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भारत सरकार

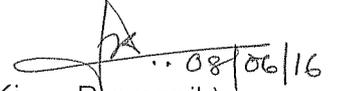
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**Sub: Useful Traditional Water Conservation Practices.**

Placed below is a letter circulated to all the State Governments. It has been decided to put it on the website of the Ministry. You are accordingly requested to put it under the suitable heading on the website of the Ministry.



(Kiran Pramanik)

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## **A Note on Jal Mandirs of Gujarat**

### **Background**

Gujarat is a seasonally arid State. Rains persist for three months and leaving the surface dry for the remaining nine months in the State. Several hundred step-wells were built in the towns and villages of Gujarat for managing and mediating the water resources. The grandest period of step-well construction spanned half a millennium--from the late eleventh through the sixteenth century--dotting the countryside with exquisitely embellished public monuments, the most extravagant of which is the 'Rani ki Vav', or Queen's Step-well, at Patan, Gujarat which has recently been recognised as UNESCO heritage structure.

### **Jal Mandir Systems**

Jal Mandirs or step-wells, also called Vav in Gujarati, are wells in which the water can be reached by descending a set of steps. They may be covered and protected, and are often of architectural significance. It can be multi-storied also, in which a bullock turns the water wheel ("Rehant") to raise the water in the well to the first or second floor. A basic difference between step-wells on the one hand, and tanks and wells on the other, was to make it easier for people to reach the ground water, and to maintain and manage the well. Builders/ masons dug deep trenches into the earth for dependable, year-round groundwater. They lined the walls of these trenches with blocks of stone, without mortar, and created stairs leading up to the water. The step-wells provided easy access to the water for general public for various purposes e.g. drinking, bathing, performing religious rituals etc. some of the examples of these Jal Mandirs are enclosed with this note at the end.

The Vavs or Jal Mandirs (step-wells) of Gujarat consist of two parts: a vertical shaft from which water is drawn and the surrounding inclined underground passageways, chambers and steps which provide access to the well. The galleries and chambers surrounding these wells were often carved profusely with elaborate detail and became cool, quiet retreats during the hot summers for local public as well as the travellers. Owing to its delightful qualities and lucid design; the stone step-well remained the state of the art in Indian water management for more than a thousand years. With increasing population, the demand of water for domestic as well as irrigation has increased manifold resulted gradual shift towards deep tube wells and bore wells thereby neglected these traditional water abstraction structures for a long period.

### **Source of water**

These step wells are generally dependent on the recharge from nearby surface water sources viz. village ponds, streams, canals and in some cases nearby rivers. The location of these ancient wells found to be unique in the sense that even during dry

period of the year most of these wells have water in them, highlighting the ancient wisdom of craftsmen in those days. Most of these wells are part of phreatic aquifers of various formations such as alluvial, basaltic, phyllite etc.

### **Jal Mandir Scheme**

In view of their structural uniqueness as well as their role in water conservation, Government of Gujarat decided under mission mode, from 2007-08 to 2011-12, to revive, clean up and rejuvenate these step-wells, which are named as “Jal-Mandir” — Water Temple – as these are our national heritage and are a different kind of water harvesting structures. Nearly 1200 Jal- Mandirs were identified all over the State. Considering the importance of these heritage structures, Government of Gujarat renovated several step-wells under Jal Mandir Yojna. The thrust of the scheme is to see that these heritage structures are protected, made useful to the community as well as maintained properly.

### **Benefits**

The concept of Jal-Mandirs may be very useful in those areas where Groundwater table is high and no assured supply schemes are available viz. Tube well/Municipal supplies. Replication of this concept in such areas appears advantageous. In the absence of electricity in those times, the step-wells were a reliable source of ground water for the population, travellers, and princely armies on-the-move.

The concept is innovative especially from the point of view of sustainability of village water supply system by inculcating the sense of responsibility among people and motivating them towards maintaining the system by attaching social and religious facets to it which is vital for water conservation.

### **Conclusion**

Considering water conservation and sustainability of village water supply systems in many parts of the country, the Jal Mandir concept can be replicated in rest of the country especially in water scarce rural areas. In the absence of perennial recharge system, rainwater harvesting from village area can be useful for recharge of village water supply arrangements such as Dug-wells, Tube-wells, etc. The integrated concept of Jal Mandir for village water supply and sanitation as depicted on the front page can be implemented. The wastewater can be suitably used after treatment for recreation and gardening purpose in Jal Mandir area.

