



Haryana Government Gazette

Published by Authority

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No. 45-2019] CHANDIGARH, TUESDAY, NOVEMBER 5, 2019 (KARTIKA 14, 1941 SAKA)

PART-I

Notifications, Orders and Declarations by Haryana Government

HARYANA GOVERNMENT

PUBLIC HEALTH ENGINEERING DEPARTMENT

Notification

The 30th October, 2019

No. 5/18/2018-3PH.— The Governor of Haryana is pleased to allow “Reuse of Treated Waste Water Policy-2019”. The Policy is attached as Annexure ‘A’.

RAJEEV ARORA,
Additional Chief Secretary to Government Haryana,
Public Health Engineering Department.

POLICY
ON
REUSE
OF
TREATED WASTE WATER



Government of Haryana

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1 PREFACE

Water is by far the most important natural resource on Earth to sustain all forms of life. The availability of water is undoubtedly of paramount importance to sustain all types of economic activities in a State. However, water is a limited resource and needs to be used judiciously.

Haryana State has a total geographical area of 44,212 Sq Km and occupies 1.3 % of the total geographical area of the country. Brackish water is the bane of the State and nearly 60% of the ground water in Haryana is brackish and unfit for human consumption. Water supply in Haryana is made available through a network of canal system and from ground water. The WJC supplies water to the districts of Panipat, Sonapat, Rewari, Rohtak, Bhiwani, Dadri, Jind and Jhajjar whereas the Bhakra Main Line canal feeds the districts of Hisar and Sirsa. The ground water levels in Haryana range from 4 – 16.3 meter below ground level and the decline in ground water levels ranges between 1 – 0.6 meter/annum. The declining ground water tables lie in Gurgaon, Panipat and Faridabad, while Rewari has shown increase in ground water levels even though its ground water table is deepest in the state.

The State is therefore, witnessing the presence of a large portion of water stressed and water parched areas, particularly in the Southern part of the State.

As on 31st May, 2019 there are 89 notified towns in the State of Haryana with a population of 8023480 and 4 de-notified town with a population of 47631 persons as per 2011 Census population. At present, 144 STPs have been installed by PHED/HSVP/ULBs/GMDA having a collective capacity of 1802.70 MLD. The TREATED WASTE WATER from these STPs is being discharged into the nearby drains/canals and other water bodies. It is a travesty of circumstances that on the one hand the surface and ground water resources are highly stressed and depleting fast whereas on the other hand the TREATED WASTE WATER is being allowed to go waste without any purposeful application. It is therefore imperative that a meaningful and tangible action plan is formulated to harness and channelize the TREATED WASTE WATER so as to bridge the gap between demand and supply, to the maximum possible extent.

2 NECESSITY FOR POLICY ON REUSE OF TREATED WASTE WATER

Keeping in view the limited availability of water resources in the State and also issues relating to quality of water, it is imperative to lay emphasis on management of water resources. The State is making best possible efforts to optimize the utilization of the water resources and a number of measures are perpetually being taken to provide rain water harvesting structures and ground water recharging techniques. However, notwithstanding the efforts of the Government, the portents are ominous and in case a tangible perspective action plan is not drawn to conserve the water resources, the position would further exacerbate.

The need of the hour is therefore to consider the fast-increasing municipal TREATED WASTE WATER as a potential water resource which can suitably be put to effective use particularly for non-potable purposes. This will go a long way in de-stressing the ground and surface water resources and would, to some extent, result in attenuation of the existing water imbalances.

At present, the existing untreated or partially treated or treated water finds its way into streams, ponds, drains or other depressions resulting in pollution of the water bodies and resultantly endangering the environmental safety and ambience. Besides, this unused water also percolates into the sub-soil strata causing contamination of the ground water regime and thus resulting in a potential threat to the health of the public.

Besides relieving the pressure on the dwindling water resources, the reuse of TWW would help in generating significantly high revenues which could partly meet with the operation and maintenance costs of the STPs and eventually bring about a perceptible improvement in their functioning and performance.

3 STATUTORY AND POLICY FRAMEWORK

The reducing trends of the water resources have caught the attention of the Planners, Engineers and Policy makers, over the years and the concept of waste water recycling and reuse has unanimously been found to be the most plausible and feasible solution to partly arrest the shrinkage of the precious resource. This policy has therefore been framed keeping in view the provisions in the Constitution of India and related State and Central statutes and policies which find mention in Annexure-1.

4 VISION

“The policy envisages maximizing the collection and treatment of sewage generated and reusing the TREATED WASTE WATER on a sustainable basis, thereby reducing dependency on fresh water resources and to promote TREATED WASTE WATER as an economic resource”

5 OBJECTIVES

The policy lays down the following objectives:

- (i) To attain a minimum coverage of 80% of the area with sewerage facilities and collection of sewage in all the towns of the State.
- (ii) To attain a level of 100% treatment of collected sewage as per prescribed CPCB/ HSPCB standards.
- (iii) To reuse at least 25% of the TREATED WASTE WATER by every Municipality within the time frame set under the policy by every municipal body.
 - To reuse 50% of TWW by 2025
 - To reuse 80% TWW by 2030
 - Similar target for villages where sewerage facilities are being provided will be decided accordingly.

6 IMPLEMENTING TIMELINES

At present, the stage of development of infrastructure for collection and treatment of sewage varies from town to town and accordingly the timeframe for achieving the envisaged goals in the policy cannot be uniform but would have to be staggered so as to have a realistic and pragmatic approach. Accordingly, the time frame for various Municipalities and villages after notification of this policy can be categorized as under:

Sr. No.	Existing status of development in the town / village	Target	Maximum duration for implementation of reuse of TREATED WASTE WATER
1	Sewerage system and STP exists	Minimum of 25% of TREATED WASTE WATER	2 Year
2	Sewerage system but STP is not available	Minimum of 25% of TREATED WASTE WATER	3 years
3	No Sewerage system and no STP	Minimum of 25% of TREATED WASTE WATER	4 years

Concomitant to the implementation of the policy, the additional infrastructure for collection and treatment of sewage in the towns will continue to be developed in the towns/villages as per requirement by the different implementing agencies and depending on the availability of financial resources.

