IMPACT ASSESSMENT OF TCSRD'S AGRICULTURAL, WATERSHED AND WATER RESOURCE MANAGEMENT PROJECTS ON THE LIVELIHOOD OF FARMERS IN THE OKHAMANDAL TALUKA

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EXECUTIVE SUMMARY

The report is divided into two parts: **(1)** examining the impact of TCSRD's agricultural, watershed and water resource management projects on the livelihood of farmers in the Okhamandal Taluka and **(2)** recommendations that have developed out of the research and data collected from the field work.

The purpose of the project is to measure the effectiveness and overall impact of the TCSRD interventions on the farmers in the surrounding villages of the Mithapur Township (in the Okhamandal Taluka), focusing specifically on TCSRD's agricultural, watershed and water resource management projects.

The area of study (Okhamandal Taluka) is a remote, resource poor and water scarce area in the Jamnagar District of Gujarat State. The villages that surround the Mithapur Township are generally poor, underdeveloped with a low literacy rate where the majority of the citizens depend on farming for their livelihood.

Adverse conditions such as frequent drought, saline nature of the soil, inadequate electrical power supply, continuous irrigation using poor quality water, inherent salinity due to geological formation of land, crop damage by wild animals and rapid spread of the exotic Prosopis juliflora (Gando Babul) bush are the problems affecting agriculture.

In response to such adverse conditions, TCSRD have over the years invested a considerable amount of money and time attempting to achieve successful sustainable development in this area especially with regards to agricultural livelihood. As such, it is important to review such projects to understand not only their impact but also to assess how sustainable such projects are and whether there are areas that need improving or require further development.

The quantitative data collected in this report largely supports the data that has previously been collected by TCSRD, reaffirming that both in the short and long term TCSRD's project are having a positive and even life changing impact on farmers in the surrounding villages of the Okhamandal Taluka. Through both the data collected and the author's observations, it is evident that TCSRD's projects and presence in the area has not only led to the successful development of the farmers' livelihood but has begun to provide the infrastructure required to achieve long term sustainability.

Sustainability is a key area that must be included in the livelihood discussion and should form a central part of the livelihood concept. Although the term sustainability may often not be directly referred to in TCSRD documents or procedures, it was clear that its importance was fully understood and accounted for the in the projects and interventions.

This report concludes that current TCSRD's projects are clearly aimed at achieving a future self-sustainability but that this will inevitably be a slow process that not only

requires huge investment but also change in the behavior of farmers and in the style of interaction currently taking place between TCSRD and the farmers; something that has definitely been recognized by TCSRD management.

The recommendations made in this report are all focused on the issue of sustainability, attempting to bridge certain information and communication gaps that exist in the relationship between TCSRD and the farmers but also the current information gaps that exist between the farmers themselves.

The proposer hopes such recommendations will be considered and included in future TCSRD plans.

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Tata International Social Entrepreneurship Scheme

TISES is an "innovative student internship programme" launched in 2007 by the TATA Group. Partnering with leading Universities; University of Cambridge, the University of California, Berkeley, and the London School of Economics, TATA ISES offers' students the opportunity to work on social entrepreneurship and corporate social responsibility projects within the Tata Group of Companies in India

Spanning over a two month period between the beginning July to the end of August, students are given the opportunity to both observe but also participate in different corporate sustainability projects of Tata companies in India.

TISES offers students' a unique grass-root level exposure to different areas of India" and how a corporate company as large as the TATA Group effectively manage their CSR activities. Entering the project with an international perspective and semi-objective understanding of both TATA and its CSR activities, the students provide a dimension of understanding that may not currently exist within the TATA companies.

The internship is meant to challenge the student, exposing them to a range of vastly different environments both at rural and city level. Not only will students have to cope with the language barriers but will also have the opportunity to experience a different culture both at the working level and in their general day-to-day living environment.

Tata Chemicals Society for Rural Development

Livelihood sustainability including the practice of corporate social responsibility lie at the core of what Tata Chemicals Society for Rural Development (TCSRD) does and endeavors to achieve. Intervening at community level in order to change the lives of people that live in the villages that surround the TCL factories, TCSRD engages in a plethora of community projects including Self Help groups to the funding and installing of water harvesting systems.

