in studies. The eligible beneficiaries should be a regular student in Government/Government aided/affiliated (Himachal Pradesh) institutions in Himachal Pradesh.

Dr Ambedkar Medhavi Chattravritti Yojna: The scholarship at +1 stage is given to 1000 meritorious students from SC and 1000 students from OBC categories respectively who secure 72% and above marks in their Class 10th examination conducted by the HP Board of School Education, Dharamshala. The scholarship is given in +2 class also to 1000 meritorious students from SC and 1000 from oBC category who secure 72% and above marks in their +1 class examination conducted by the HP board of School Education, Dharamshala. This scholarship is given Rs 10,000/- per year.

Swami Vivekanand Utkrisht Chattravritti Yojna: The scholarship at +1 stage under this scheme is given to 2000 meritorious students of general category who secure 77% and above marks in their Class 10th examination

conducted by the HP board of School Education, Dharamshala. The scholarship is given in +2 class also to 2000 students of general category who secure 77% and above marks in their +1 class examination conducted by the HP Board of School Education, Dharamshala. This scholarship is given Rs 10,000/- per year.

Thakur Sennegi Utkrisht Chattravritti Yojna: The scholarship at +1 stage under this scheme is given to 100 boys and 100 girls students belonging to ST category on merit basis, and meritorious students who secure 72% and above marks in their Class 10th examination conducted by the HP board of School Education, Dharamshala. The scholarship is also given in +2 class and also to 100 boy and 100 girl students belonging to ST category on merit basis who secure 72% and above marks in +1 class. This scholarship is given Rs 11,000/- per year.

Maharishi Balmiki Chattravritti Yojna: The scholarship under this scheme is Rs 9000/- per year is given to the Bonafide Himachali girl students belonging to Balmiki Families, engaged in unclean occupation, beyond Matric to college level for studies and professional courses at college level situated in Himachal Pradesh, irrespective of their status i.e. government or private. The concerned students must apply on prescribed proforma through their Head of the School/College/Institution along with their Balmiki Certificate.

Indira Gandhi Utkrisht Chattravritti Yojna for Post Plus Two Students: The Indira Gandhi Uttkrisht Chhatarvritti Yojna for meritorious students for post plus two courses is awarded to 150 students Rs 10,000/- p.a. per student purely on the basis of merit and without any income ceiling. The scholarship is also awarded to ten toppers each from the merit list of 10+2 Arts, Science and Commerce Stream, supplied by the HP Board of School Education, Dharamshala, provided they join any academic/professional stream. The Scholarship is also awarded to ten toppers from the merit list B.A./B.Sc/B.Com stream, provided they join any academic/professional stream.

High School Merit Scholarship: First 300 students are eligible on the basis of merit list of Class 8th examination supplied by the HP Board of School Education, Dharamshala. The selected students are also given this scholarship in Class10th, provided they pass 9th class completely. The scholarship is awarded Rs 1,000/- per year to the day scholars and Rs 1500/- per year to the hostellers.

Rashtriya Indian Military College Scholarship: This award is made to ten students who are Bonafide residents of HP and are studying in class VIII to XII in Rashtriya Indian Military College, Dehradun. Two students from each class are eligible for the scholarship. The amount of scholarship is Rs 20,000/- p.a.

IRDP Scholarship Scheme: Students belonging to IRDP families and studying in 6th to University level are eligible for this scholarship provided they are pursuing their study in Government/

Government aided institutions in HP add details of scholarships.

Sanskrit Scholarship scheme: This is a centrally sponsored scheme. Under this scheme, only those students are eligible who have secured with a minimum of 60% and above marks in Sanskrit subject and have also secured a minimum of 60% marks in aggregate in the annual examination. This scholarship is payable in class 9th, 10th, plus one and plus two to such students who have secured 60% in the previous examination i.e. 8th, 9th, 10th and plus one.

Financial Assistance to the children of the Armed Forces Personnel killed/ disabled during the different War/operations: Children of Armed Forces personnel killed/disabled in the different wars/operations are eligible for this assistance. In case of disability that is below 50%, the children will get half scholarship. Application proform as are available with the District Sainik Welfare Board. The Heads of Institutions are directed to get the perform as verified from the Deputy Director Sainik Welfare Board of there spective district duly filled up in all respect before submitting to the Director of Education.

Sainik School Sujanpur Tihra Scholarship: The students who are studying in Sainik School Sujanpur Tihra and are Bonafide residents of Himachal Pradesh from class VI to XII will be given scholarship as per rates prescribed by the State Government.

Incentive to SC/ST girl students for secondary education: This is a centrally sponsored scheme for SC/ST girl students and all girls passing from Kasturba Gandhi Balika Vidyalaya who take admission in 9th class after passing middle standard examination from H.P. Board of School Education. The girl under this scheme should not have completed sixteen years of age as on 31st March of the year and scholarship amount will be Rs 3000/-

Pre-Matric Scholarship to the children of those engaged in un-clean occupation (centrally sponsored scheme): Under this scheme, the scholarship will be admissible to the children of Indian nationals who irrespective of their religion are actively engaged in scavenging of dry latrines, and other unclean occupation i.e. tanning and flaying only, which are traditionally considered unclean.

Pre-Matric Scholarship to oBC students (centrally sponsored scheme): Under this scheme, the scholarship will be given to those students of 9th and 10th class whose parents' annual income does not exceed to Rs 44,500/-. The scholarship will be awarded Rs 50/- per month for day scholars, Rs 250/- per month for hostellers and Rs 500/- per student per year, a one time adhoc grant is also given under this scheme.

Post-Matric Scholarship scheme to SC/ST/OBC students (centrally sponsored scheme): The SC/ST students whose parents annual income from all sources is up to Rs two lakh (Rs 2,00,000/-) and Rs one lakh forty five

thousand (Rs 1,45,000/-) respectively are eligible for full scholarship (i.e. maintenance allowance and full fee) for all courses provided they are pursuing their studies in Government/Government aided institutions as regular students. All oBC students whose parents annual income from all sources is up to Rs 44,500/- are eligible for full scholarship provided they are studying in Government/Government aided institutions as regular students.

Upgradation of merit of SC/ST students (CSS): Seven students (SC-6/ ST-1) are selected on the basis of merit list of middle standard exams of HPSEB and are admitted in 9th class in GSSS Sarahan (Sirmour). The scheme is tenable from 9th to 10+2 class.

Merit-cum-Means Scholarship Scheme for students belonging to Minority Community (CSS): The scholarship is for the minority students belonging to Muslim-13, Sikh-8, Christian-1, Buddhist - 8 (Total 30 students) communities. The annual income of the parent or guardian of the beneficiary should not exceed Rs 2.50 lakh from all sources and student should not have less than 50% marks. Financial assistance will be given to pursue degree and/or Post-graduate level technical professional courses from recognized institutions.

Post-Matric Scholarship scheme to students belonging to Minority community (CSS): This scholarship will be given by the Social Justice and Empowerment to the Minority students belonging to Muslim, Sikh, Christian, Buddhist and Parsi communities. The annual income of the parent or guardian of the beneficeary should not exceed Rs 2.00 lakh from all scores and student should have 50% marks in previous final examination. Students must pass the examination from Government/ Government aided institutions.

Pre-Matric Scholarship scheme to students belonging to Minority community (CSS): This scholarship is for the Minority students belonging to Muslim-250, Sikh-160, Christian-20, Budhhist-160 (Total-600 students) communities. The annual income of the parent or guardian of the beneficiary should not exceed Rs 1.00 lakh p.a. from all sources and the student should have not less than 50% marks in the previous final examination. The scholarship will be awarded to students in India studying in government or private schools from class I to class X.

Centrally Sponsored scheme of scholarship for college and university students (CSS): This is a new Centrally Sponsored Scheme, implemented in the year 2008-09 through H.P. Board of School Education, Dharamshala for post plus two students who (50% boys and 50% girls students) secure 80% and above marks in 10+2 class.

National Means – cum - merit Scholarship (CSS): national means-cum-merit scholarship scheme has been started by the Government of India, Ministry of Human Resource Development, Department of School Education and Literacy, Secondary Scholarship Division, New Delhi. The

scheme is being implemented through Principal, SCERT, Solan.

Maulana Azad Scholarship Scheme: This scholarship is given to 30 meritorious girl students belonging to minority community of 10+1 class who secure 55% and above marks in matriculating examination of H.P. Board School Education. The scholarship forms are sent to the GoI, Maulana Azad Education Institution through Directorate of Higher Education, H.P., Shimla.

INSPIRE (CSS): At present the scheme is being implemented at the level of Elementary Education i.e. up to Class X. In this regard, the Director - Elementary Education has issued instructions to all the Deputy Directors Higher/Elementary Education of the state.

Advanced Vocational Training: In order to upgrade and update the skills of serving industrial workers, an Advanced Vocational Training Scheme (AVTS) has been in operation since 1977. The scheme was taken up by DGE&T, Ministry of Labour & Employment in collaboration with UnDP/ ILo in 1977 at 6 Advanced Training Institutes (ATIs) under DGE&T and 16 Industrial Training Institutes (ITIs) of 15 State Governments.

Objective of the Scheme: To upgrade and update the skills of the serving industrial workers to specialise in their field of work. Under the scheme, training in selected skill areas is being imparted through short-term modular courses of one to six weeks' duration. Tailor-made courses suiting to the specific requirements of industrial establishments are also offered. Over 1, 00,000 industrial workers/technicians have made use of the training facilities at 6 ATIs under DGE&T.

Craftsmen Training Scheme (CTS): CTS is operated by Industrial Training Institutes (ITIs) and Industrial Training Centers (ITCs). This scheme falls within the purview of the Directorate General of Employment and Training (DGET), under the Ministry of Labour and Employment (MoLE).

Apprenticeship Training Scheme (ATS): ATS is a combination of institutional and on-the-job training wherein the trainees are exposed to industrial environment. The schemes are interlinked and dovetailed to achieve more effective results. At present, there are 5,114 ITIs and Industrial Training Centers (ITCs) with a training capacity of 773,000; under ATS about 254,000 seats are located for training the apprentices (as of June 2006) in 20,800 enterprises.

Already existing practices in Himachal Pradesh: The Himachal Pradesh University, Shimla has been involved in studying problems related to the Himalayan environment since 1973. A Centre of Environmental Studies (CES) was established in 1989 at the University, in accordance with the decision of the Environmental Protection Council (EPC), Government of Himachal Pradesh. The need of CES in the state and the university was felt so as to utilise the wide amplitude of bio wealth of the state from dry-scrub forests to alpine pastures with large number of exotic and endemic flora, a rich repository of medicinal and aromatic plants, diversity of wildlife and with 8% protected area network. The Centre aims to utilise the vast amount of

accumulated knowledge of the people and expertise of the ecology group and of the other departments of the university collected over the years.

The aim of the Centre is to:

- Establish a multidisciplinary platform for furthering research pertaining to the Himalayan region.
- To impart environmental education to students, researchers and others pertaining to knowledge and understanding of the Himalayan ecology and environment manifesting bio-economic aspects.
- To carry out detailed survey, analysis and evaluation of biodiversity.
- Sustainable utilization of natural resources.
- Restoration of degraded ecosystem through eco development approach.

The Ministry of Human Resource Development, Government of India has appointed IES as a nodal Agency for the States of Himachal Pradesh, Jammu and Kashmir, Delhi, Chandigarh, Haryana, and Punjab under the Scheme of Environmental orientation at School Education. The Scheme is supporting the capacity building program with the aim of promoting environmental education activities. The major objective of this program is to strengthen Environmental Education in the School System through the following:

- Strengthening the infusion of Environmental Education.
- Creating a separate space and time for environment at the middle school level.
- Teachers Training for effective environmental education.
- Use of non-formal methods with the involvement of NGOS.

2.2 IT & Telecom

The policies and laws applicable and/or related to IT and Telecom sector of the state along with a brief description of their relevance are listed below. These policies, laws, sub-programs & strategies provide operating framework for the sector to address issues, causes and impacts. Detailed explanations can be acquired from relevant departments and line ministries like Ministry of Communication and Information Technology, Department of Information Technology (www.mit.gov.in), Department of Tele communication (www.dot.gov.in), Department of Information Technology Himachal Pradesh (www.himachaldit.gov.in).

NATIONAL LEVEL POLICIES/ REGULATIONS

National Telecom Policy 1994: This Policy defined certain important objectives, including availability of telephone on demand, provision of world class services at reasonable prices, ensuring India's emergence as major manufacturing/export base of telecom equipment and universal availability of basic telecom services to all villages. It also announced a series of specific targets to be achieved by 1997. As against the nTP 1994 target of provision of 1 PCo per 500 urban population and coverage of all

6 lakhs villages, DoT has achieved an urban PCo penetration of 1 PCo per 522 urban population and has been able to provide telephone coverage to only 3.1 lakhs villages. As regards to the provision of total telephone lines in the country, DoT has provided 8.73 million telephone lines against the eighth plan target of 7.5 million lines.

Objectives

The objectives of the new Telecom Policy will be as follows:

a. The focus of the Telecom Policy shall be telecommunication for all and within the reach of all. This means ensuring the availability of telephone on demand as early as possible.
b. Another objective will be to achieve universal service covering all villages as early as possible. What is meant by the expression, "universal service" is the provision of access to all people for certain basic telecom services at affordable and reasonable prices.
c. The quality of telecom services should be of world class standard. Removal of consumer complaints, dispute resolution and public interface will receive special attention. The objective will also be to provide widest permissible range of services to meet the customer's demand at reasonable prices.
d. Taking into account India's size and development, it is necessary to ensure that India emerges as a major manufacturing base and major exporter of telecom equipment.
e. The defense and security interests of the country will be protected.

Source: Department of Telecommunications Govt. of India (http://www.dot.gov.in/ntp/ntp1994.htm)

New Telecom Policy 1999: According to the nTP 1999 Policy, the Access to telecommunications is of utmost importance for the achievement of the country's social and economic goals. Availability of affordable and effective communications for the citizens is at the core of the vision and goal of the telecom policy. This Policy strives to provide a balance between the provision of universal service to all uncovered areas, including the rural areas, and the provision of high-level services capable of meeting the needs of the country's economy; and encourage development of telecommunication facilities in remote, hilly and tribal areas of the country. The target of this policy is to encourage the development of telecom in rural areas, making it more affordable by a suitable tariff structure and making rural communication mandatory for all fixed line service providers.

Source: Department of Telecommunications Govt. of India (http://www.dot.gov.in/ntp/ntp1999.htm)

The Information Technology Act, 2000: An Act to provide legal recognition for transactions carried out by means of electronic data interchange and other means of electronic communication, commonly referred to as" electronic commerce", which involves the use of alternatives to paper-based methods of communication and storage of information, to facilitate electronic filing of documents with the Government agencies and further to amend the Indian Penal Code, the Indian Evidence Act, 1872, the Bankers' Books Evidence Act, 1891 and the Reserve Bank of India Act, 1934 and for matters connected therewith

or incidental thereto. The power to make rules vests with the Central Government in respect to digital signature. The Central Government may, for the purpose of this Act, by rules, prescribe: (a) the type of digital signature; (b) the manner and format in which the digital signature shall be affixed; (c) the manner or procedure which facilitates identification of the person affixing the digital signature; (d) control processes and procedures to ensure adequate integrity, security and confidentiality of electronic records or payments; and (e) any other matter which is necessary to give legal effect to digital signatures.

Source: Department of Telecommunication Govt. of India (http://www.dot.gov.in/Acts/it bill 2000.pdf)

Telecom Regulatory Authority of India (TRAI) Act 1997: This Act may be called the Telecom Regulatory Authority of India Act, 1997."Authority" means the Telecom Regulatory Authority of India established under sub- section (1) of section 3; "Licensee" means any person licensed under sub- section (1) of section 4 of the Indian Telegraph Act, 1885 for providing specified public telecommunication services; and "telecommunication service" means service of any description (including electronic mail, voice mail, data services, audio tax service, video tax services, radio paging and cellular mobile telephone services) which is made available to users by means of any transmission or reception of signs, signals, writing, images and sounds or intelligence of any nature, by wire, radio, visual or other electro-magnetic means but shall not include broadcasting services.

Functions of Authority include: recommend the need and timing for introduction of new service provider; recommend the terms and conditions of license to a service provider; ensure technical compatibility and effective

Inter connection between different service providers; regulate arrangement amongst service providers of sharing their revenue derived from providing telecommunication services; ensure compliance of terms and conditions of license; recommend revocation of license for non-compliance of terms and conditions of license; lay down and ensure the time period for providing local and long distance circuits of telecommunication between different service providers; facilitate competition and promote efficiency in the operation of telecommunication services so as to facilitate growth in such services; protect the interest of the consumers of telecommunication service; monitor the quality of service and conduct the periodical survey of the same provided by the service providers; inspect the equipment used in the network and recommend the type of equipment to be used by the service providers; maintain a register of interconnect agreements and of all such other matters as may be provided in the regulations; keep register maintained under clause (l) open for inspection to any member of public on payment of such fee and compliance of such other requirements as may be provided in the regulations; settle disputes between service providers; render advice to the Central Government in the matters relating to the development of

telecommunication technology and any other matter reliable to telecommunication industry in general; levy fees and other charges at such rates and in respect to such services as may be determined by regulations; ensure effective compliance of universal service obligations; perform other functions including administrative and financial functions as may be entrusted to it by the Central Government or as may be necessary to carry out the provisions of this Act.

Source: Department of Telecommunication Govt. of India (http://www.dot.gov.in/Acts/traiact)

The Factories Act, 1948: This Act is a major legal instrument to ensure safety, health & environment at work place. Chapter III of the Act addresses health issues at work place. Chapter IV stress upon the issues related to safety. Chapter IVA of the Act describes provisions relating to hazardous processes.

Source: http://pblabour.gov.in/pdf/acts_rules/factories_act_1948.pdf

Guidelines for Technical and Financial Support for Establishment of State Wide Area network (SWAN) 2004: Under The national e-Governance Action Plan (NEGAP), State Wide Area network (SWAN) has been identified as an element of the core infrastructure for supporting the e-Governance initiatives and the Department of Information Technology (DIT) has earmarked a significant outlay for supporting this activity. Under NEGAP, it is proposed to extend connectivity to the block level through NICNET/ State Wide Area networks (SWANs). Govt. of India support for the establishment of such infrastructure up to the block level will be provided by the Department of Information Technology in accordance with these guidelines.

According to this Guideline, State would need to establish the SWAN using either of the two options indicated below.

Option 1: State to identify a suitable PPP model (Boo, BOOT etc.), select an appropriate agency through a suitable competitive process for outsourcing establishment, operation and maintenance of the network. The State will need to designate an appropriate Central/State agency to take overall responsibility for receipt of funding support, implementation and rendering accounts/Utilization Certificates

Option2: Design atonics the prime implementation agency for the SWAN for establishment, operation and maintenance of the network as an integral part of NICNET, with an appropriate end-to-end Service Level Agreement (SLA). In this alternative, funds would be released to NICSI by Department of IT and execution would be carried out by NIC.

The Guideline also describes the eligibility conditions for States for DIT funding support for establishment of SWAN, norms for sharing of cost between Department of IT, GoI and State Govts.; exclusions from DIT funding support,

standardization, and inter-operability and interconnect requirements between NICNET and the SWANs and also between different SWANS, administrative and technical control of the SWAN

Source: Department of Information Technology Govt. of India (http://www.mit.gov.in/content/policiesguidelines)

Guidelines on Standards, Inter-operability, Inter- Connect and Security for SWAN 2005: According to this Guideline, the State Wide Area network (SWAN), which will be specifically and independently built for a particular State with heterogeneous applications and devices in the network should have common network Standards and Policy to be followed by each of the independent SWAN network.

Internet Standards: The standard process is related with all protocols, procedures and conventions that are used in or by the Internet. The SWAN may be built to incorporate any open standards available as per OSI layer. The network should support seamless transformation and integration of protocols as per the demand of the user for the open standards.

Network Inter-operability: It is the continuous ability to send and receive data between interconnected networks, providing the level of quality expected by the end user without any negative impact on receiving and sending networks. According to the Guideline, inter-operability should assure reliability and interoperability of wireless, wire line, satellite cable and other public data networks including emergency communication networks.

Interconnection with NICNET: NIC has a partial mesh backbone network that connects all NIC State and District Centres. For enabling Internet access, NICNET has Internet gateway connectivity. Interconnectivity among SWAN and the NICNET can be achieved through internet, through National Internet Exchange NIXI & peering independently with NICNET.

Security for SWANs: IT has setup CERT-In to enhance the security of India Communications and Information Infrastructure through proactive action and effective collaboration. The CERT-In will also assist members of Indian Community in implementing proactive measures to reduce the risks of Computer Security incidents

Source: Department of Information Technology Govt. of India (http://www.mit.gov.in/content/policies-guidelines document-establish-swan)

Guidelines for Technical and Financial Support for Establishment of State Data Centre (SDC): Under neGP, it is proposed to create State Data Centers for the states to consolidate services, applications and infrastructure to provide efficient electronic delivery of G2G, G2C and G2B services. These services can be rendered by the states through common delivery platforms seamlessly supported by core Connectivity Infrastructure such as State Wide Area network (SWAN) and Common Service Centre (CSC) connectivity extended up to the village level. State Data Centre would provide many functionalities and some of the key functionalities are Central Repository of the State, Secure Data Storage, online

Delivery of Services, Citizen Information/Services Portal, State Intranet Portal, Disaster Recovery, Remote Management and Service Integration.

State would need to establish the SDC using any one of the two options indicated below:

Option I: State/UT and NIC together form a composite team for the State Data Center. While sovereign control of the data/applications shall be with the State, nIC through its dedicated core team (6-7 domain experts/professionals) which may be specially created for each State, shall provide complete handholding for infrastructure up-keep, operations & management including issues related to business continuity.

Option II: The State/UT leverages the capabilities of existing commercial Internet Data Centers (IDCs) for which different deployment models are available i.e. co-located services, dedicated services and managed services. Under this option, the State may identify a suitable model(confined to either co-located services or dedicated services only keeping in view the security implications) to select an appropriate agency through a suitable competitive process for outsourcing

Source: Department of Information Technology Govt. of India (http://www.mit.gov.in/content/policiesguidelines)

In-Internet Domain name-Policy Framework and Implementation, 2004: The policy for implementation of in Registry focuses on creating liberal, efficient and market friendly processes and a distributed organizational structure. The national Internet Exchange of India (NIXI), a not-for-profit company under Section 25 of Indian Companies Act 1956 promoted by the Department of Information Technology (DIT) in association with the Internet Service Providers Association of India (ISPAI), has been entrusted with the responsibility of setting up the Registry for .In country code top level domain name (CCTLD). For this the NIXI will create the .In network Information Centre (INNIC) to operate as a Registry for .In domain in India. With the implementation of the new policy by INNIC under NIXI, a 100,000 .In domain name registrations at the end of the first year of its operation has been targeted , with an average annual growth of 50% over a couple of years thereafter.

Major Policy Elements: The major elements of the new policy are: Unlimited generic .In registration will be open to public at 2nd level; unlimited generic 3rd level registrations will also be open to public, e.g. in certain popular zones like .co.in, .net.in, .org.in, etc.

Source: Department of Information Technology Govt. of India | (http://www.mit.gov.in/content/policieuidelines)

Guidelines for submission- ICT: These are the Guidelines for submission of proposals for seeking DIT support for organizing conferences, seminars,

workshops, symposiums etc. in select areas of Electronics, Information and Communication Technology (ICT). In order to meet the objective, Department of Information Technology (DIT) will extend financial and technical support and provide co-sponsorship with or without financial support to organize conferences/seminars/symposiums/ workshops in schools.

General eligibility criteria and guidelines for governing GIA Support:

- Academia, research & development institutes, registered professional bodies and nGos registered under the Societies Registration Act of 1860 will be eligible to receive grant-in-aid under this scheme for organizing conferences/seminars/workshops/ symposia and schools (short term training program not exceeding 5 days) at regional/ national/international level.
- The institution should have a minimum of 3 years good track-record of technical & financial achievements reflected through annual reports/balance sheets/financial statements.

The subject/objective of the event should substantively conform to the areas of Electronics, Communication, IT and related fields. Time relevance of topic will also be the criteria for evaluation of the proposal. However, the events seeking support merely using the name of IT, may not be encouraged.

Source: Department of Information Technology Govt. of India (http://www.mit.gov.in/content/policiesguidelines)

The national Environment Policy (NEP), 2006: The policy recognizes the ecological services rendered by water bodies like lakes & wetlands. The NEP states that wetlands including lakes are under threat from drainage and conversion for agriculture & human settlements besides pollution. The reduction in economic value of their environmental services due to pollution, as well as the health costs of the pollution itself, are not taken into account while using them as a waste dump.

The nEP recommends developing an action plan for these water bodies, which importantly include formulation of conservation & prudent use strategies, integration of wetland and lake conservation into sectoral development plans for poverty alleviation and livelihood improvement, formulation of eco-tourism strategies through multi stakeholders' partnership.

Source: http://moef.nic.in/downloads/about-the-ministry/introduction-nep2006e.pdf

The Environment (Protection) Act, 1986: An Act to provide for the protection and improvement of environment and for matters connected therewith.ThisActprovidesrulestoregulatet heenvironmentlikepollution standards of quality of air, water or soil for various areas and purposes; the maximum allowable limits of concentration of various environmental pollutants (including noise) for different areas; the procedures and safeguards for the handling of hazardous substances; the prohibitions and restrictions on the handling of hazardous substances in different areas;

Environmental pollution and for providing for remedial measures for such accidents.

This Act provides rules for management of hazardous waste. Before hazardous wastes are delivered at the hazardous waste site, the occupier or operator of a facility shall ensure that the hazardous wastes are packaged in a manner suitable for storage and transport and the labeling and packaging shall be easily visible and be able to withstand physical conditions and climate factors.

Source: Ministry of Environment and Forest, Govt. of India (http://moef.nic.in/modules/rules-and-regulations/environment-protection/)

Indian Forests Act, 1927: The Indian Forest Act, 1927 was enacted mainly to enable the state to govern and manage the forests and their produce and to facilitate and regulate timber trade. It's an Act to consolidate the law related to forests, the transit of forest-produce and the duty leviable on timber and other forest-produce. The Act encourages conservation of forest biodiversity only by way of controlling and restricting the uses to which the forests can be put, and by restricting access of people to certain categories of the forests.

Source: Ministry of Environment and Forests Govt. of India (http://moef.nic.in/modules/rules-and-regulations/forest-conservation/)

The Forest (Conservation) Act, 1980: The Forest (Conservation) Act, 1980 as amended in 1988, checks the indiscriminate diversion of forest land for non-forest purposes. It primarily deals with discouraging the diversion of forestlands for non-forestry purpose, mainly industry and mining. It requires State Governments to acquire the approval of the Central Government before it denotifies any forest, leases forestland to a private person or corporation, or clears it, even for the purpose of reforestation.

Prior clearance of projects requiring diversion of forests for non- forest purpose is needed under the Forest (Conservation) Act, 1980. The State Government/Union Territories are required to submit formal proposals to the Central Government (Ministry of Environment and Forests) for diversion of forest land for non-forest purposes in the prescribed pro forma along with details such as flora, fauna, map of the area, compensatory afforestation proposed etc. Therefore, as far as possible, non-forest land should be selected for projects.

As per the amended Forest (Conservation) Rules in force now, the Regional Chief Conservator of Forests has the powers to decide proposals involving forest land upto 5 hectares. Proposals involving forest land between 5 - 20 hectares shall be processed by the Regional Chief Conservator in consultation with a state advisory group consisting of representatives of the concerned State Government. Proposals involving more than 20 ha. of forest land are required to be placed before the advisory committee constituted by the MoEF, Government of India.

Some important guidelines laid down in Forest (Conservation) Act and Rules for diversion of forest land for non-forest purposes as may be relevant for Himachal Pradesh are given below.

- These guidelines ensure that ecological considerations are in no way

undermined while examining investment proposals. The State Government or the Union Territory administration concerned is required to envisage at the initial stage itself, the different likely impacts of the proposed project, starting with the proposed site. The guidelines specify certain criteria for the sitting of an industry. It states that no projects should be in the vicinity of national Parks, Wildlife Sanctuaries and Core areas of the Biosphere Reserves. Further, the project needs to consider scenic landscapes, areas of geomorphologic significance, unique and representative biomes and eco-systems, heritage sites/structures and areas of cultural heritage and importance. It also includes fragile eco-systems such as mountains, areas rich in coral formations as well as desert, wetland, riverine and eco-systems; areas rich in biological diversity, gene pool and other natural resources.

- Investors in industrial projects involving forest land are required to undertake detailed Environmental Impact Assessment Studies of their projects with respect to physical resources, hydrology, water quality, socio-economic aspects, human use values, etc.
- Introduction of exotic species of plants and animals without adequate investigations are to be avoided.
- Monoculture and plantation of dominating and exotic species shall be discouraged without sufficient experimentation.
- Wild varieties of animals and plant species are not to be disturbed.
- Besides forest lands, diversion of prime agricultural lands for non-forest purposes are also restricted.
- Investigations and surveys carried out in connection with hydro- electric projects, transmission lines, seismic surveys, exploration for oil drilling or mining will not attract the provisions of the Forest Act provided these surveys are restricted to only clearing of bushes and lopping of tree branches and do not involve clearing of forests or cutting of trees.
- Such surveys, investigations and explorations are prohibited in Sanctuaries, national Parks, and Biosphere Reserves and in the preservation and sample plots under the Wildlife (Protection) Act, 1972.
- The permission to survey, explore or prospect does not imply any commitment on the part of the Central Govt. for any subsequent use of the forest land.

Source: Ministry of Environment and Forests Govt. of India (http://moef.nic.in/modules/rules-and-regulations/forest-conservation/)

National Policy on Safety, Health and Environment at Work Place, 2010: The major objective of this policy is the continuous reduction in the incidence of work related injuries, fatalities, diseases, disasters and loss of national assets by effectively enforcing all applicable laws & regulations concerning safety, health and environment at work places. Continuous enhancement of community awareness regarding safely health & improving safety health & environment at work place by creation of green jobs.

Source: Ministry of Labour and Employment (http://dgfasli.nic.in/npolicy/nationalpolicy.htm)

National Health Policy, 2002: The main objective of this national Policy is to

achieve an acceptable standard of good health amongst the general population of the country. It proposes an approach to increase access to the decentralized public health system by establishing new infrastructure in deficient areas and by upgrading the infrastructure in the existing institutions.

The policy hoped that the independently stated policies and programmes of the environment related sectors be smoothly interfaced with the policies and the programmes of the health sector, in order to reduce the health risk to the citizens and the consequential disease burden.

This policy welcomes the participation of the private sector in all areas of health activities – primary, secondary and tertiary. The policy recognizes the significant contribution made by NGOs and other institutions of the civil society in making health services available to the community. It also emphasizes the need to simplify procedures for government – civil society interfacing in order to enhance the involvement of civil society in public health programmes. nHP envisages an Information, Education & Communication Policy which maximises the dissemination of information to those population groups which cannot effectively approached by using only the mass media.

Source:
http://www.mohfw.nic.in/nRHM/Documents/national_Health_policy_2002.pdf

Environmentally Sound Management Guidelines for E-Waste: In accordance with the national Environmental Policy (NEP) and to address sustainable development concerns, there is a need to facilitate the recovery and/or reuse of useful materials from waste generated from a process and/or from the use of any material thereby, reducing the wastes destined for final disposal and to ensure the environmentally sound management of all materials.

⇒ E-waste: E-waste comprises of wastes generated from used electronic devices and household appliances which are not fit for their original intended use and are destined for recovery, recycling or disposal. Such wastes encompass a wide range of electrical and electronic devices such as computers, handheld cellular phones, personal stereos and also include large household appliances such as refrigerators, air conditioners etc. E-wastes contain over 1000 different substances many of which are toxic and potentially hazardous to environment and human health, if not handled in an environmentally sound manner.

⇒ The objective of these Guidelines is to provide guidance for identification of various sources of wastes in electrical and electronic equipments(e-waste) and prescribed procedures for handling e-waste in an environmentally sound manner.

⇒ These Guidelines are reference documents for the management,

handling and disposal of e-wastes. These Guidelines intend to provide guidance and broad outline, however, the specific methods of treatment and disposal for specific wastes needs to be worked out according to the hazard/risk potential of the waste under question. These Guidelines provide the minimum practice required to be followed in the management of e-wastes and the State Department of Environment or State Pollution Control Board may prescribe more stringent norms as deemed necessary.

⇒ These Guidelines shall apply to all those who handle e-waste which includes the generators, collectors, transporters, dismantlers, recyclers and stakeholders of e-wastes irrespective of their scale of operation. The definitions in Hazardous Wastes (Management and Handling) Rules, 1989 as amended in 2003 include: (i) "occupier" in relation to any factory or premises, means a person who has, control over the affairs of the factory or the premises and includes in relation of any substance, the person in possession of the substance; (ii) "operator of facility" means a person who owns or operates a facility for collection, reception, treatment, storage or disposal of hazardous wastes; (iii)"recycler" means an occupier who procures and processes hazardous materials for recovery; (iv)"recycling" means reclamation and reprocessing of hazardous materials from a production process in an environmentally sound manner for the original purpose or for other purposes; (v) "reuse" means hazardous materials that are used for the purpose for its original use or another use; (vi)"registered recycler or re-refiner or reuser" means a recycler or re-refiner or reuser registered for reprocessing hazardous material with the Central Government in the Ministry of Environment and Forests or the Central Pollution Control Board, as the case may be, for recycling or reprocessing hazardous materials; and (vii) "recovery" means any operation in the recycling activity wherein specific materials are recovered.

