

Jalmani

Guidelines on Installation of Stand Alone Drinking Water Purification Systems in Rural India



**Government of India
Ministry of Rural Development
Department of Drinking Water Supply**

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Installation of Stand Alone
Drinking Water Purification Systems
in Rural India**

(A) Mission Statement

To provide value and quality addition to the on going Rural Drinking Water Supply Programme. This programme will be called by name "**Jalmani**".

(B) Background

The existing Rural Drinking Water Supply programme aims at providing safe drinking water in adequate quantity to all rural habitations in the country including rural schools and Anganwadis. Due to variety of factors, the quality of drinking water is likely to deteriorate when it actually reaches the consumption point, especially in vulnerable areas like rural schools.

In order to address this key requirement it has been decided to consider installation of simple Stand Alone Purification systems, to begin with, in one lakh schools in the current financial year as a value addition to the Rural Water Supply Programme. Finance Minister, while presenting the Union Budget for 2008-09, made an announcement for an additional allocation of Rs. 200 crores to cover approximately one lakh school children with Stand Alone Water Purification Systems in the schools. In order to decide on technology options the Department had constituted a High Level Technical Committee (HLTC) in March 2008. This Committee is chaired by Secretary, Science and Technology with members from renowned technical institution in Government of India viz Bureau of Indian Standards (BIS), Central Ground Water Board (CGWB), Central Pollution Control Board (CPCB), Bhabha Atomic Research Centre (BARC), Institute of Minerals and Materials Technology (IMMT), Industrial Toxicological Research Institute (ITRC), All India Institute of Hygiene and Public Health (AIIPH), Ministry of Health and Family Welfare, Department of Science and Technology and Directorate General of Supply & Disposal (DGS&D).

(C) The Role of High Level Technical Committee (HLTC)

- The HLTC will meet periodically to evaluate technologies of Stand Alone water purification systems available in the country and indicate price ranges for the use of the Department as well as for the State Governments who will be implementing this programme. Based on the list of technologies identified by the HLTC, DGS&D will fix unit rates of the system after following due procedure. The Terms of Reference for setting up of HLTC is **Annexed**. The HLTC set in place for evaluation of technologies and indicative price ranges will be a permanent feature of the scheme.
- This HLTC will be a permanent feature and will meet from time to time for evaluation of technologies and this will improve the quality and lower

the prices of the product and increase the competitiveness among the manufacturers during the implementation of the programme.

(D) The Role of Department of Drinking Water Supply and Other Central Government Departments.

Allocation criteria, funding pattern and release of fund

- This is a 100% centrally sponsored programme. The role of DDWS will be to provide funds to the State Governments on the basis of allocation criteria which will include the rural population (2001 Census) (80% weightage), the extent of DDP/DPAP/HADP areas (20% weightage). However, flexibility will be available with the Department to allocate more funds to the States which show better performance during the course of the implementation of the programme.
- The programme will be implemented in Project Mode and upto 50% of the allocated funds will be released as first installment to all States/UTs based on the demand from the States. The remaining funds will be released to those States which have performed satisfactorily and have submitted proposals with supporting documents for release of further funds.

Monitoring and Evaluation

In order to have proper monitoring of the programme and for better convergence with other centrally sponsored programme viz. SSA, NRHM, programme relating to women and children under ICDS programme etc, a high level monitoring Committee under the Chairmanship of Secretary, DDWS will be formed which will have as members representatives of Secretary Department of Science and Technology, Secretary, Department of Elementary Education or his representative, Secretary, Ministry of Health and Family Welfare or his representative dealing with NRHM, Secretary, Dept of H&FW or his representative dealing with ICDS programme, Secretary, Dept of H&FW or his representative dealing with IDSP, AS&FA, DDWS, Secretary, Ministry of Panchayati Raj or his representative and Joint Secretary in charge of the Water Supply Programme will be the convener of this Committee. The Committee will meet preferably once a quarter to review the pace and progress of the programme in different States. It will be authorized to co-opt to any State Secretary in charge of Drinking Water Supply or any other technical expert for better monitoring of the programme.