> ***"TCSRD believes that sustainable community development ensures a better quality of life now, as well as for future generations"***

TCSRD look to not only improve the current livelihoods and needs of the present community but also endeavors to develop sustainable practices that address the development needs of future generations.

Knowledge is the key element that TCSRD offers to the surrounding communities. This includes knowledge of new methods of agriculture, better management of land and water resources, social and human capital management, and other tools of empowerment.

History

Established in Mithapur in 1980, TCSRD emerged out of the need to "engage, understand and address" the requirements of villages that surround the TCL township. Such project was eventually established in Babrala and Haldia.

TCSRD started its work by following a traditional philanthropy and welfare approach. It has since been continuously evolving, changing according to the needs of the people and the changing times. Today TCSRD is anchored to the concept of sustainability and this is reflected in all its activities and programmes.

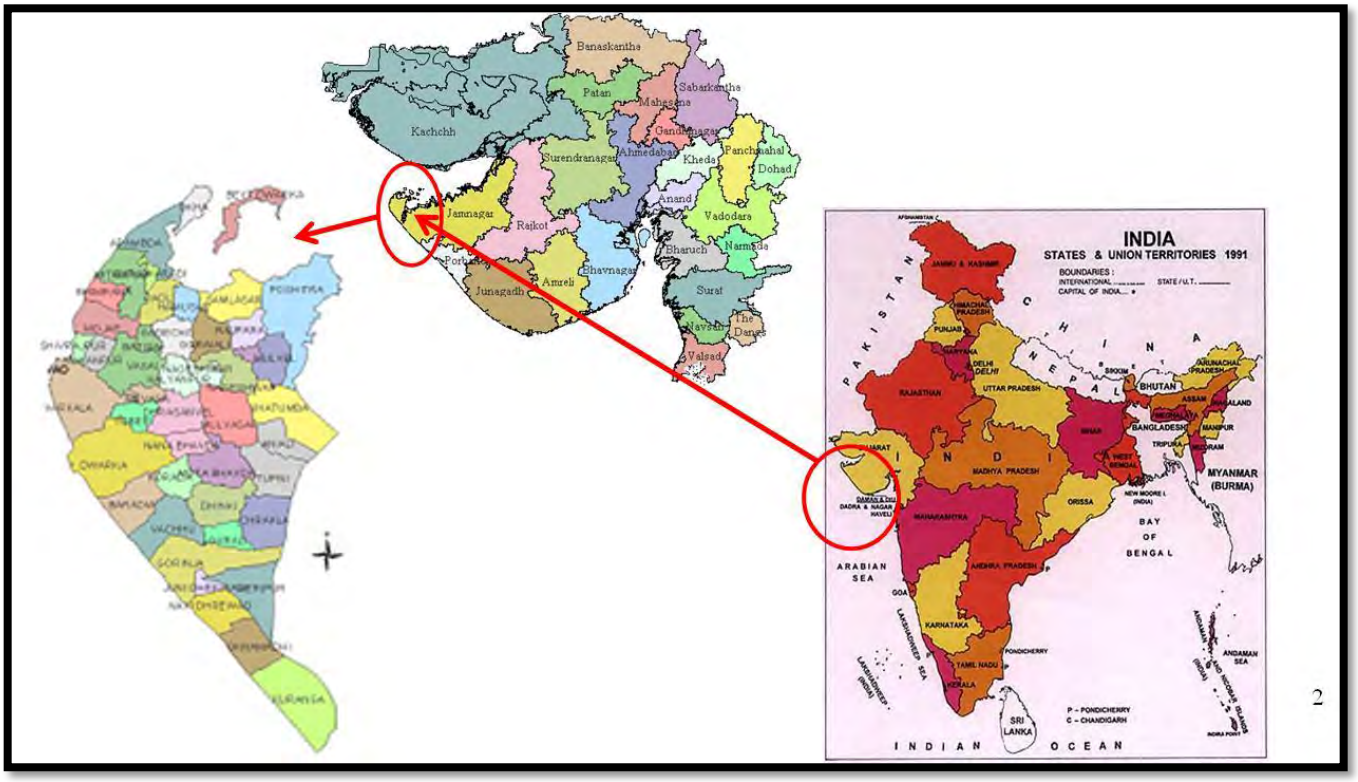
Source: http://www.tatachemicals.com/sustainability/TCSRD.htm

Project

This report is an impact assessment of TCSRD's Agriculture, Watershed and Water Resource Management projects on the livelihood of farmers in the Okhamandal Taulka.

