Vision Statement on
Environment and Human Health

1. PREAMBLE

Environmental health comprises those aspects of human health including quality of life that are determined by physical, biological, social and psychological factors in the environment. The relationship between the environment and its impact on human health is highly complex. Each of the effects is associated with a variety of aspects of economic and social development. Moreover, there is no single best way of organising and viewing the development-environment-health relationship that reveals all important interactions and possible entry points for public health interventions. Human beings are exposed to a variety of chemicals including industrial chemicals, pesticides, air pollutants, natural and man made toxicants etc in the environment through the skin, respiratory system and gastrointestinal tract that can affect vital body systems such as pulmonary, reproductive and nervous and immune system. Dysfunction of these systems could have far-reaching consequences, which affect individuals and even their progeny from serious health ailments. To investigate possible effects of environmental pollutants on human health it is of prime importance that accurate exposure assessment techniques and validated biomarkers are available. It is, therefore, essential to have full fledged and accurate Environmental Health Impact Assessment procedures in place, undertake application-oriented research such as occupational and environmental cohort studies to define single or mixture of pollutants and their impacts on health. This would help the implementing agencies to revise the environmental and industry specific actions. It is also very important to have collaborative approach among the industries and various technical/research centers together with the implementing agencies of the pollution control so as to deal with the Environment and Health issues properly.

1.1 Children are more susceptible in contracting diseases due to exposure to air pollutants and hazardous chemicals, ingesting contaminated water, food and soil. These problems are magnified due to lack of access to safe drinking water and sanitation, haphazard disposal of hazardous and bio-medical wastes. A growing number of diseases in children have been linked to environmental exposures. These diseases range from traditional water borne, food borne and vector borne ailments and acute respiratory infections to asthma, cancer, arsenicosis, fluorosis, certain birth defects and developmental disabilities. Children from the fetal stage through adolescence are in a dynamic stage of growth as their immature nervous, respiratory, reproductive and immune system develop. They are more vulnerable to permanent and irreversible damage from toxicants than adults.

1.2 Ministry of Environment and Forests (MoEF) constituted a Committee on Environment and Health in July, 1999 and the report was submitted in May, 2000. The Report of the "Committee on Environment and Health" has brought out issues requiring attention of various stakeholders. The "Conference on Environmental Health" organized by Ministry of Environment and Forests in November, 2002 has brought out thrust areas and action points that need to be implemented for protection of public health.

2. THE PROBLEM

The environment in which we live greatly influences our health. The household, workplace, outdoor and indoor environments may pose risks to health in a number of different ways. The poor quality of air which we may breathe, the contaminated water we may drink and the surroundings in which we live, determine our quality of life. While the genetic factors may also be responsible for causing diseases but the environmental factors play much more active role in contracting various diseases.

2.1 Water

It is estimated that 75 to 80% of water pollution by volume is caused by domestic sewage. The remaining is industrial wastewater, which could be more toxic. The major industries causing water pollution include: distilleries, sugar, textile, electroplating, pesticides, pharmaceuticals, pulp & paper mills, tanneries, dyes and dye intermediates, petro-chemicals, steel plants etc. Non-point pollution sources such as fertilizer and pesticide run-offs in rural areas from the agricultural fields are also emerging as a major cause of concern. Only 60% of chemical fertilizers is utilised in soils and the balance is leached into soil polluting ground water. Excess phosphate run-off is leading to eutrophication in lakes and water bodies. Adverse health outcomes are associated with ingestion of contaminated water, lack of access to sanitation, contact with unsafe water, and inadequate management of water resources and systems including in agriculture. Infectious diarrhoea makes the largest single contribution to the burden of disease associated with unsafe water, sanitation and hygiene. Besides, the water borne diseases like cholera, jaundice and other gastrointestinal track infections are quite significant amongst the population. Certain diseases have also been encountered amongst the affected persons coming in contact with toxic effluent discharged in the water bodies by highly polluting industries.

2.2 Ground Water Pollution

Due to improper drainage and lack of proper disposal facilities, industries and local bodies use large areas of land as mode of disposal of wastewater. Small-scale industries located in clusters or industrial estates, not having proper disposal facilities are also causing ground water pollution due to discharge of industrial effluent on land. Several incidents of ground water contamination due to industrial clusters are reported specially due to electroplating units,

tanneries, dyeing and printing units etc. Heavy metals and other toxic compounds present in the effluent may pose considerable health risks amongst the population using such contaminated water.

