DISTRICT ENVIRONMENT PLAN
DISTT.SIRMAUR (HP)

JOIN HANDS TOGETHER

TO SAVE ENVIRONMENT

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FOREWORD

Hon'ble National Green Tribunal, New Delhi has passed an order on 15-07-2019 in O.A. No. 710/2017 titled as Shailesh Singh Versus Sheela Hospital and Trauma Centre Shahjahanpur that it is necessary to have a District Environment Plan (DEP) to be operated by the District Committee.

DEP in respect of District Sirmaur covers 7 thematic areas by capturing basic information on 64 action areas which are essential part of this plan.

DEP is of immense importance as to involve community participation. It should delineate the mitigation measures, monitoring and evaluation plans, citing specific roles and responsibilities of key personnel, so as to minimize the adverse effects of the human activities to the environment.

INTRODUCTION

Environment is the complex of biotic and abiotic factors that act upon an organism or on ecological community and ultimately determine its form and survival. Literally, environment means all that which surrounds us.

Biotic components or factors can be described as any living component that affects another organism or shapes the ecosystem.

Abiotic factors are non-living chemical and physical parts of the environment that affect living organisms and the functioning of the ecosystems.

The Earth Science generally recognizes four spheres, the Lithosphere, the Hydrosphere, the Atmosphere and the Biosphere as correspondent to Rocks/ Earth's Crust, Water, Air and Life respectively.

The world environment is going too much worst day by day as we use our natural resources indiscriminately and fail to manage our waste. Our total environmental conditions deteriorate in everyday life yet we are not concerned ourselves for saving us from different types of natural calamities and extinction of several types of species. It is true that only human beings are responsible for polluting environment, but if we show a little bit of concern that it will make us positive thinker to save our environment.

Current Situation of Environment:

Due to over exploitation of the natural resources, the situation of environment is so poor that could never be imagined by our old generations in previous time. This has led to various types of pollution i.e. Air, Water, Soil and Noise Pollution. Settlements are the main reasons of increasing pollution which have resulted in various diseases and hampered the quality of life.

SOLUTIONS FOR SAVING ENVIRONMENT:

Solutions are many but all need proper action and support from all stakeholders. Forests are the key operators of natural cycle but due to over exploitation we have forgotten its importance. Thus the first step to save our environment is to plant trees as many as possible. The next is the use of FIVE R's while using our natural resources. They are:

REDUCE, RECYCLE, REUSE, REFUSE and REPURPOSE.

The other measures are use of CNG Vehicles, proper implementation of bylaws of environment protection etc.

ECOSYSTEM-A PART OF ENVIRONMENT

An ecosystem is a community of living organisms in conjunction with the non-living components of their environment, interacting as a system. These biotic and abiotic components are linked together through nutrient cycles. Energy enters the system through photosynthesis and is incorporated into plant tissue. By feeding on plants and on one another, an animal plays an important role in the movement of matter and energy through the system. They also influence the quantity of plant and microbial biomass present. By breaking down dead organic matter, decomposers release carbon back to the atmosphere and facilitate nutrient cycling by converting nutrient stored in dead biomass back to a form that can be readily used by plants and other microbes.

Ecosystems are controlled by external and internal factors. External factors such as climate, soil and topography, control the overall structure of an eco-system but are not themselves influenced by the eco system. Unlike external factors, internal factors are controlled, e.g. decomposition, root competition, shading, disturbance, succession, and types of species present.

Ecological imbalance occurs when there is no cohesion between internal and external factors. There should be balance between developmental and environmental policies. Ever increasing population with various types of wastes (Municipal Wastes, Biomedical Wastes, E-waste, Hazardous wastes, C & D Wastes etc.) have disturbed this ecosystem to a great extent, which is a warning to save and protect our environment.

Ecosystems are dynamic entities. They are subject to periodic disturbances and are in the process of recovering from some past disturbance. When a perturbation occurs an eco-system responds by moving away from its initial state. The tendency of an eco-system to remain close to its equilibrium state, despite that disturbance is termed its resistance. On the other hand the speed with which it returns to its initial stage after disturbance is called its resilience. Time plays a role in the development of soil from bare rock and the recovery of a community from disturbance.

POLLUTION

The word 'POLLUTION' has been derived from the Latin word 'POLLUTIONEM' which mean defilement. Pollution is an undesirable change in physical, chemical or biological characteristics of air, water and land, which may or will adversely affect human life and other life forms. Various types of pollution thus so caused have led to deterioration of quantity and quality of life.

Air Pollution- It is caused by the occurrence of foreign particles (Suspended Particulate Matter and Respiratory Suspended Particulate Matter) or gases in the atmosphere. Main reasons are vehicular emission, dust from 'Kachcha' Roads and paths, burning of domestic and agricultural wastes, burning of fuels, release of hazardous gases from industries.

Water Pollution– It is the addition of some substances (Organic, Inorganic, Biological or Radiological) or factor (Heat, pH) which degrades the quality of water so that it either become health hazard or unfit for use.

It is caused by dumping of municipal/solid waste, biomedical waste, E-waste, C & D waste and sewage at large.

Noise Pollution–Increase in noise level leads to noise pollution. Noise is defined as unpleasant sound that has an adverse effect on the human. Major causes are the honking of horns, loud music at religious places and marriages, radio, TV, running of machines at sites.

Soil Pollution–Soil contamination or soil pollution as part of land degradation is caused by the presence of Xenobiotic (man-made) chemicals or other alteration in the natural soil environments. It is typically caused by industrial activity, use of pesticides and insecticides in agricultural operations or improper disposal of waste.