Source: Central Pollution Control Board (http://www.cpcb.nic.in/e_Waste.php)

Draft E -Waste (Management and Handling) Rules 2011: These rules shall apply to every producer, consumer or bulk consumer involved in the manufacture, sale, purchase and processing of electrical and electronic equipment or components as specified in Schedule-I, collection centre, dismantler and recycler of e-waste and shall not apply to-

- Batteries as covered under the Batteries (Management and Handling) Rules, 2001 made under the Act;
- Micro and small enterprises as defined in the Micro, Small & Medium

enterprises Development Act, 2006 (27 of 2006); and

- Radio-active wastes as covered under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and rules made there under.

Source: http://www.cedt.iisc.ernet.in/green/Draft%20E-waste-Rules%2030.3.10.pdf

The Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 2008: According to these rules hazardous wastes shall be collected, treated, stored and disposed off only in such facilities as may be authorised for this purpose. Every occupier generating hazardous wastes and having a facility for collection, reception, treatment, transport, storage and disposal of such wastes shall make an application in Form 1 to the State Pollution Control Board for the grant of authorization for any of the above activities. The State Pollution Control Board may cancel an authorisation issued under these rules or suspend it for such period as it thinks fit, if in its opinion, the authorised person has failed to comply with any of the conditions of the authorisation or with any provisions of the Act or these rules, after giving the authorised person an opportunity to show cause and after recording reasons thereafter.

Source: Central Pollution Control Board (http://www.cpcb.nic.in/Hazardous_waste.php)

STATE LEVEL POLICIES/ REGULATIONS

Information Technology Policy for Himachal Pradesh, 2000: Recognizing the enormous potential of IT the State Government has created an IT friendly environment for integrated participation by all in the development process of the new digital economy. This has brought about an improvement in the quality of every aspect of human life, emergence of a competitive society and a vibrant economy of new age technologies through transparent governing systems, sound infrastructure and skilled human resources.

With the above objectives in mind, the State Govt. had engaged NASSCOM (national Association of Software and Service Companies) to suggest the IT Vision 2010 for the State for the new millennium. The present policy is largely based on NASSCOM study and the outcome of various deliberations held thereon with Industry, Academia and different Government Departments.

The aspirations of the IT policy of Himachal Pradesh are based on 6 E's i.e. Education, Employment, Entrepreneurship, Electronic Governance, Economy and Equality. Thus the objectives are as follows:

- Investment in IT Sector: To encourage and accelerate the investment sand growth in Hardware, software, training, IT enabled services, telecom, e-commerce and related sectors in the State.
- IT in Education: Encourage the use of Information Technology in schools, colleges and educational institutions in the State of Himachal Pradesh, so as to enable students to improve their skills, knowledge and job prospects and enable them to obtain employment in this sunrise industry
- IT in Industry: To use IT effectively in industries especially where the State

has competitive advantages, for making such industries more global and help them to generate additional revenues; to diversify the local industries in to being web-enabled and attract IT companies from elsewhere in the country and the world.

- E-Governance: To use IT in the process of Government functioning to bring about Simple, Moral, Accountable, Responsive and Transparent (SMART) governance to its citizens.
- IT for Social Equity: To utilize the power of Information Technology in the overall goal of improving healthcare; empowering women, rural & tribal communities as well as economically weaker sections of society. The ultimate aim is to enhance social equity and justice.
- IT for Employment: To use Information Technology for generating additional employment for the new digital economy and governance.
- IT Infrastructure: To provide adequate infrastructure in the state, so that the IT sector can flourish and also to facilitate citizens of the state to use IT for a better quality of life.
- Localization: To facilitate localization of software, so that benefits of IT could percolate not only in English language, but also in Hindi.
- E-Tourism: To use IT for heralding world class E-Tourism in the State.

Electronic Kiosks and Public Tele Information Centres: The Government is setting up Public Tele Information Centres PTICs on the lines of public telephone booths to serve the information needs of the citizens and also to provide employment to a large number of educated youth.

Cyber laws: Himachal Pradesh is committed to ensuring that the overall local regime is in consonance with the requirements of transactions and interactions in the electronic medium. The State Government shall examine all the state level legislations and statutes so as to ensure the necessary harmonization, with the above objective in mind. The overall objective is to provide a transparent, simple and enforceable set of laws, which shall facilitate e-business and all other IT enabled activities.

Source: Department of Information and Technology- HP (http://himachal dit.gov.in/page/policies.aspc)

GOVERNMENT OF HIMACHAL PRADESH EXCISE AND TAXATION DEPARTMENT NO. EXN-F (5)2/2005, Dated: Shimla-171 002, 30th June, 2005. Tax payable under sub-section (2) of section 8 of the aforesaid Act on the sale of goods made in the course of inter-State trade or commerce by the industrial units manufacturing Information Technology and Bio- Technology goods to the non-dealers like Banks, Educational and Medical institutions, Autonomous bodies etc. shall be calculated @ 1% subject to furnishing of following declaration in Form 'CC' by the purchaser, with immediate effect in the public interest.

Zero GST on IT Products till 2007: no. EXn. F (9)2/9-III. - In exercise of the powers conferred on him under sub-section (1) of section 42 of Himachal Pradesh General Sales Tax Act, 1968 (Act no. 24 of 1968), (hereinafter called the "said Act"), the Governor of Himachal Pradesh is pleased to direct that subject to the conditions specified in this notification, no tax shall be levied under Section 6 of the said Act, on the sale of

goods manufactured by other industries, namely:-

(i) The existing Information Technology industrial units, from the date of this notification upto 31-3 2007; and

(ii) The dew Information Technology industrial units, from the date of commencement of commercial Projection upto 31-3-2007.

The exemption from tax in para 1 of this notification shall be admissible to the concerned Information Technology unit only if,-

(i) The unit is registered as a dealer under the H.P. General Sales Tax Act, 1968 and the Central Sales Tax Act, 1956;

(ii) The unit complies with the provisions of Himachal Pradesh General Sales Tax Act, 1968 and Central Sales Tax Act, 1956 and Rules framed and the notifications issued there under;

(iii) The unit files by 30th April every year, with the Assessing Authority concerned, a certificate in form RM-II prescribed by the Himachal Pradesh Government, Excise and Taxation Department notification no. 1-12/73-E & T-III, dated 7-2-1992 published in Rajpatra in H.P. on 12-2-1992 and obtained from the authority prescribed therein;

(iv) The unit actually continues its operation for a period of at least 3 years after the concession/incentive period is over and in the event of default the entire concession availed of, shall be forthwith paid back to the Government and the assets created by it will stand forfeited to the Government;

(v) In case of existing and new industrial unit,-

(a) It should have been registered with the Industries Department; and

(b) It has employed 65% and 80% Bonafide Himachal is specified for industrially developing areas and industrially backward areas as defined in Excise and Taxation Department notification no. EXn-F(9)2/90 (i), dated 23-7-1999.

(vi) The exemption to the existing and new industrial units will be available only when the goods manufactured are sold by themselves or through the registered dealers and it shall not be open for finished goods purchased or acquired by concerned industrial units for re- sale in Himachal Pradesh.

Zero CST on IT Products till 2007: no. EXM-F(9)2/99-III-(i)- no tax under this Act shall be payable on the sale of goods manufactured, by the existing and new Information Technology Industrial units situated in H.P., in the course of interstate trade or commerce for the period and subject to all the terms and conditions (including Explanation) as specified in this department notification no. EXn-F(9)2/99-III, dated 5th August, 2002 issued under section 42 of the Himachal Pradesh General Sales Tax Act, 1968 (Act no. 24 of 1968).

Development of Industrial Infrastructure: The funding pattern under the Growth Centre Scheme currently envisaging a

Central assistance of Rs.10 crore per center is raised to Rs.15 crore per center. The financing pattern of Integrated Infrastructure Development Centers (IIDC) between Government of India and SIDBI will change from 2:3 to 4:1, and the GoI funds would be in the nature of a grant, so as to provide the required infrastructural support.

Line Departments Computerisation Plan

Department of Information Technology is engaged in computerisation of various Govt. Departments. IT Department is providing hardware as well software for their computerization. Departments like Police, Social Justice & Women Empowerment, Labour & Employment, Municipal Corporation, Administrative Tribunal, Prosecution, Advocate General, Food & Supplies, Chief Architect, Home Guards, Industries, Election, Economic & Statistics and many more have been provided computer hardware/software

Technical Advice: Department of IT is advising various departments in implementing computerization in their offices using an integrated approach. The area of advice covers hardware, software, manpower, training in private sector etc. Besides working as a consulting agency, Department of Information Technology is providing consultancy to different Government organisations regarding their computerisation.

Website Designing and Updation: Department of Information Technology intends to empower its citizens through the power of Information Technology and websites is one of the means to achieve this target. DIT through its continuous efforts is encouraging the Governmental Departments to have their own websites and do timely updations if they have one. In this endeavour, DIT has started a training program on Website Development and Updation.

Networking HIMSWAN - Himachal State Wide Area network: The principal objective of HIMSWAN is to accelerate the growth and use of IT and IT enable services H.P. The objective of the Scheme is to create a secure Close User Group (CUG) Government network for the purpose of delivering Government to Government (G2G) and Government to Citizen (G2C) services. The scope of the project is to provide connectivity to Government offices upto Block headquarters in Himachal Pradesh. HIMSWAN has been designed in such a way that it is expandable in the future vertically (i.e. down to the Panchayat/Village level) to cover Common Service Centers (CSCs) and horizontally (i.e. all offices/locations within the same location).

Video Conferencing: The Video Conference Facility provided by the Department of Information Technology is an important milestone for good governance. It was decided that all Secretaries and Heads of Departments shall hold their meetings with the district level officers regularly using this facility. Video Conference will enable participation of all the concerned officials at the district level and their direct interaction with the Secretary or HoD. This would lead to substantial saving in TA, DA and PoL

expenses, besides making the meetings more result oriented. The Zonal and Divisional officers should also carry out their periodical reviews in a similar manner. Infact, ministers and seniors officers in the Government can even interact with the citizens directly using video conferencing. In order to increase utility and efficacy of the video conferencing, the IT Department has made department-wise monthly time table for the same.

Society for Promotion of IT and e-Governance: The Himachal Pradesh Society for Promotion of IT and e-Governance (SITEG) is formed in the matter of Act XXI of 1860 for the registration for Literacy, Scientific and Charitable Societies and in the matter of formation of a society for the promotion of IT and e-Governance based activities by Department of Information.

State Portal and SSDG: The Project is about e-submission of applications/ forms and status enquiry for application through the gateway. Various Mission Mode Projects (MMPs) under the national e-Governance Plan (neGP) are under different phases of project conceptualization, design and implementation. The idea is to develop a framework for speedy realization of benefits under neGP, and in a way so that various other MMPs can utilize this framework as and when they are in the operational phase.

Policy for E-Tourism: E-Tourism Portal: There are currently many websites providing information in respect of the tourism sector of the State. However, a comprehensive tourism portal for the State of Himachal Pradesh is being set up with the following elements:

- Comprehensive information on the tourism industry, hotels locations, restaurants, adventure sports, places of religious interests etc. The idea is to not only provide basic information but also provide cyber casting, video clips, graphics etc.
- To provide on-line reservation systems for hotels, air, rail and road transportation.
- Cyber casting of major events in the State of Himachal Pradesh.
- Making the portal e-commerce enabled and selling local handicrafts, agriculture/horticulture and industry products through the website.
- The Portal will also have a facility for on-line bookings advertisements and brokerage from e-commerce transactions. Online booking for HPTDC hotels is already in place and a project for online booking for all hotels in the State has already been initiated in PPP mode

Comprehensive computerization of transportation system: Inorder to make E-tourism policy complete, it is essential to integrate computerization of air, rail and road transportation system in the State. This is being implemented in a phased manner. Himachal Road transport Corporation has already taken steps to computerise its operations to a significant level.

Marketing: An aggressive marketing plan exists to market the State of Himachal Pradesh through the net.

Policy for Tele-Medicine: HP Tele-medicine NET, a comprehensive tele-medicine network is being implemented. The objective of the H.P. tele- medicine net would be to provide instant medical advice and facilities to the citizens of the State, irrespective of the location. This would cover far-flung and tribal/ backward areas. A program towards IT connectivity for hospitals, dispensaries, doctors and other professionals engaged in public health State-wide is under implementation.

Government of Himachal Pradesh gives top priority to preventive medicine through public health programs. A State level health network would be developed to provide extensive information to the public on preventive medicine and other health related information. Tele-monitoring of diseases at State level to achieve higher standards of public is also being implemented. Training of 'cyber docs' (people trained in both public health and networking) would be undertaken and completed in a phased manner.

Tele-medicine was implemented in the state to improve the health services of the State by providing access of Medical Specialists/experts from PGI/IGMC to common man even at PHC/CHC level remotely. 20 remote locations to be connected to IGMC Shimla which will be further connected to PGI Chandigarh. Himachal Pradesh is a sparsely populated State with difficult topographical and climatic conditions. The people have to travel large distances on foot or by road to reach the appropriate level of administration to get their jobs done. IGMC Shimla is the only referral hospital and medical institution in Himachal Pradesh. Thus Tele-medicine has been a great help in providing the services of Medical Specialists at IGMC/PGI to the PHCs/CHCs in the rural areas.

"Right of Way" Policy-Dated: Shimla-171 002, the 26thApril, 2002; The State Government has framed Right of Way Policy as under

i. Any service providing agency like Department of Telecommunication authorized and registered/licensed infrastructure providers, I&PH, HPSEB etc. is eligible to avail of the Right of Way facility/permission.

ii. This Right of Way Policy will be applicable for all roads owned and managed by State Government, Local Bodies and Public Sector Undertakings in the State. Permission for Right of Way will be granted by Executive Engineer of the Public Works Department as per guidelines and design parameters laid down by the office of Engineer- in-Chief/Zonal Chief Engineers with respect to roads owned and managed by Public Works Department.

iii. The Engineer-in-Chief/Zonal Chief Engineers will provide broad guidelines for various options depending upon topography and site conditions for availing of Right of Way facility and are as follows: a) Trenchless technology where cutting of road pavement is avoided and work can be carried out by drilling hole beneath the road pavement; b)

Creation of appropriate engineering structures on hill side of the road or on the valley side of the road at reasonable levels thereby avoiding digging of the road; c) Providing structures/poles for over head cables; d) Underground ducts.

iv. In respect to the Telecommunication Department, "Right of Way" facility would be available to the existing and future licensees and they will have to bear the cost involved in the re-installation and restoration.

v. The basic telecom service provider/licensee will provide to the State Government a bandwidth of 2 mbps at the Distt. and State head quarters nodes. However, then ecessary installation of electronic equipments etc. in the respective nodes would be done by the State Government itself. This free bandwidth facility provided by basic service licensee will not include video conferencing, international connectivity, creation of Internet Kiosks etc. from the infrastructure providers.

vi. The PWD would make provision of service lanes/underground ducts in all the roads to be constructed under various schemes/programs and in improvement and widening work of existing/new national Highways as far as possible, particularly in urban centers.

Source: Department of Information & Technology-HP

Government, Dated: Shimla-2, the 3rd September, 2004: The State Government have decided to amend the Right of Way Policy as under:

(i) The facility of Right of Way shall be provided to tele communication Service infrastructure providers for digging of trenches to lay cable in the kacha and untarred portion of the road and filling of trenches, appropriate compaction and restoration of roads to the original shape, design and quality shall be allowed to be done by such infrastructure provider.

(ii) If laying of OFC is done on the bituminous road and laying of such cable damages the bituminous road, reinstatement of bituminous road will be done by the concerned road owner at the cost of such service provider on the rates prescribed by such road owner and the cost will be deposited by such service provider with road owner.

(iii) The above policy regarding reinstatement of roads and performance bank guarantee is applicable with respect of State Government/ Local Bodies roads and not for the national Highways which will be governed by the policy directions of the Ministry of Road Transport and Highways.

(v) In the Right of Way Policy of State Govt. dated 26.04.2002, service infrastructure provider was required to provide to the State Government a band width of 2 mbps at the District and State Headquarters nodes free of cost. In view of the liberalized facility of Right of Way and reinstatements/restoration of roads mechanism now being provided, it is decided that 2mbps free bandwidth at

State and District the adquarters nodes shall be provided initially which will be increased upto 16 mbps in future as per requirement at specific locations to be decided by the Department of Information Technology, Govt. of Himachal Pradesh in consultation with such infrastructure provider In addition to Block headquarters, upto 2 mbps free bandwidth shall be provided at Tehsil headquarters also as per requirement to be determined by Department of Information and Technology

Source: Department of Information & Technology-HP

Venture Capital and Incubation Engine: The goal is to unleash the Himachal Pradesh incubation engine there by promoting entre preneurship, increasing foreign exchange earnings and increasing IT's contribution to the State GDP.

Information Technology (Amendment) Act, 2008: An Act further to amend the Information Technology Act, 2000. This Act by notification in official Gazette amends the First Schedule by way of addition or deletion of entries thereto. This Act amends the clause and provides the table for amended clause. Cyber Café, Cyber Security, Electronic signature are being described by this Act. The Central Govt. by notification in official Gazette may add or omit the electronic signature or electronic authentication techniques and the procedure for affixing such signature from the 2nd schedule.

Agriculture Resource Information Systems and networking (AGRISNET): Department of Agriculture & Co-operation, Ministry of Agriculture, Government of India has decided to launch a Central Sector Scheme titled, "Strengthening/Promoting Agricultural Informatics & Communications" of which one component is AGRISnET. The portal provides the end users with the ability to access services through an online platform at their door-step.

Objective: AGRISNET Project will bring farmers, researchers, scientists and administrators together by establishing online information for agriculture, animal husbandry, horticulture and fisheries' departments. The citizens can put their queries online along with the scanned photographs (if any) on the web and get the advice from the experts of concerned departments; The main objective of AGRISNET Project is to create a sustainable data bank of all agricultural inputs in the State of Himachal Pradesh containing entries for all relevant information pertaining to agriculture and its related activities and to access the same through a secured network; The farmer must know about the soil, crop rotation, thousand kinds of seeds available, fertilizers and pesticides, the weather, water table, animal husbandry and feed, package of practices, price and political situations, enabling to decide what crops to grow and which animal to raise; As the saying goes " Khet aur Kisan – Desh ki Jaan", the AGRISnET vision is to make our farmers progressive, prosperous and high tech, which literally means in Hindi " Unnat, Samridh aur Uchch Taknique Kisan"

Target: Development of Citizen Centric Applications and making the services available; establishment of networking

among all agricultural and allied activities; offices up to Block level with State Department of Agriculture and allied activities for improving information access and to provide advisory services to the farming community through use of Information and Communication Technologies (ICT); the offices of agriculture and allied activities departments including the District/Sub-Division/Block level offices need to be connected through a network based on HIMSWAN.

Expected impact: Improved information access and effective delivery of services to the farming community; establishing agriculture on-line; faster and efficient Redressal of Farmers' Grievances; efficient and improved communication system among all the offices of the Department of Agriculture in the state through the use of e-mails services; improved transparency and accountability of the departments; direct feedback from farming community to the decision makers in the state; better monitoring of Government Schemes, which directly impact the farmers; efficient management (development, conservation, allocation and utilization) of resources; improved productivity and profitability of farmers through better advisory systems; efficient & increased utilization of information by stakeholders for their decision-making.

Source: Department of Information & Technology-HP

Schemes Related to IT and Telecom

STP Scheme: Government of India has declared software as one of the extreme focus area for growth of exports. Therefore, Govt. of India announced a special scheme to promote software exports called "The Software Technology Park (STP) Scheme". STP scheme is implemented through Software Technology Parks of India (STPI) which is an autonomous Society of Ministry of Information Technology, Govt of India. Shimla is one of the Centres of STPI.

EHTP Scheme: This scheme has been started for encouraging exports of electronic hardware items including hard disk drives, computers, television, etc. and such parks have been developed by the Ministry of Communications & Information Technology. An Electronic Hardware Technology Park (EHTP) may be an individual unit by itself or a unit located in an area designated as EHTP Complex. As in the case of STP Scheme, the EHTP Scheme is also administered by the Ministry of Communications & Information Technology. An EHTP can also be set up by the Central Government, State Government, public or private sector undertakings or any combination of them.

Common Services Centers (CSC) Scheme in States: The CSC Scheme, as approved by the Government of India, envisions CSCs as the front- end delivery points for Government, private and social sector services to rural citizens of India, in an integrated manner. The objective is to develop a platform that can enable Government, private and social sector organizations to align their social and commercial goals for the benefit of the rural population in the remotest corners of the country through a combination of IT-based as well as non-IT-based services. Thus, the CSCs cannot be seen as mere

service delivery points in rural India. The CSC is positioned as a Change Agent-that would promote rural entre preneurship, build rural capacities and livelihoods, enable community participation and collective action for social change - through a bottom-up model with focus on the rural citizen.

This scheme is being extended through two private companies i.e. Zoom Developers in Kangra & Terasoft & GnG in Mandi/ Shimla division. The agreement has been signed with these companies. Himachal has the distinction of one of the few states in the country where this scheme has been started.

Undertaking such a mammoth task calls for active participation and close interaction amongst various stakeholders such as State Governments, local bodies, opinion makers and agencies/institutions involved or having interest, commercial or otherwise, in rural areas/markets. Under the CSC Scheme, a Public Private Partnership (PPP) model has been proposed for undertaking this challenging task and addressing the related issues in the most effective way.

Export Promotion Schemes: After the economic reforms of 1991-92, there has been a liberalization of external trade, elimination of duties on imports of information technology products, relaxation of controls on both inward and outward investments and foreign exchange and the fiscal measures taken by the Government of India and the individual State Governments. This scheme involves SoftwareTechnology Parks (STPs), Special Economic Zones (SEZ) Schemes.

Software Technology Parks (STPs): For the promotion of Software exports from the country, the Software Technology Parks of India was set up 1991 as an Autonomous Society under the Department of Information Technology. The services rendered by STPI for the Software exporting community have been statutory services, data communication servers, incubation facilities and training and value added services. STPI has played a key developmental role in the promotion of software exports with a special focus on SMEs and start up units. The STP Scheme has been extremely successful in fostering the growth of the software industry.

Special Economic Zones (SEZ) Scheme: In 2005, the Ministry of Commerce, Government of India has enacted the Special Economic Zone (SEZ) Act, 2005 with an objective of providing an internationally competitive and hassle free environment for exports. A SEZ is defined as a "specifically demarked duty-free enclave and shall be deemed to be a foreign territory (out of Customs jurisdiction) for the purpose of trade operations and duties and tariffs.

Credit Linked Capital Subsidy Scheme (CLCSS) for Technology Upgradation: The Ministry of Small Scale Industries (SSI) is operating a scheme for technology upgradation of Small Scale Industries (SSI) called the Credit Linked Capital Subsidy Scheme (CLCSS). The Scheme aims at facilitating technology upgradation by providing upfront capital subsidy to SSI units, including tiny, khadi, village and coir

industrial units, on institutional finance (credit) availed by them for modernisation of their production equipment (plant and machinery) and techniques. The Scheme (pre-revised) provided for 12 per cent capital subsidy to SSI units, including tiny units, on institutional finance availed by them for induction of well established and improved technology in selected sub-sectors/products approved under the Scheme.

SUGAM: i-CoSC (Sugam) plays an important role in providing services at the doorstep of rural community by bringing all citizen related services and information under a single roof cutting across different tiers of administration. The unique feature of this project is that the submission of documents and collection of required certificates/licenses etc. can be done even at a place other than the one where the sanction is to be done (except where physical presence is necessary as per law). Mainly the following services are being provided through these centers: Transport: Vahan – Vehicle registration, Saarthi – Driving license, Bus booking & Time table; Election: Voter registration and Voter Id; e-Praman/Certificates: Caste, Domicile, Senior citizen, Income, Backward area, Legal heir, SC/ ST, oBC; Revenue: Him Bhoomi-Land records forms, Land record nakal/ Jamabandi, HimRis-Property registration; Utility: Electricity bills, BSnL telephone bills; REFNIC - Reference Monitoring of Files; Agmarknet- Agriculture commodity prices; District authorities: Arms License; Police Complaints; e-Pehchan: Senior citizen identity card, Disability identity card; Labour and Employment: Vacancy listings, Employment exchange registration; Tourism: Hotel reservation, Tourist Information. SUGAM Centers have been setup at all Tehsils/Sub-Tehsils, Sub-Divisions and District Headquarter of Shimla District. It is now being rolled out in other districts.

Scheme for Star Rating for Building – BPO: The available data of energy audit studies reveal that, there is a significant potential for improving efficiency in both Government and commercial buildings. Office buildings can be categorized as day use or 24 hour operational buildings and their actual energy performance in kWh/sqm/annum may vary depending on the number of hours' operation. BPOs, which primarily focus on providing service to IT related activities such as application management and application development, data center operations or testing and quality assurance may have varied hours of operation e.g. 24x7 / 24x5, 18x7, 16x7 or 16x5 etc. A star rating program for BPo building has been developed which would create a demand in the market for energy efficient buildings based on actual performance in terms of Average Annual Hourly Energy Performance Index (AAHEPI). This program would rate BPo buildings on a 1-5 star scale with 5 star labeled buildings being the most energy efficient.

This program targets BPO buildings located within the 4 climatic zones which include: i) Warm and Humid; ii) Composite; iii) Hot and Dry; iv) Temperate, assuming air-conditioned floor area of more than 50% of its built up area. Due to insufficient number of BPO

buildings located in the cold climatic zone the scheme doesn't include the cold region. To apply for this rating, a standard format is developed for collection of actual energy consumption data which includes built up area, air conditioned and non air-conditioned area, type of BPo, hour of operation in a day, climatic zone in which BPO is located, and other related information of the facility. The technical committee constitutes for energy base lining and benchmarking of commercial BPo buildings chaired by Director General, Bureau of Energy Efficiency who shall be the technical committee for the scheme.

Scheme Participation Process: BPO building owner(s) or their authorized representatives can participate in the scheme by registering with the Bureau. Those BPO buildings having a connected load of 100 kW and above and a minimum built up area of 500 sq m would be considered for BEE star rating scheme.

BPO building owner can register either manually or electronically. Initially the applications would be scrutinized on manual submission. The application for each BPo building shall be accompanied by a non- refundable registration fee of Rs. 1,00,000/ (Rupees one lakh only) in the form of a crossed bank draft issued in the name of Bureau of Energy Efficiency and payable at new Delhi. The form can be downloaded from the BEE's website and the BPO building owner shall file their applications electronically / manually including the details of the crossed bank draft and shall submit the same to the BEE.

BPO building owner(s) or their authorized representatives (hereinafter called the user of label) will enter into an agreement on a non-judicial stamp worth Rs. 100/ (Rupees one hundred only), with the Bureau of Energy Efficiency (henceforth called the Bureau) agreeing to abide by the terms and conditions of the scheme. The agreement will be valid for a period of 5 years.

BPO building owner(s) should submit a copy of the energy audit report from a BEE certificate energy auditor along with the application format. At the end of 2 years the BPO building owner(s) need to report to BEE on the implementation of recommendations of the energy audit and thereafter the contract would be valid for the next 3 years. In case the BPO building owner fails to submit the report of the recommendations as suggested in the Energy Audit, the contract would stand cancelled at the end of 2 years.

Average annual hourly Energy Performance Index (EPI) i.e. (AAHEPI) in (Wh/hr/sqm) will be considered for rating the BPO building. The table indicating the AAHEPI with the corresponding star level in the various climatic zones (AAHEPI) shall be (Wh/hr/sqm) in terms of purchased and generated electricity divided by built up area in sqm and total annual hours of operation. However the total electricity would not include electricity generated from on-site renewable source such as solar photovoltaic etc.

After receipt of complete application, the Bureau would scrutinize the application and seek further information, if required.

The Bureau would authorize the use of label after completion of the security of the application. The Bureau will have the right to conduct an energy audit or any other form of assessment of the information, provided by the BPO building owner, whenever there are grounds for the same.

User of the label shall be given a time frame of one month after the expiry of each year to file the information and energy data for the previous year, failing which BEE shall inform the owner of the lapse and after the expiry of the notice period of one month, the authority shall be withdrawn temporarily and owner shall be requested to furnish the information. The entire communication shall take place for a maximum period of six months failing which the authority shall be permanently withdrawn for the use of the label and information shall be uploaded on BEE's website and put out in public domain.

Adherence to label specification: The user of label is solely responsible for the adherence to the specification of the label prescribed by BEE, and the authenticity of the documents submitted. However, in the case of a new BPo building, the BPO building owner (s)/or their authorized representatives would be required to submit the detailed information in respect to its energy performance after completion of 1 year of operation with full occupancy of the BPO building.

The user of label will affix the label as per the label design and specification both in terms of size and material, manner of display, and the rating plan prescribed for the particular BPO building.

The manner of display of the label would be such that it is at a place of prominence at the entrance of the BPo building and at a height of 5 feet as measured from the bottom of the label with respect to the floor level.

A list of BEE labeled BPo buildings will be maintained by the Bureau and made available to the public through publications and through its website. The user of label shall be solely responsible for ensuring: the accuracy of the information displayed on the label or any public claim for label level; compliance to the terms and condition of the scheme; directions of the Bureau on the implementation of the scheme; payment of any compensation adjudicated by any court/tribunal to any person for any information displayed on the label.

The Bureau will work towards creating a market for energy efficient BPo buildings through awareness and education. The Bureau will appoint an independent agency to evaluate the impact of the program and process of implementation on periodic basis. This will help the users and other stakeholders to evaluate BPo buildings' energy efficiency and track improvements compared to the BPo buildings and recognize the top performers through a systematic evaluation scheme for giving State and national awards.

The user of label shall extend full cooperation to BEE or its associates by providing the relevant data for the purpose. The Bureau will review the scheme periodically to determine the need

for revision or amendment or termination of the scheme. The Bureau, at any time during the operation of the scheme, may decide to terminate or modify the scheme after giving sufficient notice period. The user of label, at any time during the operation of the scheme, may decide to withdraw from the scheme after giving three months notice period to the Bureau as well as public notice.

Label Verification Process: The Bureau through its authorized representatives would verify the label content and the manner of display on the BPo building. The Bureau will conduct regular sample checking of BPo building for accuracy of the information provided by the BPo building owner and the EPI either on its own or through a third party. This sample checking may be conducted without prior notice. The results of the sample check will be put in the public domain.

The user of the label would agree to make available the drawings of the BPo building/facility and provide access to the BPo building to the authorized representative of the Bureau. If it is found that the BPo building does not conform to the authorized label specification then a second check will be done with an authorized representative of the BPo building owner. The date and time for the second check will be decided by the Bureau and the BPo building owner will be informed at least 24 hours in advance and if no representative is present then the second check results will be binding on the BPo building owner. The result of the second check along with the information provided in the form "BPo building information and energy data" will be put out in the public domain including an advertisement in newspaper, together with withdrawal of the authority to use the label.

Challenge Testing: The label contents can be challenged by any other star rated BPo building owner. The challenge must be submitted to BEE in writing along with a challenge test fee of Rs. 1,00,000 (Rupees one lakh only) in the form of a demand draft in favor of Bureau of Energy Efficiency. If the challenge test fails then this amount will be forfeited. The BEE will examine the challenge within a reasonable time frame on receipt of the same in writing. After BEE finds the reasonableness of the challenge test it will notify a date and time for checking the BPo building wither by its officers or by a third party in the presence of representative of the BPo building owner and challenger / representative. The results of checking will be shared with BPo building owner(s) and challenger. If the BPo building fails the star label authority then the cost of the check testing will be borne by the BPo building owner and the deposit of Rs. 1,00,000/ (Rupees one lakh only) will be returned to the challenger. The Bureau will bring out the results of the challenge testing in public domain along with information provided in form for "BPo building information and Energy data", together with withdrawal of the authority to use the label.

Hospital Management Information System: HMIS project is a state initiative to provide better health services to the Citizens of Himachal Pradesh. The scope of the project includes computerisation of

the routine activities of the hospital and to keep track of patient record/Medical history right from the registration to discharge/leaving the hospital. The database is also useful for doctors from the research point of view. Disease surveillance can be done using the reports of this software. IGMC is among the few health institutions in the country where such a system has been implemented. IT Department is helping Health department to roll out the project in 20 other hospitals of the state.

Benefits to the Citizens: HMIS would have benefits for the citizens; medical history of the patients is being maintained through this application which would help the doctors to treat the patients; citizens are getting better services as the OPD slips are being issued in respective OPDs as against one counter previously; all the records related to the patient treatment/ diagnosis etc is being fed into the system; various reports needed by the HoDs/IGMC administration are available instantly which used to take 15-20 days earlier.

Vigilance Complaints Monitoring System (VCC): The main objective of State Vigilance & Anti Corruption Bureau (SV&ACB) module is to facilitate interaction between the public and SV&ACB. It provides facilities for submitting online complaints/information to the SV&ACB Police Stations.

Revenue Court Case Monitoring: Revenue Court Case Monitoring software is developed by IT Department for the use of Revenue courts at Division, District, SDM, Tehsil level. The system has been implemented in Divisional Commissioner Shimla, DC office Shimla & Tehsil Shimla (Urban); Pilot implementation has been done in SDM office Hamirpur.

Source: Department of Information & Technology-HP

MoEF scheme on integrated E-Waste recycling facility: Establishment of common treatment and disposal facilities for hazardous, bio-medical and e- wastes viz., Treatment, Storage and Disposal Facilities (TSDFs), Secured Land Fills (SLFs), Integrated E-Waste Recycling and Treatment Facilities and Common Bio-Medical Waste Treatment Facilities (CBWTFs):The Ministry of Environment and Forests is implementing a Central Sector Scheme (CSS) to provide financial assistance for setting up of common treatment and disposal facilities for environmentally sound disposal of hazardous, bio- medical wastes and recycling and treatment facilities fore-wastes on Public Private Partnership (PPP) basis.