Data collection

A sample size of 60-70 farmers was originally going to be collected with 3-4 field staff carrying out a questionnaire. However, after the initial questionnaires were administered, it was apparent that the data collected had lost much of its meaning due to both the nature of the questions asked (which required cross-questioning) but also during translation (both from English to Gujarat and back again from Gujarat to English). As such, I decided to personally administer each questionnaire using a translator and due to time constraints, instead of interviewing individual farmers I held focus groups. Whilst the nature of the questions asked followed a similar format to the original questionnaire designed, the style of surveying was less formulaic and more conversational based.



Map of the Okhamandal Area

The following villages were used in the data collection:

- Ghadechi
- Mojap
- Goryali
- Nageshawara
- Dwarka
- Ragasr
- Ladwar
- Dwarka
- Varvala
- Shivrajpur
- Rajpar

Whilst the original interviews were structured around the questionnaire, the focus groups were more free-flowing in order to engage each farmer and to explore new questions and issues. The results of the first focus group were used to construct a more structured approach to the second focus group, although once again, there was room for a more flexible approach to data gathering in these situations.

N.B. All responses were recorded daily in field notes, both written and voice recorded and built upon to improve and provide focus for subsequent interviews.

Limitations

Translation problems

All interviews were conducted in Gujarati and conveyed in English to a TCSRD employee who translated it into Hindi to the interviewer who then translated it into Gujarati.

In the preliminary field visits, the translator would change day to day and there would be inconsistency in the information recorded. For example, whilst one translator may have been particularly well versed in the English language, their knowledge of the project may have been limited and as such the information they would report back would lack explanation or background detail, sometimes proving it difficult to understand the information without context. On the other hand, the person with the most knowledge on a topic may not be as well versed in the English language and as such proving equally to create barriers to understanding.

Inaccuracy of Responders

The presence of an outsider sometimes created suspicion amongst farmers to the motive of the survey etc, and as such the answers to some of the questions especially relating to income may have not been fully accurate. Furthermore, due to the questionnaire's more qualitative style, many of the questions contained nuances that when translated may

either be lost or not exist in direct translation. As such, much of the time, cross-questioning was needed and there was little to guarantee that the answers directly corresponded with the question.

Length of intervention

Many of the interventions were less than a year old, especially the creation of farmer groups. As such, the long term impact of the intervention may not have been realised as of yet. However, the results attempt to take this into account and in some cases forecasts have been developed. Furthermore, whilst some interventions may be a year old, due to the drought season, many of the interventions have not materialised. This was particularly true with the ground nuts that were sold to farmers at a lower rate but that could not be sowed as of yet.

Impact of individual project

Many farmers were benefiting from more than one TCSRD intervention and as such it is difficult to isolate the benefits of each particular intervention. More specifically, most positive developments in the livelihood of farmers should be considered as a culmination of many factors working together e.g. optimal weather conditions alongside effective outside interventions.

Action plan

1 week	• Initial research into all TCSRD activities including field visits
1 week	• Focus on agriculture and water resource management projects. Initial field visits and understanding of issues facing farmers in surrounding villages
2 weeks	• Data Collection including interviews and focus groups.
1-2 weeks	• Developing recommendations and improvements of current processes.
0-1 week	• Testing out improvements to acquire farmer feedback. • Forming example videos for recommendation project.
0-1 week	• Present report to senior management

- **To assess the impact of TCSRD's agricultural, watershed and water resource management projects on the livelihood of farmers in the surrounding villages.**
- **To assess the sustainability of such livelihood projects.**
- **To develop recommendations for improving the effectiveness and reach of TCSRD projects.**

Conceptualizing livelihood

The term livelihood has been conceptualized in many different ways. This report directly refers to that as defined and employed by DFID, providing particular focus to the notion of sustainability:

"A livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living. A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base."