The infrastructure to be constructed/ strengthened in the future shall inter-alia cover the following:

- (a) Extend/strengthen the sewerage network, in a phased manner.
- (b) Increase the existing capacity of the STPs and to construct new STPs which at present do not have sewage treatment facilities. Besides, existing STPs, wherever required, may be upgraded suitably with the addition of functional components so that the characteristics of treated effluent fall within the latest prescribed norms laid down by GOI/HSPCB/CPCB.

7 POLICY CONSIDERATIONS

The policy is conceived on the following premises:

7.1 Responsibility of TWW

The prime responsibility for, reuse and recycling of TREATED WASTE WATER will lie with the agency maintaining the sewerage facilities in that particular town/ village. Accordingly, planning and creation of infrastructure of adequate capacity for reuse of TREATED WASTE WATER would be the responsibility of operating agency of that town/ village. Responsibility of coverage of areas with sewerage facilities and

treatment of sewage up to CPCB/HSPCB standards will also be of agency maintaining these services in that particular areas.

PHED/HSVP/ULBs/GMDA will utilize their financial resources for up gradation of the existing infrastructure and construct Sewage Treatment Plants in the uncovered parts of towns/areas. However, PHED shall coordinate and consolidate/collate the entire data of the State for purpose of reuse/ recycle of treated water

The economic rights on the TWW shall reside with the Agency providing TWW/I&WR Department. The economic rights include any economic activity generated downstream due to supply of TWW in water bodies such as streams, rivers, canals, lakes, etc. The guidelines under this policy will be followed by operating agencies/I&WR Department, wherever the financial assistance from state/central government is extended to operating agency/I&WR Department for the purpose.

7.2 Prevention of contamination of other sources of water

TWW shall meet all the statutory quality standards. Stringent quality standards will be adopted such that it does not contaminate other sources of water- surface as well as ground water.

Treated wastewater quantity and quality are interlinked and need to be managed in an integrated manner, honoring allocation rights, consistent with overall catchment area management and ecological sustainability of the receiving water body.

7.3 Consider TWW as an additional source of water

TWW adhering to prescribed water quality norms shall be used for meeting the demand for non-potable uses, as an additional source of water. Both industry and agriculture can use treated wastewater. Guidelines shall clearly mention the standards of treated wastewater quality and there shall be no compromise in the quality of TREATED WASTE WATER to be supplied for non-potable purposes.

7.4 Promote TWW as an economic resource

TWW shall be considered as an economic commodity and will be used to generate additional resources which shall be expended primarily for creation of new infrastructure or strengthening existing infrastructure required for sewage collection, treatment and distribution for reuse, besides paying for fresh water resources.

7.5 Develop Sewage Treatment Projects on a financially sustainable basis

The pricing mechanism of TWW shall be based, as far as possible, on the principle of recovery of costs incurred for collection and treatment of municipal sewage and distribution of TWW for reuse, in order to ensure sustainability of the projects. Corporatization of services providers and the establishment of a strong state level regulator responsible for the whole TWW chain and setting tariff across the whole spectrum of water users can enable substantial cost recovery through tariff for most of the water infrastructure and services but at the same time, to encourage use of TWW, price shall be less than fresh water.

7.6 Reuse of domestic wastewater of Industrial units

Industrial establishments shall treat domestic wastewater generated within their premises and reuse it for appropriate non-potable applications. However, the industrial effluent shall be collected and treated separately and disposed as per prevailing standards prescribed by CPCB/HSPCB. HSPCB will ensure installation of online analyzers in industrial unit when treated sewage is being discharged. Similarly, online analyzers shall also be installed on all STPs/CETPs.

7.7 Consider utilization of Pond water and effluent of sewage effluent treatment plant for the purpose of irrigation

The Haryana Pond and Waste Water Management Authority has been constituted through Haryana Government notification dated 19.06.2018. The authority shall perform multifarious functions for regulation, control, protection, cleaning, beautification, conservation, reclamation, regeneration, restoration and construction of pond.

The pond water and treated effluent from the sewage treatment plants can be considered for reuse for the purpose of irrigation.

7.8 Standards of Treatment

The concerned departments shall ensure that the standards being adopted for treatment of sewage will adhere to the norms depending upon the purpose of re-use as prescribed in the CPHEEO Manual.

8 MANDATE OF USE OF TWW

This policy has been designed with the primary principle of utilizing TWW to substitute fresh water. However, suitability of TWW shall be considered prior to its allocation for substituting the fresh water supply for any application. While substituting fresh water with TWW, necessary care shall be taken that TWW is not mixed with or used with potable water.

TWW shall be mandated for use for different class of users depending on its availability. It shall be the State's endeavor to use the available TWW to the maximum, but not less than the milestones prescribed in Implementation Timeline. With the subsequent increase in sewage collection, efficiency and treatment capacity, the available TWW shall be utilized using the same principles.

8.1 Non-Potable Use

8.1.1 Mandatory Use

8.1.1.1 Thermal Power Plants

As per notification of Ministry of Power (Government of India), under clause 6.2(5) of their Tariff Policy dated 28.01.2016 has stipulated that The Thermal Power Plants located within 50 Km radius of sewage treatment plant of Municipality / Local bodies/ similar organization shall in order of their closeness to the sewage treatment plant, mandatory use treated sewage water produce by these bodies and the associated cost on this account shall be allowed as a pass through in the tariff. Therefore, it shall be mandatory for all Thermal Power Plants within a 50 km radius of the STP or city limits to use TWW.