The detailed criteria for providing central assistance for setting up of TSDFs for hazardous wastes, CBWTFs for bio-medical wastes and E-waste recycling and treatment facilities are given below

(1) For establishment of common treatment and disposal facilities for hazardous wastes, viz., Treatment, Storage and Disposal Facilities (TSDFs), Secured Land Fills (SLFs), Integrated E-Waste Recycling and Treatment Facilities and Common Bio-Medical Waste Treatment and Disposal Facilities (CBWTFs), up to 25 % of the total project cost would be provided as central assistance. In case of nE

States, up to 50 % of the total project cost would be provided as central assistance subject to 25% of the project cost is contributed by the State/UT Government/SPCB concerned and the balance 25% of the project cost is contributed by the entrepreneur.

(2) The central assistance would be limited to a maximum of Rs.13.75 crores for a TSDF and Rs.7.5 crores for an SLF. In case of Integrated E-Waste Recycling and Treatment Facility, the ceiling for central assistance would be Rs.12.50 crores. In respect of a CBWTF, the ceiling for central assistance would be Rs.1 crore.

(3) In case of nE States, the central assistance would be limited to a maximum of Rs.27.5 crores for a TSDF and Rs.15 crores for a Secured Land Fill (SLF). In case of Integrated E-Waste Recycling and Treatment Facility, the ceiling for central assistance would be Rs.25 crores. In respect to a CBWTF, the ceiling for central assistance would be Rs.2 crores.

(4) Proposals for central assistance would be considered subject to commitment of matching grant by the State/UT Government/ SPCB. The balance amount would have to be contributed by the entrepreneur setting up the common treatment and disposal facility.

(5) The total cost of project would not include the cost of land, for calculation of central assistance.

(6) The cost of land, if provided by the State/UT Government/SPCB, will be considered for inclusion in the matching contribution of the State/UT Government.

(7) The computation of the value of the land would be based on the current government valuation notified by the competent revenue authorities.

(8) However, State Government's matching contribution would not include the cost incurred by it for infrastructure development.

(9) While considering grant of central assistance, preference will begiven to proposals where State Government provides matching financial contribution over and above land provided free of cost or at a concessional rate.

(10) The central assistance will be provided based on the techno-economic feasibility study of the project. The Detailed Project Report (DPR) prepared by the entrepreneur would be appraised by an independent empanelled agency. This agency will also be entrusted with Third Party Evaluation during implementation of the project.

(11) A copy of NOC or consent to establish issued by SPCB/PCC concerned, would be required to be submitted along with the proposal.

(12) The 1st installment of the central assistance would be released only after receiving commitment from the State/UT government/ SPCB regarding its matching contribution and subsequent central releases would be sanctioned only after the matching financial contribution of the State Government has been released.

(13) The entrepreneur should submit a commitment to contribute the balance amount required for the project, along with a statement providing details of availability of the funds towards this contribution.
(14) The proposal should provide a detailed time-frame for completion of the project and various components thereof
(15) The revised pattern of central assistance will be available for new facilities or for expansion of existing facilities.

The State/UT governments/SPCBs are requested to take necessary action on the following lines for setting up of waste treatment and disposal facilities in their States/UTs:

(i) Identify suitable lands for setting up of TSDFs/SLFs/Integrated E-Waste Recycling and Treatment Facilities/CBWTFs as per CPCB guidelines.
(ii) Invite proposals from the prospective entrepreneurs for setting up of TSDF/ SLF/Integrated E-Waste Recycling and Treatment Facility/ CBWTF and forward them along with confirmation regarding availability of land, commitment of the State/UT Government's matching contribution and NOC of the SPCB/PCC concerned for setting up the project.
(iii) Separate proposals should be sent for setting up of each category of treatment and disposal facilities.

2.3 Livelihood

NATIONAL LEVEL POLICIES/ REGULATIONS

National Agriculture Policy, 2000: The first national Policy on Agriculture was brought out in 2000 which seeks to actualise the vast untapped growth potential of Indian agriculture, strengthen rural infrastructure to support faster agricultural development, promote value addition, accelerate the growth of agro business, create employment in rural areas, secure a fair standard of living for the farmers and agricultural workers and their families, discourage migration to urban areas and face the challenges arising out of economic liberalization and globalisation. over the next two decades, it aims to attain a growth rate in excess of 4% per annum in the agriculture sector; growth that is based on efficient use of resources and conserves soil, water and bio-diversity; growth with equity, i.e., growth which is widespread across regions and farmers; growth that is demand driven and caters to domestic markets and maximizes benefits from exports of agricultural products in the face of the challenges arising from economic liberalization and globalization, and growth that is sustainable technologically, environmentally and economically.

National Water Policy, 2002: As per 1993 assessment, out of the total precipitation, including snowfall, of around 4000 billion cubic metre in the country, the availability from surface water and replenishable ground water is put at 1869 billion cubic metres. Because of topographical and other constraints, about 60% of this i.e. 690 billion cubic metres from surface

water and 432 billion cubic metres from ground water can be put to beneficial use. Availability of water is highly uneven in both space and time.

National level policy addresses the water issues including prioritization, allocation, pricing and interstate issues related to water sharing. Policy states about the use of water, water conservation and quantification of water pollution.

Irrigation planning either in an individual project or in a basin as a whole should take into account the irrigability of land, cost-effective irrigation options possible from all available sources of water and appropriate irrigation techniques for optimising water use efficiency. Irrigation intensity should be such so as to extend the benefits of irrigation to as large a number of farm families as possible, keeping in view the need to maximize production.

Section 7.3 states that integrated and coordinated development of surface water and ground water resources and their conjunctive use should be envisaged right from the project planning stage and should for man integral part of the project implementation.

Section 25 states that for effective and economical management of water resources, the frontiers of knowledge need to be pushed forward in several directions by intensifying research efforts in various areas, including hydro meteorology; snow and lake hydrology; surface and ground water hydrology; assessment of water resources; water quality; water conservation; evaporation and seepage losses; recycling and re-use; better water management practices and improvements in operational technology; soils and material research; economical designs for water resource projects, sedimentation of reservoirs, prevention of salinity ingress; prevention of water logging and soil salinity; reclamation of water logged and saline lands; environmental impact and regional equity.

The national Environment Policy, 2006: The national Environment Policy, 2006 states that the degradation of land in India through soil erosion, alkali-Stalinization, water logging, pollution, and reduction in organic matter content has several proximate and underlying causes. The proximate causes include loss of forest and tree cover (leading to erosion by surface water run-off and winds), unsustainable grazing, excessive use of irrigation (in many cases without proper drainage, leading to leaching of sodium and potassium salts), improper use of agricultural chemicals (leading to accumulation of toxic chemicals in the soil), diversion of animal wastes for domestic fuel (leading to reduction in soil nitrogen and organic matter), and disposal of industrial and domestic wastes on productive land. These proximate causes of land degradation in turn, are driven by implicit and explicit subsidies for water, power, fertilizer and pesticides.

The policy prescribes that it is essential that the relevant fiscal, tariffs, and sectoral policies take explicit account of their unintentional impacts on land degradation, if the fundamental basis of livelihood for the vast majority of our people is not to be irreparably damaged.

In addition, to such policy review, the following specific initiatives would be taken: a) Encourage adoption of science-based, and traditional sustainable land use practices, through research and development, extension of knowledge, pilot scale demonstrations, and large scale dissemination, including farmer's training, and where necessary, access to

institutional finance; b) Promote reclamation of wasteland and degraded forestland, through formulation and adoption of multi stakeholder partnerships, involving the land owning agency, local communities, and investors; c) Prepare and implement thematic action plans incorporating watershed management strategies, for arresting and reversing desertification, and expanding green cover; d) Promote sustainable alternatives to shifting cultivation where it is no longer ecologically viable, ensuring that the culture and social organisation of the local people are not disrupted; and encourage agro-forestry, organic farming, environmentally sustainable cropping patterns, and adoption of efficient irrigation techniques.

National policy on safety, health and environment at work place, 2010: The major objective of this policy is the continuous reduction in the incidence of work related injuries, fatalities, diseases, disasters and loss of national assets by effectively enforcing all applicable laws & regulations concerning safety, health and environment at work places. Continuous enhancement of community awareness regarding safely health & improving safety health & environment at work place by creation of green jobs.

Essential Commodities Act, 1955: The Act provides for regulation and control of production, distribution and pricing of commodities, which are declared as essential for maintaining or increasing supplies or for securing their equitable distribution and availability at fair prices. Using the powers under the Act, various ministries/Departments of the Central Government have issued Control orders for regulating production/ distribution/ quality aspects/movement etc. pertaining to the commodities which are essential and administered by them. Most of the powers under the Act have been delegated to the State Governments. orders under this act provide: (a) for bringing under cultivation any waste or arable land, whether appurtenant to a building or not, for the growing thereon of food-crops generally or of specified food-crops, and for otherwise maintaining or increasing the cultivation of food-crops generally, or of specified food-crops; (b) for regulating by licenses, permits or otherwise the storage, transport, distribution, disposal, acquisition use or consumption of any essential commodity.

The items declared as essential commodities under the Essential Commodities Act, 1955 are reviewed from time to time in the light of liberalized economic policies in consultation with the Ministries/ Departments administering the essential commodities and particularly with regard to their production, demand and supply. From 15 February 2002, the Government removed 11 classes of commodities in full and one in part from the list of essential commodities declared earlier. In order to accelerate economic growth and to benefit consumers, two more commodities have been deleted from the list from 31 March, 2004. At present, the list of essential commodities contains 15 items.

List of commodities declared essential under the Essential Commodities Act, 1955: Declared under Clause (a) of Section 2 of the Act: 1. Cattle fodder, including oil cakes and other concentrates; 2. Coal, including coke and other derivatives; 3. Component parts and accessories of automobiles; 4. Cotton and woolen textiles; 5. Drugs; 6. Foodstuff, including edible oilseeds and oils; 7. Iron and Steel, including manufactured products of Iron & Steel; 8. Paper, including newsprint, paperboard and strawboard; 9 Petroleum and Petroleum

products; 10 Raw Cotton either ginned or unginned and cotton seed; 11. Raw Jute.; 12. Jute textiles; 13. Fertilizer, whether inorganic, organic or mixed; 14. Yarn made wholly from cotton; and 15. (i) Seeds of food crops, fruits and vegetables, (ii) seeds of cattle fodder and (iii) jute seeds.

Consumer Protection Act, 1986:- It is an Act to provide for better protection of the interests of consumers and for that purpose to make provision for the establishment of consumer councils and other authorities for the settlement of consumers' disputes and for matters connected there with

The object of this Act is to promote and protect the rights of the consumers such as:

a) The right to be protected against the marketing of goods and services which are hazardous to life and property;

b) The right to be informed about the quality, quantity, potency, purity, standard and price of goods or services, as the case may be so as to protect the consumer against unfair trade practices;

c) The right to be assured, wherever possible, access to a variety of goods and services at competitive prices;

d) The right to consumer education.

Farmers' Rights, Act 2001: The Act recognizes the farmer not just as a cultivator but also as a conserver of the agricultural gene pool and a breeder who has bred several successful varieties. The Act makes provisions for such farmer's varieties to be registered, with the help of nGos so that they are protected against being scavenged by formal sector breeders. The rights of rural communities are acknowledged as well. Farmers' rights are defined in the following way:
The farmer shall be deemed to be entitled to save, use, sow, resow, exchange, share or sell his farm produce including seed of a variety protected under this Act in the same manner as he was entitled before the coming into force of this Act.; provided that the farmer shall not be entitled to sell branded seed of a variety protected under this Act.

Importance of farmers' right to sell seed: The pivotal importance of the farmer having the right to sell (not save nor exchange, but sell) seed has to be seen in the context of seed production in India. In India, the farming community is the largest seed producer, providing about 87% of the country's annual requirement of over 60 lakh tonnes. If the farmer were to be denied the right to sell, it would not only result in a substantial loss of income for them but far more importantly, such a step would displace the farming community as the country's major seed provider.

Breeders' rights: Breeders' rights over the varieties they have developed are more than adequately protected by the draft legislation. On registration, the breeder has rights of commercialization for the registered variety either in his/her own person or through anyone he designates. These rights include the right to produce, sell, market, distribute, import or export a variety, in short, full control over formal marketing. The strong protection granted to a plant breeder over his/her variety is seen in the section dealing with infringement of breeders' rights where punishment in the form of substantial fines and jail terms has been prescribed for those who infringe the rights of the registered breeder

Environment Protection Act, 1986: It is the most significant and diversified national level Act to safeguard the natural environment. Para 2 of introduction of the act states that it is an act to provide for the protection and improvement of human environment and the prevention of hazards to human beings, other living creatures, plants and property. Section 1 of the Act states that 'environment' includes water, air, land and the interrelationship which exists amongst and between water, air, land and human beings, other living creatures, plants, micro-organism and property. "Environmental Pollution" means any solid, liquid or gaseous substance present in such concentrations as may be or tend to be injurious to environment. It is an umbrella act, which has several rules under it, to address different problems related to environment and pollution control.

The Employees Provident Funds and Miscellaneous Provisions Act, 1952: An Act to provide for the institution of provident funds 2[3] family pension fund and deposit-linked insurance fund for employees in factories and other establishments. 1) It applies to every establishment which is a factory engaged in any industry specified in Schedule I and in which 6 [twenty] or more persons are employed; and 2) to any other establishment employing 6 [twenty] or more persons or class of such establishments which the Central Government may, by notification in the official Gazette.

The contribution which shall be paid by the employer to the Fund shall be 3 [eight and one-third per cent.] of the basic wages, 4 [dearness allowance and retaining allowance (if any)] for the time being payable to each of the employees 5 [(whether employed by him directly or by or through a contractor)], and the employees' contribution shall be equal to the contribution payable by the employer in respect to him and may, 3[if any employee so desires, be an amount exceeding eight and one-third per cent of his basic wages, dearness allowance and retaining allowance (if any), subject to the condition that the employer shall not be under an obligation to pay any contribution over and above his contribution payable under this section.

The Child Labour (Prohibition and Regulation) Act, 1986: An Act to prohibit the engagement of children up to the age of fourteen in certain employments and to regulate the conditions of work of children in certain other employments.

The Buildings and other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996: An Act to regulate the employment and condition of service of buildings and other construction workers and to provide for their safety, health and welfare measures.

It applies to every establishment which employs or had employed on any day of the preceding twelve months, ten or more buildings workers in any building or other construction work.

EverybuildingworkerregisteredasabenefiaryunderthisActshallbeentitledto the benefits provided by the Board from its Fund under this Act.

The employer shall make in every place where building or other construction work is in progress, effective arrangements to provide and maintain at suitable points conveniently situated for all persons employed therein, a sufficient supply of wholesome drinking water.

The employer shall provide, free of charge and within the work site or as near to it as may be possible, temporary living accommodation to all building workers employed by him for such period as the building or other construction work is in progress.

The temporary accommodation provided under sub-section (1) shall have separate cooking place, bathing, washing and lavatory facilities. As soon as may be, after the building or other construction work is over, the employer shall, at his own cost, cause removal or demolition of the temporary structures erected by him for the purpose of providing living accommodation, cooking place or other facilities to the building workers as required under sub-section (1) and restore the ground in good level and clean condition.

The Employees State Insurance Act, 1948: An Act to provide for certain benefits to employees in case of sickness, maternity and employment injury and to make provision for certain other matters in relation thereto. It shall apply, in the first instance, to all factories (including factories belonging to the Government) other than seasonal factories.

"Factory" means any premises including the precincts thereof: (a) whereon ten or more persons are employed or were employed for wages on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on with the aid of power or is ordinarily so carried on, or;(b)where on twenty or more persons are employed or were employed for wages on any day of the preceding twelve months, and in any part of which a manufacturing process is being carried on without the aid of power or is ordinarily so carried on.

As per this Act, all employees in factories or establishments to which this Act applies shall be insured in the manner provided by this Act.

The contribution payable under this Act in respect to an employee shall comprise contribution payable by the employer (hereinafter referred to as the employer's contribution) and contribution payable by the employee (hereinafter referred to as the employee's contribution) and shall be paid to the Corporation.

Subject to the provisions of this Act, the insured persons 1)[their dependants or the persons hereinafter mentioned, as the case may be,] shall be entitled to the following benefits, namely: (a) periodical payments to any insured person in case of his sickness certified by a duly appointed medical practitioner 2) [or by any other person possessing such qualifications and experience as the Corporation may, by regulations, specify in this behalf] (hereinafter referred to as sickness benefit); 3 [(b) periodical payments to an insured woman in case of confinement or miscarriage or sickness arising out of pregnancy, confinement, premature birth of child or miscarriage, such woman being certified to be eligible for such payments by an authority specified on this behalf by the regulations (hereinafter referred to as maternity benefit)]; (c) periodical payments to an insured person suffering from disablement as a result of an employment injury sustained as an employee under this Act and certified to be eligible for such payments by an authority specified in this behalf by the regulations (here in after referred to as disablement benef it); (d) periodical payments to such dependants of an insured person who dies as a result of an employment injury sustained as an employee under this Act, as are entitled to compensation under this Act (hereinafter

referred to as dependants' benefit); 4(e) medical treatment for and attendance on insured persons (hereinafter referred to as medical benefit).

Sickness benefit: The qualification of a person to claim sickness benefit, the conditions subject to which such benefit may be given, the rates and period thereof shall be such as may be prescribed by the Central Government.

Maternity benefit: The qualification of an insured woman to claim maternity benefit, the conditions subject to which such benefit may be given, the rates and period thereof shall be such as may be prescribed by the Central Government

Disablement Benefit: Subject to the provisions of this Act (a) a person who sustains temporary disablement for not less than three days (excluding the day of accident) shall be entitled to periodical payment 3[at such rates and for such periods and subject to such conditions as may be prescribed by the Central Government]; (b) a person who sustains permanent disablement, whether total of partial, shall be entitled to periodical payment 3[at such rates and for such period and subject to such conditions as may be prescribed by the Central Government].

The Maternity Benefit Act, 1961: An Act to regulate the employment of women in certain establishments for certain periods before and after child- birth and to provide for maternity benefit and certain other benefits. (a) to every establishment being a factory, mine or plantation including any such establishment belonging to Government and to every establishment wherein persons are employed for the exhibition of equestrian, acrobatic and other performances; (b) to every shop or establishment within the meaning of any law for the time being in force in relation to shops and establishments in a State, in which ten or more persons are employed, or were employed, on any day of the preceding twelve months.

The Act states that no employer shall knowingly employ a woman in any establishment during the six weeks immediately following the day of her delivery or her miscarriage. No woman shall work in any establishment during the six weeks immediately following the day of her delivery or her miscarriage. Without prejudice to the provisions of section 6, no pregnant woman shall, on a request being made by her in this behalf, be required by her employer to do during the period specified in sub-section (4) any work which is of an arduous nature or which involves long hours of standing, or which in any way is likely to interfere with her pregnancy or the normal development of the fetus, or is likely to cause her miscarriage or otherwise to adversely affect her health.

The specific period refers to the period of one month immediately preceding the period of six weeks, before the date of her expected delivery.

Every woman shall be entitled to, and her employer shall be liable for, the payment of maternity benefit at the rate of the average daily wage for the period of her actual absence, that is to say, the period immediately preceding the day of her delivery, the actual day of her delivery and any period immediately following that day.

The maximum period for which any woman shall be entitled to maternity benefit shall be twelve weeks of which not more than six weeks shall precede the date of her expected delivery.

The Plantations Labour (as amended to data) Act, 1951: An act to provide for the welfare of the labour, and to regulate the conditions of work, in plantations.
This act applies to: (a) to any land used or intended to be used for growing tea, coffee, rubber cinchona or cardamom which measures 5 hectares or more and in which fifteen or more persons are employed or were employed on any day of the proceeding twelve months; (b) to any land used or intended to be used for growing any other plant, which admeasures 5 hectares or more and in which fifteen or more persons are employed or were employed on any day of the preceding twelve months, if, after obtaining the approval of the Central Government, the State Government, by notification in the official Gazette, so directs.

Drinking water provisions as to health: In every plantation effective arrangements shall be made by the employer to provide and maintain at convenientplacesintheplantationasufficient supplyofwholesomedrinking water for all workers conservancy. There shall be provided separately for males and females in every plantation a sufficient number of latrines and urinals of prescribed types so situated as to be convenient and accessible to workers employed therein. All latrines and urinals provided under sub- section (1) shall be maintained in a clean and sanitary condition.

Medical Facilities: In every plantation there shall be provided and maintained so as to be readily available such medical facilities for the workers and their families as may be prescribed by the State Government. If in any plantation medical facilities are not provided and maintained as required by sub-section (1) the Chief Inspector may cause to be provided therein such medical facilities and recover the cost thereof from the defaulting employer. For the purposes of such recovery the Chief Inspector may certify the costs to be recovered to the Collector, who may recover the amount as an arrear of land-revenue.

Canteens: The State Government may make rules requiring that in every plantation wherein one hundred and fifty workers are ordinarily employed, one or more canteens shall be provided and maintained by the employer for the use of the workers.

Crecha: In every plantation where in fifty or more women workers (including women workers employed by any contractor) are employed or employed on any day of the preceding twelve months, or where the number of children of women workers (including women workers employed by any contractor) is twenty or more, there shall be provided and maintained by the employer suitable rooms for the use of children of such women workers.

Recreational Facilities: The State Government may make rules requiring every employer to make provision in his/her plantation for such recreational facilities for the workers and children employed therein as may be prescribed.

Educational Facilities: Where the children between the ages of six and twelve of workers employed in any plantation exceed twenty-five in number the State Government may make rules requiring every employer to provide educational facilities, for the children in such manner and of such standard as may be prescribed.

Housing Facilities: It shall be the duty of every employer to provide and maintain necessary housing accommodation, - (a)

for every worker (including his family) residing in the plantation; (b) for every worker (including his family) residing outside the plantation, who has put in six months continuous service in such plantation and who has expressed a desire in writing to reside in the plantation.

The Trade Unions Act, 1926: An act to provide for the registration of Trade Unions and in certain respect to define the law relating to registered Trade Unions. According to this Act, "Trade Union" means combination, whether temporary or permanent, formed primarily for the purpose of regulating the relations between workmen and employers or between workmen and workmen, or between employers and employers, or for imposing restrictive condition on the conduct of any trade or business, and includes any federation of two or more Trade Unions. "Trade dispute" means any dispute between employers and workmen or between workmen and workmen, or between employers and employers which is connected with the employment, or non-employment, or the terms of employment or the conditions of labour, of any person, and "workmen" means all persons employed in trade or industry whether or not in the employment of the employer with whom the trade dispute arises.

Employment Exchanges (Compulsory notification of Vacancies) Act, 1959: An Act to provide for the compulsory notification of vacancies to employment exchanges.

"Employment Exchange" means any office or place established and maintained by the Government for the collection and furnishing of information, either by keeping/maintaining of registers or otherwise, respecting - (i) persons who seek to engage employees; (ii) persons who seek employment; and (iii) vacancies to which persons seeking employment may be appointed.

Notification of vacancies to employment exchanges: After the commencement of this Act in any State or area thereof, the employer in every establishment in public sector in that State or area shall, before filling up any vacancy in any employment in that establishment, notify that vacancy to such employment exchanges as may be prescribed. The appropriate Government may, by notification in the official Gazette, require that from such date as may be specified in the notification, the employer in every establishment in private sector or every establishment pertaining to any class or category of establishments in private sector shall, before filling up any vacancy in any employment in that establishment, notify that vacancy to such employment exchanges as may be prescribed, and the employer shall thereupon comply with such requisition.

If any employer fails to notify to the employment exchanges prescribed for the purpose, any vacancy in contravention of sub-section (1) or sub- section (2) of section 4, he shall be punishable for the first offence with fine which may extend to five hundred rupees and for every subsequent offence with fine which may extend to one thousand rupees.

The Bonded Labour System (Abolition) Act, 1976: An Act to provide for the abolition of bonded labour system with a view to preventing the economic and physical exploitation of the weaker sections of the people.

H.P. Hoarding and Profiteering Prevention order, 1977: The Director or the District Magistrate, may, by notification in the official gazette, fix in respect of any article given in Schedules

I,II& III: (a) The maximum quantity which may at any one time be possessed by a dealer or produced provided that the quantity so fixed in this clause shall in no case exceed the quantity if any, fixed under the specific Licensing and/or Price Control order issued under section 3 of the Essential Commodities Act, 1955; (b) The maximum quantity which may at any one time be possessed by any consumer; (c)The maximum quantity which may in one transaction be sold to any person by a dealer or producer; (d)The maximum margin of profit that may be charged by a dealer or producer over his costs in respect to any article included in Schedule I; (e) The maximum retail price including taxes in respect to any article in Schedule - I that may be charged by a dealer or producer subject to the condition that the price so fixed shall not remain operative for more than a month at a time or for such further extended time which in no case shall exceed 3 months from the date of the first order provided that the District Magistrate shall exercise the powers under this para subject to the guidelines, if any, of the Director.

The quantities, price and margin of profit fixed in respect of any article under this paragraph may be different in different localities provided that while fixing the margin of profit, the prescribed authority shall take into consideration, the nature of the commodities and also all relevant local- conditions and that such margin of profit shall in no case be less than 1.5% and more than 10%. But in the case of fresh vegetable, the margin may extend up to 25%.

The items in schedule I include: Food grains (Wheat, gram, barley, rice and maize including their products).; Bread; Gur, Shakkar, Khandsari and Sugar; Pulses; Kerosene oil and Diesel; Paper; Soft coke, hard coke, steam coal and coal; Liquefied Petroleum Gas; Exercise books; Coarse Woolen cloth/ common cloth; Meat/chicken/fish; Eggs; Tea leaves excluding tea leaves sold in packets; Edible/vegetable oils and other hydrogenated oils except those sold in tins or other packets of 4 Kgs; Cooked food served in any establishment; Milk, curd and cottage cheese; Fruit and vegetables; Bottled Beverages; Salt; Cement. [omitted]; onion [Added vide notification no. FDS-A(3)-1/95 dated 16.10,99 (Published in weekly Rajpatra dated 13.11.99 (10th Amendment).

Schedule II consists of 1) Baby Food sold in packets; 2) Tealeaves sold in packets. [omitted]. Schedule III consists of 1) Drugs 2) Foodstuffs.

Public Distribution System (Control) order, 2001: It is an order to maintain supplies and securing availability and distribution of essential commodities under the Public Distribution System. Here "Act" means the Essential Commodities Act, 1995 (10 of 1955). "Public Distribution System" means the system for distribution of essential commodities to the ration card holders through the fair price shops such as rice, wheat, sugar, edible oils, kerosene and other such commodities as are notified by the Central Govt. under clause(a) of section 2 of the Act. "Antyodaya families" Below Poverty Line (BPL) families identified by the State Governments and entitled to receive food grains under the Antyodaya Anna Yojana. "Above Poverty Line Families" means those families who have been issued Above Poverty Line (APL) ration cards by the State Governments for issue of food grains under the Public Distribution System. "Below Poverty Line families" means those families who have been identified by the State Government for issue of food grains at specially subsidized rates

adopting the estimates of poverty given by the Central Government. The State Government shall issue distinctive ration cards to Above Poverty Line, Below Poverty Line and Antyodaya Families and shall conduct periodical review and checking of the ration cards.

The Central Government shall make available to the State Governments food grains for distribution under the public distribution system to various categories of beneficiaries at such scales and prices, as may be specified from time to time. The State Governments shall not divert the allocations made by the Central Government for distribution under the Public Distribution System.

The Municipal Solid Wastes (Management and Handling) Rules, 2000: Section 3 defines disposal of municipal solid wastes in terms of the specified measures to prevent contamination of ground water, surface water and ambient air quality. "Transportation" means conveyance of municipal solid wastes from place to place hygienically through specially designed transport systems so as to prevent foul odour, littering, unsightly conditions and accessibility to vectors. These rules apply to every municipal authority responsible for collection, segregation, storage, transportation, processing and disposal of municipal solid wastes.

The Air (Prevention and Control of Pollution) Act, 1981/1987: This Act provides for the prevention, control and abatement of air pollution. Chapter 1 defines "Air Pollution" as any solid, liquid or gaseous substance present in the atmosphere in such concentration as may be or tend to be injurious to human beings, living creatures, plants, property or environment.

The Water (Prevention and Control of Pollution) Act, 1974/1988: This Act provides for the prevention and control of water pollution and for maintaining or restoring the wholesomeness of water. Section 2 of the act defines pollution as contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to create a nuisance or render such water harmful or injurious to public health or safety or to domestic, commercial, industrial, agriculture or other legitimate uses, or to the life and health of animals, plants and aquatic organisms.

STATE LEVEL POLICIES / REGULATIONS

The State Agricultural Produce Marketing (Development & Regulation) Act, 2003: It's an Act to provide for improved regulation in marketing of agricultural produce, development of efficient marketing system, promotion of agri-processing and agricultural export and the establishment and proper administration of markets for agricultural produce in the State and where it is expedient to put in place an effective infrastructure for marketing of agricultural produce and lay down procedures and systems.

The Act defines "Agricultural Produce" as all produce and commodities, whether processed or unprocessed, of agriculture, horticulture, apiculture, sericulture, livestock and products of livestock, fleeces (raw wool) and skins of animals, forest produce etc. as are specified in the schedule or declared by the Government by notification from time to time and also includes a mixture of two or more than two such products. Subsequently a draft of model rules namely the State

Agricultural Produce Marketing (Development and Regulation) Rules, 2007 has been framed which states can adopt.

The Himachal Pradesh Panchayati Raj Act, 1994: An Act to consolidate, amend and replace the law relating to Panchayats with a view to ensure effective involvement of the Panchayati Raj Institutions in the local administration and developmental activities. The Gram Sabha shall perform the following function namely: mobilize voluntary labour and contribution in kind and cash for the Community Welfare Programs; identification of beneficiariesfortheimplementationofdevel opmentalschemespertaining to the village; rendering assistance in the implementation of developmental schemes pertaining to the village; approve plans, programs and budget, prepared by the Gram Panchayat, for economic development and social justice; and authorise, after being satisfied, issuance of utilization certificate of funds spent on the implementation of the plans, projects and programs of the Gram Panchayat.

The Agriculture and Industry Committee shall perform function relating to: agriculture production, animal husbandry, co- peration, contour bunding and reclamation; village and cottage industries; and promotion of industrial development of the district.

Department of Forests notification no. Van-A (F) 6-2/92, dated: Shimla-2, 20.9.2007: The said notification reconstituted The Himachal Pradesh State Land Use and Wasteland Development Board for a duration of 3 years. The notification defined the functions of the board shall be to assess the land resources of the State and the uses to which these resources can be put, to consider all matters relating to soil conservation and water logging and salinity, intensive use of irrigation areas, maintenance of soil fertility and expansion of organization, to lay down the policy for development and organizing the annual as well as periodical soil conservation and land management programs including matter like training of personnel and conduct of research, to provide a forum for bringing together various disciplines involved so as to involve integrated plans taking a sub watershed as unit, to control and direct investigation including establishment of demonstration watersheds, survey and planning and soil conservation and land management works, to examine periodically the progress of various results achieved to ensure proper implementation and give such directions as deemed fit, to provide a forum for sharing technical and administrative experiences which may be compiled and communicated to the public & field in the form of technical notes, bulletins, journals, publicity handouts and films, to examine and where necessary lay down standards and specifications of various types of works with a view to have sound and efficient planning and execution of the program, to examine from time to time the delegation of technical, administrative and financial powers in the Forest and Agriculture Departments for the efficient execution of the program, and to collect, compile and furnish statistics pertaining to program implemented in the state.

OTHER SUB-PROGRAMS/ STRATEGIES/PROJECTS

Rashtriya Krishi Bima Yojna (RKBY): The State Government has adopted this Scheme since 1999-2000 Rabi seasons. Crops covered are Wheat, Barley, Maize, Paddy and Potato. 50% subsidy in premium was allowed to small and marginal farmers on sunset basis. The

scheme is compulsory for loanee farmers and optional for non-loanee farmers. The scheme provides comprehensive risk insurance against yield losses viz. drought, hailstorm, floods and pests disease etc. The Agriculture Insurance Company of India (AICI) is implementing the scheme. The farmers of the State can get benefit out of this program. State and Government of India share the losses equally. The subsidy on premium has been raised from 10% to 50% to small and marginal farmers. From Kharif, 2008 season, Ginger crop of District Sirmour has also been taken up on Pilot basis for coverage under the Crop Insurance Scheme. Besides this, Tomato and Potato in Solan and Kangra/Una respectively have been covered under Weather Based Crop Insurance Scheme (WBCIS).

Rural Infrastructure Development Fund (RIDF): The Department of Agriculture is participating in RIDF for creation of irrigation potential through minor irrigation/Water Harvesting Structures. The Department got funds under RIDF-V during 1999-2000 where NABARD sanctioned 157 FIS amounting to Rs.14.85 crores which has created irrigation potential of 3,560 hectares. These schemes are being executed through Water Users Associations who will also maintain them after their completion. Under RIDF-VI, 140 flow irrigation schemes were posed to nABARD which have been sanctioned for Rs.11.37 crores covering an area of 3,031 hectares. Under RIDF-VII, 126 schemes worth Rs.7.84 crores have been sanctioned, which will create CCA of 2,395 hectares. Besides, 90 water harvesting projects have been sanctioned for Hamirpur, under RIDF-VII with cost of Rs.6.78 crores. Under RIDF-IX, 200 minor irrigation schemes amounting to Rs.8.32 crores have been executed creating CCA 7,161 hectares. Under RIDF-XII, 150 minor irrigation schemes amounting to Rs.9.01 crores have been executed creating CCA 1333.62 hectares during 2006-2007. During the year 2007-2008, an amount of Rs.9.58 crores has been incurred creating CCA 1821.71 hectares. During 2008-2009, an amount of Rs.12.00 crores has been incurred creating CCA 1104.22 hectares. During 2009-2010 an amount of Rs.7.50 crores has been proposed for minor irrigation/water harvesting projects.

