

Action Plan for Rejuvenation of Ponds



31st March, 2020

Directorate of Environment and Climate Change,
Department of Science, Technology and Environment,
Government of Punjab

Table of Contents

Chapter 1 - Introduction.....	3
1.1 Water.....	3
1.2 Punjab – Land of Rivers	3
1.3 Rapid Urbanization and Industrialization – Main cause of Pollution	3
1.4 Action Plans for Clean Rivers & Reuse of Treated Wastewater	4
1.5 Management of Rural and Urban Ponds.....	4
1.6 Directions issued by NGT.....	5
Chapter 2 - Vision, Mission and Strategy	6
2.1 Overarching Vision of the State - Mission Tandarust Punjab.....	6
2.2 Vision for Restoration of Ponds.....	6
2.3 Mission for Restoration of Ponds.....	6
2.4 Strategy for Restoration of Ponds	6
2.5 Identification of the Stakeholders and their roles	6
2.6 Monitoring and Governance	8
Chapter 3 – Current Status of Mangement of Rural Ponds	9
3.1 Treatment Facilities in Rural Areas under Clean River Action Plans	9
3.2 Contitution of Technical Committee	9
3.3 Other initiatives.....	10
Chapter 4- Various Measures for Restoration of Ponds & Timelines.....	11
4.1 Scope of Action Plan.....	11
4.2 Various Measures for Restoration of Rural Ponds	11
4.3 Various Measures for Restoration of Urban Ponds	15
Chapter 5- Monitoring & Governance	16
5.1 Key components of monitoring of rejuvenation of ponds.....	16
5.2 Monitoring of progress.....	16
5.3 Three Tier Monitoring	16

Annexures

A: Order for Constitution of Technical Committee	17
B: Technological Options of different models of Waste Stabilization Pond for treatment of wastewater in villages	19
C: Details of Village Ponds already renovated by Department of Rural Development & Panchyats	23
D: Action Plan for Rejuvenation of Urban Ponds of Municipal Corporations	24
E: Action Plan for Rejuvenation of Urban Ponds of Municipal Committes/Councils/Nagar Panchyats	25

Chapter 1 - Introduction

1.1 Water

1.1.1 A scarce natural resource, water is fundamental to life, livelihood, food security and sustainable development is vital for all life forms on earth. Only 2.7% of global water is available as fresh water, and of this, only 30% is available to meet the water demand of mankind and livestock. Pressure on freshwater resources is increasing across the globe. The overall fresh water availability across the globe remains more or less constant, however, from micro-perspective freshwater supplies in many regions and localities are dwindling due to alterations in hydrologic balances, over-exploitation and increasing pollution of freshwater reserves. Climate change and global warming are just the latest entrants to a long list of variables that may enhance the temporal and spatial variation in resource availability.

1.1.2 Additionally, the over-abstraction of water resources is adversely affecting ecosystem functions and resource sustainability. River base flows in lean season and monsoon driven floodwater recharge of floodplain aquifers have declined. River ecological functions have been affected with conditions no longer conducive for aquatic and riverine habitats negatively affecting a host of organisms and consequently their river cleansing function as well as availability of fish resources.

1.2 Punjab – Land of Rivers

1.2.1 The erstwhile Punjab State had five rivers namely Beas, Chenab, Jhelum, Ravi, and Sutlej. However, after the partition of India in 1947, only two rivers, the Sutlej and the Beas, lie within Punjab's territory, while the Ravi flows only along part of its western border. The non-perennial river Ghaggar flows from eastern part to south- western part of the state.

1.2.2 The perennial rivers in the State with a water potential of about 14.54 Million Acre Feet(MAF) have been used as a source of irrigation, drinking purpose especially in southern Punjab, development of hydro-electric projects to meet the energy requirements in the State and various activities including industrial purposes. The rivers have played a significant role in the socio-economic and industrial development of the State. However, demand of water is growing in agriculture, domestic, industrial and commercial sectors with growing population and their needs, leading to over- exploitation of water resources. Out of the 150 development blocks, more than 100 Blocks are over exploited blocks in terms of ground water extraction. Lifestyle changes particularly in rural areas, are generating more and more waste water necessitating the need for waste water management.

1.3 Rapid Urbanization and Industrialization – Main cause of Pollution

1.3.1 The rapid urbanization and industrialization during the last few decades have adversely affected the environment of the State. The quantum of sewage and sullage generated from the habitation areas has significantly increased and finding its way into natural drains, eventually leading to river line system of the State. In the rural areas, due to increase in the population, the capacity of most of the ponds have been exhausted due to which this sewage and sullage has also started flowing into the natural drains and finally becoming a part of river waters.

1.3.2 Therefore, the quality of water flowing in the water bodies has deteriorated as these water lack sufficient assimilation capacity for self-purification. This has been not only due to increase in the quantum of discharge of untreated sewage/ sullage, but, also due to decrease in the quantum of water in the water bodies owing to construction of dams & regulatory headworks on the upstream side.

1.4 Action Plans for Clean Rivers & Reuse of Treated Wastewater

1.4.1 Three comprehensive Action Plans for Clean River Sutlej, Beas and Ghaggar have been prepared by Department of Environment, Punjab in consultation with relevant stakeholder departments in compliance to directions of National Green Tribunal (NGT). The Action Plans aim to restore the river water quality to prescribed standards to ensure ecological balance and socio-economic well-being of the people. The identification of sources of pollution, measures to control pollution within prescribed timelines, integration of departmental plans, regular monitoring and review, etc. are the key components of Action Plans.

1.4.2 The implementation of the Action Plans is being monitored on monthly basis by River Rejuvenation Committee under the Chairmanship of Principal Secretary, Science, Technology & Environment ; State Level Apex Committee under the Chairmanship Chief Secretary and NGT Monitoring Committee under Chairmanship of Former Judge, Punjab & Haryana High Court.