2.2 Air pollution

The main sources of air pollution are from vehicles and industries and to some extent from domestic sources. Urban air pollution is largely and increasingly the result of the combustion of fossil fuels for transport, power generation and other human activities. Combustion processes produce a complex mixture of pollutants that comprises emissions, such as diesel soot particles and lead, and the products of atmospheric transformation, such as ozone and sulfate particles formed from the burning of sulfur-containing fuel. Air pollution from combustion sources is associated with a broad spectrum of acute and chronic health effects. Particulate air pollution may cause the most serious effects on lungs, including lung cancer and other cardiopulmonary mortality. Other constituents, such as lead and ozone, are also associated with serious health effects, and contribute to the burden of disease attributable to urban air pollution. Air Polluting industries include: thermal power plants, iron and steel plants, smelters, foundries, stone crushers, cement, refineries, lime kilns chemicals & petro-chemical plants etc. Burning of low-grade fuel in urban areas for various purposes is one of the causes of air pollution. In addition, tyre, rubber, plastic, garbage etc. are also burnt. Such combustion emits toxic pollutants including dioxins and furans, which are quite harmful to the human beings.

2.3 Indoor air pollution

Cooking and heating with solid fuels such as dung, wood, agricultural residues or coal are the largest source of indoor air pollution. When used in simple cooking stoves, these fuels emit substantial amounts of pollutants,

including respirable particles, carbon monoxide, nitrogen and sulfur oxides. Studies have shown reasonably consistent and strong relationships between the indoor use of solid fuel and a number of diseases. The poor people in the developing nations use unprocessed fuels in their houses. It has been estimated that more than half of the world's house-holds cook their food on the unprocessed solid fuels that typically release about 50 times more noxious pollutants than gas. The stoves or *chullah* used as cooking stove are not energy efficient. The fuels are not burned completely. The product of incomplete combustion of biomass includes carbon monoxide, hydrocarbons, suspended particulate matter and Polycyclic Aromatic Hydrocarbon (PAH) etc. Indoor air pollution may manifest respiratory ailments such as cough, dysponea and abnormal lung function, if proper ventilation is not existing and the duration of exposure is quite significant. The presence of mutagens in organic residues of smoke particles also aggravate the respiratory ailments. The women and children, particularly those of the rural sector using agricultural residues as cooking fuel are the most vulnerable groups and may get affected by the indoor air pollution.

2.5 Noise Pollution

Increase in vehicular traffic and commercial activities are major cause of noise pollution in urban areas. Use of loud speakers, diesel generator sets, high pitched music systems, bursting crackers, etc are adding to noise levels in cities. It has been reported that people living in noisy areas have been found with impairment in their hearing system.

2.6 Bio-Medical Waste

Bio-medical wastes comprise of human tissues, blood soaked items, excreta, drugs, swabs, disposable syringes, needles, sticky bandages, radioactive wastes etc. These wastes are potentially hazardous and infectious.

Indiscriminate disposal of such wastes poses health risk to human population, especially to health care personnel, sanitary workers, scavengers, rag pickers and also to intra-venous drug users. It is of utmost importance that the medical waste is managed in an environmentally sound manner which requires proper understanding of risk associated with the disposal of such wastes and methods for proper segregation, storage, handling, treatment and disposal. The children and women are most vulnerable groups of society to develop infectious diseases as they are basically engaged as rag pickers in the dump sites. Incinerators, without having proper combustion temperature and control system, used for burning of bio-medical wastes, may also pose health risks to the population living close to such incinerators.

2.7 Climate change and allergens

Potential risks to human health from climate change would arise from increased exposures to thermal extremes (cardiovascular and respiratory mortality) and from increases in weather disasters (including deaths and injuries associated with floods). Other risks may arise because of the changing dynamics of disease vectors (such as malaria and dengue fever), the seasonality and incidence of various food-related and waterborne infections, the yields of agricultural crops, the range of plant and livestock, pests and pathogens, the salination of coastal lands and freshwater supplies resulting from rising sea-levels, the climatically related production of photochemical air pollutants, and the risk of conflict over depleted natural resources. Effects of climate change on human health can be expected to be mediated through complex interactions of physical, ecological, and social factors. These effects will undoubtedly have a greater impact on societies or individuals with scarce resources, where technologies are lacking, and where infrastructure and institutions (such as the health sector) are least able to adapt. For this reason, a better understanding of the role of socio-economic and technological factors in shaping and mitigating these impacts is essential. Because of this complexity,

current estimates of the potential health impacts of climate change are based on models with considerable uncertainty. Besides, the spores, pollens, allergens produced by cats and dogs and dust mites may pose health risks to human beings.

