Project: ANTINOMOS

Report on Indigenous Technologies

Case No: 4

Step 1 – Description

Name of Technology to be evaluated: Under ground sanitation system.

Location where technology is being evaluated: Hadmatiya Village (Taluka-Gadhara, District-Bhawnagar).

Number of people approximately being served by the technology: 2200 Since when it is in operation? 2002.

Who Designed / Planned and who implemented / constructed the technology?

: Mr. Chhaganbhai D. Dhola (Gram Panchayat Sarpanch, Hadmatiya), Mr. Mansukha Lal Pandit and Mr. Omkarbhai Giri, three members committee designed the sanitation system on the bases of Vikaliya village.

Who is taking care of the technology now? Village Development Committee. Are there any standards available which need to be fulfilled by the technology?

If yes which? Sanitation.

Are operations and maintenance data records available? Yes.

Please provide a brief summary of the history/evolution of this technology in the selected case study:

Due to the rocky structure, this area suffered from low level of water percolation as a result of which the streets used to permanently remain muddy as all the water from the domestic use was channeled out in the street by all the households and as a result the need of underground drainage system was felt. After the success story of such a system in a nearby village, Vikaliya, people of Hadmitya too decided to opt for community participation in this regard. The idea was executed successfully in 2002 and the system has been running without any hitches so far and people are quite proud and happy about their community participation venture. The people had collected Rs. 1000 per household. Nearly 60% of the households have adopted while on the other side are the rest of 40% who cannot avail this facility because of their weak financial position and are waiting for the govt. to help them out in this case. They have to go out far away from the village to answer the nature's call which is particularly problematic in monsoon season or at nights and for women. This place becomes swampy after some time and is mosquito infested leading to spread of diseases. There was also this case of one poor woman with very small kid who cannot afford to go out the whole day because her husband goes out to work and she can't leave the child alone.



(A). Latrine in the house.

(B). Septic tank in the street out side house.



(C). Sewage outlet out side the village.

Date of visit: September 26th to September 29th, 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
Sanitation facilities	No more muddy mosquito	
	ridden streets and	
	construction of latrines in	
	the houses	
Technical functioning	Performance in last 6 years	Experts visit
Acceptance by local		
community		

Unintended Benefit	Indicator	Method of verification
Family health improvement	Less water borne diseases due to the absence of domestic use waste water	
Lesser disputes among villagers leading to a more cordial environment.		
Ecologically beneficial as ground water level has come up		

2. Results of Assessment:

Intended Benefit	Indicator	Fulfilled	Comments (with reference to the used
		Yes/no	indicators)
Sanitation		Yes	
Technical	Yes		System is working extremely well
functioning			irrespective of minor cases of pipe
			leakages, etc.
Acceptance by the	Yes		Users are mainly satisfied with the
local community			system and consider it a success.
Water		Yes	
conservation			
Less mosquito		Yes	
breeding			

Comments from the local peoples:

User Group	Results/ Comments
1. Smt. Rakhuben	We are facing a lot many problems due to unavailability
Manubhai (28 Years)	of any proper disposal system. Due to lack of proper
the the set	place to do it, we have to manage a lot when there is a
	nature's call in the middle of the night, which might
	sometimes could land us in a difficult situation. Our
	financial condition is weak at this time. We don't even
	have money to reconstruct our house-wall, which had
	collapsed during monsoon. We have lot of expectations
	from the government to help us out in this situation of
	crisis.
2. Mr. Omkarbhai Giri	Situations when there were no toilets:
(50Years)	Had to go out for nature's call. Faced problems during midnights, during rainy season. Untimely disposal could
	even lead to certain diseases. But now we are relieved.
	After construction of a toilet in our house, we are
	comforted and don't find anymore problems.

3. Mrs. Rekhaben	Our monthly income is Do 1500 only. Our financial
Dhirubhai (55	Our monthly income is Rs 1500 only. Our financial conditions being weak we find it to difficult to construct a toilet of our own. We have to go out for the nature's
Years)	call. At times of monsoon and during midnights we find it even more dangerous to go out for it. We are ready to construct a toilet if provided with a help from the government.
4. Mr. Kishorbhai Pandit (37 Years) (9925406640)	Situations before the availability of toilets: Were required to go far away for it, where the place would be mucky/swampy providing a refuge to lots of mosquitoes; leading to spread of contagious diseases; this was also quite inconvenient for the women kind to go out for it after the sunset.
5. Mr. Chhaganbhai D. Dhola (48 Years)	There were problems before construction of sewage pipes. Outskirts of the village were covered with lots of waste. Now that the sewage pipes and the in-house toilets having been constructed, our problems are
('Gram Panchayat Sarpanch', Hadmatiya)	toilets having been constructed, our problems are now sorted out and cleanliness could be maintained now
(09925707202)	now.
6. Mr. Mansukha Lal Pandit (63 years)	Before the toilets were constructed, we were required to go out. Untimely disposal could even lead to certain diseases. But now we are relieved.

