

PUNJAB ENVIRONMENT POLICY 2015



**GOVERNMENT OF PUNJAB
ENVIRONMENTAL PROTECTION AGENCY
PUNJAB, PAKISTAN**

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1.0 PREAMBLE

The Punjab Environment Policy 2015 provides an overarching framework for addressing the environmental issues facing Punjab, particularly pollution of fresh water bodies, air pollution, lack of proper waste management, deforestation, loss of biodiversity, desertification, water logging, natural disasters and climate change. It also gives directions for addressing the cross sectoral issues, underlying causes of environmental degradation to meet national and international obligations. The theme of the Punjab Environment Policy 2015 is sustainable development in the sense of enhancement of human well being.

The Punjab Environment Policy provides broad guidelines to Provincial Governments and Local Governments for addressing environmental concerns related to them and ensuring effective management, restoration, enhancement of environmental resources and ensuring their sustainable use.

The Punjab Environment Policy is a guide for actions in regulatory reform, programmes and projects for environmental conservation; and will review and ensure the enactment of legislation, by Provincial and Local Governments. The policy has been approved by the Punjab Environmental Protection Council headed by the Chief Minister Punjab under Section 4 (b) of the Punjab Environmental Protection Act 1997 (amendment Act 2012) and is enforced with immediate effect.

2.0 KEY ENVIRONMENTAL CHALLENGES: CAUSES AND IMPACTS

Key environmental challenges that the Punjab Province faces relate to environmental degradation as a result of unsustainable use of its natural resources for economic growth and development. Punjab's agrarian economy is heavily dependent on its natural resources because of its large population in rural areas and their economic dependence on primary natural resources.

Economic growth bears a strong relationship to environmental degradation as may result in excessive use of natural resources and generation of pollution.

The urban areas of all Punjab cities especially Lahore, Multan, Faisalabad, Sheikhpura, Gujranwala, Rawalpindi and Sialkot are facing problems of uncontrolled urbanization, haphazard industrialization, deterioration of air, surface and ground water quality, improper disposal of the municipal and industrial wastes.

Almost in all districts and at tehsil level there is no proper treatment and disposal system of sewage as well as municipal waste. Either the sewage is being discharged in water surface bodies polluting the water surface bodies or is supplied to farmers to grow edible items. There is no system for the treatment of the sewage. The municipal solid waste of urban areas as well as of rural areas is not being disposed off in accordance with the principles of environmental technology / management.

The increase in population is forcing the expansion of cities in the shape of development of new housing schemes reducing the agricultural areas. This uncontrolled urbanization is caused by weak urban planning and/or implementation.

In some cities of the Punjab like Faisalabad, Multan, Sialkot, Industrial Estates have been developed for industrialization but other cities of Punjab lack this facility for growth of industrialization in notified industrial estates / zones.

Provision of the forest on 25% of the area is required to regulate the temperature, clean air, biodiversity conservation, ground water recharging and related environmental resources. At this time the province of Punjab does not meet this goal and needs enhancement of forestation on public as well as private lands.

Many species of the wildlife are under threat of extinction due to habitat loss / deforestation. Such species needs to be rehabilitated by restoring and protecting their natural habitats.

Poverty is considered as one of the major cause of environmental degradation. In rural areas deforestation is being carried out to meet the fuel needs and livelihood. The provision of clean fuel like Gas in rural areas and creation of employment opportunities can help to reduce the process of deforestation and poverty.

Principles of sustainable development are not adhered to in development projects in the Punjab. All the provincial and local governments are required to implement the sectoral guidelines to meet the principles of sustainable development.

There are insufficient recreational facilities like parks and play grounds with respect to the population of the cities. In main cities like Lahore, Faisalabadd, Multan, Gujranwala and Rawalpindi, Parks and Horticulture Authorities (PHA) have been established. However, in other cities there is no specific organization to develop and maintain the Parks and Play Grounds for provision of proper beautification and recreational facilities to the citizens. Organization like PHA are required to be established in all districts of the Province for provision of such facilities to the citizens to improve their physical and mental health.

Unsustainable consumption patterns, particularly in industrialized areas

have serious adverse impacts on the environment, both at local and global level. Another major set of challenges arises from emerging global environmental concerns such as climate change, stratospheric ozone depletion, and biodiversity loss. The global impacts are largely manifest in developing countries, and further accentuate poverty.

It is increasingly evident that poor environmental quality has adversely affected human health. Environmental factors are estimated as being responsible in some cases for the burden of disease in the province.

The policy provides a comprehensive framework by providing sectoral and cross sectoral guidelines for the development of an action plan, for efforts on adaptation and mitigation of environmental challenges by Provincial and Local Governments under their domain of functions and rules of business.

3.0 Goal

The Punjab Environment Policy aims to protect, conserve and restore Punjab environment in order to improve the quality of life of the citizens through sustainable development.

4.0 Objectives

The objectives of the Policy are:

- a) Protection, conservation, rehabilitation and improvement of the environment, prevention and control of pollution and promotion of sustainable development and efficient management and enhancement of environmental resources.
- b) Integration of environmental considerations in policy making and planning processes through environmental governance.
- c) Integration of environmental concerns in Economic and Social Development.
- d) Capacity building of government agencies and other stakeholders at all levels for better environmental management.
- e) Meeting national and international obligations effectively in line with the Provincial aspirations.
- f) Creation of a demand for environmental protection through mass awareness and community mobilization.

5.0 Guiding Principles

The Policy is based on the following three guiding principles of sustainable development, that the development should be:-

- a. Socially acceptable.
- b. Economically viable.
- c. Environmentally sound.

6.0 Strategies and Actions

The goal, objectives and principles of the Policy are to be realized by concrete actions in different areas relating to key environmental challenges. Action plans would need to be prepared on identified issues by the concerned departments / agencies at provincial and local government levels. Local Governments would be encouraged to formulate their own strategies or action planes consistent with the Punjab Environment Policy. Empowerment of local governments particularly in terms of functions, functionaries, funds and corresponding capacities, will require greater attention for operationalising some of the major provisions of this policy.