Convergence with National Rural Drinking Water Quality Monitoring & Surveillance Programme (NRDWQM&S)

This programme is an outcome of the NRDWQM&S which empowers rural community including schools to test their own water samples. The success of this programme will be measured by the improvement in the quality of water as established in the test results under the NRDWQM&S. For this purpose there will be close coordination between School Management Committee and Village Panchayats **ultimately** Village Panchayats will have the overall responsibility to ensure that drinking water available in the schools meets the minimum prescribed standards in terms of quality, potability and quantity.

(E) Role of State Governments and Other Institutions under the State Government

- The scheme for installation of stand alone water purification system in rural areas including rural schools will be implemented by the State Governments or institutions nominated by the State Governments. Fund for this purpose will flow directly from the DDWS to the State Government Dept/Institution as selected by the State Government for this purpose. The capital cost of Stand Alone System will not exceed Rs. 40,000/- but the State will have flexibility to choose best technology options at reasonable price ranges. The state governments are required to consider suggestive lists of technologies and unit rates as decided by the HLTC appointed by the DDWS for this purpose as well as the DGS&D. The final choice of technology, the cost options, the method of procurement are, however, to be determined by the State Governments concerned as per the procedures prescribed in the GFR and the State Financial Rules.
- The technologies identified by the High Level Technical Committee for deployment of stand alone drinking water purification systems, with or without electricity are based on Ultra-filtration, filtration and radiation principles and their hybrids but without any elaborate reject management requirements at the school level. Ion exchange and RO based systems as well as those useful for removal of arsenic, fluoride, etc. are recommended for use only where the local body could take responsibility for managing the rejects. However, it is the primary responsibility of the manufacturer/supplier for managing rejects appropriately as per the prescribed norms of the State Government.
 - The capital cost of stand alone drinking water purification systems for 1000 litres per day output (@ 3 litres per capita per day) shall not exceed Rs 40,000/- and the cost of delivered water shall not be more than 3 paise

- per litre,, however, in exceptional cases there could be relaxation in specific cases.
- The O&M cost that is required for operation and maintenance for 5 years, shall be built into the Capital cost of the stand alone units.
 - A High Level Committee under the chairmanship of CS or Addl CS in charge of the programme may be constituted to review the pace of implementation of the programme at the State level. The Committee may have as members Secretaries belonging to the Department of Water Supply, Rural Development dealing with Panchayati Raj Institutions sanitation programme, Agriculture, Finance, Science and Technology & Health. The Committee will have power to include other Secretaries/Departmental Heads as considered necessary for speedier and better implementation of the programme in the States. Technical Experts from Academia, Scientific and Technical Institutions, CSIR Labs can also be co-opted, as required by the Committee. This Committee may meet at least once in two months. It is expected that the Department of Drinking Water Supply is kept informed of the data and agenda of these meetings so that in case it is possible the officers from DDWS can attend such meetings.
 - General recommendations for implementation through State Governments :
 - The recommended list of technology principles and cost range, reject management criteria as well as at least 1000 product units being used in the market already could be insisted upon;
 - Since there is range of potential suppliers, an indicative, but not exclusive list of likely suppliers is only suggested. State Governments can also select any other suitable technology / product within the broad framework of the HLTC recommendations
 - Since the purification system should function effectively for given input quality, it is necessary to ensure that the selected supplier for each region should provide for :-
 - Product performance of the stand alone unit.
 - Product water quality based on certification from NABL accredited laboratory for the given water input quality
 - Commitment to operate and maintain the system for a period not less than 5 years.
 - During the life time of the stand alone system, the State Government can negotiate for any modifications, if any, with the supplier. Such additional costs shall have to be borne by the State/UT Government.

Management Information System

State Govt's will be required to enter data on the outcomes of the programme on-line i.e. number of units installed and the cost of the products,

the quality of output water in the habitation wise data base of the DDWS. The online data base of the existing NRDWQM&S programme and school wise data base of the Stand Alone Water Purification Scheme will have to be integrated for effective linkage of the programme with the NRDWQM&S programme.

