

Project: ANTINOMOS
Report on Indigenous Technologies

Case No: 2

Step 1 – Description

- 1. Name of Technology to be evaluated:** ‘**Ń**’ System (Known as Reverse U system)
- 2. Location where technology is being evaluated:** Tharawada village in Bhuj district (Gujarat) India.
- 3. Number of people approximately being served by the technology:** 1200
- 4. Since when it is in operation?** 2006
- 5. Who Designed / Planned and who implemented / constructed the technology?**
- 6. :** A 5 member committee. Mr. Manshukhbhai, Mr. Welgibhai Arjunbhai Chabeaya and Mr. Babubhai Patel, Mr. Memabhai, Mr. Narayan Bhai Teja.
- 7. Who is taking care of the technology now?** Committee known as ‘*Pani Samiti*’.
- 8. Are there any standards available which need to be fulfilled by the technology? If yes which?** Equal distribution of good quality underground water.
- 9. Are operations and maintenance data records available?** Yes (Approximately 500 liters daily water supply per house. The quality of water has always been good in this area. This technology puts more emphasis on the quantity i.e. equal distribution to all which was a problem issue here earlier due to its uneven topography. The quality as such is good and has never been a problem issue.)
- 10. Please provide a brief summary of the history/evolution of this technology in the selected case study:**

It lies at a distance of 70 kms from Bhuj with a population of one thousand people mainly consisting of Patels. Rest of the people belongs to Rebari, Brahmins and Sc/St community. The government had started supplying water way back in 1958. It was among the first villages in the area to get water supply. But this area on account of uneven topography suffered from similar problems in water supply, that is, the water did not reach the upper parts. After the successful implementation of ‘**Ń**’ tube system in the Varli village, the people of this village too conducted a meeting and decided to adopt the

same technology and formed a committee for the same. But except the Patel community the other people disagreed on the idea of collection of money. Actually, according to the government policy, water was supplied on minimal charges of Rs. 14 per year per person. But people did not deposit that small amount too and slowly developed the habit of getting water free of cost. Thus, except the Patel community, rest of the people was averse to the idea of collection of money even overlooking the enormous benefits of 'n' tube system. So this idea has been implemented in the colonies where Patel population lives. 10 'n' tubes have been installed in their colonies. As per the Varli village pattern, a water tank has been built near the bore in the village so that in case of no electricity water can be supplied with the help of pressure. Thus, there were total 10 'n' tubes have been set up in the village. A total of Rs.90, 000 was thus collected from the villagers with 200 rupees per person. Overall, the total cost of the project amounted to Rs. 7.50 lakhs. On account of its limited implementation, it has been termed as a case of failure case study.