The following strategic outlines / sectoral and cross sectoral guidelines of actions are needed in each sector focus on both ongoing activities, functions, and roles, as well as new initiatives that may be required.

6.1 Revisiting Legislative Framework:

The present legislative framework for environment protection is contained in Punjab Environmental Protection Act 1997 (Amendment Act 2012). To further strengthen this legislative framework following specific actions would be taken by each concerned department / agency to implement the policy:

- a)** Enforcement of existing legislative and regulatory framework by all stakeholders.
- b)** Review of existing legislation in order to develop synergies among relevant statutes and regulations, eliminate obsolescence, and amalgamate provisions with similar objectives, in line with the Punjab Environment Policy.
- c)** Development of new laws, rules, regulations and standards for operationalization of the Policy at the provincial, regional and District level.

7.0 SECTORAL GUIDELINES

7.1 Surface Water Resources and Management

Punjab is the land of main five rivers including Indus, Satluj, Ravi Jehlum and Chenab. These rivers originate from mountain ecosystems, and deliver major part of their water resource to the plain areas of province. Elevated global mean temperature is projected to increase ice melting in glacial retreat and consequent adverse impact on flows in major rivers causing severe flooding.

Rivers are also subject to siltation from sediment loads due to soil loss,

itself linked to loss of forest and tree cover. They are also subject to significant net water withdrawals along their course, due to agricultural, industrial, and municipal use.

The existing water resources are under threat due to untreated discharge of municipal and industrial wastes to rivers and other surface water bodies. Although the rivers possess significant natural capacity to assimilate and render harmless many pollutants, the existing pollution inflows in many cases substantially exceed such natural capacities. Municipal wastewater of all cities is mostly dumped into the water surface bodies having high levels of BOD (Biological Oxygen Demand), COD (Chemicals Oxygen Demand) and other pollutants.

Actions Required

- a)* Promote integrated approaches to management of river basins by the concerned authorities, water withdrawals by season, pollution loads and natural regeneration capacities, to ensure maintenance of adequate flows, in particular for maintenance of in-stream ecological values, and adherence to water quality standards throughout their course in all seasons.
- b)* Develop and implement, initially on a pilot scale, public-private partnership models for setting up and operating effluent and sewage treatment plants. Once the models are validated, progressively use public resources including external assistance, to catalyze such partnerships. Enhance the capacities of municipalities for recovery of user charges for water and sewage systems.
- c)* Monitor and mitigate the impacts of various sources of pollutions on river and estuarine flora and fauna.
- d)* WASAs and TMAs will install wastewater treatment plants to treat the sewage in accordance with prescribed standards by EPA Punjab.
- e)* No organization will discharge wastewater into any water surface body of the province without treating wastewater in accordance with the prescribed standards by EPA Punjab.
- f)* Storm water runoff of urban areas should be harvested to use in green belts and public parks to avoid its entrance into water surface bodies. WASAs, PHAs and TMAs will establish such harvesting infrastructure to manage the runoff and encourage recharge into ground water.
- g)* Monitor and ensure sustained freshwater availability.
- h)* Establish standards for classification of surface water bodies.
- i)* Launch phased programs for clean up and gradual up-gradation of the quality of water bodies.

7.2 Ground Water Resources:

Groundwater is valuable resource as underground aquifers. In many parts of the Province aquifers near the land surface are subject to annual recharge from precipitation, but the rate of recharge is impacted by surface sealing and practice of

building elevated green belts and parks. The water table has been falling rapidly in many areas of the province in recent decades. This is largely due to unchecked withdrawal of groundwater for agricultural, industrial, and urban use, in excess of annual recharge. In urban areas, apart from withdrawals for domestic and industrial use, housing and infrastructure such as roads prevent sufficient recharge. Increased run-off of precipitation in urban areas due to impermeable structures and absence of properly designed green areas prevents natural groundwater recharge. This is an additional cause of falling water tables in urban areas as large quantities of groundwater are pumped out for urban use. In addition, contamination of groundwater is also caused due to leaching of stored chemicals, leaking underground storage tanks and use of agricultural chemicals especially, pesticides and open dumping of municipal and industrial waste.

Actions Required:

- a) Establishment of Punjab Water Resources and Wastewater Regulatory Authority to prepare and implement a comprehensive strategy for regulating use of groundwater by the public and private sector on the basis of a careful evaluation of aquifer capacity and annual recharge. Identify and control sources of contamination. The Authority shall also ensure that all wastewater discharges are made in conformity with PEQS.
- b) The public and private sector will improve productivity per unit of water consumed in production processes by making water assessments and water audits mandatory in identified utilities.
- c) Promote metering of water consumption to discourage indiscriminate use of water for industrial and domestic purposes.
- d) Public and Private sectors will select suitable sites and develop the same in accordance with the principles of environmental technology for dumping the industrial waste material to prevent the movement of the toxicity waste in the groundwater.
- e) Excessive use of fertilizers, pesticides and insecticides are the main nonpoint source of the soil and ground water pollution. These pollutants contribute to the pollution of the groundwater as well as surface water. Alternative technologies with minimal utilization of fertilizers, pesticides and insecticides should be encouraged for improving the water quality.
- f) Promote appropriate technologies for storm water harvesting in rural as well as urban areas to encourage recharge of groundwater in arid and semi arid areas.

7.3 Water Supply and Management:

To provide sustainable access to safe drinking water supply in urban areas as only 40 percent population is being served with managed water supply system and most of the rural areas are completely lacking this facility. To effectively manage and conserve the country's water resources, the following actions are

required:

- a) Provision of safe drinking water facilities in rural areas using ground water and surface water for drinking purpose, to avoid the spread of water born diseases. It will help to reduce the water born diseases and improve public health.
- b) Develop framework for access to safe drinking water to 100 percent population in the Province.
- c) Establish water quality monitoring and surveillance system as an integral part of all water drinking supply schemes.
- d) Make installation of water treatment plants as an integral component of all drinking water supply schemes.
- e) Promote low-cost drinking water treatment technologies at the community and household levels.
- f) Formulate guidelines to foster water conservation techniques / technologies at domestic and commercial levels.