**Name: Khodiyar Mata ki Vav**

1.	<b>Location</b>	<b>Vill:</b> Bareja, <b>Tal:</b> Daskroi, <b>Dist:</b> Ahmedabad (22 <sup>o</sup> 50'57" N, 72 <sup>o</sup> 35'36" E)
2.	<b>Temple</b>	Yes
3.	<b>Population</b>	15500
4.	<b>Recharge Source</b>	Groundwater
5.	<b>Use of Water</b>	Not in use
6.	<b>Quality of water</b>	Potable in the absence of alternate source
7.	<b>Expenditure on renovation</b>	Rs.2 lakh
8.	<b>Works carried out</b>	Desilting, structure repair, plastering
9.	<b>Public Opinion</b>	Public appreciated the effort and temple visits by public increased
10.	<b>Maintenance</b>	Temple Trust
11.	<b>Other sources of water</b>	Ground water



**Name: Nagalpar Jal-Mandir**

1.	<b>Location</b>	<b>Vill:</b> Nagalpur, <b>Tal:</b> Botad, <b>Dist:</b> Botad (22°08'54" N, 71°38'53" E)
2.	<b>Temple</b>	No
3.	<b>Population</b>	3450
4.	<b>Recharge Source</b>	Groundwater
5.	<b>Use of Water</b>	No water in the well
6.	<b>Quality of water</b>	Dry well
7.	<b>Expenditure on renovation</b>	Rs.10,000/-
8.	<b>Works carried out</b>	Fencing, Jungle cutting
9.	<b>Public Opinion</b>	-
10.	<b>Maintenance</b>	None
11.	<b>Other sources of water</b>	Ground water
12.	<b>Rainwater harvesting</b>	Required



**Name: Irvai Vav**

<b>1.</b>	<b>Location</b>	<b>Town:</b> Modasa, <b>Tal:</b> Modasa, <b>Dist:</b> Aravalli (23 <sup>0</sup> 28'03" N, 73 <sup>0</sup> 17'40" E)
<b>2.</b>	<b>Temple</b>	No
<b>3.</b>	<b>Population</b>	54000
<b>4.</b>	<b>Recharge Source</b>	Groundwater
<b>5.</b>	<b>Use of Water</b>	Agriculture
<b>6.</b>	<b>Quality of water</b>	Potable in the absence of alternate source
<b>7.</b>	<b>Expenditure on renovation</b>	Rs.54000/-
<b>8.</b>	<b>Works carried out</b>	Desilting, Jungle cutting
<b>9.</b>	<b>Public Opinion</b>	Public appreciated the efforts
<b>10.</b>	<b>Maintenance</b>	None
<b>11.</b>	<b>Other sources of water</b>	Ground water



**Name: Tintoi Jal-Mandir**

1.	<b>Location</b>	<b>Vill: Tintoi, Tal: Modasa, Dist: Aravalli</b> (23°36'40.0" N, 73°20'08.0" E)
2.	<b>Temple</b>	No
3.	<b>Population</b>	5000
4.	<b>Recharge Source</b>	Groundwater
5.	<b>Use of Water</b>	Limited use
6.	<b>Quality of water</b>	Needs treatment to make it potable
7.	<b>Expenditure on renovation</b>	Rs.17,000/-
8.	<b>Works carried out</b>	Desilting, Jungle cutting
9.	<b>Public Opinion</b>	Public appreciated the efforts
10.	<b>Maintenance</b>	None
11.	<b>Other sources of water</b>	Ground water



**Name: Kohivav Jal-Mandir**

1.	<b>Location</b>	<b>Vill:</b> Motimori, <b>Tal:</b> Meghraj, <b>Dist:</b> Aravalli (23 <sup>0</sup> 34'50" N, 73 <sup>0</sup> 36'27" E)
2.	<b>Temple</b>	No
3.	<b>Population</b>	1000
4.	<b>Recharge Source</b>	Groundwater
5.	<b>Use of Water</b>	Limited use- nearby agriculture
6.	<b>Quality of water</b>	Potable in the absence of alternate source
7.	<b>Expenditure on renovation</b>	Rs.2,50,000/-
8.	<b>Works carried out</b>	Wall Plaster, fencing, desilting, Benches
9.	<b>Public Opinion</b>	Public appreciated the efforts
10.	<b>Maintenance</b>	None
11.	<b>Other sources of water</b>	Ground water