(F) Role of PRIs / Grassroots Organizations

- The Jalmani programme will be implemented by the State Governments through the Gram Panchayat/Village Water and Sanitation Committees/Self Help Groups including women Self Help Groups, School Committees and PTA. However, flexibility is given to the State Governments to involve other stake holders also viz., NGOs, Mahila Mandals etc for the sake of better implementation of the Programme at the village level.
- For operating this programme, funds may be provided by the State Governments or the institutions nominated by them to the Village Panchayats for activities relating to capacity building, awareness generation/publicity and such other activities which are necessary for the smooth implementation of the programme.
- There will be a Committee at the district level chaired by DM/DC for monitoring the programme at the district level. The district committee will have as members, Departmental Heads of Health, Water Supply and Sanitation, Agriculture, School Education, PRIs and Finance. Depending on the need, the Committee can include other members as necessary. The Committee should meet at least once a month. The proceedings of the Committee meetings are required to be sent to the Secretary of the Implementing Department at the State level promptly. Consolidated extract of the District Level Committee Reports will be sent by the State in the DDWS on quarterly basis.
- At the village level there will be a Committee under the Chairmanship of Sarpanch of the VP for monitoring the progress of the schemes at the village level. The Committee will have as Members, Head of the Village W&S Committee, School Principal, Head of Women Self Help Group, Ex-Servicemen if residing in the village, village Patwari or the Secretary of the Village Panchayat and such other members as decided by the Committee. The Committee should meet once every fortnight in the beginning and later on at least once every month.
- The ownership of these systems will be vested with the school authorities. However, it will be the direct responsibility of the Village Panchayats that the systems are run effectively and the school children get quality water in sufficient quantity. The village Panchayats may also take recourse to the funds provided to them under 12th FC grants for meeting any additional expenditure required for running the Programme.

(G) Role of Manufacturers/Suppliers

- The O&M of these systems will be the responsibility of manufacturers and suppliers till the life time of the Systems supplied.
- The life time of these units should not be less than 5 years from the date of commissioning of the system.
- A suitable protocol of Operation and Maintenance (O&M) which is to be strictly enforced while awarding the contract to the selected manufactures/suppliers.
- The States may consider imposing product liability insurance on the supplies so that they are held accountable for lack of maintenance or for any lacunae in the system.
- No cost over run or time over run should be permitted by the States due to late supply or deficient supply of the units by the supplier/manufacturers.
- While finalizing the contract with the manufacturers/suppliers the State may consider in the contract in the event of deficiencies as indicated above on the part of the manufacturers.

(H) Conclusion

All the implementing agencies for operating this Programme viz., the DDWS and other related Ministries, the District Authorities, the PRIs and grass root level organizations must work closely in a coordinated fashion to ensure that the basic objective of providing safe drinking water at the consumption point to the most vulnerable section of the rural society, viz the school children are met through proper management of these systems right from the stage of procurement to the stage of usage. Attention should be focused on ensuring proper convergence of these schemes with NRDWQM&S programme.

**Terms of Reference of the High Level Technical Committee
constituted for short listing technologies on Stand alone drinking
water purification systems in the Country**

1. To analyze the existing scenario in water supply especially rural schools
2. To understand various methods of treatment across the world in providing safe drinking water and its applicability to rural schools in India.
3. To organize brainstorming sessions with any outside expert/ organization(s) on various treatment technologies.
4. To devise a methodology for short listing low to optimum cost environment friendly technologies which will also examine whether generated wastewater/sludge is disposed off safely.
5. The Committee in order to decide on the suitability of a particular technology, will assume rated capacity of the systems proposed in view of the fact that on average a school going child needs 3 litres of potable water and a rural school in general, do not have more than 250-300 children on rolls.
6. To evaluate and shortlist technologies for all possible bacteriological and chemical contamination so that the systems could be run easily by the school children themselves and that the O&M expenditure should be low and affordable by the School/PTA/GP.
7. All such technologies should not pose any threat/danger to the life of school children.

8. All technologies identified must have a provision for a clean storage facility, so that it does not corrode or induce any contamination after treatment from stand alone systems.
9. Appropriate disposal of spent water, environmental sanitation and hygiene habits of school children will be considered while selecting particular stand alone technological systems.
10. Treatment technologies that are suitable should be identified on the merits of the technology, operation cost and longevity, availability of spares and other techno-economic aspects. For this purpose various manufacturers in the Country of stand alone water purification systems or their counterparts across the world are to be invited to hold discussions to understand the technology, its O&M and suitability for rural schools so as to prepare a list of manufacturers of these systems with best technological options and suitable price range. This is to help the State Governments to arrive at suitable technology mix and price options for introducing this purification system in the schools.
11. To examine the “feasibility” of short listing suppliers/manufacturers as the number of products in the market may be great.