Adapted from Chambers, R. and G. Conway (1992) Sustainable rural livelihoods: Practical concepts for the21st century. IDS Discussion Paper 296. Brighton: IDS.

Sustainability – what does this mean?

This report directly refers to DFID's concept of sustainability and shares the importance of such concept and issue when discussing livelihood. Most reports and discussions in the development field feature the term sustainability without defining specifically what it is. It has fallen into the trap alongside other terms such as "agency" and "bottom-up" that can often refer to everything and anything and thus remain ambiguous in final assessments or practical implementation. Whilst this report does not proclaim to advance a specific definition for the term, it follows some of the guidelines set by DFID's to gain some parameters and boundaries in understanding both livelihood and the idea of sustainability.

Using primary and secondary data in line with the objectives already established by TCSRD, this report understands sustainable livelihood as comprised of the following areas:

- Improved access to education, information, technology and training.
- More supportive and cohesive social environment.
- More secure access to, and better management of natural resources
- More secure access to financial resources for both agricultural and emergency purposes (e.g. healthcare etc).
- A policy and institutional environment that supports multiple livelihood strategies and whose presence is focused on long term aims.

The above list can be categorised into the following broad areas of:

1. **Economic sustainability:** this is achieved when the given level of expenditure is maintained over time. For example, when the level of income or output is maintained or increased.

2. **Social sustainability: this is** achieved when social exclusion is minimised and social equity maximised.

3. **Institutional sustainability** is achieved when prevailing structures and processes have the capacity to continue to perform their functions over the long term.

(Source: Sustainable Livelihood Guidance Sheet. DFID. 1999)

Why is sustainability important?

Sustainability has become understood as increasingly important because it implies that projects implemented and progress made are focused on long term development rather than rapid but short term poverty alleviation. As DFID correctly highlights, this does not necessarily require any given resource or institution to survive or remain in its original form. Conversely, "it implies accumulation in the broad capital base that provides the basis for improved livelihoods, especially for poor people"[1].

[1] DFID Sustainable Livelihood Guidance Sheets. April 1999.

The results of the research conducted over the six week period will be analyzed using the three categories listed above; economic, social and institutional sustainability. The following section will analyse both the quantitative and qualitative data collected, highlighting the most important factors that affect the livelihood of the farmers in the surrounding villages.

The agricultural and water management projects cover an extensive range of interventions, and as such this analysis will draw on specific examples to demonstrate the impact of TCSRD's work. Interventions not mentioned in this analysis may be due to the fact that they were either too recent to fully assess their impact, they were not operational due to the drought season or that due to language barriers the data was not accurate enough to be included.

Current projects:

- Deepening and strengthening of the village pond.
- Construction of small and medium water harvesting structures like well recharge systems.
- Increasing the inflow by diversion cannels
- Creating storage tanks to help recharge water
- Increasing water table in wells around the water harvesting structures.
- Recharge the aquifer through diverting rainwater into wells
- Drip sprinklers

Objectives:

- To optimize use of available water and increase area of irrigated crop (270 sets of water saving technologies e.g. sprinkler and drip).
- Improve economic condition by ensuring water availability
- Improve groundwater quality and availability.
- To increase the agriculture productivity by harvesting rainwater and subsequently develop the rainfall catchment area.

Table 1 Watershed Data *(Source: TCSRD OFFICE)*

S. No.	Detail	2009-10	2010-11	Cumulative
1	No of water harvesting structure (Medium structure)	202	20	222
2	No of water harvesting structure (Small structure, Farm bund ,Farm pond, Percolation tank, Diversion channel)	1551	327	1878
3	Quantity of water harvested (MCFT)	201	25.35	226.35
4	Area covered under irrigation by medium and small structure (acre)	5430	1057	6487
5	No of drip and sprinkler	159	78	237
6	Area covered under water management technology / Agri development(area) Drip and Sprinkler (In acre)	790	390	1180