8.1.1.2 Industrial Units

It shall be mandatory for all Haryana State Industrial and Infrastructure Development Corporation (HSIIDC) estates, all Industrial units in Special Investment Region (SIR) Industrial Parks and large industrial units consuming more than 1000 KLD of fresh water for non-potable purposes, and which are situated within a 5.00 km radius of the STP or city limits to use TWW. However, it shall not be mandatory to use TWW wherever there is threat for direct exposure to humans or the water is used in processes resulting in products for human consumption. A time bound requirement of TWW by the industries shall be made available by HSIIDC to PHED.

The Consent to Operate to industries may be linked with utilization/purchase of water. TWW shall be considered first for meeting water requirements of the industries and extraction of ground water as well as use of surface water shall be permitted thereafter.

A certain percentage of TWW, depending upon the total corpus, shall be given to the expansion of industries.

8.1.2 Mandatory on fulfilling certain conditions

8.1.2.1 Construction activities

The concerned local body/implementing agency shall:

- a. Provide facility of supplying TWW to construction sites through tankers/lorries against a fixed, pre-determined charge. Locations for setting up filling stations for TWW in tankers/lorries shall be developed after assessment of the demand at local level.
- b. The local bodies shall be made in-charge of these water sources
- c. Lay special supply lines for TWW in developing areas/new localities, if found feasible
- d. Stop supply of fresh water, once the above infrastructure is functional and found satisfactory by the user.
- e. However, it shall be ensured by the Local Bodies or PHED, in case the STP has been constructed to treat village waste water, that the TREATED WASTE WATER meets the norms prescribed by HSPCB/CPCB for reuse of recycled water, at all times. In case the standards of TREATED WASTE WATER are found to deviate from the prescribed norms or are found to be suspect, the supply of such TREATED WASTE WATER shall be stopped immediately and till such time that the deficiency is removed/rectified.

8.1.2.2 Dual water supply system in Houses/Offices/Business Establishments

Dual water supply shall be provided, with two separate distribution systems, independent of each other, one for potable water supply and the other for supplying TREATED WASTE WATER. The recycled water shall be utilized for flushing and watering the lawns/gardens to be extended by respective agency.

Every home /office/Business Establishment shall have access to two water pipelines. However, since the laying of reclaimed water transmission and distribution lines and dual plumbing by existing users/retro-fitting of a developed urban area will be expensive and disruptive, it is therefore, important that only new townships and new Planned Developments should be covered under the dual system. Area where dual system is proposed in future shall be notified.

It shall be the responsibility of the State Government/Colonizer/Developer to supply adequate quantity of TREATED WASTE WATER for flushing in areas where dual system has been notified.

However, irrespective of immediate availability or non-availability of TREATED WASTE WATER, every owner of a house/apartment of a flat, Group Housing Society, Commercial Complexes and Institutional buildings in area/areas notified for dual plumbing system, shall make the necessary arrangements for storage and pumping of the TREATED WASTE WATER for the purpose of flushing etc.

The following precautions shall have to be taken for use of TREATED WASTE WATER in dual plumbing system:

- Re-cycle water pipes, fittings, appurtenances, valves, taps, meters, hydrants shall be of red colour or painted red.
- Signs and symbols signifying and clearly indicating “TREATED WASTE WATER not fit for drinking” will be stamped/fixd on the outlets, hydrants, valves, both surface and sub-surface, covers and at all conspicuous places of re-cycled distribution system.
- Detectable marker tapes of red colour bearing the words “re-cycled water” shall be fixed at suitable intervals on pipes.
- Octagonal covers, red in colour or painted red with the words “Re-cycled- not fit for drinking” embossed on them shall be used for re-cycled water.
- All connections from the re-cycled system shall be distinguishable from connections of potable water supply pipelines.
- No cross-connections shall be made or allowed to be made between the re-cycled water and potable water supply system.
- In case re-cycled water supply is required to be supplemented with potable water, this arrangement shall be made at the boosting station of a sector/area.

8.1.2.3 Large commercial or institutional users

Operating agency in each town/village shall make an endeavor to create conveyance network for supplying TWW to institutional areas, business districts or areas having large number of such users to cater to their need. If TWW is made available, such users do not require to construct their own STPs. In such a situation, it shall be mandatory for such users to use TWW for toilet flushing, gardening, fire hydrant system, etc.

8.1.2.4 Municipal uses

It shall be mandatory for Municipal Corporations/Municipalities/ Wards/Gram Panchayats to use TWW for the following applications, once the infrastructure for supplying TWW is functional in their administrative boundaries.

- Maintenance of parks, gardens and developing landscaping
- Rejuvenation of ponds, lakes, stream and rivers.
- Water supply for emergency purposes like fire brigade, etc.

8.1.2.5 Other non-potable uses

Local bodies/PHED/Irrigation & Water Resources/HSIIDC shall identify other potential users, who can use TWW in some or all of their applications. Use of TWW shall be made mandatory for these users and supply of fresh water shall be restricted only for potable purposes.

8.1.2.6 Agriculture/Irrigation

TWW shall be used for agriculture/irrigation purposes provided surplus quantity is available after meeting the demands of the above-mentioned uses. The Irrigation & Water Resources shall develop a suitable water grid for distribution of the TREATED WASTE WATER from the STP located in the vicinity for irrigation of the fields. However, prior to allocation of TWW for agriculture/irrigation purposes in any area, soil hydraulic tests for those areas, water requirement for the crops/vegetation in the respective areas and water quality of irrigation water to be used in those respective areas, according to these tests should be computed.

8.2 POTABLE USE

Considering social sensitivities and public perception towards TREATED WASTE WATER, presently it shall not be used for potable purposes and uses which involve direct human contact. However, in future, with increase in water demand, advancements in treatment technology, competitive rates and change in public perception, TWW may be used for potable purposes.