7.4 Air Quality

One of the emerging environmental issues is degradation of ambient air quality particularly in urban areas. Various surveys show that air pollution levels in cities have either crossed safe limits or have reached the threshold values. The most serious issue of air quality in province is the presence of excessive Suspended Particulate Matters (SPM) present in the ambient air. The major sources of SPM are transportation of sand, clay, bricks etc in open vehicles, in-efficient sweeping of roads, elevated green areas, transport, industry, burning of solid waste, brick kilns and natural dust. Ambient air quality of major cities is also affected by massive increase in traffic. Presence of high levels of suspended particulate matters in the air is certainly a matter of concern due to its serious health implications for public.

Actions Required:

- a) Prepare and implement action plans for all cities for addressing air pollution for both point and non-point sources, relying on a judicious combination of regulations and incentive based instruments.
- b) Regulate transportation of sand, clay, bricks and other construction materials in open trolleys and carts, in urban centers.
- c) Formulate a strategy for urban transport to ensure adequate investment, public and private, in low-pollution mass transport systems.
- d) Establish and enforce standards for ambient air quality.
- e) Ensure effective enforcement of the Punjab Environmental Quality Standards and Self Monitoring Rules.
- f) Ensure reduction and control of harmful emissions through regulatory programs.
- g) Regulate vehicular emissions.

- h)* Establish standards for vehicles at the manufacturing stage.
- i)* Update and enforce fuel specifications.
- j)* Make use of catalytic converters in new and in-use vehicles mandatory.
- k)* Phase out sulphur from diesel and furnace oil.
- l)* Promote clean fuel production technologies.
- m)* Phase out two stroke vehicles.
- n)* Encourage cost effective inter-city mass transit systems in major cities.
- o)* Promote non-motorized means of travel such as cycling and walking through provision of adequate walkways and cycle lanes along roadsides in all cities of the province.
- p)* Ensure the installation of air pollution control system by all industrial units.
- q)* Relocation of hazardous and air polluting industries from residential areas to outside the cities.
- r)* Relocation of Brick Kilns located in residential areas to outside the cities.
- s)* Enforcements of clean fuel usage in all industrial units and brick kilns.
- t)* Removal of Air pollution sources adjacent to educational institutes and hospital / health care centers.
- u)* New educational institutes and hospitals / health care centers should be established off road sites to save the student's health from vehicular pollution.
- v)* Launch programs for adaptation of clean technologies for gradual up-gradation of the ambient air quality of urban areas through Research and Development.
- w)* Promote implementation of regulations for allocation of buffer area along all major roads. Provision of service roads may be encouraged to avoid any development directly along major roads.

7.5 Noise Pollution

The noise pollution typically in urban areas has become a health problem for the people exposed to high level noise in residential areas as well as urban areas and along the road sides. Industrial activities in residential areas and traffic plying on road are the permanent source of noise pollution. Persistent exposure to elevated noise levels is resulting in significant adverse health impacts. Societal well-being require that exposure noise levels should not cause discomfort and unrest.

Actions Required:

- a)* Make appropriate distinctions between different environments in terms of setting ambient noise standards, e.g. rural versus urban; educational and medical establishments versus other areas, night-time versus daytime

noise level standards for residential areas, areas in the vicinity of road, rail, airport infrastructure and protected areas, etc.

- b)* Formulation of ambient noise level standards for urban areas.
- c)* Noise control system should be installed on noise generating point sources.
- d)* Phase out two stroke vehicles and 10 years old vehicles from urban areas.
- e)* The educational institutes along roadsides should take mitigation measures to break the noise level.
- f)* New educational institutes should be established off road sides to save the student's health after carrying out noise pollution assessment.
- g)* Promote implementation of regulations for allocation of buffer area along all major roads. Provision of service roads may be encouraged to avoid any development directly along major roads.

7.6 Soil Pollution and Waste Management

Open disposal of municipal solid waste, medical wastes and hazardous waste (chemicals, fertilizers, industrial waste, Oils etc.) is the major cause of soil pollution and is a serious challenge.

Most of the cities in Province have no proper waste collection and disposal systems. The waste collected is dumped openly which is degrading the soil quality and is also source of ground water contamination. Excessive use of pesticides in agricultural area is also source of soil pollution and is adversely affecting biomass of the agriculture land of province.

Actions Required:

- a)* Develop and implement viable models of public-private partnerships for setting up and operating secure landfills, incinerators, and other appropriate techniques for the treatment and disposal of toxic and hazardous waste, both industrial and biomedical, on payment by users.
- b)* Promote recycling technology and establish system for segregation, recycling, and reuse of municipal solid wastes.
- c)* Promote biodegradable and recyclable substitutes for non-biodegradable materials, develop and implement strategies for recycling, reuse, and final environmentally friendly disposal through promotion of relevant technologies and use of incentive based instruments.
- d)* Develop and enforce regulations and guidelines for management of e-waste, as part of the hazardous waste regime.
- e)* Restrict open disposal of wastewater, municipal solid waste and hazardous waste on soil.
- f)* Make installation of wastewater treatment plants an integral part of all sewerage schemes.
- g)* Devise and implement the Punjab Sanitation Policy.
- h)* Devise and implement master plans for treatment of municipal and

industrial wastewater in urban and rural areas.

- i)* Establish cleaner production centers and promote cleaner production techniques and practices
- j)* Develop and enforce rules and regulations for proper management of municipal, industrial, hazardous and hospital wastes.
- k)* Develop and implement strategies for integrated management of municipal, industrial, hazardous and hospital waste at provincial and local levels.
- l)* Develop and implement measures to reduce the risk of contamination of soil from leaking underground storage tanks.
- m)* Devise and implement guidelines for sustainable management of mining and oil exploration interventions as well for rehabilitation of explored mines / exploration sites.
- n)* Develop environmental risk assessment guidelines for existing industries as well as new development interventions.
- o)* Develop Punjab emergency response and accidents preventions plans to prevent, and mitigate the effects of accidents involving pollution of environment.
- p)* Provide financial and other incentives (reduction/elimination of tariffs, low-interest loans, appreciation certificates and awards) for technology up-gradation, adoption of cleaner technology, implementation of pollution control measures and compliance with environmental standards.
- q)* Restrict the manufacturing of plastic / shopping bags and replace the same with paper or bio-degradable bags.