3. FUTURE STRATEGY AND ACTION PLAN

The key purpose of this Vision Statement on Environment and Human Health is to evolve a strategy for health risk reduction. It also offers a comprehensive approach to the environmental health management plans, which would be a systematic approach to estimate the burden of disease and injury due to different environmental pollutants.

The Rio Declaration on Environment and Development states, inter alia, “Human beings are at the centre of concerns for sustainable development, and that they are entitled to a healthy and productive life, in harmony with nature. The goals of sustainable development can only be achieved in the absence of a high prevalence of debilitating diseases, while obtaining health gains for the whole population requires poverty eradication. There is an urgent need to address the causes of ill health, including environmental causes, and their impact on development, with particular emphasis on women and children, as well as vulnerable groups of society, such as people with disabilities, elderly persons and indigenous people”. The World Summit on Sustainable Development at Johannesburg, South Africa, 26 August- 4 September 2002 states, inter alia: “Integrate the health concerns into strategies, policies and programmes for poverty eradication and sustainable development, reduce respiratory diseases and other health impacts resulting from air pollution, with particular attention to women and children, by strengthening regional and national programmes including through public-private partnerships with technical and financial assistance to developing countries, supporting the phasing out of lead in gasoline; strengthening and supporting efforts for the

reduction of emissions through the use of cleaner fuels and modern pollution control techniques …."

International and national deliberations have made it evident that environment-and-health concerns are rising higher on the broad environment and development agenda and that public health issues are predominantly making a niche on the environmental agenda and vice-versa. Environmental Health is an inter-disciplinary and inter-agency subject and all the stakeholders are needed to be involved in the process. To make environmental health a really potent force in the consorted approach towards health for all and sustainable development in the 21st Century, the role of the MoEF in this transformation of environmental health is significant. Therefore, all the future studies pertaining to environmental health would accomplish the following broad tasks:

- To provide scientific information and data on the relationship between environmental factors and health in the process of development.
- To develop health based criteria in preparation of national standards/legislations.
- To build partnership with national, international and non-governmental agencies etc.
- To promote the role of environmental health in the policy, planning and decision making in the matter of environment and development.

Therefore, the activities and programmes are required to be taken up for the protection of the public health due to environmental pollution as given in the following road map for action.

4. ROAD MAP FOR ENVIRONMENTAL HEALTH

The road map is broadly based on the recommendations emerging out of the discussions held in the Conference on Environmental Health organized by MoEF in New Delhi from 20th to 21st November, 2002.

4.1 Air Pollution and Health Effects

4.1.1 Environmental health risk assessment studies due to air pollution are required to be undertaken in the polluted areas to establish the baseline data on health impacts/risks in different parts of India taking into account the studies undertaken earlier by different organizations. Possibilities to find out the manifestations of various diseases attributable to air pollution may be explored. In particular, the human settlements including children and elderly persons living close to industrial complexes, metropolitan cities and taxi/bus drivers, traffic policemen, road side vendors, shopkeepers etc. are required to be covered under environmental health assessment studies. Such studies would assist in establishing the disease burden in different areas in the country. Studies to develop bio-markers may also be taken up. Toxico-genomics studies are also required to be taken up.

4.1.2 As Total Suspended Particulate Matter (TSPM)/ Respirable Suspended Particulate Matter (RSPM) levels are generally exceeding in most of the cities/towns in India including the metropolitan and large cities, it would be desirable to investigate the health impacts due to particulates and gaseous pollutants including synergistic effects so as to control the emissions from various sources e.g. industries, automobiles, open burning of garbage, leaves, plastic, rubber materials etc. Loose soil accumulated on road sides or elsewhere due to natural or man-made activities becomes air borne and gets re-suspended and as such may

pose considerable respiratory diseases should also be controlled and the concerned organisations should take suitable measures in this regard.

4.1.3 Stricter emission norms for particulates and gaseous pollutants (e.g. limit for lead, mercury, benzene, polycyclic aromatic hydrocarbon (PAH)) based on health impacts are required for which Ministry of Environment and Forests (MoEF)/Central Pollution Control Board (CPCB)/ State Pollution Control Boards (SPCBs) may review the existing standards and notify the revised standards for control of emissions of particulates and gaseous pollutants from different industries and power plants. Ambient air quality standards are also required to be reviewed and revised based on health criteria.