9 ALLOCATION OF WATER

9.1 Availability of TWW

The Public Health Engineering Department shall declare availability of TWW within 3 months of the notification of the policy and thereafter on the 31st March of every year. This information shall be accompanied by details of both quantity and quality of TREATED WASTE WATER besides location of STPs where TWW is available. Every operating agency will provide information regarding the geographical area/boundary for each STP wherein the provision of this policy document will be applicable in order to provide information to all the potential users to comply with the provisions of the policy. Such areas shall be called notified areas.

Operating agencies shall provide the complete data relating to their respective Departments to the Public Health Engineering Department by 31st December of every year so as to enable Public Health Engineering Department to consolidate the information for the entire State.

Similarly, the PHED, at the appropriate time, after significant infrastructure for sewage treatment has been constructed in villages shall commence to declare availability of TWW on the 31st March of every year. This information shall also be accompanied by details of both quantity and quality of TREATED WASTE WATER besides location of STPs where TWW is available.

9.2 Application by user

All the prospective water users throughout the state who are consuming more than 1000 KLD of water including industrial clusters shall apply on a central portal indicating their water requirement. All new applicants shall also follow similar procedure.

9.3 Allocation of water

Keeping in view the availability of TWW, the SLHPC shall allocate TWW in the following manner:

Where availability of TWW is more than the demand

In case the availability of TWW is more than demand, then all the mandatory users will be provided with the required quantity of TWW. After the demand of these mandatory users has been met with, the other users or other mandatory users outside the supply zone (50 Km distance) can be allocated the remaining TREATED WASTE WATER. This balance TWW shall however be decided by the SLHPC. Bulk and non-bulk users can be defined for a systematic allocation of TWW.

Where availability of TWW is less than the demand

In case the availability of TWW is less than the demand, the TWW shall be provided to the users proportionally or in such a way as maybe decided by the State Government. Preference may be given keeping in view a better revenue generation.

Where there is no availability of TWW

The State Government will make efforts to create new/additional infrastructure for collection and treatment of sewage so as to generate TREATED WASTE WATER. Fresh water shall continue to be supplied to the users till such time TREATED WASTE WATER can be made available and subject to institutionalization of a sustainable framework for supply of requisite TWW in terms of both quality and quantity.

9.4 Discontinuation of existing fresh water supply

The existing fresh water supply **presently being issued for non potable purposes** shall be discontinued within a period of one year of TWW supply. However, before the fresh water supply is discontinued, it shall be ensured by the operating agency that the arrangements for supply of TWW to the users are satisfactory and the quality of the TREATED WASTE WATER meet the existing norms prescribed by CPCB/HSPCB or amendments issued from time to time.

9.5 Enforcement for use

Enforcement for use shall be made by Irrigation & Water Resources/PHED/HSPCB or the concerned department which gives permission for supply of fresh water to users. Besides, the mandatory users shall not be given allotment of fresh water/reservation of fresh water except as per provisions in the policy. Further, the existing allotment/reservation of fresh water shall stand cancelled within one year from the date of TWW being made available after ensuring that the arrangement of supply of TWW to the user(s) is satisfactory.

10 ENVIRONMENTAL ASPECTS

The development of projects would take into account all environmental aspects, while selecting method of treatment, storage of wastewater and sludge management. Effective procedures will be put in place to adequately factor in environmental and social opportunities and concerns during all stages of reuse of TWW projects. A robust monitoring system shall be developed for analysis of wastewater quality on a regular basis, with check points in place to identify any deviations from compliance and remedial actions for the same.

10.1 Quality Standards and treatment norms

The treatment system for municipal wastewater shall be designed so as to achieve the norms of water quality prescribed by CPCB/HSPCB.

If a user requires TWW of a better quality, the treatment for achieving the same shall be done by the respective user at his end. The decision to upgrade the wastewater treatment system, to produce better quality TWW lies with the Government, should it deem so useful, owing to higher demand for TWW of better quality. In such circumstances, the costs incurred as capital investment as well as charges for operation and maintenance for the upgraded treatment units shall be added to the TWW cost and shall be borne entirely by the users.

10.2 Technology options

A critical area in the planning process of a wastewater treatment system is the identification of an appropriate treatment technology (set of unit processes) which is not only techno-economically feasible, but also robust and simple to operate and maintain at a comparatively lower cost.

Technologies for wastewater recycling can be categorized based on wastewater characteristics, anticipated flow rates, effluent discharge standards/norms, areas of use for recycled water, location of the plant, etc. Chapter 7 of Part A of Manual on Sewerage and Sewage Treatment systems (2013), CPHEEO discusses in detail the different type of treatment technologies suitable under different conditions. The manual also provides details on the design considerations and operating requirements for a variety of technologies which will be suitable to produce treated water appropriate for specific uses.

The policy while suggesting use of conventional treatment technologies, does not restrict the exploration of innovative technologies developed by IITs/NEERI or any other credible organization having experience in the domain of water and wastewater management. However, when designing the tertiary treatment system for treating municipal wastewater, technologies, like MBBR, MBR, SBR, ASP with BNR etc. which are effective, successful and robust need to be explored. The policy further suggests that the preponderant criteria for selection of appropriate wastewater treatment technology shall include lower land/space footprint, be less energy intensive and have higher efficiency.