1.4.3 The treated wastewater produced by Sewage Treatment Plant (STPs) can act as additional source of water for utilizing for non-potable purposes to supplement limited fresh water resources available in the State. Therefore, it is imperative to explore option for reusing the available treated wastewater for irrigation, construction purposes, green belts & urban landscaping, industrial use, thermal plants, rejuvenation of water bodies and emergency services like fire brigade, etc. A separate Action Plan for reuse of treated wastewater has been also prepared by Department of Environment.

1.5 Management of Rural and Urban Ponds

1.5.1 Ponds are central to the life and prosperity of the whole eco-system in India and used primarily for rainwater harvesting & bathing of domestic livestock. Ponds also perform other beneficial effects such as regulating temperature, humidity (microclimate regulation) and hot spots for aquatic flora and fauna.

1.5.2 Punjab is one of the progressive states of India with 13,260 villages and 167 Urban Local Bodies inhabited by 62.51% and 37.49% of total population, respectively. A total 15,466 rural and 249 urban ponds have been identified in the state by Department of Rural Development & Panchyats (DRDP) and Department of Local Government, respectively. However, in the absence of any treatment facility for scientific disposal of sullage, most ponds in the state have become prominent disposal points for wastewater. Water overflowing from ponds due to siltation is a common problem, which reduce their water-holding capacity. The nutrient loading from run-off from nearby agricultural areas, dumping of waste, infestation by aquatic weeds, encroachment, etc. are the other major threats to village ponds.

1.5.3 The state of villages and their natural assets reflect levels of development & progress of Nation & States. Most of the ponds of Punjab require a pragmatic eco-restoration. The basic scientific insights needed for planning and management of ponds is inadequate. Therefore, it is imperative to explore all available technological options for restoration conservation & management of ponds as per site specific conditions keeping in view vital role played by ponds in water conservation, climate change adaptation and biodiversity habitat.

1.6 Directions issued by NGT

1.6.1 Hon'ble NGT vide order dated 10.05.2019 in M.A. No. 26/2019 in O.A. No. 325/2015 in the matter titled "Lt. Col. Sarvadaman Singh Oberoi Vs UOI & Ors" directed that all States and UTs to review the existing framework of restoration all the water bodies by preparing an appropriate action plan. Such action plans may be prepared within three months and a report furnished to the Central Pollution Control Board (CPCB). The CPCB may examine all such plans and furnish its comments to this tribunal within two months thereafter.

1.6.2 In compliance of above said NGT order, it has been decided that Department of Rural Development & Panchayat (DRDP) and Department of Local Government (DLG) shall prepare a draft Action Plan for restoration of ponds (having size of > 0.5 acres as per revenue records) falling in rural and urban areas as per CPCB Guidelines and submit the same to Department of Environment for consolidation & submission to CPCB.

1.6.3 NGT vide order dated 25.02.2020 in the said matter has directed that having regard to the significance of the issue and unsatisfactory response of the States, we direct that the information may be furnished by all the States/UTs by March 31, 2020 positively to the CPCB failing which the States will be liable to pay compensation at the rate of Rs. 1 lakh per month till information is furnished. Payment of compensation will be the responsibility of the Chief Secretaries of the respective States/UTs. Since we are informed that plans for restoration furnished by some of the States run even upto ten years, we direct that the action plans should provide for commencement of the work by 01.04.2020 and conclusion by 31.03.2021. The CPCB will be at liberty to issue appropriate directions to all the States/UTs by for compliance. The Ministry of Jal Shakti is also at liberty to take further remedial action in the matter.

Chapter 2 - Vision, Mission and Strategy

2.1 Overarching Vision of the State - Mission Tandarust Punjab

The Government of Punjab has launched Mission Tandarust Punjab to make Punjab a healthy State with healthy people by ensuring the quality of air, water, food and a good living Environment.

2.2 Vision for Restoration of Ponds

To promote development, restoration and management of ponds in scientific manner with community participation & utilization of pond water after treatment, thereby reducing dependence on fresh water resources & enhancing water efficiency

2.3 Mission for Restoration of Ponds

To prepare and implement a comprehensive action plan for restoration of pond as under:

- (i) To identify and study the rural and urban pond, their boundaries
- (ii) To take steps for regulation, control, protection, cleaning, beautification, conservation, reclamation, regeneration, restoration and construction of ponds in a timebound manner.
- (iii) To analyze water quality of ponds on regular basis for ascertaining its suitability for irrigation and other uses.
- (iv) To prepare integrated plan for development of each pond as per site specific conditions and removal of encroachments, if any.
- (v) To promote community participation in cleaning, conservation, beautification of pond by organizing awareness programmes, workshops and seminars.
- (vi) To develop infrastructure such as pumping machinery, channels and pipe systems for utilization of pond water for the purpose of irrigation.
- (vii) Environment restoration & replenishment of surface water

2.4 Strategy for Restoration of Ponds

The strategy for restoration of Ponds includes:

- (i) Identification of ponds & concerned stakeholders
- (ii) Identification of sources of pollution
- (iii) Measures for cleaning & restoration of ponds and timelines
- (iv) Nodal Department
- (v) Integration of Departmental Plans
- (vi) Monitoring and Review

2.5 Identification of the Stakeholders and their roles

The State of Punjab envisages a comprehensive plan for Restoration of Ponds by involving all the Stakeholders namely:

2.5.1 Department of Science, Technology and Environment

The Directorate of Environment and Climate Change will be responsible for the following:

- (i) Overall coordination of the Action Plan for ensuring its successful implementation
- (ii) Regular review and monitoring

2.5.2 Department of Rural Development and Panchayat

The Department of Rural Development & Panchyats has to indentify village ponds located in Gram Panchyats, provide necessary treatment facilities for their restoration and management in a scientific manner. The Department has the following responsibilities:

- (i) Indentification, restoration and management of village ponds in a timebound manner
- (ii) Finalization of appropriate technology
- (iii) Arrangement of funds for treatment technology in various villages
- (iv) Reuse of ponds water for agriculture purpose and for any other use as per local conditions
- (v) Proper operation and maintenance of treatment facilities installed in village ponds
- (vi) Create awareness among local population for keeping rural ponds pollution free
- (vii) Any other action as directed by Government from time to time.