7.7 Agricultural Land Degradation

In the province of Punjab there is considerable wind erosion in arid and sandy desert areas; while flooding impacts in plains. With the increase in urban population, cities are expanding horizontally and encroaching upon agricultural land. In the last few years many new housing schemes in Punjab have been established on fertile land. It is important to protect and conserve good agriculture land from further depletion. Over-use of fertilizers and pesticides generates considerable run offs, which pollute surface and underground water resources.

7.7.1 Floods

In the recent decade, intensity of floods starting from northern areas of Pakistan are entering into Punjab Province and cause huge loss to agricultural land, flora and fauna, human lives and properties. A heavy budget of the Province is wasted to manage the sudden floods. It needs proper planning and management.

Actions Required:

- a) Formulate and implement the flood management policy on permanent bases at Provincial and District level in the areas affected during flood 2010, 2014 and 2015.
- b) Water reservoirs should be established and managed to store the rain water for production of electricity and use of irrigation purposes.

7.7.2 Desertification:

Desertification is a type of land degradation in which relatively dry land regions are becoming increasingly arid, typically losing their bodies of water as well as vegetation and wildlife. It is caused by a variety of factors, such as climate change and human activities. Desertification is a significant global, ecological and environmental problem.

Some districts like Bahawalpur, Layyah, Khushab, etc are facing the problem of desertification which needs proper attention for mitigation.

Action Required:

Formulate and implement policy for restoring the desertification at Provincial and District level.

7.7.3 Water Logging

Water logging represents the situation whereby the underground water comes on the surface of the land and in certain cases it gathers on the ground level of the lands and may assume the shape of streams. As a result, the lands become non cultivatable. In some cases, the underground water does not reach the upper level of soil but remains slightly lower and the salts gather near the roots of the plants. Such situation is called Salinity. This leads to decrease the efficiency and productivity of lands and finally such lands become uncultivable.

Actions Required:

Formulate and implement policy at Provincial level to identify the areas under water logging and their restoration.

7.7.4 Drought

Pakistan has a long latitudinal extent and the rainfall variability during different seasons. Some regions of the Province, in each season, remain drastically dry and are vulnerable to droughts. The Southern parts of the Punjab are adversely affected.

Drought has often been referred to as a creeping disaster, as the affects of drought often accumulate slowly over a considerable period of time and may linger for

years together after the termination of the event. Economic, social and environmental degradation costs and losses associated with the drought are very high. Adverse effects of droughts may include:

- a) Loss of human life and livestock due to famine.
- b) Diseases.
- c) Deterioration of nutritional status.
- d) Reduction in resources of drinking and irrigation-water.
- e) Decline in the ground-water tables, where available.
- f) Social disruption due to migration.
- g) Increased rates of inflation.
- h) Desertification.
- i) Environmental degradation, due to contamination of soil, water and atmosphere through the deaths of livestock and human beings. Killings of people and livestock due to famine.

Actions Required:

- a) Droughts can be predicted very accurately if early-warnings are reliable and fully authentic.
- b) Measures to maintain food-security such as food subsidies, general food distribution, special programmes for livestock and pastoralists and rehabilitation.
- c) More and more reservoirs are required to be built to store water during the rainy seasons. Areas vulnerable to draught need, if possible, to be linked with main aquifers through canal links.
- d) Cholistan Development Authority may be involved in action plan taking measure and mitigations of drought conditions in Southern Punjab.

7.8 Livestock

The livestock in Province is meeting the needs of foods in different forms. The increase in population is demanding the increase in livestock production to maintain the food prices and demand.

Actions Required:

Formulate and implement livestock promotion and maintenance policy in line with the increasing rate of the population to maintain the prices and demands.

7.9 Forestry

Forests provide a multiplicity of environmental services like recharging of aquifers, sustain rivers, conserve soil, prevent floods and drought, provide habitat for wildlife and the ecological conditions for maintenance and natural evolution of genetic

diversity of flora and fauna. Forests are considered the homes of traditional forest dependent communities. In addition, forests yield timber, fuel wood and other forest produce, and possess immense potential for economic benefits for local communities and sustainable eco-tourism. Trees are known as Lungs of Nature and cheapest natural source of consumption of the carbon dioxide (Green House Gas) at local, national and global level and are considered as “Carbon Sinks”. Forest cover on an area of 25% of the country area is considered as excellent forest condition. In Punjab only 5% area is under forest.

The deforestation rate has been estimated as 0.2 - 0.5% per annum – the world’s second highest rate of deforestation. Woody biomass is declining at a rate of 4 – 6% per year.

It is need of time to conserve and develop the renewable natural resources, such as forests and biodiversity. It demands to initiate a process for eliminating the fundamental causes of the depletion of forest through participation of all the concerned agencies and stakeholders, to promote the sustainable forest harvesting to meet the local, national and global demand.

Large scale forest loss would lead to catastrophic, permanent changes in the country's ecology, leading to major stress on water resources and soil erosion, with consequent loss of agricultural productivity, industrial potential deterioration of living conditions, and the onset of natural disasters, including drought and floods.

Actions Required:

To ensure sustainable management of natural forests of Punjab and increased tree cover for safeguarding economic growth, environment, biodiversity and food security in the Punjab, the following actions are required to be taken:

- a)** Formulate and implement the Punjab Forest Policy to enhance the forest cover upto 25% of the area of the province.
- b)** Take corrective actions to stop the deforestation rate.
- c)** Formulate regulatory framework for prevention of public and private forest’s cutting.
- d)** Promote sustainable forest harvesting practices.
- e)** Carry out intensive institutional and legal reforms at provincial levels and local levels to promote good forest governance.
- f)** Preserve relict and unique forests eco-systems.
- g)** Encourage conservation and restoration of critically threatened eco-systems.
- h)** Provide alternative sources of energy, like piped natural gas. Liquefied petroleum gas (LPG), solar energy and micro-hydel power stations to reduce the pressure on natural forests, and to substitute firewood in the upland ecosystems.