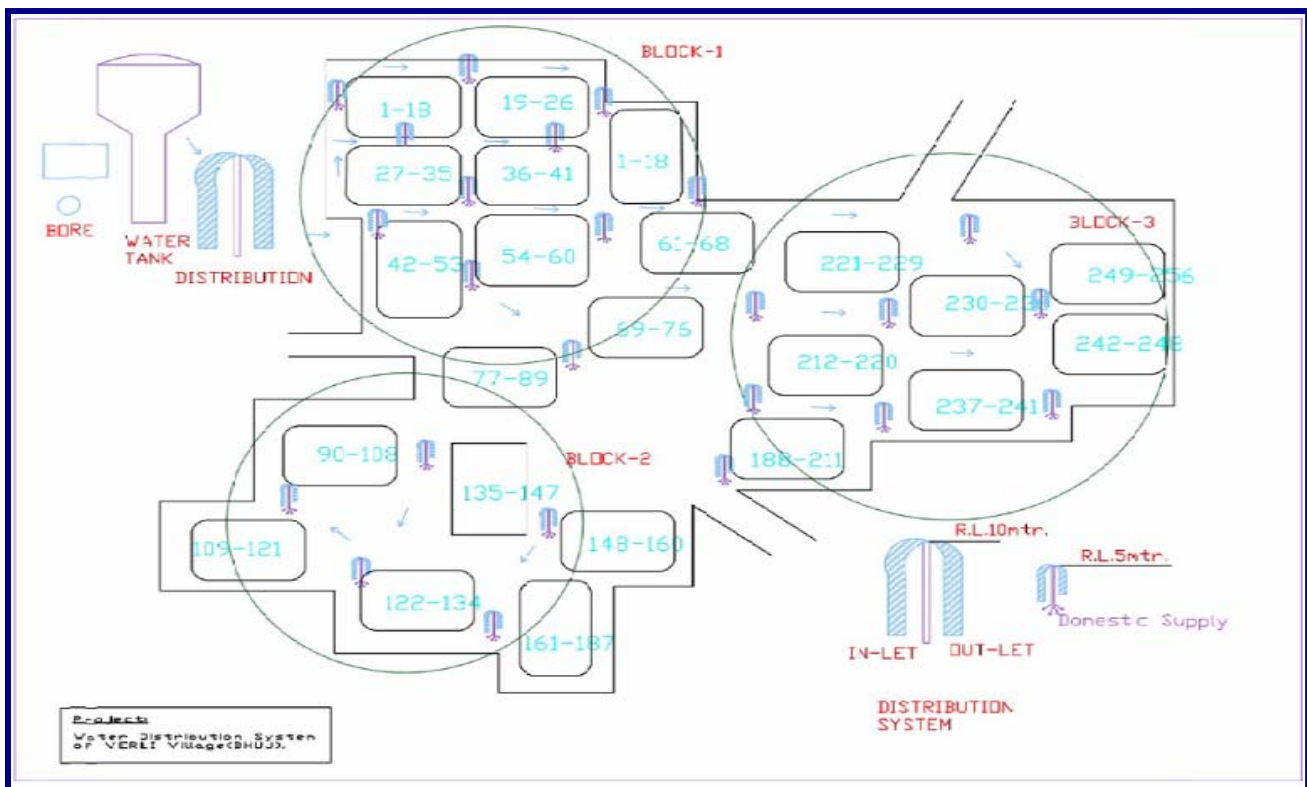


Fig.1: Lay-out of water distribution system in Tharawada (Bhuj District).

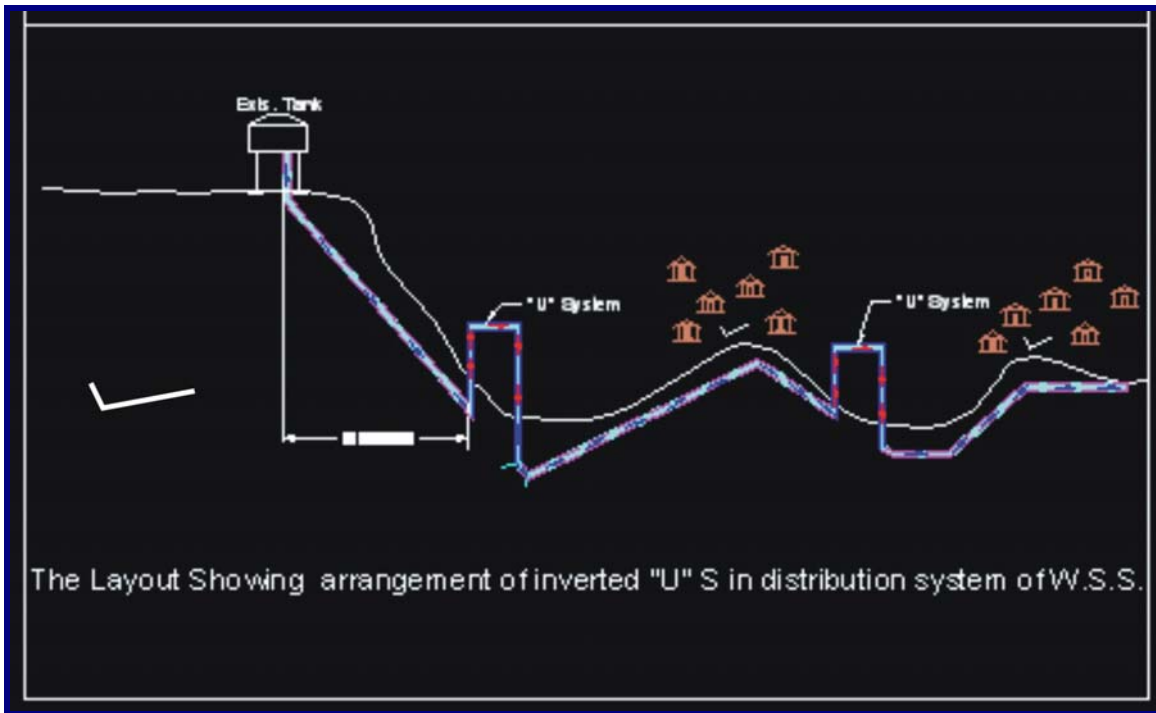


Fig.2: Lay-out of water distribution system in Tharawada (Bhuj District).