Environmental Management

There are two main approaches for environmental management.

1. Management based on standards.
2. Management based on best practicable means.

The first approach requires statutory provision for standards for each pollutant for air, water, noise and soil pollution. In this approach, each polluter could choose a suitable technique for pollution control, based on their evaluation for technical feasibility and economic viability.

The second approach is based on best practicable means. In this case the industry is bound mandatorily to adopt any suitable method which is technically feasible as well as economically viable.

POLLUTOR PAYS PRINCIPLE

The 'PPP' is the common accepted practice that those who pollute the environment should bear the cost of managing it to prevent damage to human health or environment. And such types of violators may be punished with Environment Compensation Cost.

DISTRICT SIRMAUR AT A GLANCE

Location

District Sirmaur is located in outer Himalayas, which is commonly known as Shivalik range. Like other parts of Himachal Pradesh, it has beautiful landscape and embracing climate .The District lies between 30°22′30″to 31°01′20″ North Latitude and $77^0$01′ 12″ to $77^0$49′ 40” East Longitude. The district is predominantly mountainous with deep valleys lying between Shivalik ranges of varying elevation. The river Giri, a tributary of the river Yamuna is the biggest river in Sirmaur district, while flowing in the South-East direction it bisects the districts into two parts namely, the Trans-Giri area and Cis-Giri area.

Boundaries

Located on the southernmost portion of Himachal Pradesh, Sirmaur district is bounded by Shimla district in the North, Solan district in the North-West, state of Haryana in the south & West while the state of Uttrakhand and UP makes its eastern boundaries.

For developmental activities, the district has been divided into 6 development blocks namely, Nahan, Paonta,Pachhad,Rajgarh,Sangrah & Shillai.

Demography

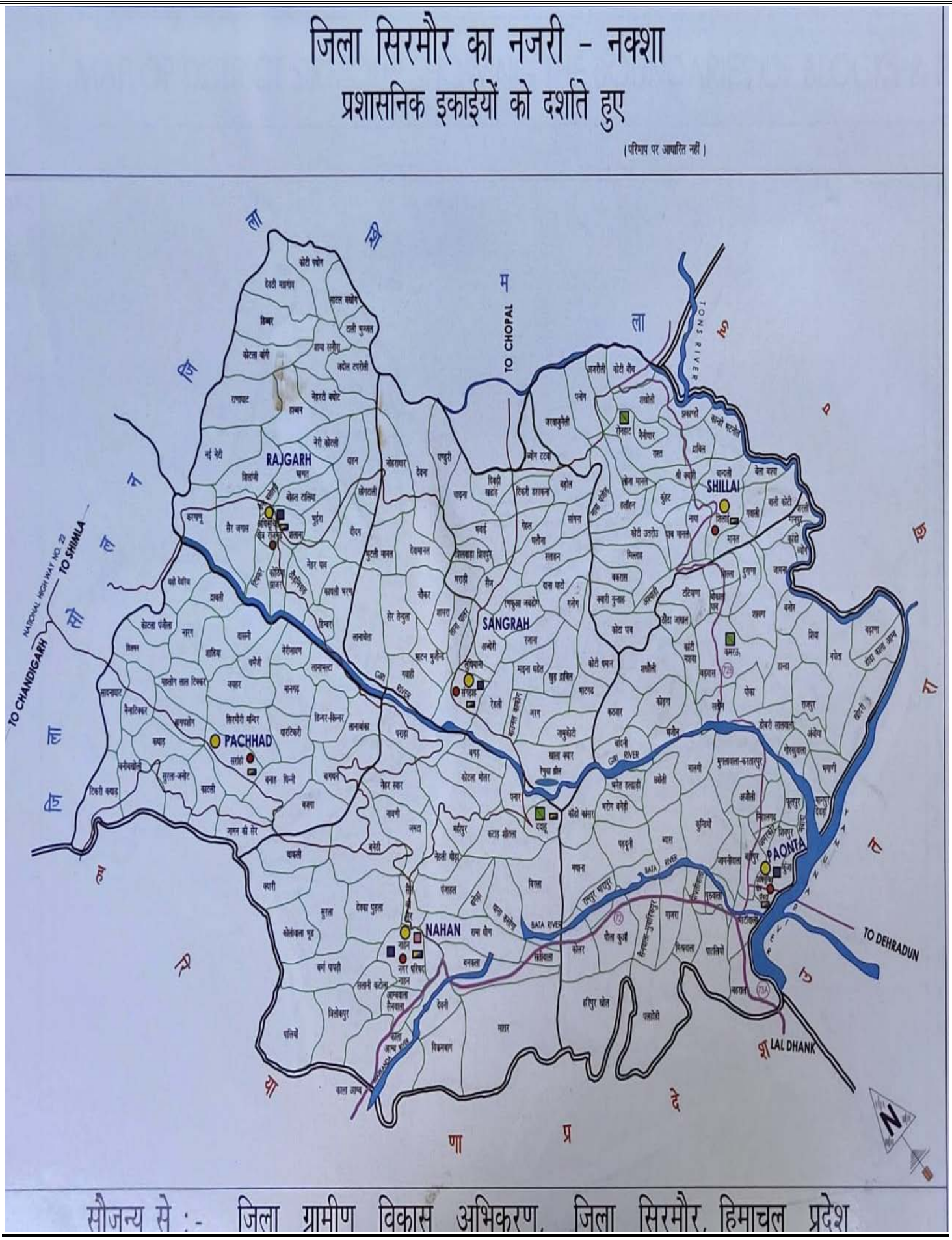
Total Population	529855
Male Population	276289
Female Population	253566
Literacy Rate	82.80%

as per Census of India 2011

जिला सिरमौर का नजरी - नक्शा

प्रशासनिक इकाईयों को दर्शाते हुए

(परिमाप पर आधारित नहीं)