Table 2 Details of Water harvesting structure medium structure – (Source: TCSRD OFFICE)					
Sr No	**Name of Villages**	**Name of Work**	**Covered Beneficiary**	**Covered Area in Acre**	**Wells (Around 1 km radius of structure)**
1	Goriyali	Renovation & deepening of vachravadu pond	7	26	3
2	Mudvel	Renovation & strengthening of Gadhvalu pond	8	49	2
3	Poshitra	Diversion canal work of mangesh pond	13	43	7
4	Khatumba	Renovation strengthening of mayajari pond	9	12	2
5	Mudvel	Renovation strengthening of momai mataji pond	4	6	0
6	Rajapara	Renovation strengthening of kunj trai	7	51	3
7	Poshitra	Waste wear repairing work of onani dam	15	45	8
8	Rajapara	Renovation strengthening of padda trai	9	24	3
9	Motabhavda	Renovation strengthening of pachariya dam	9	56	4
10	Gaga	Renovation of bandivara vokra dam	8	22	4
11	Gurgadh	Renovation strengthening of	7	21	5
12	Samlasar	Construction of baluraja checkdam	8	28	3
Details of Water harvesting small structure:					
13	Rajapara	Well recharge	1	5	1
14	Rajapara	Well recharge	1	5	1
15	Samlasar	Well recharge	1	3	1
16	samlasar	Well recharge	1	4	1
17	Shivrajpur	Well recharge	1	8	1
		Total :	109	408	49

Table 3 - Water harvesting Data (Source: TCSRD OFFICE)			
Sr No	**Details**	**2011-12**	**Cumulative**
1	No.of Water harvesting structure (medium structure)	12	236
2	No.of small water harvesting structure (well recharge)	05	2165
3	Quantity of water harvesting (MCFT)	12	238.35
4	Area covered under irrigation by medium and small structure (acre)	408	6895

CASE STUDY EXAMPLE

VILLAGE: Dwarka Dhis

The following information is based on data collected both from the TCSRD office and my own data collected during a field visit to the Kisan Group Ladwa. This particular village has been chosen as a case example due to the success of the Water Management Program that has been implemented by TCSRD.

- The water management program started in 2004 and was completed in March 2011.
- Addressing the 5 Js, (Jameen (land), Jal (water), Jungle (forest), Janwar (animals) and Jen (people)).
- Program subsided 90% by the government.
- When there were a shortfall of funds – TCSRD would cover the costs.
- Overall expenditure 2, 667279 lakh (expected expenditure- 30 lakh).

Table 4	
Target Area	500 acres
Irrigation area covered	455 acres
Not irrigated	10 acres
Grazing land	10 acres
Waste land	10 acres

Table 5	
Project	Amount
Check dams	n/a
Farm pond	22
Farm bund	115
Rain water roof harvesting structure	1
Mini check dams	15
Solar street light	3

Table 6 Impact of Water Management Programs on production								
			Before			After		
No	Crop season	Crop name	Area (acre)	Production (mann = 20kg)	rupees	Area (acre)	Production (mann = 20kg) Mann x rate (rupees)	rupees
1	Monsoon	Coriander	185	60 x 80	8.88	180	70 x 175	22.05
		Pulses	40	25 x 200	2.24	65	38 x600	14.82
		Oil seeds	175	55 x 350	33.68	370	75 x500	138.75
		Others	35	300 x50	5.25	65	350 x 75	17.06
2	Winter	Coriander	28	70 x 75	1.47	131	90 x 175	20.63
		Pulses	35	28 x 200	1.96	55	35 x 600	11.55
		Oil seeds	0	0	0	0	0	0
		Others	25	70 x 100	1.75	45	85 x 150	5.73
3	Summer	Coriander	0	0	0	0	0	0
		Pulses	20	28 x 200	1.12	35	35 x 600	7.35
		Oil seeds	0	0	0	0	0	0
		Others	15	30 x60	0.27	25	40 x150	1.50
					56.62			239.44