National Rural Employment Guarantee Scheme: The national Rural Employment Guarantee Act was notified by the Government of India on September, 2005 and was made effective w.e.f. 2nd February 2006. The focus of the scheme is on the following works in their order of priority: Water Conservation and Water Harvesting works; drought proofing works (including afforestation and tree plantation); irrigation canals including micro and minor irrigation works; provision of irrigation facility, horticulture plantation and land development facilities on land owned by the households belonging to the Scheduled Caste and Scheduled Tribes or to below poverty line families or to beneficiaries of land reforms or to the beneficiaries under the Indira Awas Yojana of the Government of India; Renovation of traditional water bodies including desiliting of tanks; land developments work; flood control and protection works including drainage in water logged areas; rural connectivity to provide all-weather access. Till September 2010, about 422 works have been completed while12310 works are in progress in water conservation and water harvesting structure about 234 works have been completed and 3842 are in progress for renovation of traditional water bodies, 16 works have been completed and 751 are in progress for drought proofing; 218 works have been completed and 9650 works are in progress in the area of

irrigation canals; 70 works have been completed and 118 works are in progress for providing irrigation facilities to SC/ST/IAY/LY; and 367 works have been completed while 6840 works are in progress for land development.

Pandit Deen Dayal Kisan Bagwan Samridhi Yojna: The Department of Agriculture has launched Pt. Deen Dayal Kisan Bagwan Samiridhi Yojna with the assistance of NABARD under RIDF-XIV tranche. The project is being implemented in all the districts of the State with an outlay of Rs.353.01 crores. This project comprises two parts i.e. Production of cash crops through adoption of precision farming practices through poly house cultivation for Rs.154.92 crores and Project on Diversification of Agriculture through Micro-Irrigation and other related infrastructure for Rs.198.08 crores. The detailed guidelines are available in the web site. For poly house and micro irrigation, 80% subsidy is available, whereas, for creation of water source 50% subsidy is available. This project has been launched in January, 2009 and the project period is 4 years.

Diversification of crops: Government of Himachal Pradesh has prepared a Rs. 372 crores scheme to promote diversification of crops, with special focus on organic farming and water harvesting so as to increase farm incomes. This has been taken up with the Government of India for funding this scheme through Japan International Cooperation Agency (JICA). This scheme has been included by the Government of India in the Rolling Plan and the implementation is likely to begin in 2010-11.

Special Subsidy Scheme: The horticulture production units require huge investment for the installation at initial stages and further maintenance. It is therefore, proposed to provide assistance in the form of subsidy to the fruit growers to encourage them to take to horticulture and its ancillary activities for their self employment and to generate income.

Subsidy for the development of individual orchards: Under this scheme, subsidy on various inputs for the establishment and maintenance of orchards like fruit plants, fencing, irrigation material, horticultural tools and implements, micro-nutrients etc. are available to an individual fruit grower belonging to small and marginal and other weaker sections of farmers' community to the maximum of Rs. 3000 per farmer.

Subsidy for the development of garden colonies: The garden colony is the concept of developing fruit plantation by more than six farmers in a compact area under a common fencing and common infrastructural facilities like farm machinery and irrigation facilities. Such a program will help in the reduction of cost on the management of orchards. The total area of the garden colony should not be less than 5 acres. The following incentives are available to the small and marginal and weaker section of farmers' community for the establishment of garden colony.

Transportation subsidy on various horticultural inputs up to village extension: Under this scheme, it is proposed to provide 100% subsidy on transportation of horticultural inputs up to village extension circle level so as to ensure timely supply of horticulture inputs to the fruit growers on reasonable rates for the scientific management of their orchards.

Development program of Beekeeping: Beekeeping has a predominant role to play in pollination, honey production and wax production. Pollination benefits can be evaluated at higher level as compared to

the byproduct produced by the bees. To take honey production the bee colonies have to be migrated depending upon the availability of the flora. Bee breeding aspect has to be also taken care of for providing quality bees to the novice beekeepers. Assistance @ 50% of the cost or Rs. 250/- per colony and @ 50% of cost of Bee hives/ equipment or Rs. 350/- per set, whichever is less is being made available under this Program.

Entrepreneurial Development Program for Women Farmers: Women are inextricably involved in horticulture activities in Himachal Pradesh. There is a need that these women be organized by making self-help groups and provide them training in different horticulture activities. They should be empowered and be involved in decision making at the household level. The assistance being provided under this Program is as follows:

@ Rs. 10,000 per district for conducting Base line survey.
@ Rs. 20,000 per district for the development of curriculum.
@ Rs. 10,000 per district for conducting refresher training of facilitators.
@ Rs. 1,000/- per woman farmer for training of 5-day duration.
@ Rs. 5,000/- for the formation of self help group.

Development program of Floriculture: The main object of this program in the district is to earn more income in lesser time span by harnessing diverse agro climatic potentials for the year around production of flower bulbs, seeds, live plants, dry flower etc. The department is providing a subsidy at 50% on the cost of planting material and other inputs subject to the maximum of Rs.20,000 bulb crops, Rs.50,000 grafted/cutting crops, Rs.4,000 seeds crops of 0.2 hectare respectively. Two flower nurseries are located at Bhatoon and Dharamshala which provide input to the growers.

Development program of Mushroom: The main objective under this program is to enhance the production of Mushroom by exploitation of agro climatic potential for providing self employment. The Mushroom Development Program is mainly directed towards improving economic conditions of the farmers. Project Co-ordinator Mushroom and two Horticulture Development officers along with technical staff are posted to popularise the cultivation of mushroom in the district.

Horticulture Program: Back-ended capital investment subsidy @ not exceeding 20% of the total project cost with a maximum limit of Rs.25 lakhs per project shall be provided under the scheme to these projects which are found technically and financially viable. However, for the north-Eastern/Tribal/Hilly Areas, maximum limit of subsidy would be Rs.30.00 lakh per project.

Farmers Trainings and Education: The Horticulture department runs two training centers, one at, Mashobra, District, Shimla and other at Sundernagar, District Mandi. Besides this, farmers training camps are organized at Village, Block and District levels.

Horticulture Development Schemes under 11th Five Year Plan:

Development of olive: The activities of the project being carried out under the state plan funds. The olive development work in the state will be undertaken under this scheme during the 11th Five Year Plan with the following objectives:

1. Introduction of improved olive varieties from abroad and

multiplication of planting material of outstanding olive varieties in glass houses set up at Bajaura and Chamba for supply to the fruit growers.
2. Planting of demonstration plots in the fields of the farmers in various districts/locations to evaluate the performance of different olive varieties at different locations.
3. To provide extension services to olive growers so as to acquaint them with the improved techniques of olive cultivation.
4. To organize training to olive growers in various operations in olive production.
5. Training of field staff in the propagation of olive planting material.
6. To intensify the drive to popularize the olive cultivation in mid hill areas of the state.

Development of Mango/Litchi in Lower Hill Areas: Increase the mango and litchi production by bringing more and more area under these crops in lower hill areas for economic upliftment of rural population; increasing the production of planting material of mango and litchi in departmental and private orchards and fruit nurseries; to demonstrate the technology in plantation and maintenance of litchi orchards; to demonstrate the technology "In Situ" plantation of mango and to create employment generation through large-scale plantation of these fruit crops in rural areas. Generally fruit plantations are raised by planting seedlings or grafted plants in the properly spaced pits. Under normal plantation program, planting material is first pits.

Development of Strawberry and other Small Fruits: So far not much attention has been paid towards the promotion of cultivation of small fruits like strawberry, raspberry, blueberry, currants etc. The small fruit has utilization in processing industries for the manufacture of high quality fruit products as well as demand in fresh market. But these fruits are highly perishable, so the cultivation of these fruits will preferably be encouraged in the areas surrounding the processing industries in the state. The cultivation of these fruits is also encouraged in the orchards as inter crops to supplement the income of fruit growers in case of failure of the main crops. It is proposed to establish 1-2 demonstration orchards-cum- nurseries for the collection of improved germplasm of strawberry and other small fruits and propagation of planting material of these fruit crops for supply to the fruit growers.

Horticulture Information Services: Himachal Pradesh, where the farming population is inhabited in far flung and difficult areas and the marketing centers for the state horticultural products are also located all over the country. Taking these factors into consideration, the horticultural information and publicity services need to be properly strengthened, to be able to serve the ever increasing needs of the orchardists of the state through:

1. Publication of farm bulletins, pamphlets, posters, handouts, newsletters, monthly magazines, farming guide and horticultural calendars.
2. Issue of press notes, farm features and special supplements on various aspects of horticultural development for publication in the newspapers and periodicals.
3. Publicity thorough Radio and Television by supplying scripts and recorded tapes of features, talks and timely limits to the orchardists.
4. Setting up of State and Regional Horticultural Museum.

5. Organization of farmers' fairs, horticultural shows, exhibition and horticultural production competitions.
6. Preparation of films and videotapes on horticultural subjects
7. Publishing the horticultural products of the state through advertisements, hoardings, radio, television, slides and publicity brochures etc.
8. Establishment and maintenance of departmental libraries at directorate and district level.
9. Provision of modern equipments required for preparing publicity materials and other teaching aids etc.

This scheme has four Mini Missions:

Mini Mission I: Mini Mission-I aims to provide technological support by way of providing information on practices, nucleus planting material and skill upgradation for adoption of technology. This Mini Mission is the major link for inflow of improved technologies. Support under this mission is limited to identified gaps in technologies, which may hamper the progress of the mission. The Department of Agriculture Cooperation will allocate and release funds directly to the ICAR/MM I nodal officer. Nodal officer of the Mini Mission-I for Himachal Pradesh is the Director, Central Potato Research Institute, Shimla, who prepares an action plan for the year and submits to TM Cell for allocation of funds.

Mini Mission II: Assistance Provided Under Various Components of Horticulture Technology Mission, MM II

Component	Assistance
A. AREA EXPANSION	
Fruits	
Perennial (orange, lime, lemon, mango, guava, litchi, pomegranate, apple, passion fruit, kiwi, walnut, cherry, pear, peach, etc.)	Rs. 22,500/- per ha (limited to Rs. 90,000 for 4 ha. per beneficiary)
	Assistance spread over 3 years
	1st Year: 50% , i.e. Rs. 11,500/-
	2nd Year: 20% subject to 75% plant survival, i.e. Rs. 4,400/-
	3rd Year: 30% subject to 90% plant survival i.e. Rs. 6,600/-
Non Perennial (Banana, pineapple, strawberry and papaya)	Rs. 15,000/- per ha (limited to Rs. 60,000 for 4 ha. per beneficiary)
	Assistance spread over 3 years
	1st Year: 50%, i.e. Rs. 7,500/-
	2nd Year: 20% subject to 75% plant survival i.e. Rs. 3,000/-
	3rd Year: 30% subject to 90% plant survival, i.e. Rs. 4500/-.
Rejuvenation of senile plantations	Rs. 15,000/- per ha (limited to Rs. 30,000 for 2 ha. per beneficiary)
Vegetables	Rs. 13,000/- per ha for improved cultivars; Assistance for seed varieties should not exceed Rs. 4,000.
Spices	Rs. 13,000/- per ha for improved cultivars.
Medicinal Plants	Rs. 13,000/- per ha for improved cultivars.
Aromatic Plants	Rs. 5,000/- per ha for improved cultivars.
Floriculture	Rs. 13,000/- per 0.2 ha.
B. CREATION OF WATER SOURCES	
Water Storage Tanks	Rs. 1 lakh for providing irrigation to 1 ha area (300 cu.

Component	Assistance
	m. / 3 lakhs litre capacity), subject to a maximum limit of Rs. 10 lakhs per tank for irrigating command area of 10 ha.
Water streams/rivulet bunds	Subject to a maximum limit of Rs. 10 lakhs per tank for irrigating command area of 10 has.
Tube well/bore well	Rs.12, 500/- per unit to be set up by individual farmer or by the community.
C. ON FARM WATER MANAGEMENT	
Drip Irrigation	Rs. 28,500/- per ha.
Sprinkler Irrigation	Rs. 15,000/- per ha for small, marginal, SC, ST and women farmers and 33% of the cost subject to a maximum of Rs. 10,000/- per ha for other category farmers.
Plastic Mulching	Rs. 7000 per ha
Greenhouse	Rs. 3,25,000/- for hi-tech and Rs. 1,25,000/- for normal greenhouses for covering 1000 sq. m.
Low Tunnels	Rs. 5 per sq. m. subject to a maximum ceiling of 1 ha/ Rs. 50,000/-
Shade net Houses	Rs. 14 per sq. m. subject to a maximum of 500 sq. m./ Rs. 7,000/-
Anti hail nets	Rs. 500 per tree subject to a maximum of Rs. 25,000 per beneficiary
Bird Protection nets	Rs. 2,000 per ha subject to a maximum area of 1 ha
D. ON-FARM HANDLING UNIT	
Grading/ Packing Houses	Rs. 50,000 per beneficiary
E. PRODUCTION OF PLANTING MATERIAL	
Integrated Multi Crop nurseries	
Private Sector	Rs. 8 lakhs
Minimum area of 2 has producing a minimum of 5 lakhs plants per year	
Private Sector	Rs. 3 lakhs
Minimum production capacity of 3 lakhs plants per year	
Tissue Culture Units	
Private Sector	Rs. 10 lakhs
Minimum production capacity of 15 lakhs plants per year	
Progeny and Herbal Gardens	
Private Sector	Rs. 1.50 lakhs
F. TRANSFER OF TECHNOLOGY	
Training of farmers within the State	Rs. 1500 per farmer/ 7 days
Training of farmers outside the State	Rs. 2500 per farmer/ 7days (Minimum duration of 7 days)
G. POPULARIZATION OF ORGANIC FARMING AND USE OF BIO-FERTILIZERS	
Promotion of organic farming	Rs. 10,000 per ha for adoption of organic farming
organic Certification	@ 90% of the cost subject to Rs 5 lakhs per year for group of farmers after adoption of organic farming for continuous 3 years.
Vermi Compost Units	Rs. 15000/- per unit Concrete structure of 30m length; 8m width and 2½m height.2½m height and should be covered with a raised roof and unit to be divided into 12 rows of 2½m each

Promotion and Popularization of Agricultural Equipments

(Secateurs, saws, sprayers, pumps, tiller, etc.)

Manually operated	Rs. 1,500/- per beneficiary
Power operated	Rs. 5,000/- per beneficiary
Power Tillers	Rs. 45,000/- per beneficiary
Diesel Engine	Rs. 9,000/- per beneficiary
Training of farmers	Rs. 1,000/- per farmer
I. Promotion of Integrated Pest Management	
Promotion of Bio-pesticides	Rs. 1000 per hectare

Bio Control Laboratory (for raising natural predators, parasites and viruses for the biological control of pests having economic importance for horticultural crops)

Private Sector	Rs. 40 lakhs

Establishment of Plant Health Clinic (for diagnosis of diseases and assist in quality management of horticulture crops)

Private Sector	Rs. 5 lakhs

Establishment of Tissue/Leaf Analysis Laboratories (for determination of nutrient status and their availability for accurate recommendation of nutrient application to the horticulture crops)

Private Sector	Rs. 5 lakhs
L. BEEKEEPING	
	Rs. 800/- per colony with beehive. Cost inclusive of the bee colonies, beehives and equipments.
M. ENTREPRENEURIAL DEVELOPMENT Of WOMEN FARMERS	
Self Help Group of women farmers	Rs. 5000 per group
Training of farm women	Rs. 1000 per farmer for 5 days training

Mini Mission III: This Mini Mission aims to create infrastructural facilities for post harvest management, marketing and export. For this purpose, existing schemes of the nHB, DMI, nCDC, APEDA, nAFED etc., either with the existing outlays or with enhanced outlays are implemented. The existing approved schemes of national Horticulture Board (nHB) with additional outlays as required will be implemented to give focus.
Source: http://; Department of Horticulture; Himachal Pradesh/hpagrisnet.gov.in

Schemes of national Horticulture Board (nHB): Scheme-I Development of Commercial Horticulture through Production and Post Harvest Management. Scheme-II Capital Investment Subsidy for Construction/ Expansion / Modernization of Cold storages/storages of Horticulture Produce (1999-2002). Scheme-III Technology Development and Transfer. Scheme-IV Establishment of nutritional Gardens in Rural Areas. Scheme-V Market Information Service for Horticulture Crops. Scheme-VI Horticulture Promotion Service. These are proposal based schemes, the details of which must be obtained from national Horticulture Board and the proposals must be submitted on the prescribed format of the Board.

Mode of Release of funds: State Government to submit proposals relating to Post harvest management and commercial horticulture as per the schemes of NHB to MD, NHB. Proposals will be approved by the Project

Approval Committee Funds will be released by NHB directly.

Department of Agriculture Cooperation will release funds to NHB: Similarly proposals relating to NCDC, NAFED and APEDA shall be submitted directly to respective organizations who in turn will release the funds.
Source: http:// ; Department of Horticulture; Himachal Pradesh/hpagrisnet.gov.in

Considering the gap, new components have been proposed in marketing.

A. POST HARVEST MANAGEMENT	
1. Controlled Atmospheric (CA) Storage	Credit linked back ended subsidy @ 33.33% of the project cost of Rs. 16.00 crores/ unit.
2. Cold Storage	Credit linked back-ended subsidy @ 33.33% of the project cost of Rs. 2.00 crores /unit.
B. MARKETING*	
Establishment of Marketing Infrastructure	Credit linked back ended subsidy @ 33.33% of the project cost of Rs. 100.00 crores.

* The proposals relating to development of Wholesale Markets, Rural Primary Markets, Apni Mandis and State Grading Laboratories are required to be submitted in prescribed Performa to Directorate of Marketing Intelligence, Department of Agriculture & Cooperation, GoI, New Delhi.

NCDC has got its own budget to assist cooperative societies for marketing of horticulture products. However, if additional funds are required, NCDC will submit a proposal to DAC.

Assistance under all schemes of APEDA particularly for freight subsidy and for packaging development can be availed as per the existing guidelines of APEDA schemes.

Mini Mission-IV: This Mini Mission will be implemented by Ministry of Food Processing Industries. The different components of the mission are given below.

Name of Component	% of cost	Rate of assistance	Eligible agencies
1. Promotion of new units	50%	Rs. 4 crores and promoter's share should not be less than 20%	PSUs, joint/assisted sector/nGos/ Cooperatives.
2. Upgradation expansion of existing units	50%	50% of capital cost-Max. Rs. 1 crore	-do-
3. Promotional activities for conducting studies, surveys and entrepreneurship development etc.		As per the need Project based to be approved by Committee	Govt. academic bodies, nGos and associations.

These programs should be credit-linked through Banks / NABARD / IDBI / State Financial Corporations/ NERAMAC. In case of additional requirements by MFPI, funds will be provided by the Horticulture Technology Mission. The schemes of MFPI would be implemented as credit linked back ended subsidy through financial institutions/ scheduled banks.

Mode of release of funds and submission of proposals: State governments to submit

proposals as per their needs on the above components to MFPI.

The proposal should have the approval of the State Level Steering Committee. The Horticulture/nodal officer should be aware of the things.

After approval of the project by State level committee, the Project Approval Committee of MFPI will further approve the projects and recommend release of funds to SFAC.

Organization structure and Implementation: The scheme will be implemented through Small Farmer's Agri-business Consortium (SFAC) except programs of ICAR, NHB, APEDA and NCDC.

Horticulture Development Scheme:

Services: (a) Supply of Fruit Plants and elite plant material from registered

Govt. and Private nurseries; (b) Supply of horticulture inputs; (c) Establishment of new orchard (Individually or as Garden colony).

Incentives and Subsidy: (a) Establishment of individual orchard: 50% to SC/ST/IRDP, 25% to Small farmers, 33.33% to & Marginal farmers maximum limit-Rs. 3000; (b) Establishment of garden colony: Combined Fencing, Plant Protection equipments, Irrigation facility-75% to SC, 50% to Small/marginal and backward area farmer Land development, Plantation, other orchard management operations: 50% to SC and backward area farmer, 25% to small farmer, 33.3% to marginal farmer and nil to other farmers. Maximum limit - Rs.18000 (for 2 ha.), Rs. 36000 (for 4 ha.).

Plant Protection Services: (a) Supply of pesticides and plant protection equipments; (b) Release of bio agents in farmers.

Horticulture Farms & nurseries Services: (a) Serve as Model demonstration centers for modern horticulture technology; (b) Production of elite plant material at Government registered nurseries.

Incentives and Subsidy: Free Demonstration:

Horticulture Training & Extension Service Services: (a) Training of Farmers through short term training camps and training courses; (b) Exposure visits of farmers within and outside the state; (c) organisation of seminars and workshops.

Incentives and Subsidy: (a) 1 day village level trainings- Rs.45.75+5.00 per day per farmer; (b) 2 day block/distt. Level trainings- Rs.45.75+5.00 per day per farmer; (c) 10 day study tour within state- Rs.45.75+5.00 per day per farmer +Free travel and lodging; (d) 15 day study tour outside the state- Rs.45.75+5.00 per day per farmer +Free travel +lodging restricted to Rs. 50 per day.

Fruit Processing Program Services: (a) Community Canning Service; (b) Processing of fruits and vegetables.

Incentives and Subsidy: (a) 2 days training in home scale preservation of Fruits and vegetables; (b) Processing of fruit products under community canning service on nominal rates; (c) 2 day practical training in home scale preservation of fruits and vegetables - Rs.45.75+5.00 per day per farmer.

Marketing & Quality Program Services: (a) Survey of Markets under market intelligence scheme; (b) 2 days training in

post harvest management/ picking, grading and packing of fruits; (c) Procurement of Fair average quality fruit (Apple, Citrus and Mango) under market intervention scheme.

Incentives and Subsidy: (a) Procurement of fair average quality fruit (Apple, Citrus and Mango) under market intervention scheme at minimum support price fixed by the Government from year to year; (b) 2 days training in post harvest management/ picking, grading and packing of fruits-Rs.45.75+5.00 per day per farmer.
Source: http://; Department of Horticulture; Himachal Pradesh/hpagrisnet.gov.in

Market Intervention Scheme (MIS): The Government of Himachal Pradesh has introduced the policy of Market Intervention Scheme (MIS) for the procurement of Mango, Apple and Citrus Fruits in the State. In order to implement the Market Intervention Scheme of the State Government, the HPMC, being the premier fruit marketing agency, procures the unmarketable fruits which are processed under most hygienic conditions in its Processing Plants. The efforts made by the Corporation have resulted in stabilizing the prices of the fruits in the market. Apart from fruits procured under MIS, HPMC also procures other fruits like peach, pear, plum, litchi, almonds, strawberry, kiwi etc. grown in the State, for marketing and processing to increase the capacity utilisation of the Plants and to assist the farmers of the State in getting remunerative returns for their produce.

Antyodaya Anna Yojna: Antyodaya Anna Yojna has been launched by the Hon'ble Prime Minister of India on the 25th December, 2000. This scheme reflects the commitment of the Government of India to ensure food security for all, create a hunger free India in the next five years and to reform and improve the Public Distribution System so as to serve the poorest of the poor in rural and urban areas. It is for the poorest of the poor that the Antyodya Anna Yojna has been conserved. It is estimated that 5% of the population is unable to get two square meals a day on a sub stained basis throughout the year. Their purchasing power is so low that they are not in a position to buy food grains around the year even at BPL rates. It is this 5% of population (5 crores of people or 1 crore families) which constitutes the target group of Antyodaya Anna Yojna.

Antyodaya Anna Yojana contemplates identification of one crore families out of the number of BPL families who would be provided food grains at the rate of 35 Kg per family per month. The food grains will be issued by the Government of India @ Rs.2/- per Kg for wheat and Rs. 3/- per Kg for rice. The Government of India suggests that in view of abject poverty of this group of beneficiaries, the State Government may ensure that the end retail price is retained at Rs.2/-per Kg for wheat and Rs.3/- per Kg. for rice.

The most crucial element for ensuring the success of Antyodaya Anna Yojana is the correct identification of Antyodaya families. It is estimated that there are 6.52 crore families below poverty line in the country as on 01-03-2000.These families are being provided food grains under the TPDS at highly subsidised rates. One crore Antyodaya families would constitute about 15.33% of the BPL families in the country. The identification of these families will have to be carried out by the State Government/UT administrations, from amongst the number of BPL families within the state.

Annapurna Scheme: The Annapurna scheme aims at providing food security to

meet the requirement of those senior citizens who though eligible have remained uncovered under the national old Age Pension Scheme (NOAPS). Under the Annapurna Scheme, 10 Kg. of food grains per month are to be provided 'free of cost' to the beneficiary. The number of persons to be benefited from the scheme will, in the first instance, be 20% of the persons eligible to receive pension under noAPS in States/Union Territories.

The national old Age Pension Scheme (noAPS), launched in 1995, seeks to provide pension @ Rs. 75 per month to 68.81 lakh destitutes aged 65 years and above. Thus, 20% of 68.81 lakh would imply that 13.762 lakh beneficiaries would be eligible for coverage under the Annapurna Scheme. These beneficiaries are proposed to be covered in a phased manner depending on the availability of funds and the performance of the State authorities. The State Governments are required to distribute the allocation between districts, based on the ground situation in real terms. The identification of Beneficiaries will be a necessary first step and State Government should initiate immediate action in this behalf.

Central assistance under Annapurna Scheme will be provided to the beneficiaries fulfilling the criteria: a) The age of the applicant (male or Female) should be 65 years or above; b) The applicant must be "destitute" in the sense of having little or no regular means of subsistence from his/her own source of income or through financial support from family members or other sources. In order to determine destitution, the criteria (if any) currently in force in the State/UTs could also be followed; c) The applicant should not be in receipt of pension under the noAPS or State Pension Scheme; d) As mentioned above, the beneficiary would be entitled for 10 Kgs of food grains (wheat or rice) per month free of cost.

The Department of Public Distribution, Union Ministry of Consumer Affairs and public distribution will ensure the supply of required quantities of prescribed quality food grains from the go downs of the Food Corporation of India (FCI) to the agency designated by the State Government. At the State level, the State Department of Public Distribution (Departments of Food, Civil Supplies and Consumer Affairs) and at the District level, the Collector/District Magistrate/ Chief Executive officer, Zila Panchayat will be squarely responsible for the implementation of the scheme. The state Food, Civil Supplies and Consumer Affairs Department will purchase the food grains from the Food Corporation of India on payment of an economic cost and will ensure that the FCI supplies the food grains to the district as per district-wise allocation decided by the state within the overall allocation of the State concerned. The Collector/CEO, through the District officers of the State Food, Civil Supplies and Consumer Affairs Department will be responsible for ensuring the availability of food grains at the District level and for distributing the same through the network of Fair Price Shops under the Targeted Public Distribution System (TPDS). The Collector / CEO will make arrangement for the distribution of food grains and issue the Entitlement Cards through the Panchayat/Municipalities and ensure that the beneficiaries covered under Annapurna are not receiving any old age pensions.

The Gram Panchayat would be required to identify, prepare and display list of persons eligible to receive benefits under the Annapurna Scheme, after giving wide

publicity to the Scheme. They will ensure that beneficiaries under Annapurna are not already receiving any old age pensions. The Panchayat will also be responsible for the distribution of the Entitlement Card to beneficiaries, the dissemination of information about the Scheme and the procedure for securing benefits under the same.

The Municipalities will be responsible for the above activities in the implementation of the Scheme in their respective areas. The State Government would communicate the targets for "Annapurna" to the panchayat / municipalities for identification of the beneficiaries.

Chapter 3: Environmental and Social Issues of Sectors

3.1 Education & Vocational Training

Inadequacy of environmental science / engineering as main subjects at secondary and tertiary level: The state has inadequate education in environmental science/engineering at bachelor's and master's level. Non equivalence of existing degree/diploma in the environmental science/engineering domain has direct repercussions on the absorption/ employability in the state and outside. Further, the specific courses in the domain of environment science and environment management are not adequate. The employment opportunities and potential after completion of existing courses is also not being fully utilized and/or not available in the state. Development of specialized courses in the specific subject areas for instance, energy conservation will assist in the development of state's capacity both in the area of environment and climate change and also improve employability of the graduates and post graduates with knowledge of specific subject areas both within and outside the state

Inadequacy of coverage on environment as a major subject at secondary, tertiary/technical education curriculum at state level: Besides, trainings/ short term courses as per requirement of Industries/ULBs/other stakeholders, for instance on effluent treatment (operation and maintenance), waste management etc. is inadequate.

Inadequacy of trained teachers/staff for environmental education in the state at primary, secondary and tertiary levels: Himachal Pradesh does not have dedicated environmental science/engineering faculty as a subject area both at secondary level. There is dearth of trained teachers/ staff related to the subject area because of inadequacy of courses in environment education at degree/diploma levels.

Inadequacy of funding for environmental education infrastructure: Funding for vocational education in India is mainly focused on the public system. Besides, inadequate transparency with regard to available funding exacerbates this issue. The allocation of funds to organisations is not currently performance based, and as such no incentives exist for the improvement of quality in public training or to encourage enterprises to train their staff. Also, there is inadequate support from the business and industries' groups in the state to support environment education and related infrastructure.

Though high end industries, universities and HPPCB have laboratory infrastructure, education institutions in the state have inadequate infrastructure for environmental education.

Inadequacy of awareness/capacity and training for new/emerging environmental issues e.g. waste from ICT/IT sector, climate change mitigation and adaptation:

Major issues in vocational training e.g. upgradation to address environmental issues: The major issues identified by the various commissions and groups, which require early attention are:

- Mismatch between skills requirement between world of work and those produced by the national Vocational Training System e.g. emerging areas on cleaner technologies/cleaner production.
- Requirements of modern high-tech industries and services sectors are not properly taken care of.
- Inadequate involvement of stakeholders in the design and implementation of training programs.

Inadequacy of funds for upgradation of vocational training/secondary and tertiary education institutions: Inadequacy of funds to upgrade its diploma and engineering colleges is one of the major constraints to impart/ upgrade environmental education system.

Inadequate Research and Development linking environment and industries: Research at Post graduate and Doctoral and Post Doctoral studies is not being adequately taken up.

Education and vocational training sector and cross sector policy & regulatory framework at state level shows the intent of State Government to address inadequate service delivery and quality in order to reduce demand & supply gap and increase capacity of the state for initiating environmentally mainstreamed sustainable growth. Mapping issues, policy and program framework is described in Box 1.

Box 1: Policies mapped with the issues in Education and Vocational Training Sector

Issues	Policy/ programs
1. Inadequacy of environmental science/ engineering main subject at secondary and tertiary level, inadequate no. of specific courses in the domain of environment sciences and environment management and inadequate employment opportunity after completion of existing courses.	⇒ National Policy on Educational 1986 ⇒ National Policy on Education 1968 ⇒ National Institutes of Technology Act 2007 ⇒ The all India Council for Technical Education Act 1987 ⇒ Apprenticeship Act 1972 ⇒ The Apprentices Act, 1961 ⇒ SSA / MSS / BBS / CSC / IEDC / IRDP / CTS / ATS Schemes
2. Inadequacy of coverage on environment as a major subject at secondary, tertiary/technical education curriculum at state level. Further, inadequate trainings/short term specific courses catering to the needs of industries/govt. organisations business exacerbate the issue.	⇒ National Policy on Education 1986 ⇒ National Policy on Education 1968 ⇒ The Himachal Pradesh Private Educational Institutions (Regulation) Act, 1997
3. Inadequacy of trained teachers/staff for environmental education in the state at primary, secondary and tertiary levels.	⇒ National Policy on Education 1986 ⇒ National Policy on Education 1968 ⇒ National Institutes of Technology Act 2007 ⇒ The all India Council for Technical Education Act 1987 ⇒ Apprenticeship Act 1972 ⇒ Apprentices Act, 1961

Issues	Policy/ programs
4. Inadequacy of Funding for environmental education infrastructure.	⇒ National Policy on Education 1986 ⇒ National Policy on Education 1968 ⇒ The Himachal Pradesh Private Educational Institutions (Regulation) Act, 1997
5. Inadequacy of awareness/capacity and training for new/emerging environmental issues e.g. waste from ICT/IT sector, climate change mitigation and adaptation	⇒ The Environment (Protection) Act, 1986 ⇒ E-Waste (Management and Handling) Rules, 2011 ⇒ Hazardous Wastes (Management, Handling) Rules, 1989 ⇒ The Air (Prevention and Control of Pollution) Act 1981/The Hazardous Wastes (Management, Handling & Tran boundary Movement) Rules, 2008 ⇒ National Action Plan on Climate Change
6. Major Issues in Vocational Training e.g. upgradation to address environmental issues	⇒ Apprentices Act, 1972 ⇒ Apprenticeship Act, 1961 ⇒ National Policy on Information and Communication Technology (ICT) In School Education
7. Inadequacy of funds for upgradation of vocational training/secondary and tertiary education institutions	⇒ National Policy on Education 1986 ⇒ National Policy on Education 1968 ⇒ National Institutes of Technology Act 2007 ⇒ The all India Council for Technical Education Act 1987 ⇒ Apprenticeship Act 1972 ⇒ Apprentices Act, 1961 ⇒ SSA / MSS / BBS / CSC / IEDC / IRDP / CTS / ATS Schemes
8. Inadequate Research and Development linking environment and industries at Post graduate and Doctoral and Post Doctoral studies	⇒ The University Grants Commission Act, 1956 ⇒ National Policy on Education 1968 ⇒ National Policy on Education 1986 ⇒ All India Council for Technical Education Act, 1987 ⇒ National Institutes of Technology Act, 2007

The above identification & analysis of issues has been summarized in Table 1.