सौजन्य से :- जिला ग्रामीण विकास अभिकरण, जिला सिरमौर, हिमाचल प्रदेश

Administrative Set up

Sub Division	6(Nahan,PaontaSahib,Rajgarh,Sangrah,Shillai,Pachhad)
Tehsils	9(Nahan,PaontaSahib,Rajgarh,Sangrah,Shillai,Pachhad,Dadahu,Kamrau,Nohra)
Sub Tehsils	4(Rohnat,Narag,Pajhota,Haripurdhar)
Development Blocks	6(Nahan,PaontaSahib,Rajgarh,Sangrah,Shillai,Pachhad)
Panchayats	228
Villages	976

Land Use Pattern

Total Geographical Area	224759 ha
Area Under Forest	48682 ha
Total Cultivated Area	75914 ha
Net Cultivated Area	40235 ha
Net irrigated Area	15196 ha
Area Sown more than once	35679 ha

As per report of hpsirmaur.nic.in

Climate and Rain Fall

The district possesses a variety of climate varying according to elevation. Summer months are exceedingly hot in doon and water is scarce. The Hilly areas have a temperate climate though the Dharti range is hot. The Trans Giri tract, Pajhota and sain range areas are comparatively cool even in summers. Snow falls regularly in winters in Trans Giri areas, whereas in Sain ranges it is occasional, while in Dharti ranges it is rarely noticed.

The winter season extends from November to February, summer season from March to June followed by the monsoon period extending from July to September end. Maximum precipitation in the form of rain occurs during July to September. Average annual rainfall in the district is about 1200mm out of which 90% occurs during monsoon season. During winter, rainfall also occurs in lower hills and valley parts.

POLLUTION PRONE AREAS OF DISTRICT SIRMAUR

As per the CEPI (comprehensive environment pollution index) the most polluted area in district Sirmaur is Kala Amb having CEPI score of 65.70. It has Air Pollution Index of 17.00, Water Pollution Index of 64.00 and Land Pollution Index of 27.75 (Source: CPCB report on polluted industrial areas, 2018). In 2009-10 CEPI score for Kala Amb area was 68.77. It has improved since then, but a lot of work is still to be done. The other pollution prone areas are Paonta Sahib and mining areas of the district Sirmaur. In terms of air pollution, Paonta Sahib and Kala-Amb have been notified as Non-Attainment cities, which do not meet the ambient air quality standards.

In terms of water pollution, River Markanda has been declared priority II in News Items published in "The Hindu" authored by Shri Jacob Koshi titled " **More river stretches are now critically polluted: CPCB**", order dated 20-09-2018 in **Original Application No. 673/2018** pending before Hon'ble NGT.

AQI	Remark	Color Code	Possible Health Impacts
0-50	Good		Minimal impact
51-100	Satisfactory		Minor breathing discomfort to sensitive people
101-200	Moderate		Breathing discomfort to the people with lungs, asthma and heart diseases
201-300	Poor		Breathing discomfort to most people on prolonged exposure
301-400	Very Poor		Respiratory illness on prolonged exposure
401-500	Severe		Affects healthy people and seriously impacts those with existing diseases

In terms of water pollution, the most polluted river is Markanda, which has BOD of 12mg/L in March 2019 whereas it should be less than 3.

Soil and noise pollution have not been reported as yet in District Sirmaur.

OUTCOMES OF INVENTORIES

As per the thematic areas suggested through modal DEP prepared by CPCB the following analysis was done.

In district Sirmaur there are two Municipal Councils and one Nagar Panchayat given as below:

S.N.	NAME OF MC/TP	REMARKS
1	NAHAN	MC
2	PAONTA SAHIB	MC
3	RAJGARH	NP
TOTAL ULB		**03**

The Ministry of Environment, Forest & Climate Change, Govt. of India has notified that SWM Rules 2016. As per the rules, the role of local body has been specified as per rule 15 of SWM, 2016 and as per rule 16 of the said rules; HPSPCB shall enforce the rules through local bodies.

a) SOLID WASTE MANAGEMENT

For the three urban local bodies present in the district Sirmaur, the following Action Areas has positive outcomes:

Sr. No.	Action Areas	Outcome
1	SEGREGATION OF WASTE	Partly (60-80%)
2	DOOR TO DOOR COLLECTION	Partly (80-100%)
3	LINKAGE WITH RECYCLERS	Initiated
4	AUTHORIZATION OF WASTE PICKERS	Initiated
5	ISSUANCE OF ID CARDS	Initiated
6	COMPOSTING OF WET WASTE	100% (Pit Compost)

The following action areas have to be improved or they have to be included in the future action plans:

Sr. No.	Action Areas	Outcome
1	MECHANICAL ROAD SWEEPING	NOT INITIATED
2	USE OF SANITARY LANDFILLS	NOT INITIATED
3	RDF (REFUSE DERIVED FUEL)	INITIATED

SWM in RURAL AREAS

The rural areas in district Sirmaur can be divided into two parts

Part A: Rural Areas without Industries

Part B: Rural Areas with Industries and having mining activities

In rural areas generally the waste material is Kitchen Waste, Agriculture Waste and domestic animals dung.

All these materials are being used for making manure by the farmers.