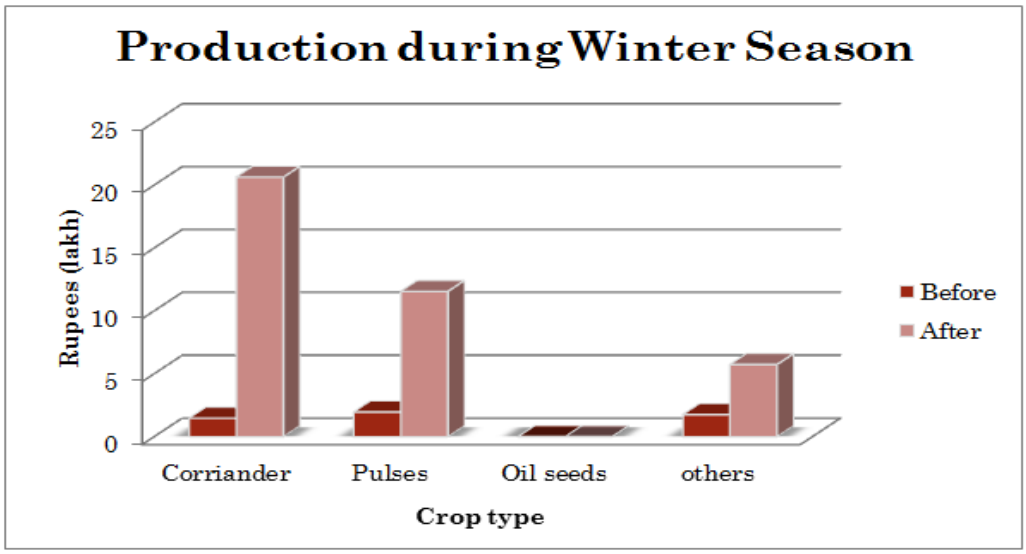
Source: TCSRD OFFICE

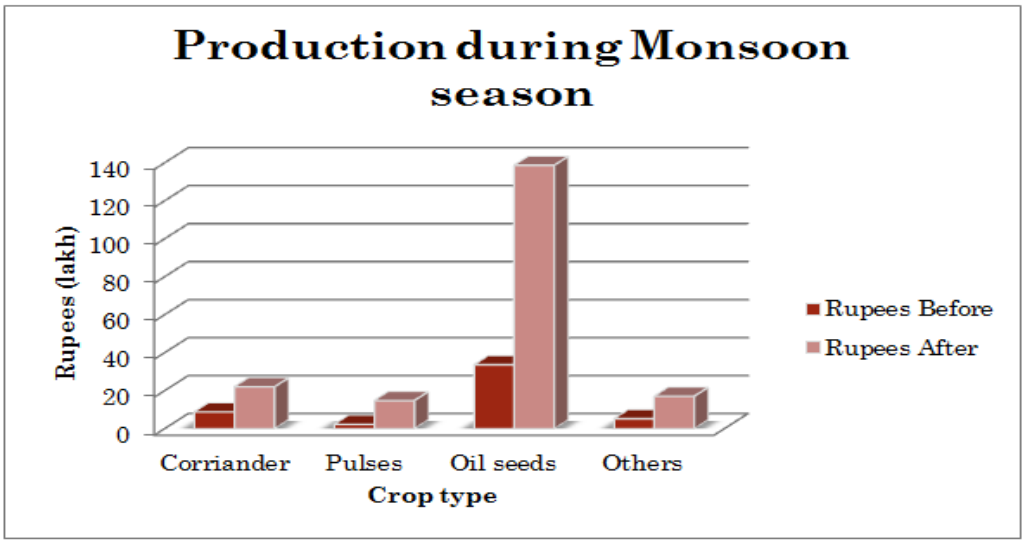
Analysis

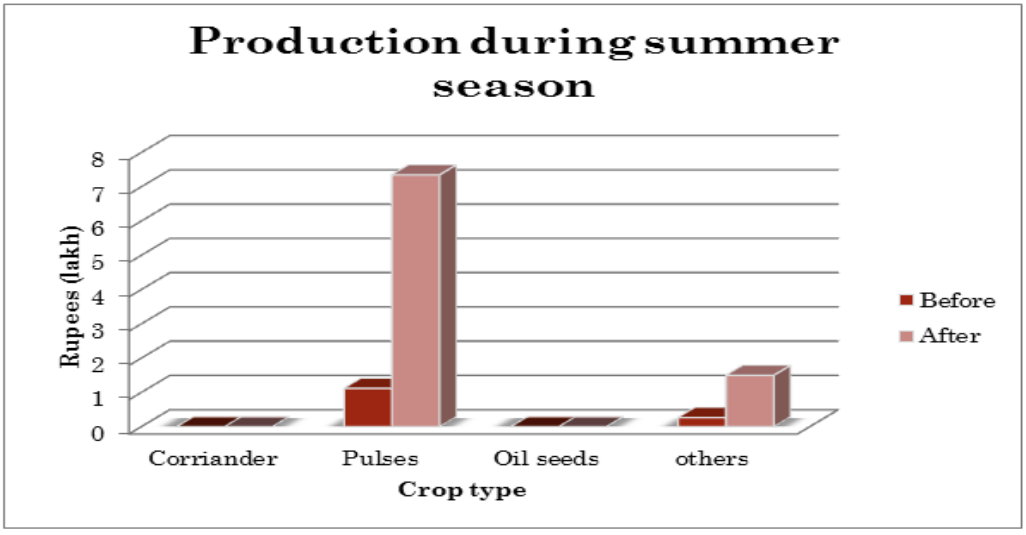
Table 6 above clearly demonstrates the economic impact of the water management programs implemented in this area. As the table demonstrates, in most cases the increase in production directly correlates with the increase in area that is being utilized. The water irrigation systems not only reduces the amount of water being wasted but improves the distribution of water, allowing land that may have not been utilized before to be now irrigated and thus farmed upon.

The water resource management projects aim to maximize the potential yield that farmers can achieve under optimum conditions. During the field visits, it was evident that most farmers were not utilizing all their land due to their limited access to effective irrigation systems. The implementation of sprinklers, check dams, farm ponds etc has meant that the access and distribution of water is not only more effective and efficient but also can be spread over large distances, hence the increase in land that has been irrigated in this village.