Table 1: Issues, Causes and Impacts

Issues	Causes	Impacts/Risks
1. Inadequacy of environmental science/engineering main subject at secondary and tertiary level, inadequate number of specific courses in the domain of environment sciences and environment management and inadequate employment opportunity after completion of existing courses.	- Inadequacy of awareness/ understanding to mainstreaming of environmental education in secondary and tertiary education.	- Inadequacy of mainstreaming of environmental safeguards in development - Unable to inculcate moral values & environmental ethics among youth.
2. Inadequacy of coverage on environment as a major subject at secondary, tertiary/technical education curriculum at state level. Further, inadequate trainings/short term specific courses catering to the needs of industries / business exacerbate the issue.	- Subject coverage distributed or non-existent.	- Inadequacy of capacity to address environmental pollution - Low sensitivity among youth towards environment & consequences of their actions.
3. Inadequacy of trained	- Non availability storage	- Inadequate of capacity to

Issues	Causes	Impacts/Risks
teachers/staff for environmental education in the state at primary, secondary and tertiary levels.	of trained teachers staff for environmental education.	address environmental pollution - Incapable of creating a generation of youth who understand the need to protect the environment.
4. In adequate of Funding for environmental education infrastructure.	- More financial support needed to establish new / augment the capacity of existing education and vocational training institutes for imparting environmental education.	- Inadequacy of capacity to address environmental pollution - Inadequate availability of infrastructure & facility
5. Inadequate of awareness/capacity and training for new/emerging environmental issues e.g. waste from ICT/IT sector, climate change mitigation and adaptation.	- Limited skill / knowledge base.	- Inadequacy of plan, program, project policy to address new issues - In adequate to address growing local & global environmental concern
6. Major Issues in Vocational Training e.g. upgradation to address environmental issues.	a. Mismatch between skills requirement and skill imparted. b. Inadequacy of specific skill qualified people. c. In adequate involvement of stakeholders.	d. Impact on environmental services provided by education and vocational training
7. Inadequacy of funds for upgradation of vocational training/secondary and tertiary education institutions.	- More financial support needed to up grade diploma and engineering college / upgrade environmental education system.	- Impact on education and vocational training
8. Inadequate Research and Development linking environment and industries: Research at Postgraduate and Doctoral and Post Doctoral studies.	- Mismatch of Research and Development needs/ priorities of the Business and Industries groups with that of academic institutions and Research and Development activities being pursued in Himachal Pradesh. - Inadequate facility for Research work - Job insecurity concerns of Research students/ doctoral & port doctoral students resulting less number of students opting Research.	- Non mainstreaming of needs of business and industries groups with academic institutions

3.2 IT & Telecom

The long term impact of technology on the environment are both obvious and

subtle. The more obvious effects include the depletion of non renewable natural resources (such as petroleum, coal, ores), and the added pollution of air, water, and land. The more subtle effects include debates over long-term effects (e.g., global warming, deforestation, natural habitat destruction, wetland loss.)

Environmental and social issues

Generation of e-waste with increased penetration of ICT products: A study conducted by MAIT revealed that 3.3 lakh tonnes of e-waste was generated in 2007 and the figure was likely to touch 4.7 lakh tonnes by 2011. E-waste management will be a major issue with increased ICT penetration with highest tele-density in Himachal Pradesh. The e-waste inventory based on this obsolescence rate in India for the year 2005 has been estimated to be 146180.00 tonnes which is expected to exceed 8,00,000 tonnes by 2012. There is no large scale organized e-waste recycling facility in India and there are two small e-waste dismantling facilities which are functioning in Chennai and Bangalore, while most of the e-waste recycling units are operating in unorganized sectors.

Public health issues related to telecommunication: The effect of mobile phone radiation on human health is an issue of concern and a subject of research with the World Health organization, based upon the consensus view of the scientific and medical communities, has stated that cancer is unlikely to be caused by cellular phones or their base stations. However, adequate safeguards and radiation near all phone towers need to be monitored.

Occupational health risks due to informal sector (rag pickers/dismantlers/ recyclers) recycling of e-waste: Informal sector recycling consisting of usage of strong acids to retrieve precious metals such as gold poses a human health risk. Working in poorly-ventilated enclosed areas without masks and technical expertise results in exposure to dangerous and slow-poisoning chemicals. E-wastes are known to contain certain toxic constituents in their components such as lead, cadmium, mercury, polychlorinated bi-phenyls (PCBs), etched chemicals, and brominated flame retardants etc., which are required to be handled safely. The recycling practices were found more in informal sectors leading to uncontrolled release of toxic materials into the environment as a result of improper handling of such materials. It has been established that e-waste, in the absence of proper disposal, find their way to scrap dealers, which are further pushed into dismantler's supply chain. Existing environmentally sound recycling infrastructure in place is not equipped to handle the increasing amounts of e-waste. The major dismantling operations are occurring in unorganized/informal sector in hazardous manners. Recycling and proper disposal of growing e-waste will become a major challenge in the future.

Environmental, Land and Building related issues including of IT infrastructure development, IT Parks, Towers: For registered IT units within the declared Software Technology Park, IT habitats and Hi-tech city, relaxation of FAR to the extent of 50% of the prevailing norm is available. In other areas (not including core/banned/restricted/green areas), FAR relaxation up to the extent of 25% can be granted in individual cases subject to considerations relating to population densities, availability of infrastructure, local geology, etc. IT Software units are permitted to be set up in residential areas subject to load restrictions. Exemption from land and building tax is given to the land and buildings within the declared STP, IT habitats and Hi-tech cities.

Though relaxation is given to support IT infrastructure, availability of land or diversification of forest land is one of the major issues in the state. TCP is the authority empowered to relax FAR to the extent of 50% & 25% of the prevailing norms. TCP has prepared "Guidelines for development o Information Technology Park in Wakna ghat Planning Area", which have been approved by the State Government vide notification TCP-A (3)-2/2008 dated 22.05.09, wherein maximum FAR has been allowed as 1.7.5.

Development of Energy Intensive IT Infrastructure: Generally BPos, IT parks and other IT infrastructures are huge consumers of energy. Their extensive proliferation in the state offers potential of increasing demand during ban season in the state.

Lack of awareness about ICT equipment usage & disposal: Lack of awareness about negative impacts of usage and disposal of ICT equipment is one of the issues which can lead to their optimum utilization with increased lifecycle.

IT and telecom infrastructure sector and cross sector policy and regulatory framework at state level shows the intent of the State Government to address inadequate service delivery in order to reduce the burden in the state. A mapping of the issues and policy and program framework is described in Box 2.

Box 2: Policies mapped with the issues in IT & Telecom sector

Issues	Policy/Plan/Program
Generation of e- waste with increased growth penetration of ICT products.	- The Environment (Protection) Act, 1986 - Draft e-Waste (Management and Handling) Rules, 2011 - Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 1989 - The Air (Prevention and Control of Pollution) Act, 1981 - National Policy on Safety, Health and Environment at work place, 2010
Public health Issues related to telecommunication e.g. electro magnetic radiation	- The Environment (Protection) Act, 1986 - Draft e-Waste (Management and Handling) Rules, 2011 - Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 1989 - The Air (Prevention and Control of Pollution) Act, 1981 - National Policy on Safety, Healt hand Environment at work place, 2010
occupational health risks due to informal sector (rag pickers/ dismantlers/recyclers) recycling of e-waste	- The Environment (Protection) Act, 1986 - Draft e-Waste (Management and Handling) Rules, 2011 - Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 1989 - The Air (Prevention and Control of Pollution) Act, 1981 - National Policy on Safety, Health and Environment at work place, 2010 - The Factories Act, 1948
Environmental, Land and Building related issues including siting of IT infrastructure development e.g. IT parks, towers. in the residential areas,/ unauthorized establishment of	- National policy on Safety, Health and Environment at Work Place, 2010 - National Health Policy, 2002 - Telecom Policy, 1994 - New Telecom Policy, 1999 - Policy for Tele-Medicine - The TRAI Act, 1997

Issues	Policy/Plan/Program
telecom towers etc.	- The Indian Wireless Telegraphy Act, 1933 - The Indian Telegraph Act, 1885 - National Telecom Policy, 2012
Development of Energy Intensive IT Infrastructure as well as unauthorized usage of DG sets	- Energy Conservation Building Code - The Energy Conservation Act, 2001 - Guidelines for Energy Efficiency in BPOs
Lack of awareness about ICT equipment usage & disposal	- The Environment (Protection) Act, 1986 - E -Waste (Management and Handling) Rules, 2011 - Hazardous Wastes (Management, Handling & Transboundry Movement) Rules, 2008 - The Air (Prevention and Control of Pollution) Act, 1981 - National policy on Safety, Health and Environment at Work Place, 2010 - National Health Policy, 2002 - National Telecom Policy, 1994 - New Telecom Policy, 1999 - Policy for Tele-Medicine - The TRAI Act, 1997 - The Indian Wireless Telegraphy Act, 1933 - The Indian Telegraph Act, 1885 - Energy Conservation Building Code - The Energy Conservation Act, 2001 - Guidelines for Energy Efficiency in BPos - National Telecom Policy, 2012

Pressure on account of increasing gaps and slow implementation of policy, programs, plans and projects is leading to emergence of sector specific issues and risks/impacts. An analysis of the issues, causes and impacts has been carried out and summarized in Table 2.

Table 2: Issues, Causes and Impacts

Issues	Causes	Impacts/Risks
1. Generation of e- waste with increased growth penetration of ICT products.	- E-waste emerging due to high rate. - Lack of e-waste management programs - Lack of infrastructure for collection, treatment & disposal of e-waste	- Public health risks due to hazardous nature of e-waste - Loss of recoverable resources - Contamination of air, water & soil
2. Public health Issues related to telecommunication e.g. electromagnetic radiation	- Long term continuous use of cell phones, mobiles, bluetooth etc. - Lack of R & D - Lack of awareness among people regarding use of the telecommunication instruments - Lack of monitoring of radiation	- Public health risk - Possible impact due to long term exposure to EMI & Radiations
3. Occupational health risks due to informal sector (rag pickers/ dismantlers/ recyclers) recycling of e-waste	- Exposure to hazardous chemicals - Lack of awareness about harmful effects of in formal sector recycling - Lack of usage of safe/clean technology - Lack of proper implementation	- Public health risk due to emissions, e.g. exposure to hazardous chemicals. - Water, air & soil pollution

		of Rules/Polices	
4.	Environmental, Land and Building related issues including siting of IT infrastructure development e.g. IT parks, towers in the residential areas/unauthorized establishment of telecom towers etc.	- Inadequate capacity of IT infrastructure/ facilities including buildings & equipment - Non availability of land - Diversification of forest land	- Loss of forest land - Loss of flora & fauna
5.	5 Development of Energy Intensive IT Infrastructure as well as unauthorized usage of DG sets	- Higher consumption of electricity which could be saved - Poor implementation of existing laws	- Global warming due to usage of imported electricity from the grid during lean season
6.	6. Lack of awareness about ICT equipment usage & disposal	- Limited reach & extent of public awareness campaign - Lack of NGO / CSO/ CBOs participation	- High energy consumption - Waste generation - Public health risk

3.3 Livelihood

Depleting natural resource base leading to loss of livelihood: nearly 70-75% rain occurs during monsoons which flow as run-off without conservation. As a result, all areas without assured irrigation suffer from water stress & low productivity leading to loss of livelihood. Inundation of forest areas and inadequate of vegetation cover in catchment areas is increasing the problems of low productivity of soils as well as observation of natural water sources.

Progressive fragmentation of agricultural lands is leading to non- subsistence farming and an increase in unemployment. It has caused5% rise in unemployment during 1999 to 2003 and 105% increase from1990 taken as base year. This is driving away rural people to search for alternate occupations. Inheritance laws have promoted further fragmentation which is also responsible for migration of rural people in search of job to urban areas. Urbanization has resulted in increase in urban population from 6.99% in1971 to 8.69% in 1991 to 32.6% in 2001.

Unremunerative agriculture in certain areas leading to loss of livelihood: In Himachal Pradesh, the net cultivated area is only17.2% of the total area. Cultivation is mainly (80.9%) rain dependent. The size of holdings of less than one or one hectare covers 61.5% of the farming community. The small and marginal farmers put together account for 82.1% and cover an area of 43%. The medium farmers with holdings ranging from two hectares to ten hectares cover an area of 47.2%.Approximately 80% of all the holdings fall in the category of small and marginal farmers. The majority of people suffer from scarcity of resources and that too when about 80% of the total cultivated area is rain fed. Increase in fallow land is indicative of the people switching over to other means of livelihood. However, owing to introduction of poly-house technology, people are also reverting to agriculture.

Change in environmental conditions leading to loss of livelihood: The topography of the state is largely hills where cultivation is mainly done on terraces.
The cultivation in hills is subjected to soil erosions in crop cultivation is practiced on

5% to over 30% slopes. This also affects soil fertility status and changes in pH values as well. In the past, diversity in agriculture had been such that it fitted well in the prevailing agro-ecological conditions. For instance, cultivation of crops and varieties with good tolerance of drought conditions in the rainfed agriculture ensured minimum production levels. Truly these were low yielding but were tolerant to particular soil conditions, insect/pest incidences, diseases, epidemics and climatic adversities and thus were rarely complete crop failures. At present, high yielding varieties demand high input, better crop protection and good agronomic management to deliver in accordance with their potential .Moreover, some crops or varieties not finding favour with the changed life style of people have gone out of cultivation.

The abnormal pattern of rainfall over the past few years has caused great fluctuations in crop production and consequent price rise of food grains and vegetables in particular. This is manifested in fluctuation in yields and consumer price.

The modern agriculture has been driven by adoption of new varieties, chemicals and agronomic practices by the farmers. The glaring example is the pursuance of the introduction of high yielding varieties (HYVs) for replacing well adapted land races and traditional crops which had an in built mechanism for growing on marginal and poor fertility soils, drought conditions due to the rainfed nature of agriculture and resistance to diseases and pests. Applications ignored the long-term effects accruing from the immediate gains of fertilizers and pesticides. The problem has risen because of extensive and wrong application of chemical pesticides which leave residual toxic effects on food articles. In discriminate use of chemicals has caused imbalance of nutrients available in soil and loss of useful microbial flora. Widely used chemicals in agriculture include chemical fertilizers (NPK), chemical pesticides, fungicides and herbicides or weedicides. Furthermore, the indiscriminate and excessive use of chemical fertilizers, such as urea, has made soil unfit for growing legumes for their detrimental effect on nodulation bacteria.

The indiscriminate use of chemicals has resulted in price rise in pulses and pollution of potable water and edibles. Application of chemical pesticides pollutes water and fresh harvests. Pesticides cause pollution at two levels, firstly during handling and secondly after their application in the field, it enters food chains.

Inadequacy of access/delayed market access and market infrastructure leading to avoidable/wasteful expenditure and livelihood loss: Inadequacy of marketing infrastructure facilities including marketing yards, transportation facilities, collection facilities, storages, grading and packing facilities, difficulty in transportation of agricultural products due to difficult terrain and sparse population in interior areas, inadequacy of marketing information, high cost of surface transport produce to the consuming markets; and poor communication network due to hostile terrain leads to wasteful expenditure in turn leading to loss of livelihood. There are problems of access to the market for getting remunerative prices for their farm produce. The farmers are exploited by wholesale traders who take advantage of their limited capacity to hold small quantities of produce and their pressing need for cash soon after the farm harvest. There remains a large gap between the produce procurement price and the

consumer price leading to loss of revenue and livelihood to farmer.

Inadequacy of diversified portfolio of subsistence livelihood: Scarcity of availability of work force for agricultural as well as high input cost e.g. Rs 80/- per day for the labor, compels farming families to change their agricultural land to some long- term usage such as a fruit orchard, timber tree cultivation or to grow some high value crops such as flowers, medicine and aromatic plants and vegetable crops so as to earn immediate and larger profits to pay the hired labour for better resource inputs. Due to continued economic stress, more so when the needs of farming families cross the subsistence boundary, they require more money to spend on children's education, clothing, health care and other modern amenities. Further more' Vagaries of weather sometimes cause lower production and market unremunerative prices increase the desperation of farmers. In such a situation, portfolio of subsistence livelihood can create alternate means of income at least to meet the basic requirement of food and other essential needs.

Inadequacy of assessment of market/variation in demand and supply of major agriculture/horticulture produce leading to loss of livelihood: Systematic resource knowledge is inadequate, therefore it is difficult to plan for profitable and sustainable agriculture. High input modern agriculture is emerging fast which requires more money and energy input. one of the reasons why agriculture production on sustainable basis is not being achieved since as all areas in different agro ecological conditions have not recorded rise in production. Food in sufficiency is further forcing people dependent on agriculture to seek other means of livelihood. Market access or market facilities also become an important factor to fetch better prices of agricultural produce. Research planning for the hills need assessment of considerations such as resource crunch to small and marginal farmers, rainfed nature of crop growing, agro-climatic or agro- ecological potentials, communication systems in the hills and market access. The research outcomes are hardly able to fulfill these criteria. In other words, the research results must show feasibility from farmer's field and should be within the reach of average farmers who constitute the majority. The package of practices for crops has generally been designed for optimum conditions only. The cost of cultivation has been largely ignored and no published information is available.

Public health risk leading to loss of livelihood due to inadequacy of sewage and safe drinking water infrastructure: At the state level, cases of admission in hospitals due to diarrhea increased from 16,263 in 1995 to 16,602 in 2002. Similarly, cases of admission in hospitals due to hepatitis increased from 379 in 1995 to 421 in 2002. At district level, Chamba, Hamirpur, Kinnaur, Kullu, Lahaul & Spiti, Mandi, Sirmaur and Una reported increase in admission in hospitals due to diarrhea during 1995 to 2002. Similarly, Bilaspur, Chamba, Kangra, Kinnaur and Una reported increase in admission in hospitals due to hepatitis during 1995 to 2002.

Unexplored prospects of participation of private sector participation/ entrepreneurship for diversification of livelihood: Increased demand for urban and rural infrastructure e.g. road, water resources, tourism etc. and inadequacy of Government funding for its development necessitates private sector participation in development projects. In Himachal Pradesh, private sector participation in

infrastructure sector has been lagging and unexplored due to a number of factors. The participation of private sector will facilitate a number of livelihood opportunities in the state.

Inadequate integrated land use planning: The Himachal Pradesh State Land Use and Wasteland Development Board reconstituted in 2007 for the period of three years has not been adequately involved in integrated land use planning. Further, inadequate land use planning at the department level and inadequate Institutional structure for integrated land use planning in the state has led to sustained degradation of land resources due to exploitative and competing demand on finite land resources from various departments/sectors.

Livelihood sector and cross sector policy and regulatory framework at state level shows the intent of the State Government to address inadequate service delivery in order to reduce the disease burden in the state. A mapping of the issues and policy and program framework is described in Box 3.

Box 3: Policies mapped with issues in Livelihood Sector

Issues	Policy/Plan/Program/Schemes
Depleting natural resource base leading to loss of livelihood	- National Agriculture Policy - National Water Policy, 2002 - The national Environment Policy, 2006 - Essential Commodities Act, - Farmers Rights Act, 2001 - The Environment (Protection) Act, 1986 - The Himachal Pradesh Panchayati Raj Act, 1994 - RKBY/RIDF/nHB/MIS/Schemes
Unremunerative agriculture in certain areas leading to loss of livelihood	- National Agriculture Policy - National Water Policy, 2002 - The national Environment Policy - Essential Commodities Act - Farmers Rights Act, - The Environment (Protection) Act, 1986 - The Child Labour (Prohibition and Regulation) Act, 1986 - The Plantations Labour Act, 1951 - The Bonded Labour System (Abolition) Act, - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - State Hoarding and Profiteering Preventation order - Public Distribution System (Control) order - RKBY/RIDF/nHB/MIS/Schemes
Change in environmental conditions leading to loss of livelihood	- National Agriculture Policy - National Water Policy - The national Environment Policy - National Policy on Safety, Health and Environment at Work Place - The Environment (Protection) Act, 1986 - The Child Labour (Prohibition and Regulation) Act, 1986 - The Employees State Insurance Act, - The Maternity Benefit Act, 1961

Issues	Policy/Plan/Program/Schemes
	- The Plantations Labour Act, 1951 - The Air (Prevention and Control of Pollution) Act, 1981 - The Water (Prevention and Control of Pollution) Act, 1974 - Municipal Solid Wastes (Management and Handling) Rules, 2000 - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - Employees' Family Pension Scheme - RKBY/RIDF/nHB/MIS/Schemes
Inadequacy of access/ delayed market access and market infrastructure leading to avoidable and wasteful expenditure and livelihood loss	- National Agriculture Policy - The national Environment Policy - National Policy on safety, health and environment at work place - Essential Commodities Act, - Consumer Protection Act, - Farmers Rights Act, 2001 - The Child Labour (Prohibition and Regulation) Act, 1986 - The Employees State Insurance Act, - The Plantations Labour Act, 1951 - The Trade Unions Act, - The Air (Prevention and Control of Pollution) Act, 1981 - The Water (Prevention and Control of Pollution) Act, 1974 - Municipal Solid Wastes (Management and Handling) Rules, 2000 - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - State Hoarding and Profiteering Preventation order - Public Distribution System (Control) order - RKBY/RIDF/nHB/MIS/Schemes
Inadequacy of diversified portfolio of subsistence livelihood	- National Agriculture Policy - Farmers Rights Act, 2001 - The Environment (Protection) Act, 1986 - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - RKBY/RIDF/nHB/MIS/Schemes
Inadequacy of assessment of market/variation in demand and supply of major agriculture/ horticulture produce leading to loss of livelihood	- National Agriculture Policy - National Policy on Safety, Health and Environment at Work Place - Essential Commodities Act, - Consumer Protection Act, - The Child Labour (Prohibition and Regulation) Act, 1986 - The Plantations Labour Act, 1951 - The Trade Unions Act, - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - State Hoarding and Profiteering Preventation order

Issues	Policy/Plan/Program/Schemes
	- Public Distribution System (Control) order - RKBY/RIDF/nHB/MIS/Schemes
Public health risk leading to loss of livelihood due to inadequacy of sewage collection, treatment & disposal and safe drinking water infrastructure backward & forwarding both sectroal & baselines	- National Water Policy, 2002 - The national Environment Policy, 2006 - National Policy on Safety, Health and Environment at Work Place - Farmers Rights Act, 2001 - The Environment (Protection) Act, 1986 - The Employees Provident Funds and Miscellaneous Provisions Act, - The Employees State Insurance Act, - The Maternity Benefit Act, - The Plantations Labour Act, 1951 - The Air (Prevention and Control of Pollution) Act, 1981 - The Water (Prevention and Control of Pollution) Act, 1974 - The Himachal Pradesh Panchayati Raj Act, 1994 - Municipal Solid Wastes (Management and handling) Rules, 2000 - Employees' Family Pension Scheme - RKBY/RIDF/nHB/MIS/Schemes
Unexplored prospects of participation of private sector participation/ entrepreneurship for diversification of livelihood	- National Agriculture Policy - National Water Policy, 2002 - National Policy on Safety, Health and Environment at Work Place - The Environment (Protection) Act, 1986 - The Employees State Insurance Act, - Employment Exchanges (Compulsory notification of Vacancies) Act, - The State Agricultural Produce Marketing (Development & Regulation) Act, - The Himachal Pradesh Panchayati Raj Act, 1994 - Public Distribution System (Control) order - RKBY/RIDF/nHB/MIS/Schemes
Inadequate integrated land use planning	- Department of Forests notification no. Van-A (F) 6-2/92, dated: Shimla-2, 20.9.2007

Pressure on account of increasing threats and slow pace and inadequate implementation of policy, programs, plans and projects is leading to emergence of sector specific issues and risks/impacts. An analysis of the issues, causes and impacts has been carried out and summarized in Table 3.

Table 3: Issues, Causes and Impacts

Issues	Causes	Impacts/risks
1. Depleting natural resource base leading to loss of livelihood	- Reduce water availability - Reduce forest area / cover - Change in land use	- Loss of livelihood - Migration of People
2. Unremunerative agriculture in certain areas leading to loss of livelihood	- Rain dependent agriculture - Inadequacy of crop diversification - Poor yield	- Loss of resources - Reduced remuneration - Abandoning agriculture as a source of livelihood
3. Change in environmental conditions leading to loss of livelihood	- Erratic rains and snowfall - Increased air and water pollution	- Failure of agriculture/ horticulture crops - Public health risks leading to

	Issues	Causes	Impacts/risks
		- Increased soil erosion	loss of working hours - Loss of agriculture/ horticulture productivity
4.	Inadequacy of access/delayed market access and market infrastructure leading to avoidable/wasteful expenditure and livelihood loss	- Inadequate road and transport infrastructure - Inadequate market infrastructure - Inadequate horticulture/ agriculture facility	- Loss of remuneration due to loss of product - Resources loss
5.	Inadequacy of diversified portfolio of subsistence livelihood	- Inadequacy of awareness - Inadequacy of replication of successful demonstration	- Income/loss of livelihood of alternatives
6.	Inadequacy of assessment of market / variation in demand and supply of major agriculture/horticulture produce leading to loss of livelihood	- Inadequacy of assessment of demand and supply; its variation - Inadequacy of operationals trategy to address variation in demand and supply	- Over production leading to wastage of agriculture/ horticulture produce leading to resource loss and livelihood loss
7.	Public health risk leading to loss of livelihood due to inadequacy of sewage/ safe drinking water infrastructure	- Discharge of untreated sewage - Increased occurrence of water and air borne disease - Inadequacy of availability of health services - Occupational health risks in factories	- Reduced/loss of working hours leading to livelihood loss
8.	.Unexplored prospects of participation of private sector participation/ entrepreneurship for diversification of livelihood	- Inadequacy of capital - Inadequacy of skill upgradation - Dependence on the Government	- Loss of opportunities - Loss of diversified livelihood options
9.	9.Inadequateintegrated land use planning	- Land Use Board not adequately involved in Integrated land use planning - Inadequate land use planning at the department level. - Inadequate Institutional structure for integrated land use planning in the state.	- Sustained degradation of land resources due to exploitative and competing demand on finite land resources from various departments/sectors.

Chapter 4: Good practices

4.1 Education & Vocational Training

Women's Studies Program: This should be developed as a vehicle for the achievement of change in higher education institutions through activities required to promote the advancement of women, both within and outside higher education institutions. Women may be encouraged to assess the current position within a given institution or region followed by analysis of the factors needed to initiate and continue the change process. The introduction of women's studies is a major achievement for women's movement in countries such as India envisaged as playing an interventionist role by initiating the gender perspective in many domains in the generation of knowledge as well as in the field of policy design and practice. The underlying assumption of this approach is that teaching and research in women's studies provide empirical means by which the gendered nature of universities can be revealed.
Source: www.unesco.org

Institutional practices: Institutional leadership programs in higher education institutions focused on skills development, on recognition of existing strengths and capacities, on increasing numbers of women in leadership roles, on visibility and support networks. They also worked towards transforming cultures and gaining organizational support. Most aimed for management in higher education and enhance participants' skills and experience/professional development / leadership potential and to build a culture and structure in the organization that encourages women's full participation.

Key components shared by the programmes included forums to begin programs; needs analysis and career development workshops; networking through informal and formal means; e-mail and discussion lists; lectures or workshops; collegial groups; shadowing of senior executives; committee observation; and mentoring schemes. Other activities were public events comprising lecture series, annual conferences, forums and seminars.
Source: www.unesco.org

Organizational Practices: This involves practices that have a positive impact at the corporate level.

Knowledge Management: Knowledge Management is one way to provide others with experience that is known by the organization. It can help to dramatically mitigate risks by allowing the pitfalls of previous projects to be exposed and understood. "Corporations that embrace Knowledge Management for Project Management can expect productivity of application development increases of 40%."

Continuous Improvement; for continuous improvement to be effective, the processes that are in need of improvement must be repeatable. Repeatability is an underlying principle that forms process. A successful process is one that yields the same results no matter who is executing the process; this is an ideal scenario that is very difficult to achieve.
Source: www.himachaldit.gov.in

Good Practice in Technical and Vocational Education and Training: ICT for education is a rapidly evolving and

high-priority development area. This guide stresses the importance of a holistic good practice framework in which ICT for education issues are pursued through three interrelated perspectives:

i. National perspective,
ii. Education sector perspective and
iii. Education institution and school perspective.

The guide draws on arrange of sources, including the findings of ADB's studies on ICT for education and the experience ADB has gained with stakeholders and partners in providing project assistance for ICT for education in its developing member countries.
Source: http://www.ncvt.com/

CEE Himachal Pradesh

- Darwin project in Solan with communities' involvement on biodiversity conservation two SGP projects on medicinal plants and biodiversity conservation have been completed.
- Covered around 500 schools for organizing the WSSD school level competitions.
- A school cluster conducting Environment Education programs covering around 20 schools.
- Under Clean India program, organized Solid Waste Management Awareness Workshop.
- Facilitated EESS in 120 schools in HP, including the development of 21 green textbooks of social science, environmental science and language subjects of classes 6-8, more than 300 teachers, resource persons and nGos trained in implementing and strengthening EESS.
- Capacity building trainings for the members of DIET and SCERT.
- Awareness on local environmental issues and conservation measures through observing days like World Environment Day etc.
- Consultancy on training and awareness programs for the Himachal Pradesh Forest Department functionaries.
- Consultancy on interpretation and awareness strategy for nine protected areas.

Source: www.enfor.nic.in

Raising environmental consciousness through environmental education and information program: Environmental education & information plays an important role in upgrading awareness levels of students as well as develop their capacity to undertake environmental initiatives. This has been demonstrated in Albania through development of curriculum for students.

Case Study 1: Development and production of a Green Pack, a multi-media education resource: The Green pack is a multi-media environmental education curricula kit, primarily intended for European primary school teachers and their pupils, although it can also be used at other levels of education. It focuses on particular aspects of environmental protection and sustainable development and includes a variety of educational materials such as a teacher's handbook with lesson plans and fact sheets for students, a video-cassette with animated clips and educational films, an interactive CD-RoM with extensive information on various environmental topics and a dilemma game. Thus, the users of the pack will be able to follow lesson plans, complemented with video presentations and additional information from the CD-RoM and its links to similar Web sites.

The Pack contains 22 topics related to environment protection and sustainable development, divided into five chapters Environmental components; Threats to the environment; Human activities and impacts; Global challenges; Values – ethics.

Each of the main Green Pack components – the CD-RoM, the teacher's handbook, the video cassette and the dilemma game–follows the same structure. The Green Pack emphasizes the education of students with new values and setting of a new model of behavior at school, at home and in society, rather than simply the accumulation of knowledge in particular environmental areas. In this context, students are, above all, partners with the teachers in the accomplishment of various activities, discussions, role-plays and decision-making. The main messages of the pack are also effectively distributed to other members of the family and society via the students and teachers.
Source: "Good Practice" in Education for Sustainable Development in the UnECE region, UnESCo

Development of innovative methods to impart Environmental education: Development of environmental atlas provides information on diverse topics at a single place and a reference for environmental study projects both locally & internationally. This practice has been applied & tested in British Virgin Islands as described below:

Case Study 2: British Virgin Islands (BVI) Environmental CD Atlas and Teaching Resource: The BVI is comprised of over 60 islands and cays, yet the majority of the population resides on Tortola, with schools of varying sizes on three of the sister islands; Virgin Gorda, Anegada and Jost Van Dyke. School visits to the sister islands are not included within the curriculum, so many students never visit the other islands in the BVI and as a result have extremely limited knowledge of the BVI's natural environment. Additionally the teaching of geographic components of social sciences and environmental awareness in BVI schools has relied upon the use of regional and international atlases, which have minimal relevance to the BVI.

Developed as a locally implemented initiative, an informational CD Atlas has been created by the nGIS TSC as a resource for schools and the general public to engender a comprehensive understanding of the environments of the BVI and we are now seeking funding to publish and launch this product. By using an interactive atlas, a series of maps, charts, diagrams, tables, photographs, text and internet links, a dynamic web based CD allows students to explore the real world distribution of the environments of the BVI.
Source: Conference Proceedings Biodiversity that matters: a conference on conservation in UK overseas Territories and other small island communities, page 289

Best practices for developing environmental education (EE) for preschoolers:

- Begin with simple experiences: When introducing children to nature, start with the most immediate environment so that children feel safe and comfortable. Watch a bean sprout before tending a garden or walk bare foot in the grass before wading in a stream.
- Keep children actively involved: Facilitate children's interactions with adults, materials and their surroundings, allowing their interest, curiosity, and need to know to drive activities.
- Provide pleasant, memorable experiences: The enjoyment of an EE experience is just as important as the content
- Emphasize experience versus teaching: For effective learning. Young children need to be involved in sharing and doing versus listening and watching.
- Involve full use of the senses: Children need to engage with the natural world at the sensori motor level.
- Provide multimodal learning experiences: Provide opportunities to learn through more than one avenue or channel of information.
- Focus on relationship: Promote cooperation, communication and trust between people by encouraging cooperative learning in the outdoors.