In rural areas having industries and mining activities, there is problem of Solid Waste Management. However, SWM plan has been implemented to achieve 100% collection and segregation in rural areas. For this 50 clusters have been made for collection and segregation at panchayat level.

Zero Waste Policy under Swachh Bharat Mission (Gramin) (SBM)

On the recommendations of GOI and orders of Hon'ble NGT, all the Gram Panchayats will have to become Zero Waste in the state of H.P. by 2019-20.

- In view of these directions, the competent authority has decided to cover 500 GP's in first phase for Zero Waste under SBM (G).
- District Sirmaur has covered 35 GP's out of 228 GP's in first phase as per details below:

S.N.	BLOCK NAME	TOTAL NO. OF GP'S IN BLOCK	TOTAL GP'S SELECTED FOR ZERO WASTE	CATEGORY OF GP'S
1	NAHAN	34	06	Rural=01 National Highway=03 Industrial Area=01 Tourist Place=01
2	PACHHAD	30	04	Rural=02 National Highway=02
3	PAONTA SAHIB	64	10	Rural=04 National Highway=02 Industrial Area=03 Semi Urban=01
4	RAJGARH	30	04	Rural=01 Tourist Place=01 State Highway=01 Semi Urban=01
5	SANGRAH	41	07	Rural=03 State Highway=01 Tourist Place=02 Semi Urban=01
6	SHILLAI	29	04	National Highway=04
	TOTAL	228	35	

b) PLASTIC WASTE MANAGEMENT: (PWM)

Plastic waste is a global concern. Plastic products have become an integral part of our daily life. Once Plastic is discarded after its utility is over, it is known as Plastic Waste.

In terms of PWM, the following action areas have positive outcomes in r/o ULB's in district Sirmaur:

S.N.	ACTION AREAS	OUTCOMES
1.	Door to door collection	Partly
2.	Prohibiting Sale of Carry Bags Less than 50 micron of thickness	100%
3.	Ban on Single Use Plastic	Implemented

The following action areas have to be improved or to be included in the action plan for PWM:

S.N.	ACTION AREAS	OUTCOMES
1.	Authorization of PW Pickers	Initiated
2.	PW Collection Centres	Not Initiated properly
3.	Linkage with NGO's	Not initiated
4.	Use of Poly waste	Poly Bricks

PWM in Rural Areas:

In rural areas of district Sirmour 50 collection centres have been made for Plastic waste collection.

(iii) C&D (Construction and Debris) Waste management in r/o ULB's in District Sirmaur

It consists of unwanted material produced directly or incidentally by the construction. It may also **contain** hazardous substances. In terms of CDWM, the following action areas have positive outcomes:

S.N.	Action Areas	Outcome
1.	Issuance of Permission by ULB's	Initiated
2.	CD Deposition Points	Initiated partially

So the following Action Areas needs improvement:

S.N.	Action Areas	Outcome
1	CD waste Recycling Plant	Not Initiated

CDWM in Rural Areas

There is no problem of C & D waste in rural areas of district Sirmaur as this waste is negligible and is reused. But selection of C & D deposition point needs to be initiated in those areas of district which are densely populated.

(iv) BIOMEDICAL WASTE MANAGEMENT (BWM)

The MOE &F&C C, GOI vide notification GIR -343(E) dated 26-03-2016 has notified Biomedical Waste Management rules 2016. For the collection, transportation and disposal of Biomedical Waste Treatment facilities at Solan has disposal/ incineration capacity of 100Kg. / hour catering to Biomedical Waste of HCF of district Sirmaur. The following Action Areas have positive outcomes:

In terms of BWM the district Sirmaur has following positive outcomes:

S.N.	Action Areas	Outcome
1	Linkage with CBMWTFs	Partly
2	Compliance to Standards	Partly
3	Barcode tracking by HCFs	Partly

The following action areas in terms of BWM are lacking:

S.N.	Action Areas	Outcome
1	Linkage of private HCF with CBMWTF's	Needs improvement
2	Daily carriage of BMW	Needs to be regulated in all HCFs

(v) HAZARDOUS WASTE MANAGEMENT (HWM)

It involves reducing the amount of hazardous substances produced, treating hazardous wastes to reduce their toxicity, and applying methods to reduce or eliminate exposures to their wastes.

There is no Hazardous Generating Industry in any one of the ULB's in district Sirmaur.

. In terms of HWM the followings are positive outcomes:

S.N.	Action Areas	Outcome
1	Industries Linked with TSDF (Treatment, Storage and Disposal Facility)	100% It is done at Dabhota (Nalagarh), Distt. Solan

The following action areas have negative outcomes:

S.N.	Action Areas	Outcome
1	Illegal Transport and Dumping of HW	To be regulated

(vi) E-WASTE MANAGEMENT (EWM)

E-waste or electronic waste is created when an electronic product is discarded after the end of its useful life. The rapid expansion of technology and the consumption driven society results in the creation of a very large amount of E- waste every minute. E-waste describes discarded electrical or electronic devices.