2.5.3 Department of Local Government

The Department of Local Government has to indentify village ponds located in 167 Urban Local Bodies of state, provide necessary treatment facilities for their restoration and management in a scientific manner. The Department has the following responsibilities:

- (i) Indentification, restoration and management of urban ponds in a timebound manner
- (ii) Finalization of appropriate technology
- (iii) Arrangement of funds for treatment technology in various urban bodies
- (iv) Reuse of ponds water for any other use as per local conditions
- (v) Proper operation and maintenance of treatment facilities installed in urban ponds
- (vi) Create awareness among local population for keeping urban ponds pollution free
- (vii) Any other action as directed by Government from time to time.

2.5.4 Department of Water Supply and Sanitation

The Department of Water Supply and Sanitation will be responsible for treatment and sanitation facilities in rural areas. It will accordingly discharge relevant responsibilities for cleaning and modelling of ponds in rural areas, which may be assigned to the Department.

2.5.5 Punjab Pollution Control Board

- (i) Laying down discharge standards for rural and urban ponds as per CPCB Guidelines
- (ii) Monitoring of water quality of ponds

2.5.6 District Administration

District Administrations will be responsible for monitoring of activities of the action plan at district level.

2.6 Monitoring and Governance

- (i) There will be rigorous monitoring of implementation of the Action plan:
 - (a) Monitoring of physical and financial progress of works being executed
 - (b) Monitoring of operations and management of facilities set up

- (ii) The monitoring will be done at the District level, State Level and State Apex Committee under Chief Secretary as and when required.

Chapter 3 – Current Status of Management of Rural Ponds

3.1 Treatment Facilities in Rural Areas under Clean River Action Plans

- 3.1.1** Department of Environment has prepared time bound comprehensive Action Plans in consultation with various stakeholder departments for abatement of pollution in river Sutlej, Beas & Ghaggar. The Action Plans aims to achieve "Class B" river water quality (i.e. BOD <3 mg/l and FC < 500 MPN/100 ml), which is fit for bathing purposes.
- 3.1.2** Besides other measures, one of the key features of Action Plans is setting up treatment facilities in 800 villages located in the catchment areas rivers by Department of Rural Development & Panchyats as per following timelines:

Phase	No. of Villages	Total Discharge (MLD)	Timelines
Phase 1	167	45.63	30.06.20
Phase 2	318	87.47	30.06.21
Phase 3	315	50.84	30.06.22
	800	184	

- 3.1.3** The work has been completed in 29 villages and under progress in 5 villages by adopting Seechewal/Haripur Model. The villages having direct discharge (424) into the river are being taken on priority for setting up treatment facilities.

3.2 Constitution of Technical Committee

- 3.2.1** State Government vide order dated 23.01.2019 had constituted Technical Committee under the Chairmanship of Chairman, PPCB to study various models regarding wastewater treatment in villages and to recommend appropriate design, schedule & methodology for treatment of wastewater in villages (especially village ponds). The Copy of the order regarding constitution of committee is at **Annexure-A**.
- 3.2.2** The Technical Committee has recommended the following 4 technological options of different models of Waste Stabilization Pond Technology in combination with Reed Bed Technology, Facultative Aerated Lagoon and Karnal Technology along with their capital cost (Rs. 20-25 Lacs for villages with 1000 population), O&M cost and area requirements for the treatment of wastewater in villages :
- Anaerobic Pond followed by Facultative and Maturation Pond
 - Anaerobic Pond followed by Reed Bed + Maturation Ponds
 - Anaerobic Pond followed by Facultative Aerated Lagoon + Maturation Ponds
 - Anaerobic Pond followed by Facultative Pond and Disposal onto Land for Irrigation as per Karnal Technology

Details of recommended technologies and their Flow Charts are given in **Annexue B**.

- 3.2.3** As decided during the meeting held under the Chairmanship of Chief Secretary, Punjab on 29.08.19, these technologies are to be demonstrated in 45 villages in the State by the

Department of Rural Development & Panchayats (20 villages), Department of Water Supply & Sanitation (20 villages) and Punjab Pollution Control Board (5 villages) by 31st March, 2020. These technologies after their successful demonstration can be replicated in the remaining villages of the State.

3.3 Other initiatives

3.3.1 Department of Rural Development and Panchayats with its own resources have developed 343 village ponds by using various technologies and convincing the farmers to use pond water for irrigation. Presently, the water from 795 Ponds in state is being used for irrigation. The district wise details are provided at **Annexure C**.

3.3.2 Around 12000 village ponds were cleaned under a special campaign of Mission Tandrust, Punjab in June, 2019 (before monsoon) with a view to improve the village hygiene.

3.3.3 PPCB has engaged Post Graduate Institute of Medical Education & Research, (PGIMER), Chandigarh to study & identify sources of Total Coliform and F.Coliform in the 10 village ponds, located in different parts of the Punjab and suggest best practices for minimizing the bacteriological contamination & treatment methodologies.

3.3.4 Rules are being framed by Govt. of Punjab for disposal of Faecal Sludge

Chapter 4- Various Measures for Restoration of Ponds & Timelines

4.1 Scope of Action Plan

4.1.1 The scope of the action plan is to repair / restore / rejuvenate the ponds (having size of >0.5 acre as per revenue records) falling in rural and urban areas as per CPCB Guidelines along with development of periphery of the pond with greenery and to preserve the aquatic life of ponds for conservation of biodiversity.

4.1.2 The water quality of ponds water envisaged to meet with the required standards for various purposes such as bathing of human and animals and also for drinking of cattle. The standards for different parameters which are to be achieved through this Action Plan are as under:-

Sr. No.	Standard Parameters	Standard to be achieved
1	BOD	30 mg/l.
2	Dissolved Oxygen (DO)	More than 5.0 mg/l.
3	Feecal Coliform, MPN/ 100mls	Less than 1000/100mls

4.1.3 The aesthetic value of the ponds is to be developed to attract the local population towards the pond.

4.2 Various Measures for Restoration of Rural Ponds

4.2.1 In order to achieve the objectives, the Department of Rural Development and Panchyats has prepared the Pond Atlas of the rural areas for the State consisting the following information:

- i) Name of the District
- ii) Name of Block
- iii) Name of the Village
- iv) Name of the pond (if any)
- v) Area of the pond (existing area),
- vi) Longitude
- vii) Latitude
- viii) Capacity of the pond,
- ix) Population discharging into the pond
- x) Whether the pond can be used for irrigation purpose,
- xi) Present use of the pond water

4.2.2 On the basis of the Block wise data collected from 22 districts, there are 15,466 village ponds having a total area of 23450 acres catering to 1.67 crore human population and 34 Lacs cattle population (Table 1).