Step 2 – Evaluation

Date of visit: August 26th to September 1st, 2008.

Name of the expert(s) making the visit: Dr Suboodh Kumar Bishnoi

1. Preliminary performance indicators for accessing whether the intended direct benefits have been fulfilled:

Intended Benefit	Indicator	Method of Verification
Saves electricity (It takes just six hours to supply water to the whole village compared to the earlier 16 hours thus, saving 10 and half hours of electricity).	Lesser time spent in supplying water (Although there is no electricity meter because government provides electricity free of charge but lesser time spent means lesser	

	electricity burnt while the motor runs)	
Equal distribution of water to each household.	Water pressure Discharge (l/h) Time of water supply	Filling time for 10 lit tanks at each household.
Technical functioning	Performance in last 2 years	Experts visit
Acceptance by local community	How much water he is getting ever and got never	

Unintended Benefit	Indicator	Method of verification
Family health improvement	Less water borne diseases due to better quality of water	
Lesser disputes among villagers leading to a more cordial environment.		
Ecologically beneficial as ground water level has come up	After the implementation of 'n' tube system, water table has been raised.	



2. Results of Assessment:




Intended Benefit	Indicator	Fulfilled Yes/no	Comments (with reference to the used indicators)
Equal distribution of water to each household		Yes	Approximately it takes around a minute to fill 10 ltrs. Bucket
Technical functioning	Yes		System is working extremely well irrespective of minor cases of pipe

			leakages, etc.
Acceptance by the local community	Yes		Users are mainly satisfied with the system and consider it a success.
Water conservation		Yes	Initially water was supplied about 16 h/day as compare with new system in which supply only 6 h/ day
Energy saving		Yes	Electricity bill were not available because it is government policy to free electricity supply, but compare to 16 h/day water supply there are only 6 h/day.
Less mosquito breeding		Yes	



Comments from the local peoples:

User Group	Results/ Comments
<p>1. Mr. Maramsi Krishanbhai Dhoru (57 Years)</p> 	<p>We are facing water problem. Proper water supply is limited to certain group of people. If any system likes Varli water Committee can be applied in our village than we can have sufficient water supply.</p>
<p>2. Mr. Praveen Samjibhai Bhagat (45 Years, 'n' system operator)</p>	<p>We are getting sufficient water due to this technology. But our village water is full of <i>Jhar</i> so a technology which can purify the water is needed so that the villagers can get pure water and there will be lesser diseases. Also there is insufficient water storage in the village so storage tank is to be made in village so that village people can get sufficient water in timely basis.</p>
<p>3. Mr. Velabhai Ramabhai (50 Years)</p>	<p>We have lots of problem in water supply. Water supply is not on equal basis and proper water is not available to everyone. Some people are getting good water supply whereas others are facing problems.</p>
<p>4. Mr. Mansukhbhai Ramjibhai (20 Years)</p> 	<p>Our Water problem can be solved if water is supplied without any discrimination and on equal basis.</p>
<p>5. Mr. Welgibhai Arjunbhai Chabeaya (70 years)</p>	<p>It would have been better if the whole village could have adopted this beneficial system from comprehensive development of village. Then we could have approached other related developmental issues like sanitation scheme in Varli village.</p>

	
<p>6. Mr. Govindbhai Bhachhi (45 Years)</p>	<p>Our village is having water problem. We were facing inadequate supply of water and also water was impure which used to spreading of various diseases but after adopting this technology our colony has changed for the better.</p>
<p>7. Mr. Babubhai Patel (49 Years) <i>Sarpanch</i> and Chairman of <i>'Pani Samiti'</i></p> 	<p>In our village, the colonies situated in the vicinity of 'n' system are getting sufficient water but other places away from the 'n' system are facing water problem.</p>
<p>8. Mr. Narayan Bhai Teja (60 Years)</p> 	<p>This system has improved the water scene in the village. It saves both water and electricity. Although we have water supply by the govt. too in our village but it does not work properly. I would be happier if the whole village could go for this technology like in the case of Varli village.</p>


Summary of User Perceptions


Both Individual Interviews and group Discussions


Questions (Q):

(Group 1):-

S. No.	User Name	Questions	Results/ Comments
1.	Mr. Praveen Samjibhai Bhagat (45 Years, Operator of 'n' system)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, it is a good thing for this village.
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Our village water is full of <i>Jhar</i> so a technology which can purify the water is needed so that the villagers can get pure water and there will be lesser diseases. Also there is insufficient water storage in the village so storage tank is to be made in village so that village people can get sufficient water in timely basis.