- i)* Strengthen the existing forestry research and training institutions with adequate infrastructure and technical manpower development.
- j)* Restrict the diversion of dense forests and areas of high endemism of genetic resources, to non-forest purposes, except only to site-specific cases of vital national interest. No further regularization of encroachment on forests should be permitted.

7.10 Biodiversity And Protected Areas

The status of wildlife in a region is an accurate index of the state of ecological resources and thus of the natural resource base of human well-being. The degradation of agro-ecosystems and the accelerating loss of domestic genetic diversity are areas that need to be looked into policy.

The government would promote the conservation and sustainable use of biodiversity and effective management of protected areas, and the equitable sharing of benefits arising thereof for the well-being of the nation.

Actions Required:

- a)* Formulate and implement the Punjab Biodiversity Action Plan.
- b)* Create new national parks and protected areas.
- c)* Develop and implement protected areas system plan for in-situ conservation of biodiversity with community involvement.
- d)* Encourage involvement of local communities in conservation and sustainable use of biodiversity through provision of incentives and responsibilities.
- e)* Promote ex-situ conservation of biodiversity through establishment of botanical gardens, gene banks, zoos and captive breeding of animals and plants.
- f)* Develop Punjab Biodiversity Inventory.
- g)* Devise guidelines for accreditation and registration of private wild animal captive breeding centers.
- h)* Develop and implement a comprehensive Provincial Wetlands Policy.
- i)* Develop policy and regulatory framework for conservation, cultivation and marketing of medicinal/economic plants.
- j)* Ensure that any mining activity within and in the vicinity of parks does not compromise the objectives of protected areas.
- k)* Develop and implement area conservation strategies for urban centers and towns of historical and cultural significance.
- l)* Promote eco-tourism concept and practices.
- m)* No Park / green belt should be converted into any other activity area.
- n)* The parks and green belts in urban areas should be improved to enhance the biodiversity on regular basis.

7.11 **Energy Efficiency And Renewable Energy**

The promotion of programmes of energy efficient fuels and techniques at provincial and district level are need of the time to meet with the energy crisis. The increase in the energy efficiency and use of renewable energies will save the environment by reduction of pollution and sustainable use of natural resources. It will benefit at local, national and global level in the form of reduced GHG emissions.

The government would promote energy efficiency and renewable sources of energy in order to achieve self reliance in energy supplies and as a means to sustainable development.

Actions Required:

- a) Devise and implement Punjab Energy Conservation Policy.
- b) Make the Building Energy Code as part of the Building Code of Punjab.
- c) Strengthen financial mechanisms, institutions, and associated policies and regulations to provide innovative lending especially in the demand side efficiency improvement.
- d) Give preferential status and tax incentives to energy efficient domestic products and imports.
- e) Develop and implement a plan for conversion of public transport to clean fuel.
- f) Promote renewable forms of energy (wind, solar, bio-gas etc.) at all levels.
- g) Encourage use of waste resources for energy production by advocacy for new dams and de-silting of existing dams.

7.12 **Climate Change and Ozone Depletion:**

Average global temperature has been rising for more than a century, either as a result of natural fluctuation or from the build-up of greenhouse gases have likely adverse impacts and is likely to reduce biodiversity and the goods and services that ecosystem supply, increasing desertification in arid and semi-arid areas, increasing summer flooding in monsoon-affected areas and increase in the range of several disease vectors.

Actions Required:

In order to effectively address challenges posed by climate change and to protect the ozone layer, the government may:

- a) Devise and implement the Punjab Climate Change Policy and Action Plan.
- b) Promote the use of ozone friendly technologies.
- c) Phase out the use of ozone depleting substances in line with the provisions of the Montreal Protocol.
- d) Identify key vulnerabilities of Province and areas to be affected by climate change, in particular impacts on water resources, forests, agriculture and health.

- e) Assess the need for adaptation to future climate change and the scope for incorporating these in relevant programmes including watershed management, forestry management, agricultural technologies, practices, and health programmes.
- f) Establish Punjab Clean Development Mechanism (CDM) system.
- g) Develop and implement policy and operational framework for effective management of CDM process.
- h) Encourage Industry to participate in the Clean Development Mechanism (CDM) through capacity building for identifying and preparing CDM projects.

7.13 Multilateral Environmental Agreements

The Provincial government would continue to play a proactive role to ensure protection of regional and global environment and cooperate with the international community in promotion of sustainable development.

Actions Required

- a) Effectively participate in regional and international fora to foster cooperation for protection of environment and natural resources.
- b) Ensure effective implementation of all bilateral, regional and international multilateral environmental agreements, protocols and conventions to which Pakistan is a party, in line with national policies and priorities.
- c) Develop and implement national strategies and action plans for all multilateral environmental agreements, Johannesburg Plan of Implementation and Millennium Development Goals.

8.0 CROSS SECTORAL GUIDELINES goto

8.1 Poverty and Environment

To achieve environmental sustainability and poverty reduction in the context of economic growth, the government may:

- a) Integrate poverty-environment issues into economic policies and plans.
- b) Increase allocations for targeted interventions aimed to address poverty-environment nexus, especially at the grassroots level.
- c) Improve poor's access to environmentally-sound technologies such as improved cooking stoves, crop production technologies that improve soil and water conservation and integrated pest management.
- d) To ensure the provision of sanitation facilities and safe drinking water supply system to katchi abadis and rural areas to prevent the diseases which automatically reduce the medical expenses.

8.2 Population and Environment

To address the population environment nexus effectively, the government

may:

- a) Integrate environmental considerations into population policies and related projects and programs.
- b) Formulate and implement culturally appropriate strategies and action plans for invigorating population planning programs, especially in critical eco-systems.
- c) Encourage behavioral change communication to promote environment friendly consumption patterns.
- d) Increase public awareness of the problems of unchecked population growth and its demand on natural resources.
- e) Channelize migration to the intermediate / smaller agro-based towns through provision of necessary infrastructure and support facilities.
- f) Provision of necessary facilities in rural areas like basic health, education, sanitation and roads to reverse the migration of rural population to urban areas.
- g) Develop master plans to ensure development of cities, towns and rural dwellings in a planned manner.
- h) Ensure equitable access to land and other environmental resources.
- i) Planned Housing Schemes for low income sectors may be developed to prevent unplanned settlements in rural area on state land.