7. Mr Hamabhai Boliya (Maldar family) (70 Years)	We don't have toilet in our house, so our family faces a lot many problems. We are forced to go out and situations become even worse during monsoons. There is no fixed time for it. There are chances of various diseases, which might be caused due to being in contact with dirty/swampy place. We cannot afford to construct a toilet since our family income is very low. Hence we need some help relating to this matter.
8. Mr. Damjibhai	At a time when there were no toilets in our village, we
Monjibhai Gujarati (34	were forced to move over far-far distance towards the
Years)	outskirts of the village in order to address the nature's
	call. Due to the place being poachy/ swampy, it was a house to a large number of disease causing mosquitoes/insects. But now that the toilets have been constructed, we are almost relieved since the cleanliness in the village can now be maintained.

Summary of User Perceptions

Both Individual Interviews and group Discussions

Questions (Q):

(Group 1):-

S.	User Name	Questions	Results/ Comments
No.			
1.	Mr. Omkarbhai Giri (50 Years)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, earlier we had to go out for nature's call and faced problems during midnights, during rainy season. Untimely disposal could even lead to certain diseases. But now we are relieved. After construction of a toilet in our house, we are happy.
		Q2: Are you using the technology	Yes
		(regularly)?	
		Q3: Is there anything which may	No
		prevent you from using the	
		technology (regularly), if yes what?	
		Q4: Is there anything which you may	No.
		not like with the technology or which	
		could be improved (if yes, what and	
		how)?	
		Q5: Do you have equal access and	We were only charged
		pay a fair price?	initially and now in case
			of any damage/choking
			we will be charged.
		Q6: Are you aware of any misuse of the service?	No

2.	Mr. Chhaganbhai D. Dhola (48 Years) (<i>'Gram</i> <i>Panchayat</i> <i>Sarpanch'</i> , Hadmatiya)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, it has benefited all who have adopted it. There were problems before construction of sewage pipes. Outskirts of the village were covered with lots of waste. Now that the sewage pipes and the in- house toilets having been constructed, our problems are now sorted out and cleanliness is
		Q2: Are you using the technology (regularly)? Q3: Is there anything which may	maintained now. Yes No
		prevent you from using the 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)?	Govt. should fund more money to compensate for poor families.
		Q5: Do you have equal access and pay a fair price? Q6: Are you aware of any misuse of the service?	Yes, but I think not everybody can afford it. No
3.	Mr. Kishorbhai Pandit (37 Years) (9925406640)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes, it has changed our lives for the better. We were required to go far away for it, where the place would be mucky/swampy providing a refuge to lots of mosquitoes;

		Q2: Are you using the technology (regularly)?	leading to spread of contagious diseases; this was also quite inconvenient for the women kind to go out for it after the sunset. 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	No but hygiene can only be maintained when
		how)? Q5: Do you have equal access and pay a fair price?	whole village adopts it. Yes to both
		Q6: Are you aware of any misuse of the service?	No
L	Ar. Mansukha al Pandit (63 ears)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	Yes. Before the toilets were constructed, we were required to go out. Untimely disposal could even lead to certain diseases. But now we are relieved.
		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	If the whole village comes together and

		how)?	govt. helps we wish to
			get a sewerage treatment
			plant in our village.
		Q5: Do you have equal access and	Yes
		pay a fair price?	
		Q6: Are you aware of any misuse of	No
		the service?	
5.	Mr. Damjibhai	Q1: Are You Happy with the	Yes, it is a good
	Monjibhai	technology? IF Yes why, if no why	technology. Earlier, we were forced to go
	Gujarati (34	not?	towards the swampy
	Years)		insect ridden outskirts of
			the village in order to address the nature's call.
			But now that the toilets
	The 200		have been constructed,
			the cleanliness in the village can now be
			maintained.
		Q2: Are you using the technology	Yes
		(regularly)?	
		Q3: Is there anything which may	No
		prevent you from using the	
		technology (regularly), if yes what?	
		Q4: Is there anything which you may	It has made people more
		not like with the technology or which	cleanliness conscious
		could be improved (if yes, what and	and willing to participate
		how)?	in community works.
		Q5: Do you have equal access and	Yes
		pay a fair price?	
		Q6: Are you aware of any misuse of	No
		the service?	