Table 1. Districtwise Details of Rural Ponds

Sr. No.	District	No. of Blocks	No. of Gram Panchyats	Rural Population (2011 Census)	No. of Milch Cattle	No. of Ponds	Area of Ponds (Acre)
1	Amritsar	9	860	1356067	270550	1106	1430.12
2	Barnala	3	175	461871	138561	394	635.67
3	Bathinda	9	314	788632	214085	643	1350.52
4	Faridkot	3	243	398676	106991	214	479.55
6	Fatehgarh Sahib	5	428	395083	45914	672	959.43
5	Fazilka	5	434	753895	257323	405	1204.98
7	Ferozepur	6	838	674810	42514	719	690.89
8	Gurdaspur	11	1280	1130798	164354	1299	1400.66
10	Hoshiarpur	10	1405	1042873	266239	1063	1761.31
11	Jalandhar	11	890	1060276	54719	1058	1392.24
12	Kaputhala	5	546	502829	47752	553	472.17
13	Ludhiana	13	940	1415410	280395	1149	1861.27
14	Mansa	5	245	571339	206013	508	1154.86
15	Moga	5	340	533681	187260	474	966.51
9	Pathankot	6	421	374512	276	104	67.14
16	Patiala	9	1038	1240555	336353	1340	1826.76
17	Roopnagar	5	611	458958	54389	542	567.06
18	Sangrur	10	601	1121256	352721	893	1526.28
19	SAS Nagar	3	341	396188	50012	223	363.7
20	SBS Nagar	5	466	481987	140467	705	690.07
21	Muktsar Sahib	4	269	613916	83754	516	1179.58
22	Tarn Taran	8	575	945653	132601	886	1468.83
Total		150	13,260	1,74,79,767	34,33,244	15,466	23,450

4.2.3 As already mentioned in Chapter 3, water from 795 ponds is presently being used for irrigation. Further, water of 6001 village ponds can be used for irrigation and no pond has been reported from 2266 villages (Table 2).

Table 2: District wise details for present & potential use of village ponds for irrigation and villages without ponds

Sr. No.	District	No. of Gram Panchyats where pond water is used for irrigation purposes	No. of Ponds can be used for irrigation purposes	No. of villages without any pond.
1	Amritsar	0	414	151
2	Barnala	4	11	26
3	Bathinda`	232	13	21
4	Faridkot	74	140	78
6	Fatehgarh Sahib	30	642	12
5	Fazilka	11	24	117
7	Ferozepur	0	248	224
8	Gurdaspur	1	312	167
10	Hoshiarpur	4	401	342
11	Jalandhar	32	33	65
12	Kapurthala	70	469	46
13	Ludhiana	18	233	148
14	Mansa	29	34	7
15	Moga	8	192	31
9	Pathankot	0	18	322
16	Patiala	239	1101	164
17	Roopnagar	0	162	0
18	Sangrur	0	554	50
19	SAS Nagar	0	107	131
20	SBS Nagar	16	664	74
21	Muktsar Sahib	27	212	27
22	Tarn Taran	0	17	63
Total		795	6001	2266

4.2.4 Annual Action Plan of Rejuvenation of Rural Ponds

Rejuvenation of rural ponds requires huge financial outlay to the tune of about Rs. 5,000 Crore. Keeping in view the enormity of financial requirements and manpower/resources available for execution of work, it would not be possible to renovate/construct all the ponds in one year i.e upto 31.03.21 as directed by Hon`ble NGT vide order dated 26.02.20. Accordingly, Action Plan for restoration of rural ponds has been prepared for period of ten years (Table 3).

Table 3. Action Plan for Rejuvenation of Rural Ponds

Sr. No.	Year	No. of existing ponds	No. of new ponds to be constructed/ dug	Total No. of Ponds to be renovated	Total Funds Required* (in Crore)
1	2020-21	1110	180	1290	331.50
2	2021-22	1690	190	1880	489.09
3	2022-23	1625	230	1855	494.26
4	2023-24	1530	220	1750	475.41
5	2024-25	1690	230	1920	530.82
6	2025-26	1550	220	1770	498.85
7	2026-27	1540	230	1770	510.25
8	2027-28	1410	210	1620	476.91
9	2028-29	1620	260	1880	565.92
10	2029-30	1701	296	1997	614.57
Total		15,466	2,266	17,732	4987.58

*2% price escalation taken for estimation purpose

4.2.5 The technology to be adopted and pattern of water usage of the inhabitants will be reviewed after year and it may alter the requirement of funds for future years.

4.2.6 The work of development/restoration/rejuvenation of village ponds is to be carried out by the Department of Rural Development & Panchayats.

4.2.7 Various steps to be carried out for the rejuvenation of village ponds would be as follows.

- i) Information collection (Historical and existing features)
- ii) Assessment of water quality of pond every year
- iii) Suitability of treatment methodology
- iv) Plan for rejuvenation/restoration of pond to achieve desired results
- v) Evaluation through achievement of permissible parameters
- vi) Preparation of administrative approvals / estimates sanction (AA&ES)
- vii) Award of works for preparation of DPRs

4.2.8 The Department of Rural Development & Panchayats will manage the budget form the Soft Loan wherever possible and also by obtaining the funds from MGNREGA & 14th Finance Commission. Partial funds will also be arranged from the State Plan Schemes.

4.2.9 The greenery development plant around the village ponds would help in controlling soil erosion and improving the water quality of the ponds. Greenery and other beautification work will be taken up as per Detailed Project Reports(DPRs) of individual ponds.