These Action Areas in terms of EWM needs to be improved as per detail below:

S.N.	Action Areas	Outcome
1	TOLL FREE NO. FOR DEPOSITION OF E-WASTE	To be Initiated
2	Collection Centres	To be established
3	Authorized E-waste Recyclers	Partly
4	Involvement of NGO's	to be initiated
5	Distt. Level Awareness Campaign	to be initiated

(2) WATER QUALITY MANAGEMENT PLAN: (WQMP)

In terms of WQMP the following action areas have positive outcomes:

S.N.	Action Areas	Outcome
1	Regular sampling of all the river water bodies and their tributaries on monthly basis.	Done
2	Regular sampling of hand pumps/bore wells on half yearly basis.	Done
3	Installation of Continuous Water Quality Monitoring Station.	Set up on River Markanda at Kala Amb
4	Permission for Bore wells have been brought under control of IPH	100%
5	Monitoring Cell for UG water &Quality Assessment	100%
6	RWH in Govt. Buildings	Initiated
7	Awareness Campaign for Water Conservation and Quality	Regularly conducted

In terms of WQMP the following action areas has negative outcomes:

S.N.	Action Areas	Outcome
1	Domestic Sewage Management in Rural Industrial Areas	STPs proposed
2	No proper plan for immersion of idols and worship materials in Rivers, Nallahs / Water Bodies in Distt. Sirmaur	Awareness being done
3	River side Open Defecation in Moginand, KalaAmb Area	May be due to immigrant labourers
4	Water Quality in Industrial Areas	Under specifications

(3) DOMESTIC SEWAGE MANAGEMENT PLAN (DSMP)

Domestic Sewage is a type of waste water that is produced by a community of people and is characterized by volume of flow, physical condition, chemical and toxic constitute and its bacteriologic status.

In terms of DSMP, the following action areas have positive outcomes in r/o district Sirmaur:

S.N.	Action Areas	Outcome
1	STPs of capacity 0.44 MLD and 1 MLD are already functioning in Paonta Sahib	In operation
2	One STP of capacity 1.72 MLD in Paonta Sahib, 1.7 MLD in KalaAmb, 1.5 MLD in Trilokpur each and 3 STPs of capacity 2 MLD, 2.5 MLD and 1 MLD are proposed.	Under process

In terms of, the following action areas have negative outcomes:

S.N.	Action Areas	Outcome
1	Lacking of STP's in Industrial Area & Maximum area of District	Under Process

(iv) INDUSTRIAL WASTE WATER MANAGEMENT PLAN: (IWMP)

There are two prominent industrial areas in Distt. SIrmaur i.e. Kala Amb and Paonta Sahib. In terms of IWMP the following Action Areas has positive outcomes:

S.N.	Action Areas	Outcome
1	Inventorization of Water polluting industries in the industrial areas of Kala Amb and Paonta Sahib	**Done**
2	Captive ETPs/STPs in Water Polluting Industries and Hospitals	Provided
3	Reusing of treated effluent by Industries	Most of Industries are reusing treated effluent in Gardening/Flushing
4	Direction and action to be taken against the industry for improving the conditions of existing Water Pollution Control Devices and increase in vigilance	Being done
5	Adoption of ZLD by Industries	Initiated
6	CETP of capacity 2 MLD for Paonta Sahib and CETP cum STP of capacity 5 MLD for Kala Amb is proposed.	EC has been granted for Paonta Sahib and in Kala Amb application for issuance of TORs has been made to MoEF.

NEGATIVE OUTCOMES:

S.N.	Action Areas	Outcome
1	Untreated domestic sewage from industrial areas	Degrading water quality of Rivers

(V) AIR QUALITY MANAGEMENT PLAN (AQMP)

Air Quality Management refers to all the activities a regulatory authority undertakes to help protect human health and the environment from the harmful effects of air pollution to successfully achieve the air quality goals, air quality managers need to implement programmes for pollution control strategies.

The following action areas in terms of AQMP have positive outcomes:

S.N.	Action Areas	Outcome
1	Action Plan in Non-Attainment cities of Paonta Sahib and Kala Amb already submitted to NGT and is being implemented.	Under implementation
2	Establishment of AQM Stations	4 AQM Stations are in District Sirmaur.
3	Proper Identification of AIR POLLUTING SOURCES	Source Apportion based study is being conducted by IIT Kanpur to identify sources of pollution in Kala Amb and Paonta Sahib
4	Control Open Burning Stubble	Controlled
5	Control of Forest Fires	Partially
6	Up-gradation of Air Pollution Control Devices	Being done
7	Maintenance of roads to control fugitive emissions	Being done
8	Plantation	Forest Department has carried out plantation under PAPA (Pollution Abating Plants Abhiyan) in around 7 hectare land in Kala Amb area in 2019-20. HPSPCB have also carried out plantation of approx. 3,000 plants in Sirmaur.
9	Vehicle Monitoring Camps	Regularly conducted

The following action areas in terms of AQMP has negative outcomes

S.N.	Action Areas	Outcome
1	Assessment of carrying capacity of industrial area.	Needs to be done
2	Stack emission levels should be stringent than the existing standards in terms of the identified critical pollutants.	Needs to be done
3	CEMS to be installed in all large/medium red category industries (air pollution)	Needs to be done
4	Effective fugitive emission control measures should be imposed in the process, transportation, packing etc.	Needs to be done
5	Encourage use of cleaner fuels (pet coke/furnace oil/LSHS may be avoided).	Initiated

(vi) MINING ACTIVITY MANAGEMENT PLAN (MAMP)

There are three major areas of mining for Lime Stone in Distt. Sirmaur namely Sangrah, Sataun and Kamrau but general mining activities for collection of sand and pebbles is common in the rivers of Dist. Sirmaur.