Figure 1, 2 & 3


Production during Winter Season
Rupees (lakh)
25
20
15
10
5
0
Corriander
Pulses
Oil seeds
others
Crop type
Before
After


Production during Monsoon season
Rupees (lakh)
140
120
100
80
60
40
20
0
Corriander
Pulses
Oil seeds
Others
Crop type
Rupees Before
Rupees After


Production during summer season
Rupees (lakh)
8
7
6
5
4
3
2
1
0
Corriander
Pulses
Oil seeds
others
Crop type
Before
After

GROUP NAME: Kisan Group Ladwa

Farmer A: Gelabhai Dudabhai Rathore

- Farm pond and farm bund (2 bunds built)
- Completed 3-4 years ago.
- Stopped flooding and soil erosion and also works as a fence to keep animals out.

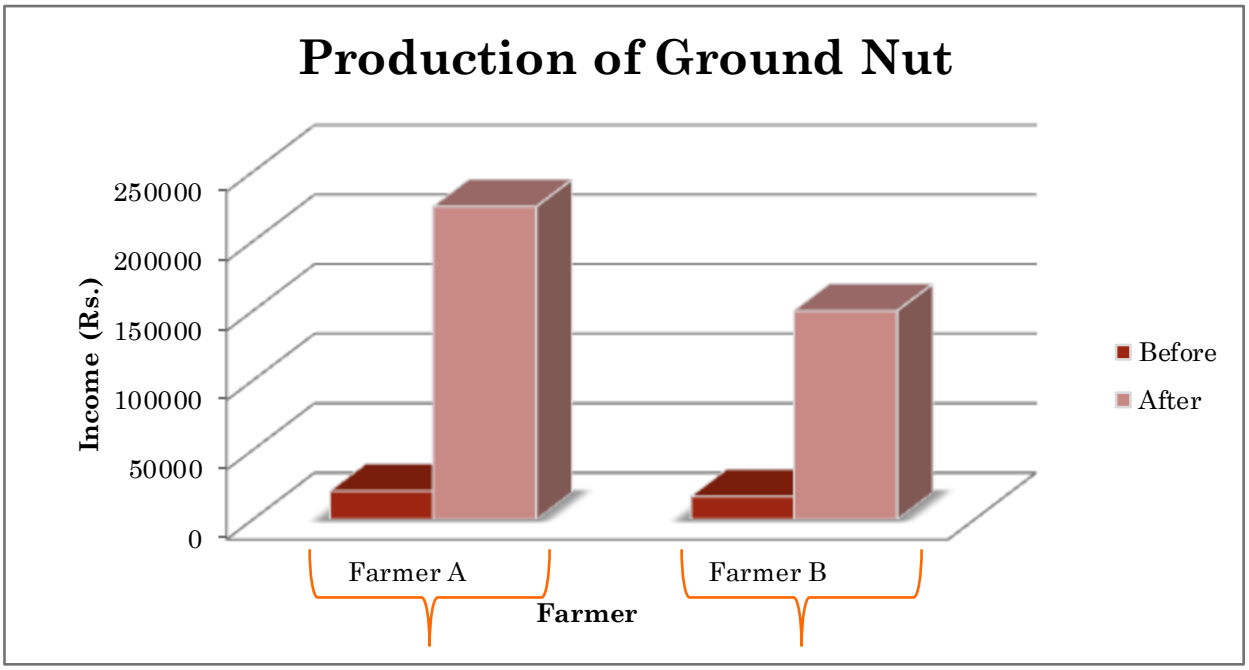
Before	After
Farmers was using 2-3 acres (6.2 bighas) land (based on rain) growing vegetables, jowar, bajra, (fodder crop) sesame, ground nut etc Ground nut production: 200-240kg of ground nut per bigha at 300 rupees per 20kg Income: 3,300 per bigha **Total revenue: 20, 460 rupees**	Now farmer is using 8-10 acres (22.5 bighas) Working all three seasons All crops the same, added wheat and corn and fodder crop and cotton. 400kg per bigha and selling at price of 500 rupees per 20kg. **Income: 225, 000 rupees**