11 GOVERNANCE

For successful implementation of the projects and for effective management of the policy, the following Committees will be formed:

- (1) State Level High Powered Committee
- (2) State Level Technical Committee

11.1 State Level High Powered Committee (SLHPC)

State Level High Powered Committee shall be the Apex body to take decisions on various issues related with the successful implementation of the policy. The broad terms of reference of this Committee shall be as under:

- (a) Define Bulk users.
- (b) According in principle Administrative Approvals to the projects for conveyance of TWW, creation of storage capacities, construction of grids for the purpose of irrigation etc.
- (c) Pricing of TWW-approve the pricing principles, formula and tariff for TWW as well as for fresh water for each notified area or a common formula across the State.
- (d) Allocation of TWW to the eligible users
- (e) Selection of agencies for the implementation of the projects
- (f) Monitoring the progress of execution of works
- (g) Taking policy decisions on connected issues
- (h) Monitor the progress of sewerage schemes for uncovered areas in the State being executed by the concerned Departments
- (i) Monitor the progress of works related to construction of STPs by various Departments
- (j) Monitor periodically the performance of the functional STPs across the State
- (k) Explore the possibility of mustering additional resources for construction of STPs in balance towns and in villages.
- (l) Formulate an action Plan for achieving the timelines envisaged under this policy
- (m) To take action and impose penalty against unit/user using fresh water wherever TWW is available.
- (n) Any other issue of importance where a final call is to be taken by the Apex body

The composition of the State Level High Powered Committee shall be as under:

S.N.	Designation	
1	Chief Secretary	Chairperson
2	Administrative Secretary, Revenue Department	Member
3	Administrative Secretary, Finance Department	Member
4	Administrative Secretary, Irrigation & WR Department	Member
5	Administrative Secretary, Urban Local Bodies Department	Member
6	Administrative Secretary, Power Department	Member
7	Administrative Secretary, Town & Country Planning Department	Member
8	Administrative Secretary, Industries Department	Member
9	Administrative Secretary, Agriculture Department	Member
10	Administrative Secretary, Health Department	Special Invitee
11	Administrative Secretary, Environment Department	Member
12	Administrative Secretary, Public Health Engineering Department	Member-Secretary
13	Engineer-in-Chief, Public Health Engineering Department	Convener

The state government will constitute SLHPC within three months of notification of this policy through a Government notification. The SLHPC shall meet at least once in 3 months.

11.2 State Level Technical Committee (SLTC)

For successful and timely execution of the projects and in order to ensure that the projects are technically viable and cost effective, a State Level Technical Committee shall be constituted. The broad functions of the Committee shall be as under:

- (a) Accord technical Approval to the projects related to conveyance of TWW, creation of storage capacities, construction of grids for the purpose of irrigation etc.
- (b) Conceive and finalize formats for project agreements, formats of agreement between implementing agency and users, incorporating all the relevant clauses including provision for settling disputes, arbitration etc.
- (c) Monitor the progress of implementation of projects with focus on quality of construction.
- (d) Formulate guidelines for operation and maintenance of the implemented projects.
- (e) Perform the functions of Technical Adviser to the SLHPC for all matters of technical nature.
- (f) Monitor and evaluate the progress of sewerage schemes for uncovered areas being executed by various Departments
- (g) Monitor the progress of works related to construction of STPs by various Departments
- (h) Monitor the performance of the functional STPs across the State
- (i) Monitor the various construction milestones to achieve the timelines set up under the policy
- (j) Suggest pricing formula for TWW for each notified area based on geographical locations or a common formula across the State.
- (k) Overview the functioning of the Technical Cell created under the policy
- (l) Perform other tasks as assigned by the SLHPC or as decided by the Government.

The composition of the State Level Technical Committee shall be as under:

S.N.	Designation	
1	Engineer-in-Chief, Public Health Engineering Department	Chairman
2	Concerned Chief Engineer (Rural)	Member
3	Concerned Chief Engineer (Urban)	Member
4	Concerned Chief Engineer (I & WR)	Member
4	Concerned Chief Engineer (HSVP)	Member
5	Chief Engineer (ULB)	Member
6	Chief Engineer (GMDA)	Member
7	Concerned Chief Engineer, Power Utilities	Member
8	Chief Engineer (DHBVNL)	Member
9	Chief Engineer (Panchayati Raj)	Member
10	General Manager (IA), HSIIDC	Member
11	Technical Pond Authority	Member
12	Member Secretary, Haryana State Pollution Control Board	Member
13	Chief Engineer, TWW cell	Member-Secretary

The state government will constitute SLTC within three months of notification of this policy through a Govt. notification The SLTC shall meet at least once in 2 months or earlier, depending on the quantum of business to be conducted.

The State Government will have the discretion to change/alter the constitution of the Committees, at any time, through a Government notification.

11.3 TREATED WASTE WATER Cell

In order to carry out the day to day activities and to coordinate the smooth and timely implementation of the projects, a separate Cell **comprising officers of the level of SEs of different departments** be established which shall be headed by an Officer of the rank of Chief Engineer (PHED).

11.3.1 The structure of the TWW Cell shall be as follows:

S.N.	Designation	No.
1	Chief Engineer	1
2	*Superintending Engineer of concerned Department	1
3	**Executive Engineer (PHED)	1
4	Head Draftsman	1
5	Tracer	2
6	Assistant	1
7	Clerk	2
6	PA to CE	1
8	Computer Programmer	1
9	Domain-PPT Expert	1
10	Computer Operators	1
11	Peon	1

*The concerned Department whose Project(s) are under preparation/finalization shall depute their Superintending Engineer to assist the Cell/provide inputs to the project and shall be available till such time the CE (TWW) so desires, in the interest of the work.

** An Executive Engineer (PHED) shall exclusively be posted in the Cell for proper functioning and for maintaining coordination and cohesion, besides providing the necessary technical inputs and assist the Chief Engineer in matters connected with the working of the Cell.

The functions of the Cell shall be as under:

12 PREPARATION OF TREATED WASTE WATER PROJECTS**12.1 Identification and Preparation of projects****12.1.1 Preliminary Information**

Information regarding existing infrastructure for sewage collection and treatment shall be collected by local authorities. It would include layout and extent of existing underground sewerage/drainage system, areas not connected to collection system, existing number of treatment plants (STPs) with their locations, treatment technology, capacity and operational efficiency. Also, the local authorities shall make a database of potential users, their locations and quantum of water demand which can be met through TWW.

12.1.2 Identification of viable project

The basis for identification of a project would be the availability of TWW location of potential users, water demands to be met by TWW. Such projects shall be prepared by the TWW Cell and technical approval will be given to the suitable and technically viable projects by the SLTC. The projects which have been technically cleared shall be accorded approval in principle by the SLHPC. Further, the SLHPC shall recommend such project(s) to the State Government for according administrative approval.