4.2.10 The village ponds would be rejuvenated /restored as per preference of utility, religious value and economical aspects of the water body. After rejuvenation /restoration / development, management of ponds would be handed over to the respective Gram Panchayats.

4.3 Various Measures for Restoration of Urban Ponds

4.3.1 Out of total 167 Urban Local Bodies, Department of Local Government has indentified 11 ponds located in 3 Municipal Corporations and 238 ponds locateted in 71 Municipal Committes/Councils/Nagar Panchyats. The consolidated timelines and budget requirement for Action Plan for rejuvenation of 249 urban ponds are provided in Table 4.

Table 4: Action Plan for Rejuevnation of Urban Ponds

Sr. No.	Type of Urban Body	No. of Urban Bodies	Total no. of Ponds to be renovated	Total Area of Ponds (in Acres)	Timelines	Total Funds Required (Rs. In Lacs)
1	Municipal Corporations	3	11	27.81	30.09.2 1	315.00
2	Municipal Committee/ Council/ Nagar Panchyat	25	77	130.51	31.03.2 1	1177.19
		46	161	380.43	31.12.2 1	1907.00
Total		74	249	538.75		3399.19

4.3.2 The individual details of urban ponds of 3 Muncipal Corporations and 71 Municipal Committes/Councils/ Nagar Panchyats along with budget requirents and timelines are provided in **Annexure D & Annexure E**, respectively.

4.3.3 The technologies recommended by Techincal Committee constituted by State Government under the Chairmanship of Chairman, PPCB would be adopted by Urban Local Bodies for rejuvenation of urban ponds.

4.3.4 The work of development/restoration/rejuvenation of urban ponds prosposed to be carried out by the respective Urban Local Bodies under the overall coordination, supervision and support of Deptt. of Local Government.

4.3.5 Funds for rejuvenation of urban ponds would be mobilized from Governemnt of India and Govenment of Punjab Plan schemes.

Chapter 5 – Monitoring & Governance

5.1 Key components of monitoring of rejuvenation of ponds

There are following key components of monitoring

- (i) Progress of rejuvenation of ponds in rural and urban area
- (ii) Progress for use of pond water for irrigation or any other purpose
- (iii) Awareness and capacity building exercises

5.2 Monitoring of progress

The progress of rejuvenation of ponds will be monitored on regular basis. In order to ensure that all the stakeholder departments i.e DRDP and DLG adhere to the timelines given for various activities, the departments shall submit progress of the project on monthly basis.

5.3 Three Tier Monitoring

5.3.1 Monitoring will be done by the concerned Departments which are executing or responsible for particular activities and it will be their primary responsibility to ensure compliance of the Action Plan.

5.3.2 In addition, the implementation of Action Plan shall be reviewed and monitored by following Committees:

- (i) District Environment Committees: Department of Science Technology & Environment, Government of Punjab vide no. 10/352/2018-STE(5)/1605949/16-17 dated 31.10.2019 constituted District Environment Committees under respective Deputy Commissioner in compliance of NGT Order Dated 26.09.19 in O.A No. 360/2018. Distt. Environment Committees would monitor the timelines for implementation of Action Plan in respective districts.
- (ii) River Rejuvenation Committee (RRC) - Department of Science Technology & Environment, Government of Punjab vide order dated 19.11.2018 has constituted RRC in view of NGT orders dated 20.09.2018 in O.A. No. 673/2018 consisting of Director Environment, Director, Urban Development, Director, Industries and Member Secretary, Punjab Pollution Control Board as members. The RRC is functioning under the over all supervision & coordination of Principal Secretary to Government of Punjab, Department of Science, Technology & Environment. The state level monitoring of action plan would be carried out by RRC.
- (iii) State Apex Committee: SAC under Chief Secretary and comprising of administrative Secretaries of relevant administrative departments for monitoring the progress of Environmental Action Plans, resolving issues and enforcing accountability has been constituted by Department of Environment vide order dated 10.12.2018

Order for Constitution of Technical Committee

Government of Punjab
Department of Science, Technology & Environment
(STE Branch)

ORDER

No. _____
Dated, Chandigarh the _____ January 2019

Subject: Constitution of Technical Committee

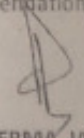
1. In pursuance of the decision taken in the meeting held under the Chairmanship of Chief Secretary, Punjab on 9.1.2019, the following Technical Committee is hereby constituted:

(i)	Chairman, Punjab Pollution Control Board	Chairman
(ii)	Representative of the Department of Rural Development & Panchayats	Member
(iii)	Representative of the Department of Water Resources	Member
(iv)	Representative of the Department of Water Supply & Sanitation	Member

2. The broad terms of reference of the Committee are as follows:

- (i) To study various models regarding waste water treatment of villages working in different villages, especially in districts Kapurthala, Patiala & Mohali.
- (ii) To study waste from septic tanks (mostly units prior to Swachh Bharat ODI campaign)
 - (a) Registration of vacuum tanker operators involved in carrying out de-sludging and disposal of septage.
 - (b) Solutions for controlling discharge of effluent from the septic tanks of individual household toilets in rural areas into village drains.
 - (c) Establishment of common faecal sludge treatment facility in each block in PPP mode or disposal into existing STPs. Suggested rates for faecal sludge disposal in existing STPs.
- (iii) To recommend appropriate design, schedule & methodology for treatment of waste water in villages (especially village ponds).

The Committee will submit its interim report within one month and its final recommendations within two months.