In terms of MAMP the following action areas has positive outcomes:

S.N.	Action Areas	Outcome
1	Controlling Mining Activity	Initiated
2	Complaints against Mining Pollution	NIL

In terms of **MAMP the following action areas has negative outcomes:**

S.N.	Action Areas	Outcome
1	Air Pollution caused due to mining	Needs to be checked
2	Pollution of Water Bodies due to Mining	Needs to be checked
3	Sound Pollution due to Mining Activities	Needs to be checked

(vii) NOISE POLLUTION MANAGEMENT PLAN (NPMP)

Noise Pollution also known as Environmental Noise or Sound Pollution is the propagation of Noise with harmful impact on the activity of Human or Animal Life. The sources of Noise Pollution may be Machines, Transport or Propagation Systems. In terms of NPMP the following Action Areas have positive outcomes:

S.N.	Action Areas	Outcome
1	Noise Monitoring	Being conducted regularly
2	Sign Boards in Towns	Installed
3	Implementation of Ambient Noise Standards & Court orders in Residential/Silent Zones	Implemented

In terms of NPMP the following Action Areas have negative outcomes:

S.N.	Action Areas	Outcome
1	Noise Monitoring	Not on regular basis

ACTION PLAN

SOLID WASTE MANAGEMENT PLAN IN R/O DISTT. SIRMAUR

ACTION PLAN/MITIGATION MEASURES (SWM) IN R/O ULB'S

S.N.	Action Areas	Agency	Purpose
1	Formation of Ward Sanitation Committee	ULB	To keep vigil and educate people
2	To make ULB's Dust Bin Free(LARGE DUSTBINS ONLY) and to increase 100% door to door collection,	ULB	Proper Collection and Segregation
3	Involvement of NGO's/ECO clubs NCC/NSS/Scout Guide	ULB/Schools/Colleges	Awareness
4	segregation at Collection Vehicle Level	ULB	Segregation
5	Use of Sanitary Land Fills	ULB	Proper Disposal
6	Material Recovery Facility	ULB	Recovery
7	Reuse of flowers (Temple Waste) in making Dhoop & Agarbattis	ULB	Proper Use

ACTION PLAN/MITIGATION MEASURES (SWM) IN R/O RURAL AREAS

S.N.	Action Areas	Agency	Purpose
1	Reuse of Cow Dung in making Bio Bricks/Flower Pots/Logs	Panchayat	To be used in Funeral& as Fuel
2	Agriculture Waste as Fuel or Compost	Panchayat	Fuel & Manure
3	Pine Needles	Industries	Fuel Briquette
4	Cow Urine	Panchayat	Pesticide/Fertilizer
5	Zero waste management shed	DRDA	Segregation of waste
6	Making of soak pits for liquid waste	DRDA	Control

ACTION PLAN FOR PLASTIC WASTE MANAGEMENT

S.N.	Action Areas	Agency	Purpose
1	PW Collection Centres	ULB/Panchayat	Collection
2	Authorization of PW Pickers	ULB/Panchayat	Collection
3	Linkage with NGO's/ECO Clubs	ULB/Schools	Awareness & Collection
4	Use in Road Making	PWD	Disposal
5	Making of Poly bricks, Poly wall, Poly toilets, Poly benches	ULB/ Panchayat	Reuse
6	Fuel for Cement clin	ULB/ Panchayat	Disposal

ACTION PLAN/ MITIGATION MEASURES FOR C&D WASTE

S.N.	Action Areas	Agency	Purpose
1	Establishment of Deposition Points	ULB/Panchayat	Collection/Settlement
2	CD Waste Recycling Plant	ULB	Recycling
3	Empty Cement Bags	ULB/Panchayat	prevents soil erosion/Retaining wall formation

ACTION PLAN/MITIGATION MEASURES FOR BIOMEDICAL WASTE MANAGEMENT

The Ministry of Environment ,Forest & Climate Change Govt. of India vide notification GSR-343(E) dated 28-03-2016 has notified Bio Medical Waste management Rules 2016 for the collection, transportation and disposal of Biomedical Waste treatment facilities.

S.N.	Action Areas	Agency	Purpose
1	CBWTF Facilities for each medical block	Health/Ayurveda/Veterinary	Proper & Regular Disposal
2	BAR CODE system	Health/Ayurveda/Veterinary	Effective disposal
3	Covering of Ayurvedic and Vet. Hospials Under CBWTF	Health/Ayurveda/Veterinary	Proper Disposal
4	Regular Inspection by HPSPCB	HPSPCB	Proper Functioning

ACTION PLAN/MITIGATION MEASURES FOR HAZARDOUOS WASTEMANAGEMENT

S.N.	Action Areas	Agency	Remarks
1	Checking of illegal transportation and dumping of Hazardous waste	HPSPCB	Strict vigil will be kept on illegal transportation and dumping of hazardous waste.

ACTION PLAN/ MITIGATION MEASURES FOR E-WASTE MANAGEMENT

S.N.	Action Areas	Agency	Purpose
1	TOLL FREE No. FOR COLLECTION	ULB/Panchayat	Collection
2	COLLECTION CENTRES	ULB/Panchayat	Collection
3	Authorization of EW Pickers	ULB/Panchayat	Collection
4	Proper Disposal Centres	ULB/HPSPCB	Disposal
5	Mass Awareness	ULB/Panchayat ,PCB	Awareness
6	Extended Producer Responsibility	Producer/ULB	Collection and Proper Disposal

ACTION PLAN/ MITIGATION MEASURES FOR WATER QUALITY MANAGEMENT

In Distt.Sirmaur there are three types of water sources namely: Rivers, Water Bodies, Under Ground (UG) Water which are being affected by various activities as contamination by humans/animals etc. The following measures are needed for Water Quality Management**:**