12.1.3 Identification of the project with the hydrological unit

Hydrological unit stands for Watershed of the area/ catchment of the water body earlier receiving treated/untreated wastewater, etc. The new projects should effectively reveal the improvement in quality and health of watershed and ecosystem of water bodies.

12.1.4 Preparation of Detailed Project Report (DPR)

If the project is found to be technically feasible and financially viable, then DPR will be prepared. DPR shall include, but not limited to the following:

1. Profile of local body: Location and capacities of existing STPs, treatment technologies and operational framework of STPs, quantity of sewage generated, coverage of collection system, quantity of treated sewage available, quality of treated sewage, etc.
2. Profile of users (within the threshold radius): Type of usage, water quality required, quantity required by each user along with their respective distances from proposed project site.

3. Hydrological Profile of the water body: Watershed delineation, existing quality of the water body (river, stream, pond, lake, groundwater), load assessment, change in water quality due to changes in discharge of treated sewage due to projects. Improvement in quality of the water body should be clearly demonstrated.
4. Plan & Layout of proposed Distribution System: Route to be adopted for laying distribution pipelines for TREATED WASTE WATER, capacity of main distribution header, laying of a water grid for irrigation, sub mains, branch headers, approvals required for right of way, etc.
5. Approximate cost of project.
6. Funding source.
7. Suggestions on implementing agency which can be a Local Body /PHED/Irrigation & Water Resources Department/HSIIDC/HSVP or any other Government agency or an agency on PPP mode.
8. Level and nature of private sector involvement.

A similar methodology as described above shall be adopted for framing DPRs relating to supply of TREATED WASTE WATER from the STPs constructed to treat village waste.

12.2 Approval by SHPC

Based on recommendations of the State Level Technical Committee, the Special Committee shall give in-principle approval for the project and decide the following:

1. Allocation of TWW to different users.
2. Implementing Agency for the project.
3. Financial and management structure of the project.
4. Pricing of TWW

13 PRICING PRINCIPLES

The TWW shall be considered as an economic commodity while determining the price of TWW. The price of TWW shall be determined keeping in view a cost or factors such as investment made on developing infrastructure for sewage collection and treatment, quality of treated water supplied, requirement of distribution infrastructure and other social, cultural and business factors.

13.1 Price of fresh water

The price of TWW shall be kept lower than the price of fresh water as notified by the Government from time to time.

13.2 Factors for consideration

While deciding the price of TWW, the SLHPC shall consider the following factors:

- 1 Life cycle cost analysis (15 years) of the STPs, which include capital, operation & maintenance cost of the project.
- 2 Recovery of part capital and operation & maintenance cost incurred on the distribution network and allied structures for providing TWW.
- 3 Recovery of part operation & maintenance cost of STP.
- 4 Recovery of part capital as well as operation & maintenance cost of providing tertiary treatment, if any at the STP.
- 5 Recovery of part operation & maintenance cost of sewage collection system may also be considered.

13.3 Variation and escalation

The price fixed for TWW shall be for the first year and a suitable price escalation clause shall be incorporated in the agreement to be executed with the users. The price of TWW can be reviewed again, after every five years by SLHPC.

13.4 Recovery and Billing

Implementing Agency shall develop and have in place automated systems of measurements, billings and recovery of water charges. Facility of on-line payments shall also be provided for the benefit of the users.

13.5 Purchase Agreements

A purchase agreement shall be executed between the implementing agency and the user. The agreement shall be comprehensive and should not contain any ambiguity. It should vividly indicate the terms and conditions of the water purchase and shall include in-built provisions for settlement of disputes, arbitration etc.

14 PRIVATE/EXTERNAL SECTOR PARTICIPATION

Keeping in view the shrinking water resources, the use of TWW assumes a high order of priority. It is therefore, imperative to plan, identify, formulate and execute technically viable as well as cost effective projects for supplying TWW to the prospective users.

14.1 Financial Resource Mobilization

Since the State resources are limited, additional funds shall have to be mobilized either through Central Government, Institutional Financing or funds from any External Agency.

14.2 Option of PPP

All efforts shall be made to get the projects implemented with the involvement of private players by adopting any of the procurement models based on Public-Private-Partnership (PPP).

The suggested models could be any one or a combination of the following:

- 1 DBO
- 2 DFBOT -Annuity
- 3 BOT-User Charges
- 4 BOT- End User
- 5 HAM

The PPP model shall be finalized after a holistic assessment and evaluation of different variants. The SLTC shall after due diligence recommend the most appropriate and suitable model for private participation and a final decision in the matter shall be taken by already existing State Level High Powered Purchase committee.

15 STAKEHOLDERS ROLE AND RESPONSIBILITY

15.1 Stake Holders

The development of infrastructure and sewage treatment in the towns has been created by PHED/HSVP/ULB/GMDA and HSIIDC. These Departments are also responsible for strengthening/up-gradation of the existing infrastructure, if required to implement the policy for supplying TREATED WASTE WATER to the users.

The economic rights on the TWW shall reside with the respective Local Body and with PHED for such schemes where the infrastructure for collection of sewage and its treatment is to be created.

15.2 Implementing Agency

The Implementing Agency for carrying out works for the supply of TREATED WASTE WATER to the users shall be operating agency of sewerage facilities in the town/village or as appointed by the SLHPC who shall plan, execute, operate and maintain the TWW projects.

15.3 Users

A user of TWW shall apply for permission to take TWW as per the terms and conditions of this policy.

15.4 Regulatory Agencies

The Regulatory Agencies shall assist in finalizing the legal frame work and quality standards/ TREATED WASTE WATER norms for using TWW for various purposes.

The role of statutory and regulatory agencies shall be as under:

Statutory and regulatory agencies shall have obligatory responsibility to incorporate the decision of SLHPC into the regulatory programs and implement them in letter and spirit. They shall be identified stake holders in the process and shall promote/create potential for use of TWW.