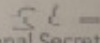

R.K. VERMA, IAS
Principal Secretary Science
Technology & Environment, Punjab

Endst. No. 03/67/2018-ST&E(S)/1400400/5

Dated Chandigarh the 22 January 2019

A copy of the above is forwarded to the following for information and necessary action to appoint their representative on the Committee:

- (i) The Administrative Secretary, Rural Development & Panchayats, Punjab
- (ii) The Administrative Secretary, Water Resources, Punjab
- (iii) The Administrative Secretary, Water Supply & Sanitation, Punjab
- (iv) The Chairman, Punjab Pollution Control Board

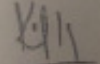

Additional Secretary

Endst. No. _____

Dated Chandigarh, the _____ January 2019

A copy is forwarded to the following:

- (i) Secy. to CS for information of Chief Secretary
- (ii) PS/PSSTE for information of Principal Secretary, Science Technology and Environment

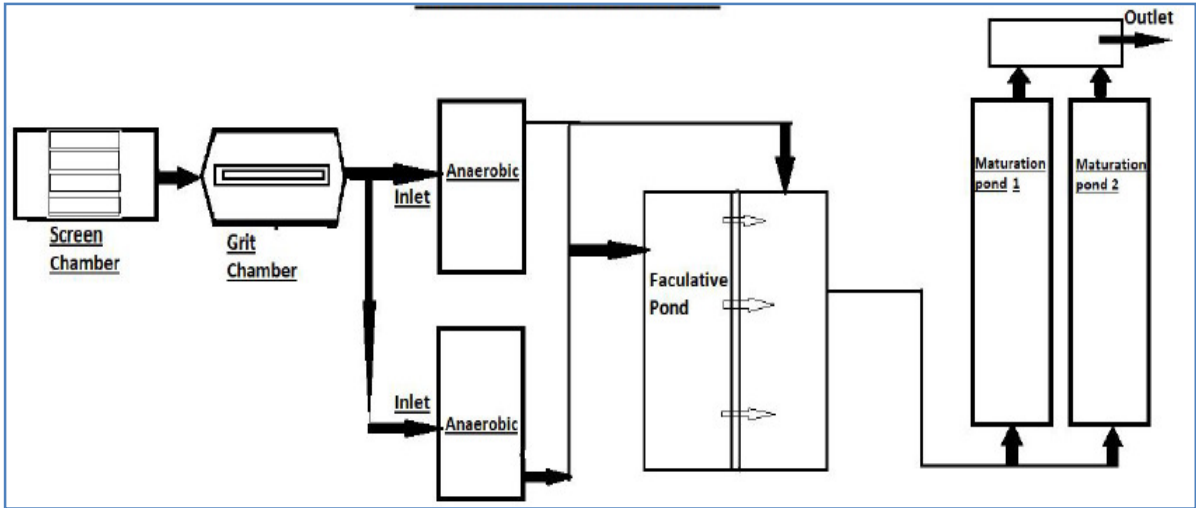

Additional Secretary

Technological Options of different models of Waste Stabilization Pond for treatment of wastewater in villages

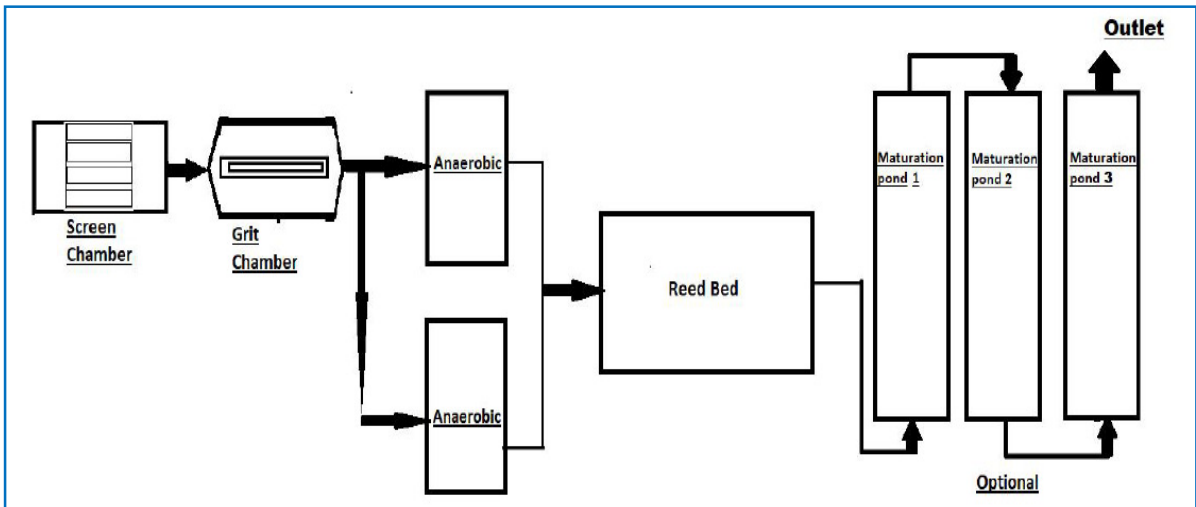
Option 1 (Anaerobic Pond followed by Facultative and Maturation Pond)					
Population (in Nos.)	Screen chamber	Grit Chamber	Anaerobic Pond	Facultative Pond	Maturation Ponds
1000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT : 5.5 days	2 Compartments HRT :21.7 days	2 units HRT :18.6 days
2000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT : 5.5 days	2 Compartments HRT :21 days	3 units HRT :7.5 days
5000	2 (Coarse followed by fine screen)	1 unit having two grit chambers,	O2 (1 unit as a standby) HRT 6 days	2 Compartments HRT: 21 days	3 units HRT :7.5 days
Option2 (Anaerobic Pond followed by Reed Bed + Maturation Ponds)					
Population (in Nos.)	Screen chamber	Grit Chamber	Anaerobic Pond	Reed Bed Technology	Maturation Ponds
1000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT 5.5 days	1 cell HRT: 2.3 days	3 units in series HRT :13.8 days
2000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT 5.5 days	1 cell HRT: 2.3 days	3 units in series HRT :13.8 days
5000	2 (Coarse followed by fine screen)	1 unit having two grit chambers, 1 as standby.	O2 (1 unit as a standby) HRT 6 days	1 cell HRT: 2.3 days	4 units in series HRT :7.5 days