8.3 Gender and Environment

It would be ensured that all environment related policies, projects and programs are gender-sensitive and promote empowerment of women. To this end, the government may:

- a) Compile statistics of gender-disaggregated environmental goods and services.
- b) Ensure effective participation of women in development projects and programs.
- c) Mainstream gender in all relevant policies and plans.
- d) Address the environmental issues which impact women more adversely such as indoor air pollution and lack of access to water supply sources.
- e) Include "gender and environment" in the curricula of education and training programs on environment.

8.4 Health and Environment

To prevent, minimize and mitigate detrimental health impacts associated with environmental hazards, the government may:

- a) Incorporate environmental health and healthcare waste management components into medical teaching and training programs.
- b) Develop and enforce occupational health and safety rules and regulations.

- c) Introduce effective hospital waste management system in all healthcare facilities.
- d) Make the provision of safe drinking water and sanitation facilities mandatory for all public facilities such as hospitals and schools.
- e) Up gradation of basic health units, rural health centers and district headquarter hospitals to improve the delivery of services and provision of necessary facilities to the citizens.

8.5 Public Awareness and Education

Promotion of environmental education is vital to sensitize the public at large and relevant sectors for prevention of pollution and preservation of the environment. The print and electronic media may be engaged in addition to the following:

- a) A Provincial strategy would be developed and implemented for raising environmental awareness of the general public as well as selected target groups at Provincial, Regional, and District level.
- b) Environmental education would be integrated into all levels of curricula and syllabi from primary to university levels.
- c) Establishment of environmental education and training institutions would be encouraged.
- d) Educational institutions would be supported in establishment of environmental clubs.

Actions Required:

- a) Formulate and implement “Environmental Friendly Schools Policy” for public and private sector to ensure the provision of best physical school environment along with provision of safe drinking water, sanitation, lighting, play grounds, air and noise pollution free environment facilities, proper heating, air conditioning & ventilation systems.
- b) Incorporate the subject of “Environmental Science” in all classes from primary to higher education.
- c) Induction of “Environment Teachers” at school and college levels.
- d) All public sector universities should launch Ph.D and M.Phil programs in the subject of Environment to promote research in the field of Environment.
- e) Introduction of short courses / diplomas in public and private sector universities in the field of Environment to enhance professional capabilities.
- f) The new educational institutes / schools should be established off road sides at least 150 meters from road sides to save the students from traffic noise, vehicular emissions and to avoid the disturbance during educational activities.
- g) The existing educational institutes should provide barriers on road sides through tree plantation and raising the boundary walls to make the school environmentally friendly.

- h)* Establishment of “Environment Clubs” in all educational institutes.
- i)* Capacity building of teachers in the field of “Environmental Management”.

8.6 Environmental Management of Urban Areas:

The haphazard industrialization and establishment of commercial markets in urban areas are one of the major sources of environmental degradation of urban areas directly and indirectly. The Traffic movement in urban areas linked with transportation of construction / industrial raw materials and products, timber markets, grain markets, fruit and vegetable markets, Junk & Iron markets etc is source of traffic congestion and vehicular emissions in urban areas. Similarly industrial pollution is also a source of deterioration of the urban area’s environment. Such activities also pose threat of fire and other accidents in urban areas causing loss of human lives and properties in the surrounding communities. The environmental management in urban areas is necessary to save the living environment, health and lives of the public.

Actions Required:

The Provincial and local Governments may take following action:-

- a)* The business hubs like timber, grain, Fruits & Vegetable, Iron and cattle markets etc, as the authority consider necessary, should be shifted to outside city areas of all districts of the Province.
- b)* The activities related to the cattle hubs in urban areas should be prohibited and the existing ones should be relocated as the same are source of choking of urban area’s sewerage system and affect the public health.
- c)* Bypass roads should be constructed to avoid the entry of unwanted vehicles in the cities of all districts of the Province.
- d)* Promote introduction and implementation of regulations for allocation of buffer area along all major roads. Provision of mandatory service roads may be encouraged to avoid any development directly along major roads, which is a source of traffic congestion socio-economic and environmental impacts.
- e)* Relocation of hazardous industries established in urban areas. No industrial activity should be allowed in residential areas.
- f)* Widening of roads should be carried out for smooth flow of traffic where necessary. Short cuts may be arranged where possible by removal of such property, after due compensation by the government.
- g)* The encroachments along roadsides cause hindrance in the traffic flow which result excessive emissions of vehicular exhaust. The encroachments along the roadsides should be removed for smooth flow of traffic.
- h)* Public Sector should launch social need based planed housing

schemes for provision of accommodation to increasing population.

- i)* No residential plot should be converted for commercial / industrial activity located in residential areas by any authority.
- j)* Commercial activities should be limited to declared commercial area and no commercial / industrial activity be allowed in residential area / plots.
- k)* The areas specified for parks and green belts would not be converted into use for any other purposes.
- l)* All parks and green areas should be developed and maintained below level of adjacent roads/streets for proper flow of storm water to such green areas and recharge into ground water.

8.7 Environmental Management of Rural Areas

The 70 percent population of the Province is residing in rural areas / villages and is providing their services in the field of agricultural produce to meet the needs of the foods and contributing in the economy of the province and the country. Most of the villages are lacking basic necessities of life like sanitation, health, education, safe drinking water, roads, transport, parks and planned housing schemes. There is no concept of sweeping and cleaning the streets and proper collection of domestic waste and its disposal. There is no drainage and sewerage system for collection and disposal of the domestic sewage. Such situation is source of unhygienic conditions and spreading of diseases among the population of villages. It is source of increasing the patient's burden in hospitals and is cause of increasing poverty in rural areas. Provision of necessary basic facilities in the villages will make the population of the villages healthy and will reduce the migration from villages to urban areas.