S.N.	Action Areas	Agency	Purpose
1	Mobile toilets for industrial areas	Industries	Open Defecation Free
2	Biodegradable Idols	ULB	Contamination Free
3	Worship Material Biodegradable	ULB/Panchayat/HPSPCB	Contamination Free
4	Ban on Commercial Sale of Water	IPH	Replenishment of UGW
5	Water Recharge Methods	IPH	Increase the UG Water Level
6	Plantation	Forest/ Panchayat	Rain & Increase the UG
7	Mass Awareness	DPRO/Education/PCB	Awareness about quality

ACTION PLAN/MITIGATION MEASURES FOR DOMESTIC SEWAGE MANAGEMENT

S.N.	Action Areas	Agency	Remarks
1	Setting up Common STPs.	ULB, I&PH	One STP of capacity 1.72 MLD in Paonta Sahib, 1.7 MLD in KalaAmb, 1.5 MLD in Trilokpur each and 3 STPs of capacity 2 MLD, 2.5 MLD and 1 MLD in Nahan will be set up.

PHYTOREMEDIATION:

With the help of certain plants, the domestic sewage can be treated and it can be rid of the biotic and abiotic pollutants as these plants can absorb these pollutants from soil and water. These plants have been identified and based upon various research papers. Some of them are as follows:

S.N.	Name of the Plant	Botanical Name	Remarks
1	Jacarnda	*Jacarnda mimosifolia*	Antimicrobial Action against *E.coli* and *Staph. Bacteria*
2	Willow	*Salix babylonica*	Improve the quality of ground water by absorbing ammonical nitrogen and heavy metals
3	Canna	*Canna spp.*	Used for removal of ammonical nitrogen from sewage
4	Azolla	*Azolla pinnata*	Used for cleaning of Sewage and degrades diesel fuel And absorbs Mercury and cadmium
5	Southern Cattail	*Typha domingenesis*	Reduces bacteria from water and absorbs Al, Fe and Zn from Sewage

ACTION PLAN/MITIGATION MEASURES FOR INDUSTRIAL WASTE WATER MANAGEMENT

S.N.	Action Areas	Agency	Remarks
1	Inventorization of the water polluting industries in the catchment of River Markanda and Yamuna covering assessment on aspects relating to status of Consents under Water & Air Acts and Authorization, Effluent Generation, ETP Capacities and final mode of effluent discharge	**HPSPCB**	To assess total water consumption and waste water generation by industries
2	Action against the identified industries in operation without Consent under Water & Air Act/Authorization under HOWR, 2016.	**HPSPCB**	Action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against any unit if found without mandatory consent of the HPSPCB.
3	Action against the industries who have not installed ETPs or ETPs exist but not operating or treated effluent is not meeting the prescribed standards.	**HPSPCB**	Any industry if found without ETP, action as per relevant provisions of Water Act, 1974 and Air Act, 1981 shall be taken against them.
4	Providing Online Continuous Effluent Monitoring System in all Red-Large industries.	**HPSPCB**	To ensure compliance to environmental norms.
5	Setting up of CETP at industrial area Paonta Sahib and Kala Amb	Kala Amb Infra Company, Industries Deptt.	EC has been granted for Paonta Sahib and in Kala Amb application for issuance of TORs has been made to MoEF.
6	Regular monitoring and sampling of water quality of Rivers and various drains on monthly basis.	HPSPCB	To check the water quality status of rivers and drains.
7	Impact of water pollution on health of public by organizing Health camp	Deptt. Of Health & Family Welfare	Health Deptt. Will organize monthly health camps. 11 such camps have been organized in Kala Amb so far.
8	Installation of continuous Real Time Water Quality Monitoring Station.	I&PH	Proposed on River Markanda at Kala Amb
9	Carrying assessment of ground water survey for quality and to identify over exploited and critical areas	I&PH	To improve Ground Water level in critical areas.
10	Sampling of Tube wells Bore wells, Hand Pumps.	I&PH	To check water quality.
11	Sealing of contaminated Hand pumps and found to be unfit for drinking purpose by the Public.	I&PH	For public safety.
12	Plantation in flood plain Zone	Forest Deptt.	To avoid soil cutting on river banks.

PHYTOREMEDIATION:

With the help of certain plants, the Industrial Waste water can be treated and it can be rid of the biotic and abiotic pollutants as these plants can absorb these pollutants from soil and water. These plants have been identified and based upon various research papers. Some of them are as follows:

S.N.	Name of the Plant	Botanical Name	Remarks
1	Golden Rain Tree	*Cassia fistula*	Absorbs Arsenic and Fluoride from Industrial Water
2	Kaner	*Nerium Indiana*	Absorbs chromium from Industrial Water
3	Mulberry	*Morus alba*	Absorbs Zn, Hg, As, Pb, Cu and Cd from Industrial Water
4	Pine	*Casurina equisetifolia*	Remediation of textile dye water
5	Sheesham	*Dalbergia sisoo*	Absorbs nutrients from sludge
6	Castor	*Ricinus communis*	Uptake of Cd & DDT from soil
7	Crown Flower	*Caloptropis gigantea*	Helpful in absorption of Radioactive elements from soil
8	Duckweed	*Cemma minor*	Absorbs Cr and Pb from water
9	Indian Mustard	*Brassica tunecia*	Absorbs Zinc from Soil