Option 3 (Anaerobic Pond followed by Facultative Aerated Lagoon + Maturation Ponds)					
Population (in Nos.)	Screen chamber	Grit Chamber	Anaerobic Pond	Facultative aerated lagoon	Maturation Ponds (Optional)
1000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT: 5.5 days	2 cell having floating type surface aerators (1 HP) HRT: 5 days	3 units in series HRT: 11.4 days
2000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT: 5.5 days	2 cell having floating type surface aerators (1.25 HP) HRT: 5 days	3 units in series HRT: 11.4 days
Option 4 (Anaerobic Pond followed by Facultative Pond and Disposal onto Land for Irrigation as per Karnal Technology)					
Population (in Nos.)	Screen chamber	Grit Chamber	Anaerobic Pond	Facultative Pond	Karnal Technology
1000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT: 5.5 days	2 Compartments to facilitate the cleaning of pond HRT: 21.7 days	1 acre land to be developed for irrigation.
2000	2 (Coarse followed by fine screen)	1 unit	O2 (1 unit as a standby) HRT: 5.5 days	2 Compartments to facilitate the cleaning of pond HRT: 21 days	2 acre land to be developed for irrigation.
5000	2 (Coarse followed by fine screen)	1 unit having two grit chambers, 1 as standby.	O2 (1 unit as a standby) HRT: 6 days	2 Compartments to facilitate the cleaning of pond HRT: 21 days	5 acre land to be developed for irrigation.

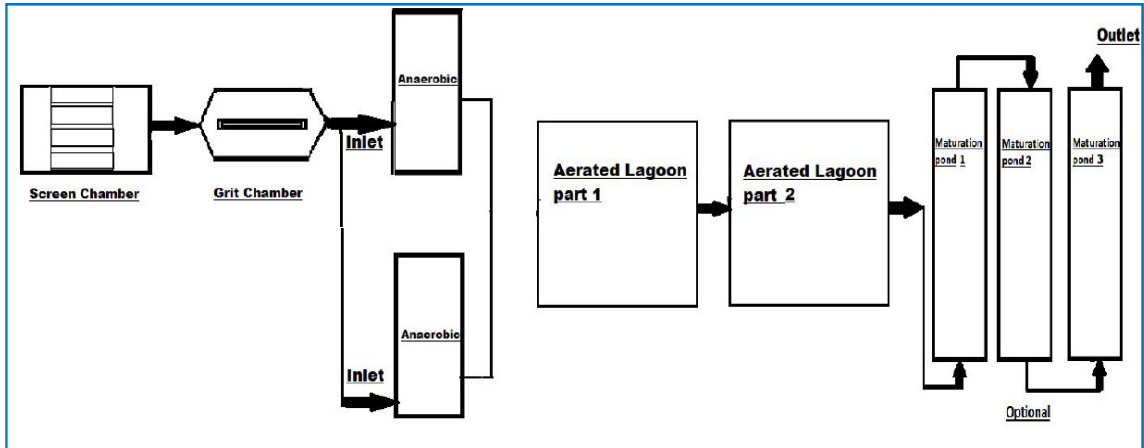
Option 1: Anaerobic Pond followed by Facultative and Maturation Pond



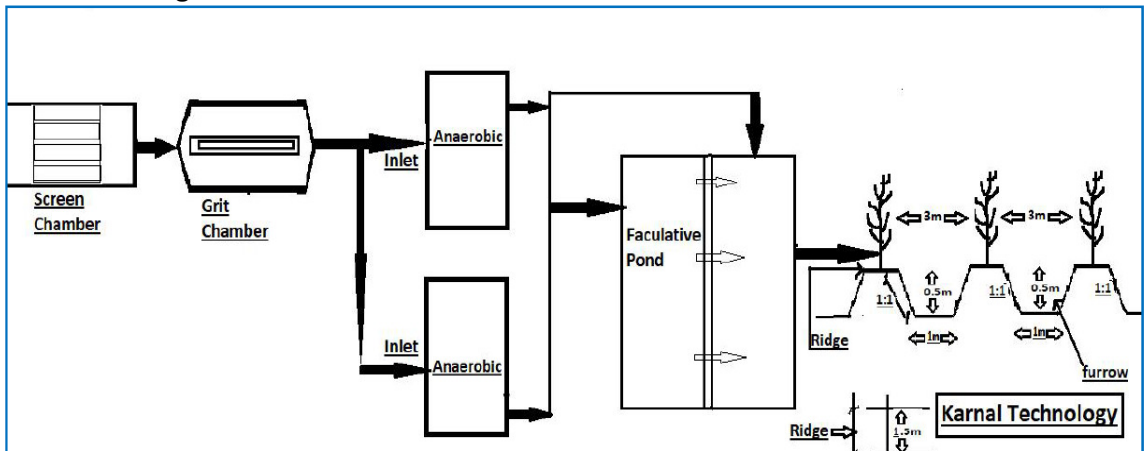
Option 2: Anaerobic Pond followed by Reed Bed + Maturation Ponds



Option 3: Anaerobic Pond followed by Facultative Aerated Lagoon+ Maturation Ponds



Option 4: Anaerobic Pond followed by Facultative Pond & Disposal onto Land for Irrigation



Details of Village Ponds already renovated by Department of Rural Development & Panchyats

Sr. No.	Name of district	No. of Village Ponds	No. of Village Pond already renovated by using STP/WSP/Thapar Tech./Seechwal Model				No. of Ponds used for Irrigation Purpose
			STP	WSP	Thapar Tech.	Seechwal Model	
1	Amritsar	1106	0	0	0	2	0
2	Barnala	394	3	0	0	4	4
3	Bathinda	643	1	0	0	2	232
4	Faridkot	214	0	0	0	0	74
5	Fatehgarh Sahib	672	1	0	0	14	30
6	Fazilka	405	0	0	0	0	11
7	Ferozepur	719	0	0	0	0	0
8	Gurdaspur	1299	0	0	0	0	1
9	Hoshiarpur	1063	0	0	0	3	4
10	Jalandhar	1058	9	2	0	9	32
11	Kapurthala	553	0	0	0	4	70
12	Ludhiana	1149	4	72	0	0	18
13	Mansa	508	0	0	0	2	29
14	Moga	474	0	0	2	23	8
15	Pathankot	104	0	0	0	0	0
16	Patiala	1340	1	5	3	12	239
17	Roopnagar	542	0	0	1	4	0
18	Sangrur	893	3	7	113	4	0
19	SAS Nagar	223	0	0	0	0	0
20	SBS Nagar	705	7	0	0	8	16
21	Muktsar	516	0	0	0	0	27
22	Tarn Taran	886	1	0	0	17	0
Total		15466	30	86	119	108	795