Actions Required:

- a)* Formulate and implement "Punjab Rural Development Policy" for provision of all basic facilities like sanitation, sewerage, electricity, health, education, safe drinking water, paved streets, roads, Parks and transport in the all existing villages.
- b)* Formulate and implement "Punjab Rural Housing Schemes Policy" for provision of planned housing schemes on state lands in each village for provision of better shelter home to the population of villages with all necessary basic facilities.

9.0 INDUSTRIALIZATION AND ENVIRONMENT

The industry is playing vital role in improving the local, regional and national economy of the country. The promotion of industrialization in the country is pre-requisite to strengthen the economy and provision of employment opportunities. According to principles of the sustainable development, the sustainable industry

should be promoted without harming the environment. In the past there was no zoning policy and strategy for the establishment of the industry and it has resulted in haphazard industrialization in urban areas. Such industrial activities in urban areas are degrading the living environment and affecting the health of the surrounding communities. Therefore, industrialization needs proper planning before establishment.

In some districts of the Punjab like Faisalabad, Multan, Sialkot, Industrial Estates have been developed for industrialization however most of other cities lack this facility for the growth of the industrialization in notified industrial estates. There is need for the provision of such facility in all urban centers so that the industrialization may take place on designated areas. This will provide the opportunities for industrialization and employment without causing any harm to urban environment of the cities.

Actions Required:

- a) Identification and development of areas for industrial estates in all cities of the province with basic facilities where such facility has not been provided. Such industrial estates should specify the category wise zones of industry.
- b) Develop Buffer Zones of 100 meter around the notified industrial estates and the same should be specified for dense tree plantation to minimize the effects of pollution on adjoining areas. It will act as “Carbon Sinks” to combat the green house gases at local level.
- c) Each industrial estate must specify the area for combined effluent treatment plant along with design of the wastewater treatment plant.
- d) Industrial estates must specify area for landfill site, solid waste management and develop the same in accordance with principles of environmental management.
- e) All industrial units must install in house wastewater Treatment Plants and air pollution control system.
- f) Develop and implement the guidelines for health, safety and accidents response system for the industry to minimize the health and live risks of the management and labour.

9.1 Transport and Environment

The volume of the transport is increasing at rate of 15 percent annually. The burning of fossil fuels in transport is one of the major sources of air pollution. The vehicular emissions in urban areas are major source of air and noise pollution. Such vehicular pollution is degrading the ambient air quality of urban areas and is affecting the health of the citizens exposed to it on daily basis. To bring improvement in transport system typically in urban areas is the dire need of the time.

Actions Required:

- a)** Formulate a strategy for urban transport to ensure adequate investment in public and private sector for low- pollution mass transport systems to replace the existing haphazard and multidiscipline transport systems.
- b)** Induction / improvement of Traffic Management System in urban areas of all cities.
- c)** Phase out two stroke vehicles.
- d)** Phase out unauthorized vehicles like Ching-chi Rikshaws.
- e)** Phase out sulphur from diesel and furnace oil.
- f)** Establish standards for vehicles at the manufacturing stage.
- g)** Implement the Traffic Vehicle Rules and Motor Vehicle Rules under the Punjab Environmental Protection Act, 1997.
- h)** Update and enforce fuel specifications.
- i)** Mandatory use of catalytic converters in new and in-use vehicles.
- j)** Promote clean fuel production technologies.
- k)** Encourage cost effective inter-city mass transit systems in major cities.
- l)** Promote non-motorized means of travel such as cycling and walking through provision of adequate walkways and cycle lanes along roadsides of in all cities of the province.
- m)** Prohibition on manufacturing and use of Pressure Horns.
- n)** Prohibit the use of 10 years old commercial passenger's vehicles in urban areas.
- o)** Policy should be formulated to phase out and for expiry age of commercial vehicles.

9.2 Trade and Environment

To avail optimal benefit from, and safeguard environment and exports of Punjab, against any adverse effect of trade liberalization, the government may:

- a)** Promote ISO 14000 series certification.
- b)** Certify/accredit private and public sector environmental laboratories.
- c)** Build the capacity of public and private sector organizations in relevant areas such as ISO certification, technology transfer, laboratory certification and testing.
- d)** Undertake sector-specific research on the environmental effects of tariffs and subsidies.
- e)** Develop and implement strategies to deal with import of material, waste, goods and technologies which could have detrimental effect on country's environment.
- f)** Recommend implementation of "Strategic Trade Policy Framework 2012-2015" by the stakeholders concerned.

9.3 Natural Disaster Management

To ensure disaster risk reduction and adequate preparedness for natural disasters, the Provincial government may:

- a)** Develop and implement a natural disaster management strategy.
- b)** Establish disaster management institution at provincial & district level.

10.0 POLICY IMPLEMENTATION INSTRUMENTS

The following key instruments would be employed for achieving the objectives of the Policy:

- I.** Integration of environment into development planning
- II.** Legislation and regulatory framework
- III.** Capacity development
- IV.** Economic and market based instruments
- V.** Public awareness and education
- VI.** Public-private-civil society partnership
- VII.** Clean Technologies and Innovation
- VIII.** Research and development

10.1 Integration of Environment into Development Planning

- a)** Environmental considerations would be integrated into sectoral policies and plans.
- b)** Environmental Impact Assessment related provisions of the Punjab Environment Act, 1997 (amendment Act, 2012) would be diligently enforced for all development projects.

10.2 Legislative and Regulatory Framework

The present legislative framework for environment protection is contained in Punjab Environmental Protection Act 1997 (Amendment Act 2012). This legislative framework is not covering all the Environmental aspects.

The following specific actions would be taken by each concerned department / agency to implement the policy:

- a)** Existing legislative and regulatory framework would be strictly enforced.
- b)** Review the body of existing legislation in order to develop synergies among relevant statutes and regulations, eliminate obsolescence, and amalgamate provisions with similar objectives, in line with the Punjab Environment Policy.
- c)** Necessary rules, regulations and standards would be developed

for operationalization of the policy at the provincial, regional and District level.