Help children feel comfortable in the natural environment in order to build independence and self-concept. Help children understand that all parts of the natural world are inter connected and that they are a part of it, as well.

- Demonstrate a personal interest in and enjoyment of the natural world, and model caring for the natural environment: Young children learn more about attitudes and values from their observation of adult behavior than they do from what adults say to them.
- Maintain a warm, accepting, and nurturing atmosphere: Young children need to know that they are valued and that they can trust the adults who work with them.
- Introduce multicultural experiences and perspectives: Use art, literature and visitors from different cultural backgrounds to introduce children to a variety of cultures.
- Focus on the beauty and wonder of nature: The most important thing young children can learn about the Earth is that it is full of beauty and wonder.
- Go outside whenever possible: If young children are to develop a sense of love and caring for the natural world, they must be given time to experience it.
- Infuse EE into all aspects of an early childhood program: EE should be integrated into all aspects of early childhood programs rather than being considered an "add on."

Source: Best Practices for Environment Education, Guidelines for success, Environmental Education Council of ohio, Akron.

4.2 IT & Telecom

Terrestrial Habitat Alteration: Terrestrial and aquatic habitats may be altered primarily during the construction of communications infrastructure depending on the type of infrastructure component and proposed location. Potential impacts to habitat may be more significant during construction and installation of linear infrastructure, such as long distance fixed line cables, as well as access roads to other types of infrastructure along previously undeveloped land.

Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Recommended measures to prevent and control impacts to terrestrial habitats during construction of the right-of-way include: Site fixed line infrastructure (e.g. fiber optic cable) and other types of linear infrastructure rights-of-way, access roads, lines and towers to avoid critical habitat through use of existing utility and transport corridors, whenever possible; avoidance of construction activities during the breeding season and other sensitive seasons or times of the day; re-vegetation of disturbed areas with native plant species; management of construction site activities as described in relevant sections of the General EHS Guidelines.

Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Avian Collisions: The height of some television and radio transmission towers can pose a potentially fatal risk to birds mainly through collisions. The likelihood of avian collisions is thought to increase with the height and design of the communications tower (e.g. guyed towers represent a higher potential for collisions), the presence of tower lighting (which attracts some species of birds at night or during low light conditions) and most importantly, the tower location with regard to flyways or migration corridors. Recommended prevention and control measures to minimize avian collisions include: Siting towers to avoid critical habitats (e.g. nesting grounds, heronries,

rookeries, foraging corridors, and migration corridors); avoiding the cumulative impact of towers by collocating antennae on existing towers or other fixed structures (especially cellular telephone communication antennae), designing new towers structurally and electrically to accommodate future users, and removing towers no longer in use; to the extent feasible, limiting the tower height and giving preference to non-guyed tower construction designs (e.g. using lattice structures or monopoles); if guy wired towers are located near critical bird habitats or migratory routes, installing visibility enhancement objects (e.g. marker balls, bird deterrents, or diverters) on the guy wires; and limiting the placement and intensity of tower lighting systems to those required to address aviation safety. Possible alternatives include the use of white and/or strobe lighting systems.
Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Aquatic Habitat Alteration: Depending on their location, the installation of fixed line components, including shore approaches for long distance fiber optic cables and access roads to transmission towers and other fixed infrastructure, may require construction of corridors crossing aquatic habitats with the potential to disrupt watercourses, wetlands, coral reefs and riparian vegetation.

Recommended measures to prevent and control impacts to aquatic habitats include: Site power transmission towers and substations to avoid critical aquatic habitat such as watercourses, wetlands and riparian areas, as well as fish spawning habitat and critical fish over-wintering habitat, whenever possible; maintaining fish access when road crossings of watercourses are unavoidable by utilizing clear-span bridges, open-bottom culverts or other approved methods; minimizing clearing and disruption to riparian vegetation;
Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Visual Impacts: The visual impacts from tower and antennae equipment may depend on the perception of the local community as well as the aesthetic value assigned to the scenery (e.g. scenic and tourism areas). Recommendations to prevent, minimize and control the visual impacts include: Minimizing construction of additional towers through co-location of proposed antennae in existing towers or existing structures such as buildings or power transmission towers; use of tower and antennae camouflaging or disguising alternatives (e.g. masts or towers designed to look as trees); taking into account public perception about aesthetic issues by consulting with the local community during the siting process of antenna towers.
Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Hazardous Materials and Waste: Telecommunications processes do not normally require the use of significant amounts of hazardous materials. However, the operation of certain types of switching and transmitting equipment may require the use of backup power systems consisting of a combination of batteries (typically lead-acid batteries) and diesel-fueled backup generators for electricity. Operations and maintenance activities may also result in the generation of electronic wastes (e.g. nickel-cadmium batteries and printed circuit boards from computer and other electronic equipment as well as backup power batteries). The operation of backup generators and service vehicles may also result in the generation of used tires, waste oils and used filters. Transformer equipment may potentially contain Polychlorinated

Biphenyls (PCBs) while cooling equipment may contain refrigerants (potential ozone Depleting Substances [ODSs]).

Recommended hazardous materials management actions include: Implementing fuel delivery procedures and spill prevention and control plans applicable to the delivery and storage of fuel for backup electric power systems, preferably providing secondary containment and overfill prevention for fuel storage tanks; implementing procedures for the management of lead acid batteries, including temporary storage, transport and final recycling by a licensed facility; ensuring that new support equipment does not contain PCBs or oDSs. PCBs from old equipment should be managed as a hazardous waste; purchasing electronic equipment that meets international phase out requirements for hazardous materials' contents and implementing procedures for the management of waste from existing equipment.
Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Electric and Magnetic Fields: Electric and magnetic fields (EMF) are invisible lines of force emitted by and surrounding any electrical device, such as power lines and electrical equipment. Electric fields are produced by voltage and increase in strength as the voltage increases. Magnetic fields result from the flow of electric current and increase in strength as the current increases. Radio waves and microwaves emitted by transmitting antennas are one form of electromagnetic energy. Radio wave strength is generally much greater from radio and television broadcast stations than from cellular phone communication base transceiver stations. Microwave and satellite system antennas transmit and receive highly concentrated directional beams at even higher power levels.

Although there is public and scientific concern over the potential health effects associated with exposure to EMF (not only high-voltage power lines and substations or radio frequency transmissions systems, but also from everyday household uses of electricity), there is no empirical data demonstrating adverse health effects from exposure to typical EMF levels from power transmissions lines and equipment.

However, while the evidence of adverse health risks is weak, it is still sufficient to warrant limited concern. nine recommendations applicable to the management of EMF exposures include: Evaluating potential exposure to the public against the reference levels developed by the International Commission on non-Ionizing Radiation Protection (ICNIRP).10,11 average and peak exposure levels should remain be low the ICNIRP recommendation for General Public Exposure; limiting public access to antennae tower locations (see also 'Community Health and Safety' of this document, below); following good engineering practice in the siting and installation of directional links (e.g. microwave links), to avoid building structures; taking into account public perception about EMF issues by consulting with the local community during the siting process of antenna towers.
Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Electrical Safety: Telecommunications workers may be exposed to occupational hazards from contact with live power lines during construction, maintenance and operation activities. Prevention and control measures associated with live

power lines include: only allowing trained and certified workers to install, maintain or repair electrical equipment; deactivating and properly grounding live power distribution lines before work is performed on, or in close proximity to, the lines; ensuring that live- wire work is conducted by trained workers with strict adherence to specific safety and insulation standards. Qualified or trained employees working on transmission or distribution systems should be able to achieve the following:

- Distinguish live parts from other parts of the electrical system.
- Determine the voltage of live parts.
- Understand the minimum approach distances outlined for specific live line voltages.
- Ensure proper use of special safety equipment and procedures when working near, or on, exposed energized parts of an electrical system.
- Workers should not approach an exposed, energized or conductive part even if properly trained unless:
- The worker is properly insulated from the energized part with gloves or other approved insulation; or
- The energized part is properly insulated from the worker and any other conductive object; or
- The worker is properly isolated and insulated from any other conductive object (live-line work).

Where maintenance and operation is required within minimum setback distances, specific training, safety measures, personal safety devices and other precautions should be defined in a health and safety plan; recommendations to prevent minimize and control injuries related to electric shock include: All electrical installations should be performed by certified personnel and supervised by an accredited person. Certification for such work should include theoretical as well as practical education and experience; strict procedures for de-energizing and checking of electrical equipment should be in place before any maintenance work is conducted. If de-energizing is not possible, electrical installations should be moved or insulated to minimize the hazardous effects; prior to excavation works, all existing underground cable installations should be identified and marked. Drawings and plans should indicate such installations; all electrical installations or steel structures, such as masts or towers, should be grounded to provide safety as the electrical current chooses the grounded path for electrical discharge. In cases where maintenance work has to be performed on energized equipment, a strict safety procedure should be in place and work should be performed under constant supervision; personnel training should be provided in revival techniques for victims of electric shock.

Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Electromagnetic fields (EMF): Telecommunications workers typically have a higher exposure to EMF than the general public due to working in proximity to transmitting antennas emitting radio waves and microwaves. Radio wave strength is generally much greater from radio and television broadcast stations than from cellular phone communication base transceiver stations. Microwave and satellite system antennas transmit and receive highly concentrated directional beams at even higher power levels.

Occupational EMF exposure should be prevented or minimized through the preparation and implementation of an EMF safety program including the

following components: Identification of potential exposure levels in the workplace, including surveys of exposure levels in new projects and the use of personal monitors during working activities; training of workers in the identification of occupational hazards; EMF levels and hazards; establishment and identification of safety zones to differentiate between work areas with expected elevated EMF levels compared to those acceptable for public exposure, limiting access to properly trained workers; implementation of action plans to address potential or confirmed exposure levels that exceed reference occupational exposure levels developed by international organizations such as the International Commission on-Ionizing Radiation Protection (ICnIRP), and the Institute of Electrical and Electronics Engineers (IEEE). Personal exposure monitoring equipment should be set to warn of exposure levels that are below occupational exposure reference levels (e.g. 50 percent). Action plans to address occupational exposure may included activation of transmission equipment during maintenance activities, limiting exposure time through work rotation, increasing the distance between the source and the worker when feasible, use of shielding materials; porinstallation of ladders or other climbing devices inside the mast or towers and behind the transmission beams.

Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

Optical Fiber Safety: Workers involved in fiber optic cable installation or repair may be at a risk of permanent eye damage due to exposure to laser light during cable connection and inspection activities. Workers may also be exposed to minute or microscopic glass fiber shards that can penetrate human tissue through skin or eyes or by ingestion or inhalation. Optical fiber installation activities may also pose a risk of fire due to the presence of flammable materials in high-powered laser installation areas. Recommendations to prevent, minimize and control injuries related to fiber optic cables installation and maintenance include: Worker training on specific hazards associated with laser lights, including the various classes of low and high power laser lights, and fiber management; preparation and implementation of laser light safety and fiber management procedures which include: Switching off laser lights prior to work initiation when feasible; use of laser safety glasses during live optical fiber systems installation; prohibition of intentionally looking into the laser of fiber end or pointing it at another person; restricting access to the work area, placing warning signs and labeling of areas with a potential for exposure to laser radiation and providing adequate back ground lighting to account for loss of visibility with the use of protective eyewear; inspecting the work area for the presence of flammable materials prior to the installation of high- powered laser lights; implementation of a medical surveillance program with initial and periodic eye examinations; avoiding exposure to fibers through use of protective clothing and separation of work and eating areas.

Source: Environmental, Health, and Safety Guidelines for Telecommunications; World Bank Group

E-waste assessment methodology and validation in India: An attempt has been made to establish an approach and a methodology to quantify electronic waste (e-waste) in India. The study was limited to personal computers (PCs) and televisions (TVs) within the state boundaries of Delhi and in selected areas in the national Capital Region (NCR). Material flow analysis was used to establish an e-waste trade value chain, where cathode Ray Tubes (CRTs) were tracked in the e-waste dismantling stream

of the CRT regunning process. The market supply method was used to estimate the theoretical amount of e-waste for each item. Sensitivity analysis was carried out for PCs, using 5 years and 7 years as the average life, and for TVs, using 10 years and 12 years as the average life. Externalities such as e-waste entering the study area from outside were factored into the final e-waste analysis. Sensitivity analysis on the average life also factored in elements of active usage, reuse and storage of electronic items and consumer behavior into assumptions about the obsolescence rate in market supply method. A primary survey indicated an output of 1800–2100 CRTs per day from all regunning units in the study area. This range validated the theoretical output for an average life of 7 years for a PC and 12 years for a TV. Using this approach, e-waste was estimated to reach 2 million units from the domestic market by 2010.

Source: Amit Jain, Rajneesh Sareen, Journal of Material Cycles and Waste Management Volume 8, number 1, 40-45, DoI: 10.1007/s10163-005-0145-2

Cell phone towers: Is there a health risk? There is a general agreement in the scientific studies that RF radiation emitted from cell phone tower antennas is far too low to cause health risks as long as people are kept away from the antenna itself. It is important to be aware of the difference between the antenna (the object that produces the RF radiation) and the tower (the structure that the antenna is placed on). It is the antenna that people need to keep away from, not the tower. As with all forms of radiation, the strength of the radiation field decreases rapidly as one moves away from the source. Studies that have measured RF fields near cell phone towers show that RF levels are many times below safety standards.

Source: Fact Sheet, Cell phone towers and cell phones, Connecticut Department of Public Health Environmental and occupational Health Assessment, www.ct.gov

Social Enterprises for better and sustainable Waste (Electrical and Electronic (WEE)) Recycling, Austria: WEE recycling not only has advantages for the environment but also has a strong social potential. In the model of the "Social Market Economy", goods and services will be provided outside the market system. It may serve as a separate (third) economic sector between thestateandthemarket.InAustriaseveralsocialenterpriseswereestablished in this scheme with a focus on WEE treatment. The initiatives aim at treating several problems atonce:1)They are creating temporary job contracts for long term-unemployed or disabled persons and help to empower these persons in finding a permanent employment in the primary job market through personal support and career development; 2)The initiatives help the involved persons to avoid social exclusion and support them to develop creative potentials; and 3) These social enterprises have certified WEE treatment plants for used or broken Electric Equipments. This will be repaired or dismantled depending on the conditions and prepared for second-hand-articles or spare-parts or recycling products or recyclable parts.

Source: Best Practices for E-waste Management in Developed Countries; Europe AID Co-operation office; August 2008.

The case of Matsushita Electric (Lytle, 2003): Matsushita Electric, best known for its Panasonic brand, set up an advanced recycling plant in the Western Japanese town of Yashiro for the recycling of 4 main home appliances, i.e. refrigerator, washing machine, television and air conditioners. The Matsushita Eco-Technology Center, (Metec), came into being after the Japanese Government passed tough recycling measures that came into effect in 2001. The company

had the recycling plant ready by the time the legislation came into being.

A local consultation group was set up for Matsushita to demonstrate that its closed-loop water system would not pollute the environment or that delivery trucks would not keep residents awake at night. The local consultation group still meets roughly quarterly in order to discuss the current situation. In the first year of operation, the plant handled over half a million TVs, air-conditioners, washing machines and refrigerator and is currently running at 10% to 15% above the rate required by law.

The key to the success of the recycling plant is the division of waste into different waste streams. Each unit is taken apart, either by hand as in the case of the TVs, or by brute force as with the washing machines. The parts are then separated out. Glass in television sets is carefully dissected with Matsushita's own breed of cutter to keep the toxic leaded glass in the rear portion away from the safer glass in the screen. The result is two kinds of glass that end up in new TVs. Separating the different parts of a washing machine requires a complex arrangement of magnets and wind blowers to produce cleanly divided waste. Different colours of polypropylene plastic tend to end up together in a muddy-coloured mix, which the company uses in 'non- aesthetic' components that remain out of sight in new machines. All washing machines contain a balancing component filled with salt water to keep them on keel while spinning. This, too, is recovered to prevent it from leaking and causing steel to rust before it can be removed. Similarly meticuloustechniquesareemployedonfridg esandair-conditioners.Metec researchers are constantly developing new ways to maximise from the raw materials that arrives at the plant every day.

Source: Best Practices for E-waste Management in Developed Countries; EURoPEAID Co-operation office; August 2008

4.3 Livelihood

Organic farming in Sikkim: organic farming combines ecologically-sound modern technology with traditional agricultural practices including crop rotation, green manure and biological pest control to ensure reduction or total elimination of chemical inputs. Sikkim, an ecological hotspot of the eastern Himalayas has moved towards sustainable agriculture in a big way, covering almost 90% of its agricultural land. In several parts of Sikkim, farmers have succeeded in growing completely organic maize, paddy, ginger, cardamom and turmeric while expanding the practices to other horticultural crops. Use of chemical pesticide, insecticide or chemical inputs was slowed down as early as 2003 but what was awaited was blanket certification. Of 70,000 hectares of arable land in Sikkim, 6000 hectares is already organic-certified. By 2015, Sikkim aims to be completely organic certified. The first step came in May 2003, when the State Government withdrew the subsidy on fertilizers. From 2006-07 onwards, the transport, handling of subsidy and commission to the retailer was also withdrawn. Alongside, the Government also adopted a seven-year plan to phase out the use of chemical fertilizers, by gradually replacing these with organic sources.

"The Government had taken the decision because it had seen the adverse impact of chemical fertilizers on our soil, water and on human health, considering Sikkim as a biodiversity hotspot," says S K Gautam, Secretary in the Department of Food Security and Agriculture. The spinoffs, however, are encouraging. "Village

tourism in Sikkim will obviously improve. Home stays will become more popular. We believe that the organic tag will boost the inflow of tourists, especially international tourists," said Lukendra Rasailly, General Secretary of Travel Agents Association of Sikkim. "We understand that only organic farming can help us maintain our soil quality and prevent pollution of our water sources. It will also be the key to high end tourism", hopes Rasailly.
Source: Sikkim makes an organic Shift, Times of India, New Delhi, issue dated May 7, 2010

Community Efforts – sustaining soil fertility by protecting the forests: The Apatani tribe of Arunachal Pradesh having sound traditional ecological knowledge (TEK) of forest, land and water management, has highly developed valley cultivation of rice over centuries. Wet rice land agro- ecosystem is dependent upon nutrient flow from the hill slopes. With crop harvest, nutrients are lost. The farmers grow wet rice integrated with fish culture in terraces and finger millet on the risers. To maintain and regulate water supply and nutrients to the field, the surrounding hills are fully covered with forests and protected by the community. The Apatan is under the overall supervision of their village headman have optimized water use along with nutrient use in their rice fields.

Traditional Wisdom – Maintaining Soil Fertility: The Nagaland State produces horticulture crops like passion fruit, banana, ginger, orange, cardamom, French beans, pepper, turmeric, pineapple etc. Alder (Alnus nepalensis), a multipurpose, nitrogen fixing tree species is maintained along with the crops to enhance soil fertility. The value of Alder tree was recognized by the tribal farmers long back and more than 200 years old trees can still be seen. Agricultural crops, together with Alder trees, form a very remunerative agro-forestry system. Knononome village in Kohima is proud of its Alder plantations and Alder tree based agriculture. Keeping in view their traditional approach, the State Government has launched a program called Communitisation of Public Institutions and Services.
Source: Envis Bulletin – Himalayan Ecology (2001); Vol 9 (1): 31-36)

Soil management practices: In most of the agricultural fields in Meghalaya, soil against depletion by natural and anthropogenic erosion is minimized through traditional methods such as by using bamboo culms, stones and gunny bags filled with soil. Some non-cereal crops such as grass clover (Trifolium repens) and alfalfa (Medicago sativa) conserve the organic matter in the soil. Thus, growing these crops tends to conserve soil even if some minerals are carried away during the removal of crops. Applying green leaf and farmyard manure is the traditional method of improving the condition of the soil, in which green leaves and farmyard manure are ploughed into the soil. It helps in improving soil fertility through fixation of nitrogen using microorganisms.
Source: Indian J. Traditional Knowledge, Vol. 5, no. 1, January 2006

Hill Agriculture and communication to farmers: Geographical situation of hill region of Uttaranchal demands for special extension approaches and methods. Reasons for low awareness in farmers to improved agricultural technologies and technology transfer devices suggested by state agricultural personnel has been enumerated. Sharing of the experiences on some of the extension methods are being used to communicate to farmers like telephone, field level demonstrations, non government organizations, farmers fair

and field days, trainings, agricultural exhibitions, mobile week, extension literature, e-mail service etc.

Demonstrations on wheat had positive impact on farmers' perception and attitude but unavailability of inputs, less relative advantage; women based agriculture etc were reason for non adoption. The sizes of plots were very small and scattered thereby one hectare of land accommodated 20 to 30 farmers. The seed production on wheat under crop demonstration, initiated in collaboration of seed certification agency in two hectares produced 50 quintals of certified seed but only 5 quintals sold by the farmers because of low price and inadequacy of surplus for sale. The platforms created by NGos, are also being used as a means for conducting crop demonstrations. Krishi Gosthies and competitive exercises at farmers' fair and on field days help in greater involvement of farmers and farm women.

Training is an important link with state agriculture department. The state agricultural personnel are grouped into agriculture, horticulture and soil and water conservation and are responsible for agricultural activities. Some important training needs of these personnel have been identified. Systematic and planned trainings' can be more beneficial than routine one.

To make agricultural exhibition more attractive and effective, blow-ups on agricultural technology with 2-3 line caption helps conveying the message more effectively. Specially designed acrylic seed sample disks, small size of seed packets (pouch packaging of input) along with literature attracted the visitors' attention in exhibitions. Systematic planning for pre exhibition, exhibition and post exhibition phases are necessary.

Mobile week before Rabi and kharif season initiated for timely seed availability in far flung areas. Three routes were covered for rabbi season mobile week and covered 40 villages. Small packets of seeds were supplied at reasonable prices. Radio is a very useful media for farmers in the hills. Kheti and Gram Jagat are two important program broadcasted for farmers from AIR Almora. These have 5-10 minute broadcast every day. The aerial distance of radio station is only 10-km which results in low coverage.

Scientist and technical officers from institute are delivering the talks on radio since 1990. The important topics for their talk were on major crops of the region.

Krishi calendar sized 2x1.5 feet consists six pages elaborating every two months the major agricultural operations on each page and has been designed and printed. The message of few leading organization/ companies advertised on each page of calendar helps in accommodating the printing cost of calendars. The folders on package of practices costing each about Rs 5/ get printed and distributed in masses. Technological options for educated people is ready reckoned in the form of a handbook consisting photographs on each back- page and tips on package of practice on each of the front page.

E- Mail service to progressive farmers and NGOs is initiated keeping in view the future advances in information technology. In this respect audio and video cassettes are some other proposed devices to be used in the coming years.

Source: International Conference on Communication for Development in the Information Age: Extending the Benefits of Technology for All. 07-09 January 2003 Eds. Basavaprabhu Jirli Editor in Chief, Dipak De, K. Ghadei and Kendadmath, G.C., Department of Extension Education, Institute of Agricultural Sciences, Banaras Hindu University, Varanasi, (India).

Water harvesting: Snow Water Harvesting is done in the Cold Deserts of J&K and HP. Among other environmental stresses, severe water shortage in remote cold deserts of the Himalayan region in particular makes these areas most difficult. Snow water harvesting in this region has traditionally played a significant role in the sustenance of farming communities. However, introduction of modern technologies in snow water harvesting have proved much beneficial for the region. Initiatives of Chewang norphel, Ladakh's "Glacier Man", in making low cost artificial glaciers during winters have enabled the villagers to get irrigation water during sowing season (April- May), thereby, improving crop growth. The added advantage is that the areas under artificial glaciers turn into green pastures during summers.

In this context, rain water harvesting has been made compulsory by the HP Government vide letter no. PBW (B&R) (B) 24 (1)/91-1 (Part file) dated 07.07.1999. A workshop was also held in this regard on 18.06.2005 and decided to take up this matter as a campaign throughout the State. Norms for construction of rain harvesting structure @ 20 L per sq. m. of roof top area has also been fixed. Instructions have already been issued by this department to all the field functionaries involved in map approving process that no building plan may be approved without making provision for rain water harvesting structure which will be @ 20 L sqm of roof top area.

Source: Governance for Sustaining Himalayan Eco system Guidelines & Best Practices (G-SHE)

Soil and water conservation: Soil and water conservation integrating the rural women development in Motna village has been successfully demonstrated at Tehri, Garhwal District, Uttarakhand. In the villages of Garhwal hills the major problem faced by the farmers is soil erosion due to rain or natural streams. In several areas, it has been found that the soil of the land in villages is cut out due to the rain which needs permanent protection to save the soil. A proposal was made to stop the soil erosion of the land in Motna Village. 2. Activities relating to the employment of the local women by making various items from the Ram bans were taken, so that they can utilise the major use of the Rambans. Proper training to the women of the Motna village was imparted to generate some money by extracting the Ram bans as it is available in bulk in this area. Women were imparted proper training for making this final item at the village level. Vacant space in the village area was planted to prevent the soil erosion. A full fledged nursery was developed where several types of saplings of various trees were planted and a variety of seeds of the same were distributed in Motna and nearby villages. Mangal Dal, Group of women of the Motna village was involved in plantation of several saplings in the barren land of the village with the permission of the Gram Pradhan of the area.

It is evident that basically the women of the villages are more eager to learn the method of making rope from the Rambans. They have also made several other decorative items from the extract of Rambans. It is advisable to the all villagers to take this project as their employment so that they can earn some money for their basic needs at the village level. Every village should have their own nursery so that they can plant the saplings of the various types of trees in the barren portion of their village land to stop or to prevent soil erosion. People of the Village also come to know how they can stop the soil erosion of their land by planting

maximum number of trees in the sloppy area of the village.
Source:http://gbpihed.gov.in/envis/HTML/vol10_1/sum101.html#Soilandwater Conservation integrating the rural women development in Motna.

Good use of nutrient management will improve both production and the environment: Cost-effective application will produce the best yield potential while minimizing costs. In turn, this helps reduce nutrients lost to the soil through leaching and water erosion. Soil testing is an important first step. Soil test results will give a base on which to analyze the soil needs. Also do tissue tests, if available for your crop. This shows what plant nutrient levels are at that point in time, as opposed to what is available in the soil. This is particularly important for perennial crops. Record keeping of soil and tissue tests will help track trends. Include observations on crop growth, yield, quality and weather conditions during the growing season. Application of nutrients varies from crop to crop. A few general best management practices include: If possible, use split applications of nitrogen to reduce the possibility of loss by leaching; keep soil healthy so that root systems will be most effective in using nutrients; and if nutrients are left after a crop harvest, use cover crops to hold them for the next crop.
Source: - http://www.omafra.gov.on.ca/english/environment/hort/hort.htm, Ministry of Agriculture Food & Rural Affairs; Canada

On farm water management for water resource usage optimization: Besides developing water sources to ensure round the year irrigation, the on-farm handling of water is also very important. The use of plastics for on farm management of water has gained significant importance in recent years. The plasticulture applications include water distribution network through plastic pipes, plastic sprinklers, micro irrigation, micro sprinkler, nursery bags, green houses, net structures, walk in and low tunnels, plastic mulching etc. Drip irrigation is useful from the point of view of judicious utilization of scarce surface and ground water resources.

Plasticulture application has proved beneficial to promote the judicious utilization of water, sunlight and also reducing the vagaries of climate. In plasticulture, plastic material is used for efficient utilization of natural resources through various applications resulting in enhanced productivity and sustainability. Different grade of plastic material like low Density Polyethylene (LPDE), High Density Polyethylene (HDPE) pipes for drip irrigation system, Ultra Violet Stabilized films for use as cladding material for green houses, plastic sheets of different thickness for plastic mulch are now available for use. These are light in weight, durable and cost effective.
Source: http://www.msamb.com/english/apmc/apmcs/

APMC market with complete infrastructure development and rail/road connectivity: A well planned APMC market with complete road and rail connectivity can make it a hub of the region. This has been demonstrated by APMC market in Vashi in new Mumbai area in Maharashtra. The growing population of navi Mumbai as well as that of Mumbai city needed a centralized facility for marketing of the upcountry agricultural produce, food grains, vegetables, fruits and milk products with in the cities. There fore a centralized wholesale market, APMC, was established and commissioned in Vashi in 1993 to cater to the needs of Mumbai and navi Mumbai. Grains, rice, wheat, fruits, oil, vegetables etc. are available in APMC. This is the biggest and cheapest agricultural produce market of the twin cities. The shops are arranged

categorically. There are four markets in the APMC, namely –Phase-I, Market-I - onion and Potato Market.; Phase-I, Market- II - Fruit and vegetable market; Phase-II, Market-I - Commodity market and Phase-II, Market-II - Grains, rice and oilseed market. It is developed on an 160 ha area and handles 4000 trucks per day. In addition, cold storages for milk, meat and animal products serve to facilitate both local and international trade. Though it is a wholesale market, general public also purchase various items in bulk from here. APMC is in fact the place where the agricultural produce are brought from different parts of the country and distributed to the twin cities and surrounding regions. An association of APMC called Grain, Rice and oilseeds Merchants Association (GRoMA) exists. The APMC project won the Prime Minister's award in the Implemented Urban Planning and Design Project category. As huge numbers of commercial vehicles are needed to bring in and move out the produce, their orderly parking etc is very essential. A truck terminal of 8.5 ha has been provided for this purpose in APMC area. In addition, for the commodities and produce that are moved by the rail, a Railway goods yard of 18 ha has also been made available to facilitate easy and orderly movement of the goods. These facilities have put Navi Mumbai commerce in the forefront and have made it the agricultural produce hub of Mumbai city.

Source: http://www.msamb.com/english/apmc/apmcs/

In rural areas where open defecation is practiced, pit latrines are provided at community & household level for improving sanitation. Provision of latrines also provide the users to have access to soap, ash and water leading to higher personal hygiene. In case, ground water is used as a drinking water source then the following safeguards should be adopted.

- Aminimumof15mshouldbekeptbetweenlatrineanddownstream ground water abstraction point.
- In case of space constraint between the latrine and the water extraction point, water from a lower level in the aquifer should be extracted.
- Where ground water is shallow, artificial barriers of sand around latrine & pits can control ground water contamination.

Source: A Guide to Development of on-site Sanitation, World Health organization, 1992.

In rural areas, source of water should be protected from cattle shed washing by diverting it into a storage pit which can be used for agriculture.

Source: Improved Community Health through natural Resource Management. RUCHI, Himachal Pradesh, India, A report by oxfam new Zealand

Water source e.g. spring can be protected by constructing a concrete base around it. This will not only protect water from solid waste scattered around it but also provide quick collection of water for usage.

Source: Improved Community Health through natural Resource Management. RUCHI, Himachal Pradesh, India, A report by oxfam New Zealand

Provision of separate drinking water supply for animals has been found to protect the source of water for human consumption. Diversion of house hold waste water into grey water pits instead of discharge into backyard or open drain will result in grey water recycling. This grey water can be used for agriculture.

Source: Improved Community Health through natural Resource Management. RUCHI, Himachal Pradesh, India, A report by oxfam new Zealand

Provision of compost pit for disposal of biodegradable solid waste, which otherwise is disposed outside the households in rural areas. This practice

has been found to prevent contamination from flies, a major contributor to the spread of diarrhea. Provision of trash bins at selected places in villages has been found to divert rubbish at one place thereby contributing in reduction of diseases.

Source: Improved Community Health through natural Resource Management. RUCHI, Himachal Pradesh, India, A report by oxfam new Zealand

Provision of ferro cement tanks for storage of water in rural areas not only provide improved access to water but also results in improvement of hygiene and reduction of diseases.

Source: Improved Community Health through natural Resource Management. RUCHI, Himachal Pradesh, India, A report by oxfam new Zealand

Legal intervention to promote water harvesting in hilly areas: State of Arunachal Pradesh, is now mandated to adopt water harvesting as a conservationtoolinurbanareasaspartofitsre formsactionplancommitted to the Central Government under the Jawaharlal Nehru national Urban Renewal Mission.

State is one of the highest recipients of rainfall in the country. Despite this, piped supply to established urban centers such as Ita nagarand naharlagun are frequently disrupted on account of failure of the distribution system.

Traditionally, ground based recharge systems have also been discouraged as the rate of run-off is very high and the stability of sub-terrain aquifers on slopes cannot be assured. In view of the same, some simple tools are now being incorporated in the building bye-laws being notified by the State. These include: Construction/installation of a surface reservoir fed directly from a gutter channel placed strategically along the roof (all roofs in the State are sloping and the material in use is painted and/or galvanised iron sheeting). The bye-laws exempt such surface reservoirs (up to 1,000 liters) to be exempted from Floor Area Ratio; households/establishments with active rain-fed surface water reservoirs to be provided steady exemption in tariff on piped water supply. There is still some debate on whether flat rate should be used or a metered supply is workable; an active set of bye-laws for re-use of recycled water for non-potable purposes, such as arboriculture/ horticulture. Unlike areas with sewerage systems, the cities of Itanagar & naharlagun generate considerable surplus water from rain water run-off from public areas, which goes into one of the several drainage channels (artificial/natural) in the city. The bye-laws and zoning regulations provide for creation of isolation and settlement ponds from where such water can be pumped for non-potable use.

Promoting/goof top rainwater harvesting can reduce water storage in hilly areas. An NGo called Pan Himalayan Grassroots Development Foundation has popularised the construction of concrete underground tanks for rooftop rainwater harvesting. The initial capital cost of construction of the storage tanks along with the gutter and down pipes is roughly Rs. 2 per liter of storage. For this purpose, the organisation has trained a cadre of local bare foot technicians to undertake masonry, plumbing and other works. This group is organised in a team called the Kumaon Artisans' Guild. Members of this guild have been responsible for providing critical training inputs to various communities in the states of Uttarakhand and Himachal Pradesh in construction and maintenance of the rainwater harvesting structures.