Annexure D**Action Plan for Rejuvenation of Urban Ponds of Municipal Corporations**

S. No	Municipal Corporation	No. of Ponds	Area of Pond (in Acres)	Timeline for restoration of Pond	Fund requirement (in Rs. Lacs)
1	Bathinda	1	3.25	30.09.21	80.00
		1	16.56	30.09.21	150.00
2	Moga	4	1.5	30.06.21	20.00
		1	2.5	30.06.21	25.00
		1	1.5	30.06.21	10.00
		1	1.5	30.06.21	10.00
3	Pathankot	1	0.50	30.06.21	5.00
		1	0.5	30.06.21	15.00
Total		11	27.81		315.00

Action Plan for Rejuvenation of Urban Ponds of Municipal Committes/Councils/Nagar Panchyats

Sr. No	Municipal Committee/ Council/ Nagar Panchyat	No. of Ponds	Area of Ponds (in Acres)	Timelines for restoration of Pond	Fund Requirement (in Rs. Lacs)
1	Gurdaspur	3	3.73	31.12.21	40.00
2	Jandiala Guru	3	3.00	31.12.21	30.00
3	Qadian	1	1.00	30.09.21	10.00
4	Fatehgarh Churian	2	2.00	30.09.21	22.00
5	Ramdas	1	1.18	30.09.21	25.00
6	Khemkaran	4	12.00	30.09.21	100.00
7	Raja Sansi	1	1.00	31.12.20	10.00
8	Alawalpur	3	8.00	31.12.20	80.00
9	Noormahal	1	2.20	31.12.20	20.00
10	Goraya	3	6.00	30.09.20	24.10
11	Shahkot	3	2.00	31.07.20	125.00
12	LohianKhas	5	32.00	30.06.20	215.00
13	Mehatpur	6	3.10	31.07.20	195.00
14	UrmurTanda	1	2.00	31.12.21	20.00
15	Nawanshahr	1	0.9	31.03.21	5.00
16	Balachour	4	8.4	31.12.21	85.00
17	Bilga	8	15.00	31.12.21	40.00
18	Nadala	1	1.00	31.12.20	10.00
19	Doraha	1	5.00	31.12.20	40.00
20	Payal	5	13.00	30.06.21	81.00
21	Raikot	8	31.00	31.12.21	100.00
22	Jagraon	3	6.20	31.12.20	10.00
23	Sahnewal	5	7.81	31.12.20	40.00
24	Maloud	4	4.05	31.12.20	20.00
25	Ropar	1	1.34	31.12.20	10.00
26	Nanagal	1	0.50	31.12.20	10.00
27	Sirhind	4	15.0	30.06.21	30.00
28	Mandi Gobindgarh	3	3.91	31.12.20	35.00
29	BassiPathana	3	3.00	31.12.20	22.00
30	Rajpura	1	3.00	31.12.20	30.00
31	Ghagga	5	5.00	31.03.21	7.09
32	Khanouri	1	2.00	31.03.21	21.00
33	Cheema	3	5.00	31.03.21	28.00
34	Kharar	8	10.00	31.03.21	60.00

Sr. No	Municipal Committee/ Council/ Nagar Panchyat	No. of Ponds	Area of Ponds (in Acres)	Timelines for restoration of Pond	Fund Requirement (in Rs. Lacs)
35	NayaGaon	5	2.5	31.12.20	40.00
36	Lalru	7	9.00	31.12.20	80.00
37	Barnala	2	6.00	31.12.20	40.00
38	RampuraPhul	2	5.50	31.12.21	45.00
39	Maur	7	14.62	31.12.21	65.00
40	Sangat	1	0.75	31.12.21	9.00
41	Kotfatta	6	12.00	31.12.21	45.00
42	Mansa	1	4.00	31.12.21	25.00
43	Budhlada	3	14.5	31.12.21	25.00
44	Bareta	3	3.00	31.12.21	20.00
45	Bhikhi	4	17.5	31.12.21	45.00
46	Muktsar	2	1.50	31.12.21	10.00
47	Gidderbaha	3	4.00	31.12.21	25.00
48	Bariwala	1	3.00	31.12.21	30.00
49	Bhagta Bhika	3	4.50	31.12.21	45.00
50	Kotshamir	4	19.00	31.12.21	50.00
51	Nathana	6	5.80	31.12.21	45.00
52	Lehra Mohobbat	6	6.75	31.12.21	50.00
53	Chauke	4	5.50	31.12.21	40.00
54	Rampura	4	15.00	31.12.21	50.00
55	Mandikalan	5	12.00	31.12.21	50.00
56	Ballianwali	5	6.00	31.12.21	50.00
57	Bhairupa	5	14.00	31.12.21	50.00
58	Mehraj	6	24.00	31.12.21	50.00
59	Kothaguru	3	9.50	31.12.21	50.00
60	Boha	5	12.00	31.12.21	60.00
61	Joga	4	8.00	31.12.21	50.00
62	Talwandi Bhai	2	1.37	31.12.21	15.00
63	MallanwalaKhas	1	1.00	31.12.21	10.00
64	Baghapurana	1	1.25	31.12.21	18.00
65	Badhanikalan	2	17.00	31.12.21	32.00
66	Jaitu	2	6.00	31.12.21	45.00
67	Kot isha Khan	2	2.00	31.12.21	30.00
68	Arniwala Seikh Subhan	1	8.43	31.12.21	50.00
69	Nihal Singh Wala	2	4.01	31.12.21	60.00
70	Fatehgarh Panjtoor	6	2.64	31.12.21	30.00
71	Mamdot	5	7.00	31.12.21	50.00
	Total	238	510.94		3084.19