ACTION PLAN/MITIGATION MEASURES FOR AIR QUALITY MANAGEMENT

S.N.	Action Areas	Agency
1	Up gradation of existing Air Pollution Control Systems	HPSPCB
2	Direction to the industries for improving the conditions of APCDs and increase in vigilance	HPSPCB
3	Providing Online Continuous Emission Monitoring System in all red-large industries.	HPSPCB and individual industries
4	Conversion of brick kiln to induced/forced draft	HPSPCB
5	Control of air pollution due to vehicles in the area.	Transport Department
6	Restriction on open burning of municipal solid waste, biomass, plastic, agricultural/horticultural waste and display of hoardings for awareness.	Local bodies i.e. MC, Agriculture, Horticulture and BDOs.
7	Providing air pollution control measures during demolition of old building and new constructions.	Local body
8	Traffic management in the area.	Traffic and Transport Department
9	Changing the fuel pattern of industry to cleaner fuel.	Industries Department and HPSPCB
10	Construction of pucca pavement along the roads, tree plantation along the roads and development of green belts.	Public Work Department, Municipal Council, Forest Department
11	Action plan to minimize forest fires.	Forest Department
12	Checking of adulteration of fuel	Department of Food and Civil Supplies
13	Action against the industries operating without valid consent and authorisation required of the State Board.	HPSPCB
14	Public Awareness: Issue of advisory to public for prevention and control of air pollution Involvement of school and other academic institution in awareness program	HPSPCB
15	Tree plantation along the roads	PWD/Forest Department

PHYTOREMEDIATION:

With the help of certain plants, the Air Pollution can be treated and it can be rid of the pollutants as these plants can absorb these pollutants from air. These plants have been identified and based upon various research papers. Some of them are as follows:

S.N.	Name of the Plant	Botanical Name	Remarks
1	Aloe Vera	*Aloe barbedensis*	Eliminates Benzene and formaldehyde from Air
2	Spider Plant	*Chlorophytum comosum*	Eliminates Xylene, Toluene & CO from Air
3	Snake Plant	*Sansevieria isurentii*	Eliminates Benzene, trichloroethylene from Air
4	Arica palm	*Dypsis lutescens*	Eliminates Benzene, CO & Xylene from Air
5	Peepal	*Ficus religiosa*	Produces oxygen day and night
6	Neem	*Azadirichta indica*	Absorbs dust from air
7	Muski Kapoor	*Cinnamomum camphora*	Insect repellent and flea killer
8	Kapoor Tulsi	*Ocimum kilimandscharicum*	Insect and mosquito repellent

ACTION PLAN/MITIGATION MEASURES FOR NOISE POLLUTION MANAGEMENT

S.N.	Action Areas	Agency	Purpose
1	Ban on pressure horns	Transport/Police	Prevents Noise Pollution
2	Formation of Silent Zones	Transport/Police	Prevents Noise Pollution
3	Sound Absorbers in Industries	Industry/HPSPCB	Prevents Noise Pollution
4	Implementation of Bylaws	Police/ HPSPCB	Prevents Noise Pollution
5	Formation of Green Muffler/ Green Belt	HPPWD/Forest	Prevents Noise Pollution
6	Proper Maintenance and service of Vehicular Engines	Transport/Police	Prevents Noise Pollution

PHYTOREMEDIATION:

With the help of certain plants, the Noise Pollution can be treated and we can get rid of this pollution. These plants have been identified and based upon various research papers. Some of them are as follows:

S.N.	Name of the Plant	Botanical Name	Remarks
1	Harshingar	*Nyctanthes arbortristis*	Absorbs noise pollution
2	Peace Lily	*Spthiphyllum wallisii*	Absorbs noise pollution
3	Weeping Fig	*Ficus benjamina*	Absorbs noise pollution
4	Fiddle Leaf Fig	*Ficus lyrata*	Absorbs noise pollution
5	Guina Chestnut	*Pachira aquatica*	Absorbs noise pollution

CONCLUSION

District Environment Plan emphasizes various action plans for thematic areas. In our district i.e. district Sirmaur, the current Environmental Status is within safe limits except Kala Amb and Paonta Sahib. These two areas require special attention from Authorities as well as from all stake holders.

A lot of efforts in terms of all types of waste management have been made practical by the authorities and the general public. But still all these areas need improvement.

How can we prevent this deterioration and degradation of our environment? The task of conserving and preserving it is quite Herculean. The only solution to the critical environmental issues is people's mass participation in saving the environment. Mass forestation drive and stopping the use of fossil fuels altogether can solve this problem.

This district in terms of SWM is about to achieve 100% door to door collection and segregation of solid waste, But Plastic Waste is causing a threat. C& D waste in the ULB's has to be recycled. Bio Medical Waste needs special attention from the authorities. Hazardous wastes, Industrial waste water, Domestic sewage, SPM, RSPM etc. are those areas which are at threshold of causing pollution.

There are gaps identified in each and every action area. But these Action Plans, which are suggested, have to be implemented to minimize these gaps. But this cannot be done only at Administration level; Public Participation is to be increased many folds to achieve the target of clean environment. Behavioral change may only be achieved by mass awareness. Awareness is to be started from school level to create a feeling of belongingness.

Every waste generator has to rethink:

a) How waste production can be reduced at our own level?
b) How can we minimize littering of waste to have minimal impact on air and water quality?
c)How can we process and recycle the waste so generated?
d)How can we promote feeling of reusing the daily need requirements like using cloth carry bags than those of Polythene or Polystyrene i.e. non woven bags?

It can be done by stopping use of single use articles by changing our behavioral pattern. For zero waste, we have to sort out/segregate at source all types of waste as per their nature, use and recycling. All small steps by everyone will help to create clean and healthy environment. With the measures which are taken up in the action plans, the environment health will improve considerably. If we succeed in implementing the measures, we will be the beneficiaries: our coming generations will be able to live in a purer and healthier environment. This will be our best gift to them, as well as to us.