4.1.4 Open burning of garbage, leaves, plastic, rubber and other synthetic materials should not be allowed and necessary legal and enforcement machinery may be provided to check the menace.

4.1.5 Strengthening and modernization of air quality monitoring system specially covering Respirable Particulate Matter having particulates of diameter not more than 10 and 2.5 microns respectively (PM_{10}/$PM_{2.5}$), Oxides of Nitrogen (NOx), Oxides of Sulphur (SOx) and Carbon Mono Oxide (CO) are required to be undertaken. Periodic monitoring of sulphates, nitrates, ground level ozone, Persistent Organic Pollutants (POPs) and other toxins are also required to be undertaken. In addition, inventorisation and source apportionment studies are also required to be undertaken in different areas having air pollution problems.

4.1.6 Indoor Air Pollution and Health Impact Studies should be undertaken specially covering women and children.

4.1.7 Clean technologies are required to be adopted by Thermal Power Plants to check gaseous and particulate emissions.

4.2 Water Pollution and Health Effects

4.2.1 Policy interventions need to be taken up by the concerned departments engaged in water supply and sanitation particularly in the rural and slum areas for checking water borne diseases. Environmental epidemiological studies are required to be undertaken to find out and evaluate the magnitude of health impacts and to develop strategies to prevent and control water borne diseases.

4.2.2 Industrial effluent standards need to be reviewed and modified based on health risks considerations.

4.2.3 Toxic effluents should not be allowed to be discharged into the water bodies and emphasis should be made on zero discharge by way of recycling and reuse by such industries to the maximum extent possible.

4.2.4 The uptake of heavy metals by vegetables, cereals, fruits, grains etc. have been reported in certain areas and as such the consumption of such contaminated food has to be checked by the concerned Department of the Central/State Governments. Hence the irrigation of agricultural fields with the treated/untreated effluent containing toxic chemicals, pesticides and heavy metals such as chromium, lead, mercury, arsenic etc. should not be allowed. Short term and long term health studies are required to be undertaken.

4.2.5 Health Risk Studies due to naturally occurring arsenic and fluoride in the ground water be undertaken in the areas affected by these contaminants. Policy interventions in endemic areas are needed to supply treated water or alternate drinking water and ensure health improvement of the community.

4.2.6 Adequate Monitoring and Surveillance System is needed to be created by the regulatory authorities to check surface and ground water contamination. Food contamination due to Arsenic and Fluoride in the endemic areas are also required to be checked by taking policy interventions including stopping of irrigation of agricultural fields with contaminated water.

4.2.7 Studies regarding vector diseases (Malaria etc.) are required to be taken up in the areas where large quantities of impoundment of water have taken place due to construction of hydro-electric projects, dams, reservoirs etc. Also in such areas, due to accumulation of pesticides in the water bodies due to agricultural run-offs, the concentration of pesticide residues in human beings might have gone up due to consumption of aquatic food and as such health risk studies would be useful to find out the extent of environmental problems posed to the population living in such areas.

4.3 Hazardous Wastes and Health Effects

4.3.1 Environmental epidemiological studies are required to be carried out near to industrial estates and hazardous waste disposal sites to estimate the extent of health risks including from asbestos. Alternatives to asbestos may be used to the extent possible and use of asbestos may be phased out.

4.3.2 Untreated/partially treated hazardous waste emanating from industries should not be disposed on land, road sides, water bodies, municipal garbage dump sites etc. Industrial wastes should be handled, treated and disposed of in secured landfill as per the provisions of the

Hazardous Waste Management Rules to avoid possibility of ground water contamination and consequential health implications.

4.3.3 The plastic wastes need to be properly treated for disposal. Public awareness for plastic recycling and the R & D for degradable plastic need to be intensified.

4.3.4 State Industrial Development Authorities should adopt proactive approach to provide necessary infrastructure for collection, treatment and disposal of hazardous waste emanating from various industrial estates including secured landfill site. Action plans based on appropriate technologies and control measures are required to be taken for the treatment and disposal of hazardous wastes.

4.3.5 The regulatory authorities (CPCB/SPCBs/PCCs) should ensure, through the consent mechanism that adequate steps are taken by the industries for safe disposal of hazardous wastes. Inventorisation of hazardous waste is needed and guidelines for treatment and disposal be evolved.