(Group 2):-

1.	Smt. Rakhuben Manubhai (28 Years)	Q1: Are You Happy with the technology? IF Yes why, if no why not?	We are facing a lot many problems due to unavailability of any proper disposal system. Particularly at night which might sometimes could land us in a difficult situation. Our financial condition is weak at this time. We don't even have money to reconstruct our house-
		Q2: Are you using the technology	wall, which had collapsed during monsoon.
		(regularly)?	Cost foster Othering
		Q3: Is there anything which may	Cost factor. Otherwise who
		prevent you from using the technology (regularly), if yes what?	would not wish for a proper toilet in house.
		Q4: Is there anything which you	We have lot of expectations
		may not like with the technology	from the government to help
		or which could be improved (if	us out in this situation of
		yes, what and how)?	crisis.
		Q5: Do you have equal access and	No
		pay a fair price?	
		Q6: Are you aware of any misuse	No idea.
		of the service?	
2.	Mrs. Rekhaben	Q1: Are You Happy with the	Our monthly income is Rs
	Dhirubhai (55	technology? IF Yes why, if no	1500 only. Our financial
	Years)	why not?	conditions are very weak .At
			times of monsoon and
			during midnights we find it

Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yes what?Cost factorQ4: 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 of for well off. We are read construct a toilet if provi with a help from government.Q5: Do you have equal access and pay a fair price?Poor people do not h access to itQ6: Are you aware of any misuse of the service?Not aware since I am using it.			even more dangerous to go out for toilet.
3. Mr Hamabhai Q1: Are You Happy with the technology? If Yes why, if no why family) (70 Years) Q1: Are you using the technology We don't have toilet in o house. We are forced to go ut and situations become ven worse during monsoons. There are chances of various diseas which might be caused di to being in contact with dirty/? Q2: Are you using the technology Q2: Are you using the technology No Q2: Are you using the technology No Q2: Are you using the technology No Q3: Is there anything which may pay fair price? No Q3: Is there anything with the technology (regularly)? Q3: Is there anything which may provent you from using the technology (regularly), if yes		02. Are you using the technology	
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 looks like it is meant of for well off. We are read construct a toilet if provi- with a help from government. Q5: Do you have equal access and pay a fair price? Poor people do not h access to it Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g out and situations becom even worse during monsoons. There are chances of various diseas which might be caused du to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor			
3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g or which could be improved (if yes, what and how)? We don't have toilet in o house equal access and pay a fair price? 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g out and situations becom even worse during monsoons. There are chances of various diseas which might be caused du to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor			Cost factor
3. Mr Hamabhai Boliya (Maldar family) (70 Years) Image: Note the control of the service? Image: Note the control of the service? <td< th=""><th></th><th></th><th>Cost factor</th></td<>			Cost factor
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 of for well off. We are read construct a toilet if provision with a help from government. Q5: Do you have equal access and pay a fair price? Poor people do not haccess to it Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to go out and situations become even worse during monsoons. There are chances of various diseas which might be caused di to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor			
and the service?for well off. We are read construct a toilet if provious with a help from government.3.Mr Hamabhai Boliya (Maldar family) (70 Years)Q1: Are You Happy with the technology? If Yes why, if no why not?Not aware since I am using it.3.Q2: Are you using the technology (regularly)?Q2: Are you using the technology (regularly), if yesNotQ3: Is there anything which may prevent you from using the technology (regularly), if yesNot			
or which could be improved (if yes, what and how)?construct a toilet if provi with a help from government.Q5: Do you have equal access and pay a fair price?Poor people do not h access to itQ6: Are you aware of any misuse of the service?Not aware since I am using it.3.Mr Hamabhai Boliya (Maldar family) (70 Years)Q1: Are You Happy with the technology? If Yes why, if no why not?We don't have toilet in o house. We are forced to g out and situations become even worse during monsoons. There are chances of various diseas which might be caused d to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may revent you from using the technology (regularly), if yesCost factor		Q4: Is there anything which you	It looks like it is meant only
