

File No.W-11044/02/2012-Water  
Government of India  
Ministry of Drinking Water & Sanitation

9<sup>th</sup> Floor, Paryawaran Bhawan, CGO Complex

Lodi Road, New Delhi-110 003

Dated: September 17, 2012

To

State Secretaries incharge of RWS/ PHED in the States of  
Andhra Pradesh, Bihar, Chhattisgarh, Jharkhand, Madhya Pradesh,  
Maharashtra, Orissa, Uttar Pradesh and West Bengal

Sub: Solar energy based Dual Pump piped Water Supply scheme for IAP Districts

Sir/ Madam,

The Government of India is focusing on provision of piped water supply in rural areas in the 12<sup>th</sup> Five Year Plan period. It is seen that the drinking water supply infrastructure in IAP districts is not as developed as in other districts. Extra efforts need to be made to improve piped water coverage in the these IAP districts to bring them closer to the coverage in other districts.

2. The Government of Maharashtra has implemented an innovative scheme in a IAP district in which a single phased 1 hp Solar Energy based submersible pump is installed in a high yielding bore-well which already has a hand pump. Water pumped from the system can be stored in an elevated tank and water supply provided to each house from tap connections. Each of these schemes can meet the drinking water needs of about 250 persons. The main innovations in this process are that electric supply is not required, batteries are not required and household tap connections can be provided. Each scheme costs about Rs. 5.10 lakh (Rs.3.05 lakhs for the solar panels, pump and related infrastructure and Rs.2.05 lakhs for average cost of the OHR and distribution network), excluding the borewell cost.
3. The Solar energy based Dual Pump piped Water Supply scheme has been designed by the Groundwater Surveys and Development Agency (GSDA), Govt of Maharashtra, Pune. This scheme has been successfully implemented in about 1716 habitations of Maharashtra with the technical guidance of GSDA. It has been found to be useful in tackling drinking water problems of remote and small hamlets/habitations.
4. The Hon. Minister of Drinking Water and Sanitation has written to the Hon. Chief Ministers of the States having IAP districts about this scheme on 28.08.2012 informing them about how States with IAP districts shall be supported by this Ministry in extending the project to all IAP districts.

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5. This Ministry had proposed and obtained clearance for partial funding of a project to cover 10000 habitations (with population between 150 and 250) in 82 IAP districts of the country from the National Clean Energy Fund (NCEF). The remaining cost is to be borne from the NRDWP (Central + State share).


6. The details of the scheme can be seen on the website of GSDA ([www.mahagsda.org](http://www.mahagsda.org)), and also on web site of Ministry of Drinking Water and Sanitation ([www.ddws.gov.in](http://www.ddws.gov.in)) under 'Case study'.

7. The steps to be taken for operationalising the project are at Annexure. The list of habitations identified to be covered under this scheme is enclosed as a CD. It is requested that the States start examining the need for such a scheme in each of the identified habitations, and submitted a consolidated project report for approval and release of funds to this Ministry.

8. The GSDA, Pune, Govt. of Maharashtra, has agreed to act as a technical support organisation in the preparation and implementation of this project in all states. GSDA is a Government organisation and shall not charge any consultancy fees for technical guidance. However it is requested that the TA/DA of the officers of GSDA visiting individual States may be borne by the host State governments. GSDA can be contacted at the following :

Director  
Groundwater Surveys & Development Agency,  
Agriculture College Campus,  
Wakdewadi Road, Shivajinagar,  
Maharashtra State,  
Pune - 411 005(MS)  
Phone No: 25513716 / 25533171  
Director : 25513717  
Fax: 91- 020- 25533108  
e-Mail: [hp2.gsd@gmail.com](mailto:hp2.gsd@gmail.com)

9. The State official who will handle the project and the district level Engineers of the IAP district from your State should be taken for an exposure visit to project sites in Maharashtra by tying up with GSDA, Pune.

  
(T.M. Vijay Bhaskar)  
Joint Secretary (Water)  
Phone: 2436 1043  
Fax: 2436 4113

Solar Energy based Dual pump piped water supply schemes for IAP Districts

**A) Salient Features**

- i) The scheme is based on an existing or new bore well / tube well. Traditional manual hand pumps installed on such bore wells, cannot draw water from depths of more than 120 feet. Therefore they are of no use once the water level goes below this depth, which happens in many areas in the summer months. Secondly, drawing water in this way requires manual efforts and the output is less.
- ii) In the new scheme, water is drawn from the bore well by two methods. In addition to the traditional hand pump method, an additional pump which can be run on solar or conventional electricity is installed by using a specially designed water chamber. The use of solar energy based water pumps is especially useful in areas with non availability or erratic availability of electric power.
- iii) The scheme is based on prefabricated/readymade material and can be installed in a short time span of only 1-3 days. The scheme works even in cloudy/rainy weather with normal efficiency.
- iv) A water tank/ESR of appropriate capacity is installed from which water can be further distributed to houses through individual connections or through stand posts.
- v) The scheme is especially recommended for far flung habitations where one time low or zero maintenance solution is needed.
- vi) The scheme costs about Rs 5.10 lakh excluding the cost of bore well.

**B) Steps to roll out the Project.**

**1. Identification of habitations.**

Habitations in LWE district which are totally dependent on hand pump installed Bore well/Tube well shall be identified.

Priorities may be as below:

- Habitations not yet electrified
- Habitations which are electrified but power supply is not regular,
- Tribal habitations,
- Remote hilly habitations.

**2. Identification of Source.**

Identify the bore well/tube wells in these habitations which have yields, not less than 2000 liters per hour on the basis of available records.

### 3. **Quality and yield testing of Bore well /Tube well.**

Test the quality of water of this Bore well /Tube well. If the water is potable then the yield is to be confirmed with the help of Yield Testing Unit (YTU).

The YTU should be provided with single phase 1 HP submersible pump along with Diesel Generating Set to avoid dependency on electricity supply.

#### **Yield Testing**

- Yield testing should be carried out with the help of 1 HP single phase submersible pump which should be installed at the depth of 57 m in case of 60 m deep Bw/Tw.
- Discharge should be throttled to 30 to 40 Liters per minute with the help of a valve at the delivery end of riser pipe.
- Then the submersible pump should be operated for 3 Hours for confirming the yield of the Bw/Tw as minimum 2000 Liters per hour.
- Yield testing should be carried out under the supervision of Junior Engineer in the presence of village Panchayat Chief.

### 4. **Preparation of Scheme.**

On the basis of water quality and yield, plan and estimates of the schemes to be made by JE. He should decide the location of:

#### **Solar Panels:**

It should not be located under a tree.

It should have space for fencing for protection.

It should have proper foundation as the steel structure of solar panel has to withstand wind of upto 200 km/hr velocities. Hence it should not be located on exposed rocks.

#### **Storage tank.**

It should not be far away from source to minimize rising mains.

It should be located such as to give adequate distribution by gravity to cover the entire habitation.

It should have proper foundation within 2 m depth.

#### **Distribution System.**

A plan of house to house tap connections should be prepared.

### 5. **Technical sanctions.**

Technical sanction to be accorded by competent Engineer.

6. **Administrative Sanction.**

Depending up on technical sanction, administrative sanction to be accorded by the competent authority.

7. **Release of grants.**

On the basis of administrative sanctions, grants should be released to the executing agency.

8. **IEC Workshops.**

- To explain the technology and procedure to the Scheme Implementing Engineers, workshops should be organized at District headquarters. Demonstration of Dual pump installation and solar panel installation should be organized for them.

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