The Guild has also acquired participatory management skills including accounting and accepted the principles of social audit.

The creation of such guilds is of great importance for the success of appropriate technology transfer at the community level. The other appropriate technology based on traditional knowledge which entails harvesting of rainwater for groundwater recharge being tried out in Uttarakhand is that of digging trenches (Khaals) and erecting small check dams (bandhs). These khaals and bandhs are placed along the mountain slopes to catch the flowing surface water and to enhance infiltration and moisture retention in the soil.

Source: Promoting Rainwater Harvesting Structures in Hilly Terrain; Environment Water Community; www.indiawaterportal.org.

Initiatives of the Nagpur Municipal Corporation (NMC) for reducing water losses due to illegal and unmetered water connection: The problem faced by NMC was huge losses in distribution due to illegal and un-metered water connections which also caused acute water shortage. In late 2001, NMC initiated a program for regularizing illegal water connections and applying metering policy. For identifying unauthorized and un-metered connections, the licensed plumbers were involved in the program. The incentive of Rs 50-100 for every illegal connection motivated about 200 plumbers, who were organized into teams and assigned to the seven water zones for convincing the illegal connection holders to regularize their connections, getting the connections sanctioned, fixing meters and reporting those who refused to regularize to the respective zonal office. The water connections of those who refused to avail the scheme were immediately disconnected. The NMC staff working on the team was also motivated by a fixed monthly target of revenue collection from respective zones. With insignificant expenses of about Rs. 0.2 million as incentives for plumbers and a minimum amount spent on publicity drive, the program achieved regularization of about 25,000 (71%) connections within a short period of four months. There was a significant and evident increase in revenue generation as the quantity of water billed translating into over three-fold increase in revenue from Rs. 148.3 million in 1998-99 to Rs 500 million in 2001-02.

Source: Cost-effective & financially sustainable urban water supply & sanitation services/ from IWMI, Gujarat/Comparative experiences; Water and Environmental Sanitation network (WES-net India); Environment Water Community.

Micro-watershed management demonstration in Kerala: In Erimayoor, Eruthempathy and Vadakarappathy Panchayats in Palakkad District, national Healthcare Groups (NHGs) formulated micro projects in water resource management and presented them in the Gram Sabha. These were included in the Panchayat Plan and NHGs implemented the projects. There were also awareness programs for the community and school students on conservation and natural resource management. At the school level they formed a water club. A local long-term perspective plan for water management is being developed. Panchayat resource centre, which has facilities to monitor climate, rainfall, water situation also functions at the Panchayat office. They have also conducted water balance studies at the Panchayat level. This was facilitated by an nGo called Maithri for these Panchayats. Another initiative is by SEWA and Vilappil Panchayat in Trivandrum District to evolve sustainable development norms where water, soil and energy form the major components. This is by establishing mutual relation and cooperation for conservation of water. The discussions and decisions are arrived at in the nHGs,

Gram Sabhas and the Panchayat committees. Water literacy has been their main plank. Both these initiatives were supported by SDC-Cap DecK.

Source: Improving water and sanitation governance by PRIs, from SEUF, Kerala; Environment Water Community; www.indiawaterportal.org.

Decentralized rural water governance and women's empowerment in Maharashtra and Gujarat: Decentralized rural water governance and women's empowerment has led to success for water quality and management in rural areas. Women are proactive in drinking water governance in rural areas if they are part of existing power structures such as self-help groups. A powerful external agency, an nGo or a Community Based organization can put women at the helm. However, merely legislating a quota for women in village water and sanitation committees fails to involve them in this critical area. The local SHGs, Mahila Mandals or NGos can catalyse the role of women in drinking water governance.

Source: Rural Drinking Water Governance and the Role of Women; Environment Water Community; www.indiawaterportal.org.

Restoring Watershed Structures ensures Women are Equal Contributors in Village Governance and Water Management, Pali District, Rajasthan: A group of women in Pali constructed watershed development structures to address the water crisis in the area. Through this process they asserted their roles in water management and raised water priorities in the village development agenda. They were also able to negotiate the interests of vulnerable castes on to access to water. This effort made them equal contributors in village governance and water management projects.

Source: Community-based Water Harvesting Systems and Gender Equity - Experience; Environment Water Community; www.indiawaterportal.org.

Case Study 1: Efficient revenue billing and collection system can improve the financial health of utility Situation Prior to the Initiative: Before computerizing the Revenue Billing activity, manually written bills were issued. These bills were not giving clear picture about the consumption and other details to the consumer. Most of the time the percentage of accuracy of the bill was very less. Manual ledgers were maintained by ledger clerks. As it is said to err is human, errors were dominating the ledger details. MIS reports required to improve the overall efficiency were not available. In the manual system, the meter reader visits the customers place notes down the current meter reading and gives the details to the concerned dealing assistant who calculates the consumption and arrives the amount to be paid by the customer as per the consumption; There is every possibility that the human errors can be committed by the meter reader while calculating the consumption, bill by applying various types of tariff and customer type; For every 400 customers one ledger was maintained wherein details of consumption, bill raised, amount realized, balance etc. for each of the customer in respective ledger folio; Customers have to visit respective sub divisional cash counter centers which is located at BWSSB service station, sub divisional office for payment; These counters were opened for 4 hours during office hours; The payment details are updated in the concerned ledger folio of the customer by the dealing assistant; Any information customer requests BWSSB, the details has to be referred to the ledger. Similarly for the top management of the Board the information has to be manually compiled sub-division wise by referring to the ledgers, which is a time consuming process. This may also lead to error in the final statement like Demand Collection Balance; The top management could not review some of the cases like house locked, meter damaged, abnormal or subnormal consumption, faulty meters, arrears etc.; Large number of manpower has to be deployed of processing the bills and updating the ledgers; The ledger folio, meter reading etc. are not tamper proof; Errors in reconciliation of bills paid and delay in money deposited in the bank was an issue; The citizens have to visit a number of times in getting new water and sewage connection; There was no mechanism to verify whether the grievances of the citizens were addressed by the concerned official; The management could not have the number of customers, category wise in each sub divisions. Also consumption details, pumped details and loss of water could not be arrived.

Intervention: IT and GIS enabled interventions were introduced in with computerization of Revenue Billing and Collection Process so that citizen should get error free bill and citizen should be able to pay the bill at their convenient time and place. The complete billing process to be transparent and citizen should get the services from the respective sub divisions without any hassles. Further, top Management should be able to get the accurate demand collection and balance and monitoring of cases like door locked, meter damaged, meter not working, abnormal and sub normal consumption etc. is easier.

Strategies Adopted and Implementation Process: national Informatics Center has studied the manual system, existing sub divisional level computerization and the requirements of BWSSB; The existing procedure of generation of bills at Sub Divisional office has to continue so that the concerned Sub Divisional Staff can own the operations; With the existing technology and resources, it was decided that Citizens could pay their bills ANYWHERE ANYTIME instead of standing in long queues at respective Sub Divisional cash counters; Complete billing process, ledger maintenance etc. should be transparent Primary and secondary servers were installed with five client systems at each of the 26 sub divisional offices; All the sub divisional offices, divisional offices and head office were networked though leased line; 74 Cash Collection KIoSKs (ATM) were installed at existing cash counters and also at strategic locations which are convenient to the citizens of Bangalore to pay their water and sewerage bills; Citizens can also opt for payment of their water bill through ECS facility; Bangalore one data center is connected to the BWSSB Head office through leased line, so that the citizen can pay their bills in any of the Bangalore one center; The complete billing and collection process is handled by the BWSSB employees; The software was designed and developed by nIC and audited by third party; Any change in the customer details like commercial / domestic connection, bore size, meter reading, write off etc. is through Bio-matric authentication; Audit trial is enabled so that each and every crucial transaction is recorded; Access to the BGS application is through user login and password; and the bill should be Bar coded so that the details cannot be tampered and implementation of spot billing.

The citizens are the primary stakeholders in any equation of governance, and it is their right to expect service from public servants. BGS strive beyond public expectation in setting the standards of service. Pre-fixed Reading Days for Meter Readers and Monitoring the Abnormal, Subnormal Consumption, Issuing of bill showing detailed demand and previous month Collection details are few unique services offered by the BGS System. Different levels of Security are maintained in the system - the Bill is secured by Barcode, Cash Counter information is Encoded with MAC Address of the System. Biometric Authentication is implemented for major operations and Audit trailing is enabled for major events. The Collection Centers of BGS are 74 KIoSKS Accepting Cash/Cheque, Bangalore one, Cash Counters attached to each Subdivision and ECS Clearance System. The Collection Data is Captured at the above Centers through the Barcode Reader and transmitted to the Head office. From Head office the data is posted to the respective Subdivisions through SQL Replication. Any where any time payment is an additional facility provided to the citizen. The System manages the Collection facility through SQL Merge Replication Technology which runs 24X7. Single bill with Multiple Payment and Multiple Bills with Single payment are also accepted in these centers. With all these facilities there has been a sustained increase in collection and the system is helping Customers and the Department. After seeing the success the department has integrated workflow based new Water Connection Module and SPoT Billing is another service which gives openness and transparency in billing and this ensured more speedy and fool proof working of the department. Facility is provided for the Customers to lodge their Grievance through BWSSB Website and IVRS System.

Situation after Implementation of Initiative: The complete billing and collection process is transparent; Citizen is happy to pay any where any time from the nearest kiosk instead of cash counter which were in operation for 4 hours; Citizen is able to pay the bill as and when they find time and convenient location. For example when citizen goes for morning or evening walk or BDA shopping complex etc., the bills are paid since the Cash Kiosk is operational 24 X 7; Citizens pay at their convenient time instead of waiting till due date. This has benefited the Board by reducing the credit time (interest to be paid to bank); Responsibility of each task is well defined for each of the BWSSB staff; Biometric Authentication for vital process has made the data secure; Revenue has increased substantially; new Water Connection to the citizens is through workflow model; Databank was made with proper validations and Auditing; Security in Bill, Receipts are introduced by barcode; Improved the efficiency of BWSSB and achieved strong customer relation; SPoT Billing made the Meter reader to reduce the traveling by a single trip and openness in the process; Any time the Demand Collection Balance can be obtained; During water adalat any issue with respect to the error in bill can be corrected in the systems through biometric authentication. Similarly, any issues pertaining to water supply or sanitation etc. for which action are initiated so that the citizens are not deprived of water which is a basic and essential for mankind; Complaints received through IVRS and attended by the concerned AEE and the same is updated. Citizen can query the complaint by inputting the complaint number through IVRS to know the status of the complaint; operation costs of Revenue Billing and Collection has reduced.

Sustainability and Potential for replication: It is important that BGS is designed in a financially, legally, and technologically sustainable manner. nIC is the technology partner, consultant, developer and implementer of BWSSB projects. Software was developed using Microsoft based Visual Basic and SQL Server 2000/2005 with Barcode and Biometric technology. All The Core business Logic / procedures are written as Database level Procedures. The core BGS systems was given to reputed third party for testing the functionally and security. The Board has recruited 4Technical Engineers and two temporary staff specialized in Software to support the smooth implementation of the project under the Guidance of nIC. nIC has given Training to all subdivision staff at the operator, supervisory and officer Levels. Since BGS is citizen centric application and water distribution, billing and collection is core business of BWSSB, NIC has place team at BWSSB head office to address any critical issues and enhancement of the application.

The Revenue Billing and Collection Software can be replicated in other Water Boards, Urban Local Bodies, and Municipalities etc. By seeing the success and sustainable the Software was also implemented at Mandya District in Karnataka; The software was also implemented at 5 demonstration zones at Belgaum, Dharwad and Gulbarga Districts in Karnataka.
Source: Case Study: Bangalore Water Supply and Sewerage Board efficient revenue billing and collection system can improve the financial health of utility; A Guidebook for Local Catchment Management in Cities; Un-HABITAT.

A Catchment Information Management System can ensure efficient and effective water planning: In place of the traditional catalogues, an electronic system capable of arranging, storing and exchanging data and information should be installed. An inventory of the natural resources of the catchment area should be prepared using a Geographical Information System (GIS) format. This system will enable the catchment managers to view and locate patterns of settlement, land use and natural resources in the catchment and to identify relationships between the data. The catchment manager scan also view land systems, settlement features, land ownership and planning zones, demographic information and other socio- economic data and best management options. The GIS can also be used to study the relationships between pollution, land use, drainage patterns and socio-economic parameters. This involves integration of data of various themes to derive desired analysis and conclusions (opiyo-Aketch and Kibe, 2000). Using the GIS system, the manager can think of various scenarios and view the changes in land use or environmental conditions over time. This electronic system will also enable the manager to closely monitor the progress in the implementation of the IWRM strategy.
Source: Integrated Water Resources Management in Singapore; A Guidebook for Local Catchment Management in Cities; Un-HABITAT.

Development of a green belt and tree planting in rural and urban areas by communities have been found to be effective to control air pollution. Specific location of plantation in a geographic area can be fixed based on emissions modeling from vehicular movement and industries in that area. This practice can be implemented by the communities in association with ULBs & industries globally and has been found to be effective & sustainable. Such approach has been adopted in communities in India.
Source: The Hamilton-Wentworth Air Quality (HAQI) Initiative and Vision 2020, Canada, www.unhabitat.org/bestpractices.

Chapter 5: Proposed Action for Different Sectors

5.1 Education & Vocational Training

Proposed actions to address specific education and vocational training issues and type of response has been identified and described in Table 1. In Himachal Pradesh, there are many departments with overlapping and inter-connecting responsibilities in providing services. It is required of them to focus and channelize their course of work in order to have an integrated planning. For this inter-sectoral coordination in planning, execution and monitoring is required. It is important that planning and execution of any type of response requires identification of coordinating agency and collaborating agency. Table 1 clearly delineates these agencies.

Table 1: Proposed Actions, Type of Response and Intersect oral Responsibilities

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
1. Inadequacy of environmental science/engineering main subject at secondary and tertiary level, inadequate no. of specific courses in the domain of environment sciences and environment management and inadequate employment opportunity after completion of existing courses	• Inadequacy of awareness/ understanding to mainstreaming of environmental education in secondary and tertiary education	• Inadequacy of mainstreaming of environmental safeguards in development	• Development and implementation of environmental education program as main subject at secondary and tertiary level in the state	√		√		Department of secondary/higher education	State Universities NGOs, CSOs, MNRE, MoEF, NCERT
2. Inadequacy of environmental science/ engineering main subject at secondary and tertiary level,	• Subject coverage either distributed or non existent	• Inadequate capacity to address environmental pollution • Low sensitivity among youth	• Development of curriculum for environmental education at different levels (Primary, Secondary/Tertiary/Technical education) as part of environment education program.			√		Department of secondary/higher education	State Universities NGOs, CSOs, MNRE, MoEF, NCERT

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
inadequate no. of specific courses in the domain of environment sciences and environment management and inadequate employment opportunity after completion of existing courses		towards environment & consequences of their actions	• Assess and develop curriculum for specific courses for e.g. energy conservation, Effluent treatment (operation and maintenance) as per needs of the business and industries group sand other agencies						
3. Inadequacy of trained teachers/staff for environmental education in the state at primary, secondary and tertiary levels	• Non availability/ shortage of trained teachers staff for environmental education	• Inadequacy of capacity to address environmental pollution. • In capability of creating a generation of youth who understand the need to protect the environment	• Development of training capacity building program for teachers/skill personnel to augment their skills for imparting environmental education at primary, secondary and tertiary level			√		MoHRD UGC	State Universities MnRE, MoEF, nCERT Department of Secondary / Higher Education Department of Technical Education
4. Adequate funding	• More financial	• Inadequacy of	• Ensure budgetary	√				Department of	State

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
for environmental education infrastructure	support needed to establish new/augment the capacity of existing education and vocational training institutes for imparting environmental education	capacity to address environmental pollution. • Limited skill development/ knowledgebase inadequate infrastructure & faculty for Studies/ Research	allocation for environmental education program at different levels					Education and Government of HP	Universities and Higher Education
5. Inadequate awareness/capacity and training for new/emerging environmental issues e.g. waste from ICT/IT sector, climate change mitigation and adaptation.	• Limited skill/ knowledge base	• Inadequate plan, program, project policy to address new issues	• Training needs assessment with respect to Emergin gareasin environment e.g. clean technology/ cleaner production, climate change, ICT etc			√		Department of Education Department of Technical Education	DEST HPPCB, State Universities, nGos, CSos, MnRE, MoEF, nCER'T
6.	•	•	• Development of training programs for stakeholders as per needs assessment. • Assess and develop vocational long term/short			√	√	HPPCB	DEST, State Universities, nGos, CSos, MnRE, MoEF,

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
			term training courses, it is, etc. to address environmental issues. • Introduce special papers/ certificate courses (15 days to 3 months) in existing • Vocational courses and training						nCERT, AICTE, NABET
	• Mismatch between skills requirement and skill imparted. • Inadequacy of specific skill qualified people. • In adequate involvement of stakeholders	• Impact on environmental services provided by education and vocational training	• Development and implement of vocational training programs especially on resource conservation, cleaner technologies, cleaner production and pollution control			√	√	Department of technical education	State Universities, nGos, CSos, MnRE, MoEF, nCERT
7. Insufficient allocation of funds for upgradation of vocational training/ secondary and tertiary	• More financial support needed to upgrade diploma and engineering college/	• Impact on education and vocational training • Poor Standard of Education	• Ensure budgetary allocation for vocational training programs			√	√	Government of Himachal Pradesh	State Universities, nGos, CSos, MnRE, MoEF, nCERT

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
education institutions	upgrade environmental education system								
8. Inadequate Research and Development linking environment and industries: Research at Post graduate and Doctoral and Post Doctoral studies	• Mismatch of Research and Development needs/priorities of the Business and Industries groups with that of academic institutions and Research and Development activities being pursued in Himachal Pradesh	• Non mainstreaming of needs of business and industries groups with academic institutions. • Inadequate facility for research work. • Insignificant job security associated with academic & research work	• Assess and identify research and development needs of business and Industries. • Mainstream and introduce the identified needs into research and development priorities. Award Research fellowships and scholarships to pursue research and development priorities. • Set up Special chairs and Centres of Excellence in existing institutions to pursue research and development priorities. • Seek research grants and aids from business and industries groups in the state			√		Department of Higher and Department of Technical Education	UGC AICTE State research and development institutions CII Business and Industries Groups and associations

Monitoring and Reporting

Monitoring and reporting requirements with respect to response have been described below and performance indicators have been identified in Table 3.These monitoring requirements should be strictly followed for education and vocation training sector.

Monitoring of Implementation of sanitation plans/projects at school, colleges and institutional areas should be carried out. This data should be documented, reported and published.

Monitoring of awareness campaign: Annual tracking of awareness programs/campaigns needs to be carried out. Conduct annual surveys to find the effectiveness of the different campaigns and reformulate the communication strategy of the awareness programs.

Daily update of state Government's website and other State department's websites should be carried out. Publish an annual State Environment Report which will contain a chapter on education and vocational training sector in the state.

Performance Indicators: For macro-level management of education related issues identified and to gauge the performance of the above proposed actions, the following indicators are suggested to measure the outcome of these guidelines. These indicators as outlined in Table 2 will have to be monitored and reported by the concerned coordinating agency/ department.

Table 2: Performance Indicators

Outcomes	Indicator
1. Improvement of environmental education programs/environmental sciences/ environment management	- Number of students studying environmental science at primary, secondary and tertiary level. - Number of students studying environment engineering at bachelor's and master's level. - Number of students obtaining vocational training with specialization in environment. - Number of students getting employment after obtaining specific courses in environment education, environmental sciences/environment management.
2. Awareness about the issues	- Number of awareness campaigns conducted on each issue via different media. - Number of trainings imparted to officers and staff of line and associated department. - Creation of data bank at coordinating agency and regular publications on state government.
3. Inter-sectoral coordination and integrated planning	- Creation of Inter sectoral forums/platforms - Regular meetings of such forums - New and effective enforcement mechanisms in force.

5.2 IT & Telecom

Proposed actions to address specific IT and Telecom issues and type of response has been identified and described in Table 3. In Himachal Pradesh, there are many departments with overlapping and inter-connecting responsibilities in providing services. It is required for them to focus and channelize their course of work in order to have an integrated planning. For this inter-sectoral coordination in planning, execution and monitoring is required. It is important that planning and execution of any type of response requires identification of coordinating agency and collaborating agency. Table 3 clearly delineates these agencies.

Table 3: Proposed Actions, Type of Response and Intersect oral Responsibilities

				Response				Institutional Responsibility	
Issues	**Causes**	**Impacts/Risks**	**Proposed Actions**	**Policy**	**Plan**	**Program**	**Project**	**Coordination Agency**	**Collaborating Agency**
1. Generation of e- waste with increased penetration/Growth of ICT products	• E-waste emerging due to high obsolescence rate. • Lack of e-waste management programs. • Lack of infrastructure for collection treatment & disposal of e-waste.	• Public health risks due to hazardous nature of e-waste. • Loss of recoverable resources. • Higher risk of air, water & soil contamination	• Development of e-waste inventory for the state.				√	DEST	HPPCB ,Department of IT , ULBs, Department of industry, nGos, CSo
			• Development of e-waste management (collection, transportation & disposal) and principles of business model (take back) based on principles of 3 R's/EPR in the state			√		DEST / HPPCB	DoIT , ULBs, Department of industry, nGos, CSo
			• Strict implementation of e-waste rules.	√		√		HPPCB	DEST, DoIT, Department of industry, ULBs, nGos, CSo
			• EIA clearance of BPo should be conditional with a mandatory-waste management plan	√				State EIA operational committee	DEST, HPPCB
2. Public health Issues related to telecommunication e.g. electromagnetic radiation	• Long term continuous use of cell phones,	• Public health risk	• Accelerate/Initiate programs to raise awareness of the			√	√	State EIA operational committee	DEST, HPPCB

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
	mobiles, Bluetooth etc. • Lack of R&D • Lack of awareness among people to use the telecommunication instruments • Lack of monitoring of radiation.	• Possible impact due long term exposure to EMF & radiation	consumers						
			• Strict compliance to safety standards as per industry best practices / codes			√		DoT, DoIT	DEST, HPPCB, ULBs, NGOs, CSO
			• Regulatory monitoring of radiation near telecom tower.			√		Operator	DEST, HPPCB, DoIT, Department of Health, University, R & D institutes nIT, HPPCB, DEST
			• Development of R & D projects focusing on impact of radiation of human health.			√		IT Department	
3. Occupational health risks due to informal sector (rag	• Exposure to hazardous chemicals	• Public health risk due to	• Complete ban on informal sector recycling (if any)	√				Dept. of industries	HPPCB, IT Department

				Response				Institutional Responsibility	
Issues	**Causes**	**Impacts/Risks**	**Proposed Actions**	**Policy**	**Plan**	**Program**	**Project**	**Coordination Agency**	**Collaborating Agency**
pickers/dismantlers/recyclers) recycling of e-waste	• Lack of awareness about harmful effects of formal sector recycling • Lack of usage of safe/clean technology	emissions, e.g. exposure to hazardous chemicals. • Water and air pollution	of e-waste in the state						
			• Identify and quantify occupational health risks due to e-waste recycling.			√		Dept. of Industries	HPPCB, DEST, ULBs/ nGos/CSos
			• Develop programs for integration of informal recycling in the state			√		Producers	
4. Environmental, Land and Building related issues including sitting of IT infrastructure areas, unauthorized establishment of telecom towers etc	• Inadequate capacity of IT Infrastructure / facilities including building & equipment. • Non availability of land • Diversification of forest land	• Loss of forest land • Loss of flora & fauna	• Development of state level manual for IT based industries	√			√		Infrastructure Developer/DEST, SEIAA operators, nGos, DoIT / DoT
			• Implementation of IT industry's environmental best practice			√		DEST	Infrastructure Developer/HPPCB/Operators, NGOs, IT
5. Development of Energy	• Higher	• Global	• Implementation			√		DoIT,	DEST/HPPCB, Infrastructure

Issues	Causes	Impacts/Risks	Proposed Actions	Response				Institutional Responsibility	
				Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
Intensive IT Infrastructure as well as unauthorized usage of DG set	consumption of electricity which could be saved • Lack of Technological Upgradation	warming due to usage of imported electricity from the grid during lean season	of Bureau of Energy Efficiency of the star rating BPO program • Implementation of Energy Conservation Building Code	√				DoT/operator	Developer HP State Electricity Board
6. Lack of awareness about ICT equipment usage & disposal	• Limited reach & extent of public awareness campaign • Lack of NGO/CSO participation	• High energy consumption • Waste generation • Public health risk	• Awareness generation to promote awareness about environmental issues related to IT/ ICT products			√	√	DoIT, DoT	NGOs/CSOs

Monitoring and Reporting

Monitoring and reporting requirements with respect to response have been described below. These monitoring requirements should be strictly followed for critically polluted and vulnerable areas.

Monitoring of E-waste inventory in the state: This data for ICT/IT equipment should be collected documented and published after two years.

Monitoring of E-waste collected and recycled in the state: This data should be collected, documented and published every year.

Monitoring of radiation near cell phone towers in the state: This data should be collected, documented and published every year.

Monitoring of electricity consumption in BPo / IT parks in the state: This data should be collected, documented and published every year.

Performance Indicators: For macro-level management of IT/Telecom related issues identified and to gauge the performance of the above proposed actions, the following indicators are suggested to measure the outcome of these guidelines. These indicators as outlined in Table 4 will have to be monitored and reported by the concerned coordinating agency/ department.

Table 4: Performance Indicators

Outcomes	Indicator
1. E-waste management	• E-waste collected versus generated in tonnes. • E-waste recycled versus collected in tonnes. • Increase/Decrease in E-waste collected, recycled and disposal.
2. Radiation monitoring	• Radiation monitoring within 200 m to 500 m of all telecommunications tower
3. Energy conservation in BPos / IT parks	• Ratio of number of star rated BPos to total number of BPo. • Ratio of number of ECBC IT parks compliant to total number of IT.
4. Awareness about the issues	• No. of awareness campaigns conducted on each issue via different media. • No. of trainings imparted to officers and staff of lines and associated department. • Creation of data bank at coordinating agency and regular publications on state government
5. Inter-sectoral coordination and integrated planning	• Creation of Inter-sectoral forums/ platforms. • Regular meetings of such forums. • New and effective enforcement mechanisms in force

5.3 Livelihood

Proposed actions to address specific sector issues and type of response has been identified and described in Table 2. In Himachal Pradesh, there are many departments with overlapping and inter-connecting responsibilities in providing services. It is required for them to focus and channelize their course of work in order to have an integrated planning. For this, inter-sectoral coordination in planning, execution and monitoring is required. It is important that planning and execution of any type of response requires identification of coordinating agency and collaborating agency. Table 5 clearly delineates these agencies.

Table 5: Proposed Actions, Type of Response and Intersect oral Responsibilities

				Response				Institutional Responsibility	
Issues	**Causes**	**Impacts/Risks**	**Proposed Actions**	**Policy**	**Plan**	**Program**	**Project**	**Coordination Agency**	**Collaborating Agency**
1. .Depleting natural resource base leading to loss of livelihood	• Reduce water availability. • Reduce forest area / cover. • Change in landuse.	• Loss of livelihood	• Development of alternative livelihood programs based on sub sector development under infrastructure, natural reservoirs and services			√		Office of the Chief Secretary	Committee of Secretaries
			• Close monitoring of livelihood programs especially of BPL families under existing central and state government schemes			√		Office of the Chief Secretary	Committee of Secretaries/ Department Heads
			• Development and implement sectoral development plans/ programs/projects already identified under each sub sector to optimize natural resource use		√	√	√	Sub- sector line Department	PRIs, nGos, ULBs, CSos, CBos other departments
2. Unremunerative agriculture in certain areas leading to loss of livelihood	• Rain dependent agriculture. • Inadequacy of crop diversification. • Poor yield	• Loss of resources. • Reduced remuneration.	• Preparation and implementation of state wide water harvesting structure/drip			√		Department of agriculture, department of horticulture	DEST, IPH, Department of Rural Development

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
		• Abandoning agriculture as a source of livelihood	irrigation programs for multipurpose usage • Preparation and implementation of agriculture productivity improvement program through technology e.g. biotechnology			√		Department of agriculture, department of horticulture	, HPPCB, Department of Planning DEST, IPH, Department of Rural Development, HPPCB, Department of Planning, Agriculture/ Universities, CSKHPKV Palampur
3. Change in environmental conditions leading to loss of livelihood	• Erratic rains and snowfall. • Increased air and water pollution. • Increased soil erosion	• Failure of agriculture/ horticulture crops. • Public health risks leading to loss of working hours. • Loss of agriculture/ horticulture productivity.	• Preparation and implementation of crop diversification programs adapting to climate change • Strict implantation and monitoring of air and water pollution control programs and projects			√ √	 √	Department of Agriculture, Department of Horticulture DEST	DEST, IPH, Department of Rural Development, Department of Planning HPPCB, IPH, ULBs, PRIs, Department of Urban Development, Department

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
									of Rural Development of Industries, Department of Transportation, Department of Health and Family Welfare
			• Strict implementation and monitoring of CAT/watershed development / other soil erosion programs and projects			√	√	Department of forest	Department of Agriculture, Department of Horticulture, Department of Rural Development, IPH, Utilities, PRIs, CSos, nGos
4. Inadequacy of access/delayed market access and market	• Inadequate road and transport infrastructure. • Inadequate market	• Loss of remuneration due to loss of	• Strict implementation and monitoring of state road / rural road			√		Office of the Chief Secretary	PWD, ULBs, PRIs, Department

				Response				Institutional Responsibility	
Issues	**Causes**	**Impacts/Risks**	**Proposed Actions**	**Policy**	**Plan**	**Program**	**Project**	**Coordination Agency**	**Collaborating Agency**
infrastructure leading to avoidable / wasteful expenditure and livelihood loss	infrastructure. • Inadequate horticulture/ agriculture facility	product. • Resources loss	/highway development and upgradation program/ master plan						of Rural Development, Department of Urban Development, IPH, DEST
			• Strict implementation and monitoring of market infrastructure development upgradation program /			√		Office of Principal Secretary/ Agriculture/ Horticulture	Department of Agriculture, Department of Horticulture, HPAPMC, ULBs, PRIs, Department of Rural Development
5. Inadequacy of diversified portfolio of subsistence livelihood	• Inadequacy of awareness. • Inadequacy of replication successful demonstration of	• Income/loss of livelihood of alternatives	• Development and implementation of district wise portfolio of subsistence livelihood program			√		Department of Panchayati Raj	Department of Rural Development Department of Agriculture, Department of

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
			• Preparation and implementation of awareness campaign for replication of successful projects under subsistence livelihood programs			√		Department of Panchayati Raj	Horticulture, Department of Industries, PRIs, ULBs, CSos, CBos Department of Rural Development Department of Agriculture, Department of Horticulture, Department of Industries, PRIs, ULBs, CSos, CBos
6. Inadequacy of assessment of market /variation in demand and supply of major agriculture/ horticulture produce leading to loss of livelihood	• Inadequacy of assessment of demand and supply; its variation. • Inadequacy of operational strategy to address variation in demand and supply	• Overproduction leading to wastage of agriculture/ horticulture produce leading to resource loss and livelihood	• Implementation and monitoring of recommendations of market research study recommended as part of market infrastructure development program.			√		Office of Principle Secretary, Department of Agriculture/Horticulture	HPAMC, Department of agriculture, department of horticulture, department of rural development,

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
		loss	• 2. Market related study to assess consumers choice/behavior for diversification of livelihoods				√		PRIs, nGos, CSos
7. Public health risk leading to loss of livelihood due to inadequacy of sewage/safe drinking water infrastructure	• Discharge of untreated sewage. • Increased occurrence of water and air borne disease. • Inadequacy of availability of health services. • Occupational health risks in factories	• Reduced / loss of working hours leading to livelihood loss	• Strict implementation and monitoring of proposed actions recommended under guidelines for water supply and sewage			√		Office of the Chief Secretary	Office of Principle Secretary, IPH, HPAMC, Department of Agriculture, Department of Horticulture, Department of Rural Development, PRIs, nGos, CSos, CBos
			• Strict implementation and monitoring of proposed actions recommended under guidelines for			√		Office of the Chief Secretary	Office of Principle Secretary, Department of Health, and Family

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
			health sector						Welfare, DEST, IPH, Department of Rural Development, ULBs, PRIs, Department of Industries, Directorate of factories, CSos, nGos
8. Unexplored prospects of participation of private sector participation/entrepreneurship for diversification of livelihood	• Inadequacy of capital. • Inadequacy of skill upgradation. • Dependence on the government	• Loss of opportunities	• Implementation and monitoring of infrastructure development under PPP. • Tourism. • Roads/highway. • Water supply/sewage. • Urban infrastructure development. • Rural infrastructure development. • Hydropower/Non-conventional energy source. • Market					Office of the Chief Secretary	office of Principle Secretary (Tourism), office of Principle Secretary (PWD), office of Principle Secretary (IPH), office of Principle Secretary (Urban Development), office of Principle

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
			infrastructure						Secretary (Rural Development), office of Principle Secretary (Energy), office of Principle Secretary (Hydropower / non-conventional energy), Department of Agriculture & Horticulture, DEST, All line Departments
9. .Inadequate integrated landuse planning	• Land Use Board not adequately involved in integrated land use planning. • Inadequate land use planning at the	• Sustained degradation of land resources due • to exploitative	• Strengthen Himachal Pradesh State Land Use and Wasteland Development Board reconstituted in		√			Head of the Integrated Land Use Planning Authority/ Himachal Pradesh State	Department of Planning and Head of Department

				Response				Institutional Responsibility	
Issues	Causes	Impacts/Risks	Proposed Actions	Policy	Plan	Program	Project	Coordination Agency	Collaborating Agency
	department level. • Inadequate Institutional structure for integrated land use planning in the state.	and competing demand on finite land resources from various departments/ sectors	2007 for three years. • Set up an institutional mechanism to foster Integrated Land Use Planning Authority in the state					Land Use and Wasteland Development Board	

Monitoring and Reporting

Monitoring of fragmentation of agricultural farmlands: Identify and map districts/ agro-climatic zones where fragmentation or rate of fragmentation is high so that priority actions can be taken in terms of planning alternate livelihoods, schemes/programs and diversified agriculture schemes. All relevant data has to be documented, reported and published by the Department of Agriculture annually.