15.1.1 Preparation of DPRs

Collection, collation and evaluation of the primary information received from the project area.

The TWW Cell would be responsible for technical clearance of the project in consultation with the line Departments, as the case maybe.

15.1.2 Provide secretarial assistance to the SLTC/SLHPC.

As and when required, this Cell will provide secretarial **assistance** to the SLTC/SLHPC in proper discharging of their functions.

15.1.3 Management Information System

The Cell will develop a Data Management and Information System to have a regular real time data with regard to waste water generation, technology adopted for treatment, characteristics of the treated effluent, technology adopted for reuse, operating cost of the infrastructure developed, revenue generated, etc. Complete details of the revenue generated from individual user and as a class of users shall be maintained.

In addition, the Cell shall also maintain a data base regarding progress of sewerage works being implemented by various Departments across the State in uncovered areas along with the progress of STPs under construction. In this regard, the concerned Departments shall update their monthly progress report and forward it to the TWW Cell by the 4th of each month. The formats for monitoring shall be developed by the TWW Cell and communicated to the concerned Departments. This will enable the TWW Cell to develop a central data bank which shall serve as a powerful tool in future decision making.

15.1.4 Research & Development

Capacity Building of the personnel of the implementing agencies in the field of TREATED WASTE WATER and its optimum utilization is required to be carried out periodically. This can be achieved through Research and Development activities, development of state-of-art technologies and development of innovative practices for effective and optimum utilization of the water resources.

The projects conceptualized using innovative technologies shall be brought to attention of various international organizations, research and training centers, etc. to form several bilateral development cooperation partners.

Additionally, it shall open the doors for active and intensive donor coordination and contributions along with prospects for implementation of pilot projects, thereby enabling execution of the approved projects with an additional external financial support.

The technical expertise of NEERI or some other technical consultants shall be sought for technically viable projects for development of water grids required for irrigation with TREATED WASTE WATER. Similarly, HIPA, Gurgaon is adequately equipped to impart training to various categories of personnel in diverse fields and the available infrastructure can be optimally utilized for imparting in-service training necessary for capacity building.

15.1.5 Public Awareness

The concept of reuse of TREATED WASTE WATER is likely to face stiff opposition, in the initial stages keeping in view the traditional values of the people and taboo on certain acts and practices. Public awareness therefore assumes great importance and is the key to change the mindset of the public, albeit slowly. Intensive I.E.C activities will have to be carried out in the State to overcome the public apprehensions regarding reuse of TREATED WASTE WATER and issues relating to health and water quality.

The tools for conducting I.E.C activities could be Mass Media, Electronic media, Print Media, Workshops, Community awareness programs etc. The ultimate objective is to address the following issues before implementation of the policy and ensuring the success of the projects:

- (a) Educate the public on TREATED WASTE WATER while stressing on the importance of water as a limited resource.

- (b) Emphasis on the present status of the availability of water resource and the alarming rate at which the ground water reservoir is shrinking.
- (c) Propagate the need for carrying out water harvesting and recharging techniques.
- (d) Conservation of water by preventing wastage, mis-use of water and recycling of waste water for flushing, gardening and washing.
- (e) Rope in celebrities to take up this cause and educate/motivate public on the reuse of TREATED WASTE WATER. The public generally has a propensity to identify with celebrities and icons.
- (f) Bring about a behavioral change for the success of the projects.

16 MISCELLANEOUS

The State Governments may issue directions and guidelines as it deems fit and considers expedient for the purpose of achieving the objectives and as envisaged in the policy, from time to time. In addition, the SLHPC shall be empowered to take any decision for the successful implementation of the projects and achieving the ultimate goals.

RAJEEV ARORA,
Additional Chief Secretary to Government Haryana,
Public Health Engineering Department.

ANNEXURE-1

STATUTORY AND POLICY: Government of India

The concept of wastewater recycling is recognized by most policy frameworks and institutions in India. Some significant legislations and documents are as follows:

Constitutional provisions:

1. Constitution of India, part IV, lays down directive principles of State policy. Article 48A states “The State shall endeavor to protect and improve the environment and to safeguard the forests and Wild Life of the country.”
2. Fundamental duties of every citizen in India in Article 51A states that “It shall be the duty of every citizen of India to protect and improve the natural environment including forests, lakes, rivers and wildlife, and to have compassion for living creatures.”
3. Role of self-Government (73rd and 74th Constitutional Amendments)-

These amendments make it obligatory on the State Governments to constitute Urban Local Bodies and transfer responsibility of water supply and sanitation services to them.

As such, there is constitutional mandate to preserve, protect and promote natural resources and water constitutes the most important ingredient amongst all.

Central statutes and policies:

- 1 The Environment Protection Act, 1986;
- 1 Policy statement for Abatement of Pollution, 1992;
- 2 The National Water Policy, 2012;
- 4 The National Sanitation Policy, 2008;
- 5 Manual on Sewerage and Sewage Treatment Systems, by Central Public Health and Environmental Engineering Organization (CPHEEO), Ministry of Urban Development, Government of India, 2013, to name a few such references.

CHALLENGES

With the present pace of development and industrialization, the water demand in the urban and rural areas is likely to increase considerably. It is expected that by the turn of the next decade there is going to be a burgeoning water demand keeping in view the current development trends.

The indiscriminate tapping of the ground water reservoir, heavy pollution of the water resources, especially due to indiscriminate discharge into the water bodies is severely affecting the availability of safe, potable water besides impacting the environment and consequently resulting in potential health hazards. As a result, the availability of fresh water is likely to reduce in the coming years, particularly for drinking, agricultural and industrial purposes.

It is apprehended that in the times to come, the ground and surface water resources are likely to be highly stressed notwithstanding the fact that ground water recharging techniques are being applied, where feasible. In view of this predicament, it is imperative that local and traditional sources are rejuvenated for supplementing the conventional drinking water sources and ensuring water security.