10.3 Capacity Development.

In order to enforce and monitor the policy provisions, engagement of the professional human resource in EPA Punjab is pre-requisite to achieve the objectives and goals of the policy and implementation of the provisions of the act. The present human resource of the EPA Punjab is not sufficient to monitor the implementation of the policy at gross root level. The government may:

- a)** Creation of dedicated sections in EPA to deal with all major aspects of environmental protection, separately.
- b)** Expand the capacity of the EPA Punjab at provincial, regional, district and tehsil levels with the provision of adequate staff, equipment, transport, infrastructure and financial resources to enable them effectively implement the Policy.
- c)** Short, medium and long-term programs would be designed and implemented after comprehensive training needs assessment.
- d)** Public sector training institutions would be encouraged to integrate environment in their curricula.
- e)** Provincial research priorities in the environment sector would be identified and adequate funding would be made available to undertake need based research in priority areas.
- f)** Ensure continuous up-gradation of knowledge and skills of the scientific and technical personnel engaged in EPA Punjab involved in environmental management through dedicated capacity building programs.

10.4 Research and Development:

In order to rapidly advance scientific understanding of environmental issues, it is necessary to promote properly focused research by competent institutions. A continuous engagement with the scientific community, in government, academic, and private institutions, will provide important insights for policy making and regulation, including in the field of multilateral negotiations, and help realize deeper and broader skills in the scientific community.

Key areas of research are as follows:

- a)** Research leading to better understanding of ecological processes

and pathways.

- b)* Research which provides direct inputs to policy making.
- c)* R&D in technologies for environmental management and clean production.

Actions Required:

- a)* Periodically identify and prioritize areas for research
- b)* Establish a research programme in priority areas within the Governments.

10.5 Economic and Market Based Instruments

- a)* Environmental fiscal reforms would be promoted.
- b)* Trade barriers for the import of clean technologies, fuels, and pollution control equipment would be removed.
- c)* Incentives including reduced tariffs, tax concessions and other incentives (such as environment and energy awards) would be offered to private and public sector for compliance with environmental laws and standards.
- d)* Sustainable Development Fund would be operationalized at provincial level. All the fees and fines will be deposited in Sustainable Development Fund.
- e)* Industries would be encouraged to introduce environmental auditing system in their financial management systems.
- f)* Special credits / low interest loans / subsidies would be offered for the establishment of waste management system, introduction of clean technology and relocation of polluting industries.
- g)* Opportunities for green business such as environmental engineering manufacturing and installations, environmentally-certified products and businesses, energy service and conservation companies, and ecotourism would be promoted.

10.6 Public-Private-Civil Society Partnership

Conservation of the environment requires the participation of multiple stakeholders, who may bring to bear their respective resources, competencies, and perspectives, so that the outcomes of partnerships are superior to those of each acting alone. Implementing and policy making agencies of the government, at provincial, local and municipal levels; the

legislatures and judiciary; the public and private corporate sectors; financial institutions; industry associations; academic and research institutions; independent professionals and experts; the media; youth clubs; community based organizations; voluntary organizations; and multilateral and bilateral development partners, and NGOs may each play important roles in partnerships for the formulation, implementation, and promotion of measures for environmental conservation.

Actions Required:

- a) Provincial and local governments would be encouraged to build strategic partnerships with private sector and civil society organizations for effective environmental management.
- b) Public-private partnerships for expansion and improvement of environmental services such as potable water supply, sewage disposal, efficient transport and efficient energy production would be promoted.
- c) Sector-specific advisory committees involving public, private and civil society organizations would be established.
- d) The concept of "participatory approaches and practices" would be included in the curriculum of environmental education and training programs.

11.0 POLICY IMPLEMENTATION AND MONITORING

Any policy is only as good as its implementation. The Punjab Environment Policy outlines a significant number of new and continuing initiatives for enhancing environmental conservation. These require the coordinated actions of diverse actors, for the major part organized and stimulated by one or more Public agencies.

- a) Coordination and review mechanisms are necessary to evaluate the implementation of the different elements of the Punjab Environment Policy 2015. This would enhance accountability of the different public agencies responsible for implementation. It would also reveal practical issues in implementation, including political will at concerned levels, or official indifference.
- b) Following the approval of the Policy, the Government of the Punjab would develop an "Action Plan" for its implementation. All relevant Departments and Agencies would also devise plans and programs to implement the policy provisions relating to their respective sector / sub-sector. Similarly, the Provincial Government and local

governments would also devise their own strategies, plans and programs for implementation of the Policy.

- c) To ensure effective coordination of Policy implementation and oversee the progress in this regard, a "Provincial Environment Policy Implementation Committee" would be established at the Provincial level. The composition of the Committee is given in Table below:

I.	Secretary Environment Department	Chairman
II.	Secretary Planning & Development Department	Member
III.	Secretary Industries Department	Member
IV.	Secretary HUD&PHE Department	Member
V.	Secretary Agriculture Department	Member
VI.	Secretary LG & RD Department	Member
VII.	Secretary Health Department	Member
VIII.	Secretary Transport Department	Member
IX.	Secretary Energy Department	Member
X.	Director General EPA	Member
XI.	All Divisional Commissioners	Member
XII.	Representatives from the Corporate Sector / Chambers of Commerce and Industry from divisional cities.	Member
XIII.	Three representatives from the Civil Society	Member
XIV.	Organizations / NGOs working in the field of Environment.	Member
XV.	Director (EPIM)* EPA	Secretary

* An "Environment Policy Implementation and Monitoring" Directorate (EPIM) would be created in the EPA Punjab to serve as the Directorate of the Committee.

- All relevant Provincial Governments would also create special cells to coordinate and implement the Policy.
- "Provincial Environment Policy Implementation Committee" would meet twice a year. The Committee would report the status of implementation of the Policy to Punjab Environmental Protection Council in its meeting.
- Provincial, District and Tehsil Governments would also constitute "Policy Implementation Committees" in order to ensure coordinated implementation of the Policy through effective participations of all stakeholders, including corporate and civil society organizations.