Monitoring of areas witnessing shift in cropping practices: Identify and map those districts/agro-climatic zones where such a shift is more pronounced in terms of extent (area) and number of crops which are catalyzing/indicating the shift in cropping practices. This would enable identification of priority actions and schemes in those districts/agro-climatic zones where shift has changed the soil productivity or is posing a threat to long term farm income or food and nutrition security. Monitor the existing schemes which are aimed at revival of traditional crops/new crops for their assessment of efficacy and scaling up in other areas. All relevant data has to be documented, reported and published by the Department of Agriculture annually.

Monitoring of areas where soil and water conservation programs are inadequate in terms of outreach and efficacy of such programs: Identify and map those districts/agro-climatic zones where such programs are inadequate and ineffective to enable priority actions like introducing watershed (micro-watershed) development programs, catchment area treatment programs, command area development programs and suitable best practices. Monitor the existing schemes which are aimed at increasing the outreach of soil and water conservation programs and assessment of their effectiveness and where the programs have not yielded desired results. All relevant data has to be documented, reported and published by the Department of Agriculture annually.

Monitoring of Effect of Climate on Agriculture Crops: Monitoring of parameters like effect of frost on crop yield, effect of wind on crop yield, effect of rainfall on crop yield, effect of hailstorm on crop yield, effect of drought on crop yield etc, should be taken up.

Monitoring & Reporting of Disease: Regular inspections should be carried out on plants and data related to work place diseases should be recorded, documented and published every year.

Monitoring of Implementation of Catchment Area Treatment (CAT) plans and documenting, reporting and publishing on an annual basis using remote sensing and GIS applications should be carried out.

Monitoring & Reporting of Water Harvesting Programs should be carried out for trend analysis of critical areas for ground water recharge. This data should be documented, reported and published annually.

Water Quality Monitoring and Reporting: Collect the data both for surface and groundwater (district wise) and analyse the trends & level of contamination. This should be carried at the source and at household level. This data should be processed, analysed and published quarterly. The water quality parameters should be tested as per IS 10:500.

Monitoring and Reporting of Disease occurrence: Monthly monitoring of occurrence of water and air borne disease should be carried out. The monitoring report has to be documented and reported quarterly by the coordinating department.

Performance Indicators

For macro-level management of livelihood issues identified and gauge the performance of the below proposed actions, following indicators are suggested to measure the outcome of these guidelines. Indicators as outlined in Table 6 will have to be monitored and reported by coordinating agency/department.

Table 6: Performance Indicators

outcomes	Indicator
1. Implementation of agriculture development and improvement programs/projects.	- Per hectare production of agriculture produce. - Percentage share of income from agriculture produce. - Number of warehousing and storage facilities and their capacity per district. - Decreased/increased revenue/income due to increase/decrease percentage of agriculture area. - Revenue loss due to percentage of damaged agriculture produces during storage/packaging/transportation/ handling. - Percentage of damaged horticulture produce during storage/packaging/ transportation/handling. - Quality of agriculture produce and their market value. - Annual expenditure on agriculture activities. - Annual export of horticulture produce. - Road and Transport status in identified horticulture dominant area. - Quality of horticulture produce and their market value. - Annual expenditure on horticulture activities.
2. Improvement of water quality	- Meeting at least designated Best Use Class D for surface waters as given by Central Pollution Control Board, Delhi. - Percentage reduction of silt load.
3. Desiltation for removal of organic/ toxic sediments	- Percentage reduction in volume of silt disposal.
4. Catchment treatment to check erosion	- Number of CAT plans approved and implemented. - Percentage of area treated under CAT plan each year.
5. Rain water harvesting	- Number of rain water harvesting plans approved and implemented. - Ground water level rise and fall in the catchment areas.
6. Treatment of sewage/MSW/BMW	- Percentage of sewage generated versus treated. - Percentage of MSW generated versus treated. - Percentage of BMW generated versus treated.
7. Inter-sectoral coordination and integrated land use planning	- Creation of Inter-sectoral forums/ platforms. - Regular meetings of such forums. - New and effective enforcement mechanisms in force.
8. Awareness about the issues	- Number of awareness campaigns conducted on each issue via different media. - Number of trainings imparted to officers of various state departments. - Creation of Data bank at coordinating agency and regular publications on state government website on the state of water, air, waste & health scenario and its implications.

Chapter 6: Inter-Relation between Monitoring & Evaluation with Venerability Assessment

All the monitoring measures will provide input for redefining the 'Vulnerability' of the state for different regions in Himachal Pradesh. This will ultimately influence the Environment Master Plan and may call for readjustment and fine tuning the scope of sector specific plans. It is a dynamic process and will need to be continually updated with changing pressures, need and attitude of the society. This can be seen in Figure 1.

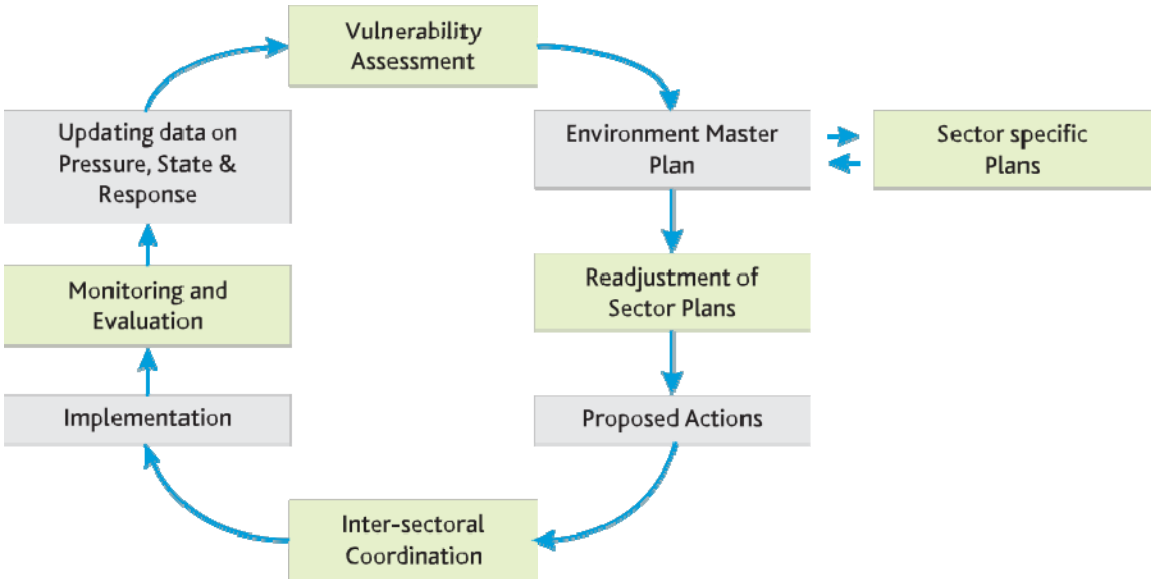

Figure 1: Inter-relation between monitoring measures with Vulnerability Assessment

In the above sections, good practices and issue specific mitigating measures/ action plans have been proposed for betterment and strengthening the services and management of the education sector. This calls for inter- sectoral coordination for effective implementation of these proposed actions. The monitoring and evaluation of the proposed actions delineated in Chapter 5 will provide an input to define the sub sectors given in services sector, pressures and response in the region, which will redefine the vulnerability of the region and hence the EMP, and the Education and vocational training sector plans.

Chapter 7: Recommendations

7.1 Education & Vocational Training

Create more universities/institutions of higher education: The higher education system in the state needs a massive expansion of opportunities that would enable Himachal to attain a gross enrolment. Such expansion would require major changes in the structure of regulation.

Change the system of regulation for higher education: The present regulatory system of higher education in India has gaps with respect to some important aspects. There are multiplicities of regulatory agencies where mandates are both confusing and overlapping. A clear need to establish an Independent Regulatory Authority for Higher Education (IRAHE) has been identified to overcome multiplicity of regulation. Some of the features of this authority are described below.

- The IRAHE would have to be established by an Act of Parliament, and would be responsible for setting the criteria and deciding on entry.
- It would be the only agency that would be authorized to accord degree granting power to higher education institutions.
- It would be responsible for monitoring standards and settling disputes.
- It would apply exactly the same norms to public and private institutions, just as it would apply the same norms to domestic and international institutions.
- It would be the authority for licensing accreditation agencies.
- The role of the UGC would be re-defined to focus on the disbursement of grants to, and of, public institutions in higher education. The entry regulatory functions of the AICTE, the MCI and the BCI would be performed by the IRAHE, so that their role would be limited to that of professional associations.
- These streamlining of regulations' level at national will facilitate growth of higher education in the State. Therefore, the state should initiate discussions with Central Government about these issues at an appropriate level.

Increase public spending and diversify sources of financing: The expansion of higher education is not possible without enhanced levels of financing. This must necessarily come from both public and private sources in the state.

⇒ Since Government financing will remain the cornerstone, Government support for higher education should increase to at least 1.5 % of GDP, out of a total of at least 6 % of GDP for education.

⇒ Even this would not suffice for the massive expansion in higher education that is an imperative. It is essential to explore other possibilities that can complement the increase in public expenditure.

⇒ Most public universities are sitting on a large reservoir of untapped resources in the form of land. It should be possible to draw up norms and parameters for

universities to use their available land as a source of finance.

⇒ It is for universities to decide the level of fees but, as a norm, fees should meet at least 20 % of the total expenditure in universities. This should be subject to two conditions: first, needy students should be provided with a fee waiver plus scholarships to meet their costs; second, universities should not be penalized by the UGC for the resources raised from higher fees through matching deductions from their grants-in-aid.

⇒ Nurture the tradition of philanthropic contributions through changes in incentives for universities and for donors. At present, there is an implicit disincentive in both tax laws and trust laws. These laws should be changed so that universities can invest in financial instruments of their choice and use the income from their endowments to build up a corpus.

⇒ Universities should also seek to tap other sources such as alumni contributions and licensing fees. Create supportive institutional mechanisms that allow universities to engage professional firms for this purpose.

⇒ It is essential to stimulate private investment in education as a means of extending educational opportunities. It may be possible to leverage public resources, especially in the form of land grants, to attract more (not-for-profit) private investment.

⇒ Any measure highlighted above can be utilized for augmenting resources for Universities in Himachal Pradesh.

Reform existing universities: The existing system could be reformed by adopting any or a combination of the following measures.

⇒ Universities should be required to revise or restructure curricula at least once in three years.

⇒ Annual examinations, which test memory rather than understanding, should be supplemented with continuous internal assessment which could begin with a weight of 25 % in the total to be raised to 50 % over a stipulated period.

⇒ We propose a transition to a course credit system where degrees are granted on the basis of completing are quisite number of credits from different courses, which provides students with choices.

⇒ Universities must become the hub of research once again to capture synergies between teaching and research that enrich each other. This requires not only policy measures but also changes in resource allocation, reward systems and mindsets.

⇒ There must be a conscious effort to attract and retain talented faculty members through better working conditions combined with incentives for performance.

⇒ The criteria for resource allocation to universities should seek to strike a much better balance between providing for salaries or pensions and providing for maintenance, development or investment.

⇒ The elements of infrastructure that support the teaching-learning process, such as libraries, laboratories and connectivity need

to be monitored and upgraded on a regular basis.

⇒ There is an acute need for reform in the structures of governance of universities that do not preserve autonomy and do not promote accountability.

⇒ Create smaller universities which are responsive to change and easier to manage.

Restructure undergraduate colleges: The system of affiliated colleges for undergraduate education, which may have been appropriate 50 years ago, is no longer adequate or appropriate and needs to be reformed. There is an urgent need to restructure the system of undergraduate colleges affiliated to universities. Higher academic/research should be incentivised through vocational/job opportunities to encourage more students opting for research:

⇒ The most obvious solution is to provide autonomy to colleges either as individual colleges or as clusters of colleges.

⇒ Some of these affiliated colleges could be remodeled as community colleges, which could provide both vocational education and formal education.

⇒ New undergraduate colleges could be established as community colleges, could be affiliated with the Central Board of Undergraduate Education or State Boards of Undergraduate Education or could be affiliated with some of the new universities that are established.

Promote enhanced quality in education system: The higher education system must provide for accountability to society and create accountability within. An expansion of higher education which provides students with choices and creates competition between institutions is going to be vital in enhancing accountability.

⇒ There should be stringent information disclosure norms for all educational institutions such as their financial situation, physical assets, admission criteria, faculty positions, academic curricula, as also their source and level of accreditation.

⇒ Evaluation of courses and teachers by students as well as peer evaluation of teachers by teachers should be encouraged.

⇒ There must be a focus on upgrading infrastructure, improving the training of teachers and continuous assessment of syllabi and examination systems.

⇒ It is particularly important to enhance the ICT infrastructure. Websites and web based services would improve transparency and accountability. A portal on higher education and research would increase interaction and accessibility. A knowledge networkwould connect all universities and colleges for online open resources.

⇒ It may be necessary to rethink the issue of salary differentials within and between universities along with other means of attracting and retaining talented faculty members.

⇒ The system of higher education must recognize that there is bound to be diversity and pluralisminany system of higher education and avoid uniform one-size-fits-all approach. This sense of pluralism must recognize,

rather than ignore or shy away from, such diversity and differentiation.

Ensure access for all deserving students: Education is the fundamental mechanism for social inclusion through the creation of more opportunities. It is, therefore, essential to ensure that no student is denied the opportunity to participate in higher education due to financial constraints. There must be a well-funded and extensive national Scholarship Scheme targeting economically underprivileged students and students from historically, socially disadvantaged groups.

Affirmative action: A major aim of the higher education system must be to ensure that access to education for economically and historically socially underprivileged students is enhanced in a substantially more effective manner.

Recommendations made by the Commissions, groups and studies in vocation training sector include:

- ⇒ A labour market information system should be established, and research on vocational training strengthened.
- ⇒ Public-private partnership needs to be strengthened.
- ⇒ Special emphasis should be given to training and development of trainers and other staff associated with skill development programs.
- ⇒ Mechanism for quality control and accreditation should be strengthened.
- ⇒ Modularization and multi-skilling of programs needs to be carried out.

All the sectoral recommendations related to project and program implementation for education infrastructure, should be implemented both in rural and urban areas. All the proposed actions related to response in terms of projects, program and plans identified & highlighted in Table 3 should be implemented.

For efficient and smooth functioning of education and vocational training sector, adequate monitoring and supervision is necessary. All the monitoring and reporting programs identified in proposed actions should be implemented in a time bound manner.

7.2 IT & Telecom

The State Government should design and implement extended producer responsibility policy and regulatory framework for e-waste management in the state. This should be based on "take back" mechanism derived from "polluter pays" principle in line with MoEF guidelines and regulations. Further, the Government of Himachal Pradesh should update the inventory of IT equipment installed in Government offices. One of the software, Computer Management System of HP DIT covers every IT equipment installed in any Govt. office of HP. This software could be useful in projecting IT equipment status and disposal mechanism in the Govt. Sector. The e-Waste, transmission wave pollution and its monitoring on going scientific research and its effect on the globe, its environment, mankind, other flora and fauna need to be observed keenly and diligently.

The State Government should make compliance to Energy Conservation Building Code mandatory for all BPOs/IT parks and related infrastructure.

The State Government should make mandatory, a report from all cell phone operators on level of radiations near towers service providers should share the existing infrastructure e.g. towers, IT back bone building etc. .

Government shall conduct and provide funding and support for ICT education programs for persons with disabilities, related family and parent associations and DPOs.

The State's development strategy should be to develop quality human resource for IT industry. Draw a charter for implementing the training program, regular interaction and exchange with institute of higher learning in state to upgrade professional level of existing faculty. Set up a statutory body like State Council of IT Education to monitor the quality and standardization aspects in both Govt. and Private Institutions.

The successful implementation of Lokmitra in Hamirpur District should be replicated in other districts of the State. E-Governance to be implemented in holistic and integrated manner through a monitoring cell, with defined rules and procedures, based on principles of equity, transparency, responsibility and accountability.

Inter-departmental co-ordination between different departments like Department of IT, DoT, Department of urban development, ULBs, PWD, IPH, transportation, Himurja, DEST, HPPCB, PRIs, public relations, NGOs, CSos is needed for effective planning, implementation & monitoring of IT sector intervention programs.

All the sectoral recommendations related to project and program implementation for the sector should be implemented both in rural and urban areas. All the proposed actions related to response in terms of projects, program and plans identified & highlighted in Table 2 should be implemented.

For efficient and smooth functioning of the sector, adequate monitoring and supervision is necessary. The performance of various indicators would improve to a large extent if there is regular monitoring and supervision. All the monitoring and reporting programs identified in proposed actions should be implemented in a time bound manner.

The State Government should establish an Integrated E-waste Management Facility (IEWMF) as per Guidelines in the state.

Guidelines For Establishment of Integrated E-Waste Recycling & Treatment Facility:-

Guidelines for establishment of E-waste Recycling & Treatment Facility should be in line with the existing Guidelines/best practices/requirements in India for establishing and operating "Treatment storage and Disposal Facilities "for hazardous wastes. Such facilities shall be set up in the organized sector. However, the activities presently operating in the informal sector need to be upgraded to provide a support system for the integrated facility. This would enable to bring the non-formal sector in the main stream of the activity and facilitate to ensure environmental compliances. The proposed mechanism for the e-waste facility is only an illustrative model and details have to be worked out to develop such facilities.

Collection System for e-waste

A producer should be responsible for his products. He may be involved in the establishment of the take back system for end of use electronic and electrical equipments. The producer's responsibility should be either individual or collective. Individual model requires each producer to be responsible for managing the e-waste generated by their products. In the case of collective producer responsibility, the producer should be entered into a contractual agreement with a collection agency which would be responsible for collection of the waste from the generator. The producers through the collection agency have to pay a fixed price for their products to the generator, as in the collective responsibility model.

Storage areas

- ⇒ The storage areas for storing the e-waste in a facility should be located within the facility - on-site storage or located at a place outside the facility – offsite storage including the ware houses. Such storage areas should be covered areas for storage of e-waste till such time that the waste is recycled or treated. The storages could also be the warehouses hired for this purpose.
- ⇒ Appropriate containers should be used for storing different e-waste items separately and there should be no mixing of different kinds of e-waste
- ⇒ The purpose of having covered storage area at treatment sites is to minimize the contamination of clean surface and rain waters, to facilitate the reuse of those whole appliances and components intended for recycling and to assist in the containment of hazardous materials and fluids.
- ⇒ Appropriate spillage collection facilities should be provided. The spillage collection facilities include the impermeable pavement and sealed drainage system as the primary means of containment.

However, spill kits to deal with spillages of oils, fuel and acids should be provided and used as appropriate.

- ⇒ Appropriate sites must provide area storage for disassembled spare parts. Some spare parts (e.g. motors and compressors) will contain oil and/or other fluids. Such parts must be appropriately segregated and stored in containers that are secured such that oil and other fluids cannot escape from them. These containers must be stored on an area with impermeable surface and a sealed drainage system.
- ⇒ Other components and residues arising from the treatment of e-waste need to be contained following their removal for disposal or recovery. Where they contain hazardous substances they should be stored on impermeable surfaces and in appropriate containers or bays with weather proof covering. Containers should be clearly labeled to identify their contents and must be secure so that liquids, including rainwater, cannot enter them. Components should be segregated having regard to their eventual destinations and the compatibility of the component types. All batteries should be handled and stored having regard to the potential fire risk associated with them.

Dismantling & Segregation of dismantled parts

⇒ Dismantling and segregation of e-waste are one of the first steps towards recycling of the e-waste. These are cost effective and labour intensive activities that are mostly carried out in the informal sector which needs to be brought into the mainstream recycling activity. Such activities may be retained with the existing dismantling units to become a feeder system for the Integrated Facility or provisions could be made in the integrated facility for setting up a shed for dismantling and segregation.

⇒ Dismantling of e-waste may be carried out manually or mechanically depending upon the scale of operations and the e-waste being handled. Manual Dismantling should only involve the dismantling of used electronic and electrical equipments where there is no likelihood for being in contact with hazardous substances. An integrated facility should provide a mechanical dismantling facility to dismantle e-waste containing hazardous substances.

Recycling

⇒ The integrated e-waste recycling facility should opt for the Best Available Technologies (BAT) and provide the state of the art facility complying with all the environmental norms in the terms of emissions, effluents, noise waste treatment and disposal etc.

Treatment & Disposal

⇒ The activity of treating e-waste itself carries a risk of pollution that must be managed. All treatment activities must take place within an area provided with an impermeable surface.

The type of impermeable surface required is likely to depend on a number of factors, including:

⇒ Type and quantity of e-waste being processed,
⇒ Whether it contains hazardous substances and fluids,
⇒ Type and volume of other materials dealt with,
⇒ Type and level of activity undertaken on the surface,
⇒ Length of time the surface is meant to be in service,
⇒ Level of maintenance,

Procedures for Setting-up & Management of integrated e-waste facility.

For any processing and recycling facilities that receive designated materials, it must be ensured that:

⇒ Facilities are fully licensed by all appropriate governing authorities. The degree of licensing will vary depending upon the particular jurisdiction, as well as the size and nature of the facility.
⇒ Necessary Environmental Clearances (EC) should be obtained based on the scale of operations as pre scribed in the Environment Clearance notification dated 14 September 2006.
⇒ Facilities should have an Environmental Management System (EMS) in place.
⇒ Facility should be registered as a Recycler under the Hazardous Wastes (Management and Handling) Rules 2003 with the Central Pollution Control Board.

⇒ Facility should have obtained consents under the Water (Prevention & Control of Pollution) Act, 1974 and Air (Prevention & Control of Pollution) Act, 1981.

⇒ A facility has a written plan describing the facility's risk management objectives for environmental performance and compliance and its plans for attaining these objectives based on a "plan-do-check-act" continual improvement model.

⇒ Regular re-evaluation of Environment, Health and Safety (EHS) objectives and monitoring of progress toward achievement of these objectives is conducted and documented at all facilities.

⇒ Facilities take sufficient measures to safeguard occupational and environmental health and safety. Such measures may be indicated by local, state, national and international regulations, agreements, principles and standards, as well as by industry standards and Guidelines. Except as noted below, such measures for all facilities include.

⇒ EH&S training of personnel.

⇒ An up-to-date, written hazardous materials identification and management plan that specifically addresses at least the following: lead, mercury, beryllium, cadmium, batteries, toner, phosphor compounds, PCBs, and brominated flame retardants and other halogenated materials, with particular focus on possible generation of by-product dioxins and furans.

⇒ Where materials are shredded or heated, appropriate measures to protect workers, the general public and the environment from hazardous dusts and emissions. Such measures include adaptations in equipment design or operational practices, air flow controls, personal protective devices for workers, pollution control equipment or a combination of these measures.

⇒ An up-to-date, written plan for reporting and responding to exceptional pollutant releases, including emergencies such as accidents, spills, fires, and explosions.

⇒ Liability insurance for pollutant releases, accidents and other emergencies.

⇒ Completion of an EH & Saudit, preferably by are cognized in dependent auditor, on an annual basis. However, for small businesses, greater flexibility may be needed, and an audit every three years may be appropriate.

⇒ Facilities have a regularly-implemented and documented monitoring and record keeping program that tracks key process parameters, compliance with relevant safety procedures, effluents and emissions, and incoming, stored and outgoing materials and wastes.

⇒ Facilities have an adequate plan for closure. The need for closure plans and financial guarantees is determined by applicable laws and regulations, taking into consideration the level of risk. Closure plans should be updated periodically, and financial guarantees should ensure that the necessary measures are undertaken upon definite cessation of activities to prevent any environmental damage and return the site of operation to a satisfactory state, as required by the applicable laws and regulations.

Procedures for compliance with the existing regulations and guidelines

⇒ Existing Indian guidelines/best practices/requirements for establishment and operation of

treatment storage, and disposal facilities for hazardous wastes may be adequate for establishing and operating Integrated E-waste Management Facility (IEWMF). This will minimize interventions in existing regulatory institutional mechanism related to pollution prevention, abatement and control.

⇒ Permission needs to be given to Secured Land filling and incineration solely for e-waste Residues Treatment

⇒ Plastic containing flame retardant scan be burnt in common hazardous waste incineration facilities. But monitoring and control of plastic burning at these facilities is a big environmental health and safety issue. Therefore, plastic, which cannot be recycled and is hazardous in nature, is recommended to be land filled in nearby TSDF/SLF.

⇒ CFCs shall be handled as per the Montreal Protocol.

(The provisions for disposal of CFCs laid out in the Montreal Protocol are available at the UnEP website i.e. http://www.unep.org/ozone/montreal.

The Handbook for Montreal Protocol on substances that deplete the ozone layer (Seventh Edition (2006)) is available on web site i.e. http:// www.unep.ch/ozone/index.shtml)

⇒ Used oil needs to be disposed off as per Hazardous Waste Management Rules, 2003/ Hazarderwastes (Management, Handling & Transbounding Movement) Rules, 2008.

(The provisions of rules for disposal of used oil is available at CPCB's web site i.e. http://www.cpcb.nic.in/Hazardous%20 Waste/default_Hazardous_ Waste.html)

⇒ Capacitors containing PCB's can be incinerated in common hazardous waste incineration facilities.

⇒ Existing Lead recycling facilities from batteries fall under the existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste. In case lead recovery is very low, they can be temporarily stored at e-waste dismantling facility and later disposed in TSDF.

(The provisions of rules for disposal of lead acid battery plates is available at CPCB's website i.e. http://www.cpcb.nic.in/Hazardous%20 Waste/ default_Hazardous_Waste.html)

⇒ Mercury recovery facilities using distillation process in India fall under the existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste. In case mercury recovery from e-waste is very low, they can be temporarily stored at e-waste dismantling facility and later disposed in TSDF.

⇒ There is a need for collection and transportation system for e-waste. This will also ensure availability of e-waste to IEWMF. An organization consisting of industries or industry association at national and local level can be made responsible for collection and transportation of e-waste. Such type of organizations is functional in e-waste management system outside India. They act as an important link between e-waste generator and dismantler. But in the absence of such organization, the e-waste treatment facility operator will integrate backward with generators, which will have higher cost implications.

General Suggestions

⇒ The land for e-waste treatment facility shall be provided on the similar lines as for the TSDF facility by the State Government.

⇒ CRT breaking and glass recycling is being practiced in organized sector in India. These facilities fall under the purview of existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste. Lead either joins the recycling stream or can be disposed off in TSDF facility.

⇒ Existing ferrous and non ferrous metal recycling facilities fall under the purview of existing environmental regulations for air, water, noise, land and soil pollution and generation of hazardous waste.

⇒ The equipment used in dismantling facility is recommended to be covered under pollution control equipment so that the treatment facility can charge 100% depreciation in the first year. This will improve financial viability of the e-waste facility.

⇒ The complete recycling of e-waste including the Metal Recovery should be promoted for setting-up of IEWMF.

7.3 Livelihood

A Demand–driven, participatory approach should be adopted. Village Panchayat / community shall be given powers to plan, implement & manage. An integrated approach to water, sanitation & hygiene, ground water conservation and rain water harvesting needs to be adopted.

Capacity development of the community to plan, implement and manage the Rural Water Supply Schemes of their own choice. Implement/ decentralise the services and hand over to local governments or PRIs.

The major areas for capacity building, identified for both urban and rural water supply program in the sector include: Awareness generation amongst HP population; training to Government personnel on environmental issues, their responsibilities, planning, implementation, monitoring and surveillance; other education and information dissemination forums.

Diversifications from traditional crops to commercial crops in area where irrigation facilities are there have been created. The farmers should be motivated to produce organic vegetables without the use of pesticides and chemical fertilizers.

Development of rain fed areas through watershed approach on a large scale for efficient use of natural resources. Increased funding should be arranged under RIDF.

Rainwater harvesting is another area, which will not only provide irrigation to the crops but shall also recharge the ground water and check erosion. The department shall seek financial assistance from Government of India for small irrigation tanks/shallow wells and pumping sets.

Farm mechanisation with special reference to hill agriculture shall be given major thrust in the years to come. This is necessary to reduce cost of cultivation in view of high cost of labour.

Progressive fragmentation of agricultural farmlands leading to un-remunerative agriculture

It is not enough to provide for prevention of fragmentation in the Prevention of

Fragmentation and consolidation of Holdings Acts of different States. A careful study has to be made of the relevant provisions of the consolidation of Holdings Acts and the Acts relating to succession and the suitable amendments made wherever necessary to prevent the re-emergence of fragmentation. In order to ensure the smooth and satisfactory progress of consolidation program, the valuation of the land should be done by a high powered committee consisting of retired senior official of the Revenue department and two persons/non official members of public importance. What ever be the agency to value the land or to hear the appeals, the whole procedure should be streamlined and followed expeditiously.

Untapped potential of varied agro-ecological sub zones: The State of Himachal has been divided into ten agro-ecological zones by the national Bureau of Soil Survey and Land use planning (NBSSLUP, nagpur) on the basis of data on rainfall, temperature, Soil characteristics and available crop duration. These sub zones offer ample opportunities to plan for growing cereal crops, millets, pseudo cereals, pulses, oil seeds, vegetables, flowers, fruits, nuts, medicinal and aromatic plants. Condiments like ginger, turmeric, onion, garlic, red chillies etc. are another group of plants which hold promise. Specialty crops such as tea, kala jira, hops, Stevia, Saffron etc. also need special efforts if small and marginal farmers have to continue to earn their livelihood from farming.

The Bharat Nirman Programme envisages creation of 10 million hectares additional assured irrigation during the 4 years period (2005-2009). To achieve this, the pace of potential creation will have to increase from 1.42 million hectares per year in recent years to 2.5 million hectares per year. Of the new potential envisaged under Bharat nirman, about half is planned for 2007-08 and 2008-09 that is first 2 years of the 11th plan. Assuming the same rate continues thereafter, a total of about 11 million hectares of new potential can be expected in the 11th plan consisting of 5.5 million hectares in major & medium irrigation, 3.5 million hectares through minor irrigation and about 2.0 million hectares through ground water development. In addition, another 3-4 million hectares of land is to be restored through modernization of major, medium, and minor projects and restoration of tanks.

Along with expansion of irrigation facilities, it should be ensured that water is distributed equitably and used efficiently. The pattern observed in the past where tail-enders are denied water because upper end-users appropriate it for highly water intensive crops which must be avoided. Participatory Irrigation Management (PIM) should be promoted by facilitating and setting up democratically organized water user associations to set and collect water charges, and retain a substantial part of the collection, which would help to maintain field channels, expand irrigated area, distribute water equitably and provide the tail enders their just share of water. Experience in Andhra Pradesh and Gujarat has shown the effectiveness of such PIM.

Watershed management, rainwater harvesting, and ground water recharge can help augment water availability in rain fed areas. Micro irrigation is also important to improve water use efficiency. Building structures for water management and managing them provides immediate opportunities for employment generation in rural areas. The enhanced productivity of land will generate further sustainable demand for labour in rural areas. The

national Rain fed Areas Authority, should provide for developing concerted action plans for rain fed areas in close consultation with State Governments.

Serious efforts at addressing water management issues will require a substantial commitment of public resources. Average expenditure of Rs. 10,000 per hectare, is needed for treatment of watershed. For this magnitude of funds to be available, it is essential that these programs be converged with or at least supplemented by the Mahatma Gandhi national Rural Employment Guarantee Scheme Funding. Local level schemes which conserve moisture and recharge ground water should be strengthened.

For efficient and smooth functioning of all sectors adequate monitoring and supervision is necessary. The performance of various indicators would improve to a large extent if there is regular monitoring and supervision. All the monitoring and reporting programs identified in proposed actions should be implemented in a time bound manner.

Government should encourage the involvement of the private sector by providing an enabling environment, in the provision of essential export infrastructure for the horticulture trade, which will attract required investment and infusion of technology to ensure the development and growth of the horticulture sector.

Horticulture monitoring parameters like production, area under horticulture, area under different fruits/vegetation, income from horticulture produce etc. data should be compiled & updated regularly. It should be linked to district level information system. It will help in identifying hotspots and planning of sector/area specific plan, programs & projects.

In promoting private sector marketing systems, the Government needs to examine existing policies, rules and regulations with a view to minimizing conflict in successful private sector operations.

Inter-departmental co-ordination between different departments like Horticulture, Agriculture, Transportation, PWD, HPMC, State Agriculture Marketing Board, Dept. of Environment, Science & Technology, NGOs and CSOs is needed for effective planning, implementation & monitoring marketing infrastructure intervention programs.

Training and capacity building of PRIs should be taken up at priority.

All the sectoral recommendations related to project and program implementation for safe drinking water, sanitation, waste management and transportation, air pollution, inadequate health infrastructure, should be implemented both in rural and urban areas. All the proposed actions related to response in terms of projects, program and plans identified & highlighted in Table 2 should be implemented.

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