		Q5: Do you have equal access and pay a fair price?	Everybody has equal access and is supposed to pay Rs.5/month which is quite fair.
		Q6: Are you aware of any misuse of the service?	Few instances of misuse have been observed and in that case a warning is issued to the first timer. In case of repetition a fine is imposed and finally the connection is cut if still no heed is paid.
2.	Mr. Welgibhai Arjunbhai Chabeaya (70 years)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, but I still advocate for the whole village to adopt this.
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Govt. should fund more money to compensate for poor families.
		Q5: Do you have equal access and pay a fair price?	Yes, but I think not everybody thinks it is a fair price.
		Q6: Are you aware of any misuse of the service?	No
3.		Mr. Govindbhai	Q1: Are You Happy with the technology? IF Yes why, if no why


	Bhachhi (45 Years)	not?	colony a better place to live in.
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	It is okay
		Q5: Do you have equal access and pay a fair price?	Yes to both
		Q6: Are you aware of any misuse of the service?	No
4.	Mr. Babubhai Patel (49 Years) <i>Sarpanch</i> and Chairman of <i>'Pani Samiti'</i>	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, it is an extremely beneficial and tested technology.
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Being a <i>sarpanch</i> , I would be happier for the village if Govt. could provide 100 % funding.
		Q5: Do you have equal access and pay a fair price?	Yes
		Q6: Are you aware of any misuse of the service?	No misuse. In case of misuse there are certain punishments to keep

			away people from misusing.
5.	<p>Mr. Narayan Bhai Teja (60 Years)</p> 	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, it is a good technology.
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	It should be adopted by the whole village so that all could get sufficient enough water and also precious water could be saved from going waste.
		Q5: Do you have equal access and pay a fair price?	Yes
		Q6: Are you aware of any misuse of the service?	No
6.	<p>Mr. Dalipbhai Patel (39 years)</p>	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes
		Q2: Are you using the technology (regularly)?	Yes
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	No, but I sometimes find it expensive.
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Should be more cost friendly considering all sections of society.

		Q5: Do you have equal access and pay a fair price?	Yes, price could be lowered at least for some time.
		Q6: Are you aware of any misuse of the service?	No

(Group 2):-

1.	Mr. Mansukhbhai Ramjibhai (20 Years)		Q1: Are You Happy with the technology? IF Yes why, if no why not?	No
			Q2: Are you using the technology (regularly)?	No
			Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	It is discriminating in nature
			Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Should be more cost friendly and more responsive to people who can not even afford to pay a seemingly minor amount.
			Q5: Do you have equal access and pay a fair price?	No
			Q6: Are you aware of any misuse of the service?	No
2.	Mr. Velabhai Ramabhai (50 Years)		Q1: Are You Happy with the technology? IF Yes why, if no why not?	No, I am not.
			Q2: Are you using the technology (regularly)?	No
			Q3: Is there anything which may prevent you from using the	Cost factor

		technology (regularly), if yes what?	
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	It looks like it is meant only for one community.
		Q5: Do you have equal access and pay a fair price?	Poor people do not have access to it
		Q6: Are you aware of any misuse of the service?	Not aware since I am not using it.
3.	Mr. Maramsi Krishanbhai Dhoru (57 Years) 	Q1: Are You Happy with the technology? If Yes why, if no why not?	It would have been better for the overall development of the village if like Varli the plan could have been implemented for whole of the village
		Q2: Are you using the technology (regularly)?	No
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	Cost factor
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	It would have been a better idea to charge people according to their economic status. A better off person can compensate for the loss incurred in case of a poor family not in a position to pay.
		Q5: Do you have equal access and pay a fair price?	No

		Q6: Are you aware of any misuse of the service?	No idea
4.	Mr. Rajeshbhai Rebari (31 Years)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	No
		Q2: Are you using the technology (regularly)?	No
		Q3: Is there anything which may prevent you from using the technology (regularly), if yes what?	Economic condition of family.
		Q4: Is there anything which you may not like with the technology or which could be improved (if yes, what and how)?	Cost factor.
		Q5: Do you have equal access and pay a fair price?	NA
		Q6: Are you aware of any misuse of the service?	NA