yes, what and how)? with a help from government. Q5: Do you have equal access and pay a fair price? Poor people do not h access to it Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g out and situations become even worse during monsoons. There are chances of various diseas which might be caused dt to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? Q3: Is there anything which may prevent you from using the technology (regularly), if yes		may not like with the technology	for well off. We are ready to
yes, what and how)? with a help from government. Q5: Do you have equal access and pay a fair price? Poor people do not he access to it Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to go ut and situations become even worse during monsoons. There are chances of various diseas which might be caused do to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor		or which could be improved (if	construct a toilet if provided
Q5: Do you have equal access and pay a fair price? Poor people do not h access to it Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g out and situations become even worse during monsoons. There are chances of various diseas which might be caused dt to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? Q3: Is there anything which may prevent you from using the technology (regularly), if yes		yes, what and how)?	-
3. Mr Hamabhai Boliya (Maldar family) (70 Years) Image: Construct of the service of the servic			government.
Q6: Are you aware of any misuse of the service? Not aware since I am using it. 3. Mr Hamabhai Boliya (Maldar family) (70 Years) Q1: Are You Happy with the technology? If Yes why, if no why not? We don't have toilet in o house. We are forced to g out and situations becom- even worse during monsoons. There are chances of various diseas which might be caused d to being in contact with dirty/swampy place. Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor		Q5: Do you have equal access and	Poor people do not have
of the service?using it.3.Mr Hamabhai Boliya (Maldar family) (70 Years)Q1: Are You Happy with the technology? If Yes why, if no why not?We don't have toilet in o house. We are forced to go out and situations become even worse during monsoons. There are chances of various diseas which might be caused di to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yesCost factor		pay a fair price?	access to it
3.Mr Hamabhai Boliya (Maldar family) (70 Years)Q1: Are You Happy with the technology? If Yes why, if no why not?We don't have toilet in o house. We are forced to g out and situations become even worse during monsoons. There are chances of various diseas which might be caused di to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yesCost factor		Q6: Are you aware of any misuse	Not aware since I am not
Boliya (Maldar family) (70 Years)technology? If Yes why, if no why not?house. We are forced to go out and situations become even worse during monsoons. There are chances of various diseas which might be caused du to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yesCost factor		of the service?	using it.
Bollya (Maldar family) (70 Years)technology : If res wily, if no wily not?out and situations become even worse during monsoons. There are chances of various diseas which might be caused di to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yesCost factor	3. Mr Hamabhai	Q1: Are You Happy with the	We don't have toilet in our
family) (70 Years)not?even worse during monsoons. There are chances of various diseas which might be caused du to being in contact with dirty/swampy place.Q2: Are you using the technology (regularly)?NoQ3: Is there anything which may prevent you from using the technology (regularly), if yesCost factor	Boliya (Maldar	technology? If Yes why, if no why	Ū.
Years) Years) Years) Provide the set of various diseases which might be caused do to being in contact with dirty/swampy place. Provide the set of various diseases which might be caused do to being in contact with dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may dirty/swampy place. Provide the set of various diseases which may diseases which may distance the set of various diseases diseases diseases diseases distance the set of various diseases	family) (70	not?	
Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor	Years)		
Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor			
Q2: Are you using the technology (regularly)? No Q3: Is there anything which may prevent you from using the technology (regularly), if yes Cost factor			-
(regularly)? Q3: Is there anything which may prevent you from using the technology (regularly), if yes			dirty/swampy place.
Q3: Is there anything which may Cost factor prevent you from using the technology (regularly), if yes		Q2: Are you using the technology	No
prevent you from using the technology (regularly), if yes		(regularly)?	
technology (regularly), if yes		Q3: Is there anything which may	Cost factor
		prevent you from using the	
what?		technology (regularly), if yes	
		what?	

Q4: Is there anything which you	It would have been a better
may not like with the technology	idea to charge people
or which could be improved (if	according to their economic
yes, what and how)?	status. A better off person
	can compensate for the loss
	incurred in case of a poor
	family not in a position to
	pay. We cannot afford to
	construct a toilet since our
	family income is very low.
	Hence we need some help
	relating to this matter.
Q5: Do you have equal access and	No
pay a fair price?	
Q6: Are you aware of any misuse	No idea
of the service?	