DRINKING WATER SYSTEM

Haryana is one of the States which is providing only piped water supply facilities in the rural and urban areas. About 60 % of the groundwater is brackish and unfit for human consumption. In areas where the ground water is saline, piped drinking water supply schemes are based on surface sources. In the sweet belt areas, which constitute about 40% of the area of the State, the drinking water supply schemes are based on ground water sources or tube-wells.

Drinking water in the urban areas is being made available at a norm of 135 liters per capita per day (LPCD) plus 15% “Unaccounted for Water.” In the rural areas, the water supply schemes are based @ 70 lpcd in the Desert districts of Hisar, Sirsa, Fatehabad, Rohtak, Jhajjar, Bhiwani, Dadri, Mohindergarh and Rewari whereas in the non-desert districts of the State, the water supply schemes are implemented @ 55 lpcd. However, drinking water supply projects financed by NABARD are executed at a norm of 70 lpcd.

The State Government has recently launched the Mahagram scheme in the rural areas which envisages the provision of sewerage facilities in villages along with treatment facilities. Keeping in view the enormity of the problem, the scheme is being taken in hand in a phased manner. In the villages selected under this program, the existing drinking water infrastructure will be upgraded to supply water at the rate of 135 lpcd plus 15% "Unaccounted for Water". This is an ambitious program and will go a long way in improving the sanitary conditions in the villages and bring about a perceptible change in the environment besides arresting the large-scale exodus of people to the cities / towns.

UNDERGROUND SEWERAGE/DRAINAGE SYSTEM (COLLECTION AND TREATMENT)

There are 89 notified towns in the State of Haryana and sewerage facilities exist in 83 towns with a coverage area varying from 75% to 95 %. The collected sewage is treated in the STPs which have been constructed for this purpose. In Haryana State, STPs are being constructed by PHED/HSVP/ULBs/GMDA. In addition, HSIIDC has also constructed CETPs in various industrial areas for treatment of the heterogeneous industrial waste which is being discharged by different type of industries.

The status of STPs across the State is as follows:

1 Number of STPs constructed as on 31-05-2019.

S.N.	Name of Department	No. of STPs constructed	Capacity in MLD
1	PHED	116	952.9
2	HSVP	13	184.8
3	ULB	9	268
4	GMDA	5	388
5	M.E. S	1	9
	Total	144	1802.7

2 Number of STPs under construction as on 31-05-2019.

S.N.	Name of Department	No. of STPs under construction	Proposed Capacity in MLD
1	PHED	11	96.50
2	ULB	21	181.75
3	GMDA	0	0
4	HSVP	5	37.50
	Total	37	315.75

3 Number of STPs under planning as on 31-05-2019.

S.N.	Name of Department	No. of STPs being planned	Proposed Capacity in MLD
1	PHED	2	6
2	HSVP	6	68.50
3	ULB	7	23.75
4	GMDA	1	100.00
5	Panchayats	1	6
	Total	17	204.25

Besides, the status of CETPs being constructed by HSIIDC for catering to the industrial discharge in various industrial areas is as follows:

1 Number of CETPs constructed

No. of CETPs	14
Total Capacity	134.8 MLD

2 Number of CETPs under construction

No. of CETPs	1
Proposed Total Capacity	12.50 MLD

3 Number of CETPs under planning

No. of CETPs	6
Proposed Total Capacity	26 MLD

From the above it can be seen that at present, 144 STPs are in existence in the urban areas having a total treatment capacity of 1802.7 MLD, based on projected population. This does not include the CETPs constructed by HSIIDC. Further, 37 STPs are under construction which will generate an additional treatment capacity of 315.5 MLD.

Besides, 17 STPs are in the planning stage having an envisaged capacity of 204.2.5 MLD.

Thus, it is expected that in the next 2-3 years, the total designed treatment capacity of the STPs shall be around 2500 MLD in the urban areas. It would be pertinent to mention at this juncture that the Mahagram scheme in the rural areas is gaining great importance and in case the pace of implementation under this program is steadily maintained in the near future, another STPs are likely to come up in the next 3 -4 years. This offers a tremendous opportunity to use TREATED WASTE WATER and augment the depleting water resources effectively.

ABBREVIATIONS

AMRUT	Atal Mission for Rejuvenation and Urban Transformation
BCM	Billion Cubic Meter
BOD	Bio-Oxygen Demand
BOT	Build, Operate, Transfer
CETP	Common Effluent Treatment Plant
CPCB	Central Pollution Control Board
CPHEEO	Central Public Health and Environmental Engineering Organization
DBO	Design, Build, Operate
DFBOT	Design, Finance, Build, Operate, Transfer
DPR	Detailed Project Report
HAM	Hybrid Annuity Model
HIPA	Haryana Institute of Public Administration
HIRMI	Haryana Irrigation Research and Management Institute
HSPCB	Haryana State Pollution Control Board
HSIIDC	Haryana State Infrastructure & Industrial Development Corporation
HSVP	Haryana Shehri Vikas Pradhikaran
IEC	Information, Education and Communication Cell
IIT	Indian Institute of Technology
KL:	Kilo Liter
LPCD	Liters Per Capita Per Day
MBBR	Moving Bed Bio-film Reactor
MBR	Membrane Bio Reactor
Mg/L	Milligram per Liter
MLD	Million Liters per Day
NEERI	National Environmental Engineering Research Institute
PHED	Public Health Engineering Department
PPP	Public Private Participation
SBR	Sequential Batch Reactor
SIR	Special Investment Region
SLHPC	State Level High Powered Committee
SLTC	State Level Technical Committee
SOP	Standard Operating Procedure
STP	Sewage Treatment Plant
TSS	Total Suspended Solids
TWW	TREATED WASTE WATER
TWW Cell	TREATED WASTE WATER Cell
ULB	Urban Local Body
WJC	Western Jamuna Canal