4.3.6 Heavy metals used in ayurvedic medicines may pose health risks and as such toxicological studies may be taken up preferably by the Industrial Toxicological Research Center (ITRC) to find out any adverse health impacts due to use of such ayurvedic medicines.

4.3.7 Specifications and standards for incinerators may be evolved based on health criteria and mechanisms to test and certify the efficacy may be set up in the country.

4.4 Children's Environmental Health

4.4.1 Environmental health risk assessment studies for children including those living in slums and polluted areas with respect to water borne diseases, lead contamination and respiratory ailments due to air pollution including asthma are required to be undertaken. Also studies to find out impact on nervous system may be undertaken. Standardisation of procedures for health risk evaluation are also to be taken up including quality assurance. Health risk studies due to disposal of hazardous wastes and bio-medical wastes are also required to be undertaken to take mitigative measures.

4.4.2 Environmental Health Studies (EHS) for children are also required to be undertaken in the areas having arsenic, chromium, mercury, fluoride, and nitrate and pesticide contamination including pre-natal ailments. Also, EHS are required to be undertaken for endocrine disruptors.

4.4.3 Indoor air pollution poses health risks to children and as such environmental health studies are required to be commissioned to collect baseline data.

4.4.4 Environmental Health awareness programmes amongst the children including those living in rural and slum areas and belonging to lower strata of society are required to be taken up including personal hygiene and sanitation aspects.

4.5 Radiation and Health Effects

The high frequency electromagnetic radiations have become a high risk to human health, vegetation etc. The electromagnetic radiations are caused due to the increased use of wireless communications across the world and also due to radiations from the satellite towers and systems, which transmit high rates of data for the intranet and internet. Radiation from cellular gazettes may also pose threat to human health such as adverse impact on brain and eye cancer,

heart ailments, migraine, head and ear pain, fatigue, energy loss, impotency and many other physical disorders. Environmental Health Impact Studies due to electromagnetic radiations (non-ionising radiations) may be undertaken. Similarly, studies are also required to be undertaken on health risks posed by exposure to ionizing radiations.

4.6 Noise Pollution and Health Effects

Use of loud speakers, diesel generator sets, high pitched music systems, bursting crackers, increase in vehicular traffic and commercial activities, etc are adding to noise levels in cities. The noise pollution may affect the hearing system, increase blood pressures, induce behavioral changes as also may cause adverse effect on the nervous system. Environmental Health Impact Studies due to noise pollution may also therefore be undertaken so as to have policy intervention for the protection of public health..

4.7 Climate change and health effects

The change in climate would pose potential health risks (morbidity and mortality) due to rise in temperature resulting in to cardiovascular and respiratory ailments due to altered exposures to photo-chemical pollutants and allergens (spores, moulds etc.). The Climate change may also give rise to vector borne diseases (malaria, dengue, fever, leishmamiasis etc) as also water borne infections. Other impacts may include incidences of food poisoning, water borne pathogens induced diseases etc. Effects of climate change on human health can be expected to be mediated through complex interactions of physical, ecological, and social factors. A better understanding of the role of socio-economic and technological factors in shaping and mitigating these impacts is essential. Besides, the studies on health risks to human beings from the pollens, allergens produced by cats and dogs and dust mites are also required to be undertaken.

4.8 Institutional Strengthening and Information Systems

4.8.1 The Environment and Human Health Cell (EHHC) created in MoEF needs to be strengthened. The EHHC in MoEF will be the nodal agency for environmental health related issues including collaboration and coordination with the National and International Agencies for carrying out the programmes and activities pertaining to environmental health.

4.8.2 There is a need to have a National Institute of Environmental Health Sciences (NIEHS) with regional centers. This could be done, to start with, by strengthening one of the existing institutions as a National Institute of Health Sciences (NIEHS) to serve as the nodal Institution/laboratory in Environmental Health Sciences and create a network of regional Environmental Health Centers in R&D institutions, medical colleges and Universities. These will play vital role in pursuing environmental health related studies (viz. dioxins, furans, Polychloro Biphenyls (PCBs), heavy metals, benzenes etc.), R & D technology and human resource development.

4.8.3 Occupational and environmental health issues are required to be looked into in an integrated way so as to have holistic view regarding the occupational and environmental hazards on human health. Interaction and cooperation of the concerned institutions/organizations will be sought in evolving programmes and activities in this regard.

4.8.4 Training modules and programmes in environmental health are required to be developed for professionals in different organisations dealing with public health, environmental regulations and policy makers. Specific issues on environmental health including antidotes for various toxic chemicals, gases and

pesticides may be documented and disseminated for public information and use by Primary Health Care Units, nursing homes and hospitals.

4.8.5 Environmental health education awareness programmes for communities including women and children are required to be undertaken through media (TV channels etc.). Environmental health related subjects are required to be added in curricula in all the technical and medical institutions. Indian National Science Academy (INSA), University Grants Commission (UGC), Indian Medical Association (IMA), Ministry of Education etc may be involved in developing environmental health educational programmes/subjects for inclusion in the respective formal and non-formal education courses.

4.8.6 There is a need to modify the existing record and registration systems in the medical treatment in the hospitals and nursing homes by augmenting infrastructure and including occupational and environmental history in the treatment of diseases including compilation of morbidity & mortality data attributable to environmental factors for protection of public health against environmental pollution. Steps may be taken for codification of diseases and working out National Burden of Disease (NBD).

4.8.7 National Emergency preparedness and Response system including disaster management due to terrorist activities should be in place involving concerned Central/State/Local level departments and organisations so as to have intersectoral and inter-institutional approach.

4.8.8 Biological threshold limits (BTLVs) for toxic chemicals, pesticides and heavy metals (lead, mercury, chromium, arsenic etc.) and fluoride may be prescribed. Besides, Threshold Limit Values (TLVs) for benzene, benzopyrene, Poly Aromatic Hydrocarbon (PAH) etc. may also be prescribed.

4.8.9 The Ministry of Environment and Forests need to have cooperation and collaboration with the national and international institutions/ agencies (e.g. WHO, UNEP, UNDP, USEPA, CDC (USA), NIEH (USA), Universities etc) to develop specific strategies on environmental health.

5. PUBLIC PARTNERSHIP

5.1 In order to protect the people – and help them protect themselves – there is a need to assess accurately how greater the risks are. Without some quantitative approach for gauging the importance of specific risks, in terms of the likely magnitude of their impact on populations, government policies might be driven exclusively by factors such as pressure groups or the emotive weight of individual cases. Policies for public awareness need to be initiated in order to ensure that media and educational system play an active role in educating people about various health impacts from polluted environment. Therefore, there is an urgent need to design, promote and implement the best practices to be adopted for all the stakeholders.

5.2 Priority will be to educate citizens about environmental risks, the economic and health dangers of resource degradation and the adverse impacts on environment. Information about the environment will be published periodically. Affected citizens and non-governmental organizations may also play a role in environmental monitoring and therefore allowing them to supplement the regulatory system and recognizing their expertise and commitments and vigilance will also be very effective. Public access to environmental information should be provided.

5.3 Greater emphasis will be placed on promoting environmental health awareness amongst the students in schools and colleges. Professional

and non-governmental bodies will be encouraged to be more active in imparting environmental health training and building awareness. Use of media may also be encouraged for checking reckless use of loudspeakers, dumping in water bodies, and scattering of wastes.

6. IMPLEMENTATION AND CO-ORDINATION MECHANISM FOR PROGRAMMES & ACTIVITIES ENVISAGED IN THE ROAD MAP/ACTION PLAN

6.1 Environment and Human Health Cell (EHHC) will develop mechanism for Inter-Ministerial and Inter-Departmental coordination so as to have periodic interactions with the stakeholders such as line Ministries (e.g Health, Industry, Labour, Urban Affairs, Human Resources Development, Agriculture etc.), regulatory authorities (State Department of Environment/CPCB/SPCBs, State Health Departments), R&D Institutions, major hospitals, etc. including interaction with the international institutions for exchange of information on prevention and control of environmental related health effects. EHHC will coordinate with the CPCB/SPCBs/PCCs and the State Departments of Environment, who may have similar Environment and Human Health cells or earmark personnel, for implementing the programmes on environmental health. An interdisciplinary and inter-ministerial Committee including NGOs may be constituted by the MoEF to have periodic interactions with all the stakeholders.

6.2 Activities and programmes as envisaged in the road map will be implemented out of the funds allocated by the Ministry of Environment and Forests, WHO and other resources made available under the bilateral assistance or by the international funding agencies such as UNDP, UNEP, USAID, DFID, CIDA, SIDA, NORAD, ADB, World Bank etc.

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