Farmer B: Lakhman Bhai Duda Bhai

- Sprinklers system.
- Completed– 2-3 years ago

Before	After
2 acres (5 bighas) – crops: groundnut, corn, wheat, vegetables, sesame and jua, bajra. Ground Nut Production 1 bigha= 200-240kg **Income: 16,500 rupees**	5-7 acres (15 bighas) – all crops same (cotton as well). 1 bigha= 400kg. Selling at price of 500 rupees per 20kg. **Income:150,000 rupees**

Fig. 4



Increase of 2-3 acres to 8-10 acres	Increase of 2 acres to 5-7 acres

Figure 4 shows the production of ground nut before and after two different interventions on two different farms in the same village over the same period of time (3-4 years). The graph clearly demonstrates that the income of both farmers increased significantly after the farmers received a sprinkler device. The increase in income can be directly related to both the change in the selling price of the ground nut (300 Rs. Per 20 Kg before and now 500/600 Rs. Per Kg) and the amount of land being irrigated and farmed upon (see Figure 4).

More encouragingly, Farmer A provided a prime example of the long term impact of such interventions and the future sustainability such interventions provide for farmers. For example, Farmer A with the increase in revenue from the production of ground nut was able to purchase a plowing machine and two bulls that have subsequently improved his farming and agricultural practices, enabling a greater generation of revenue in the forthcoming years. This is a prime example of what can be termed as the "knock on effect" – where the increase in income generated through the use of a sprinkler system has provided the farmer with the opportunity and means to purchase other farming tools and technology and thus to further improve his agricultural practice. The fact that the farmer was able to purchase the bulls and plowing machine without the direct help of

TCSRD demonstrates the self-sustainability that can be achieved through the initial intervention.

It is important to recognize that the direct economic benefits are only one aspect of livelihood measurement. Social benefits should be considered as equally important, especially as often the economic and social consequences are not mutually exclusive but rather mutually reinforcing. Common social benefits that occurred or became available due to the increase in a farmer's income included the ability to fund their child's marriage (e.g. FARMER A), to build a cement house or to use the money for religious purposes. Such social benefits can often lead to behavioral changes especially in terms of a farmer's confidence in their own farming ability and overall interaction with fellow farmers.

SPRINKLER IRRIGATION

OBJECTIVES:

1. The aim is to bring changes in the farmer's old and traditional methods of farming and adopt the latest and scientific methods of farming
2. With the sprinkler system of irrigation the farmer saves water (up to 30-40%) and time and also the land fertility increases.
3. The production through this system of irrigation increases and also there has been an income improvement.
4. To reduce the cost of diesel & electricity consumption.
5. To encourage other farmers to adopt the sprinkler through demonstration on their farms.

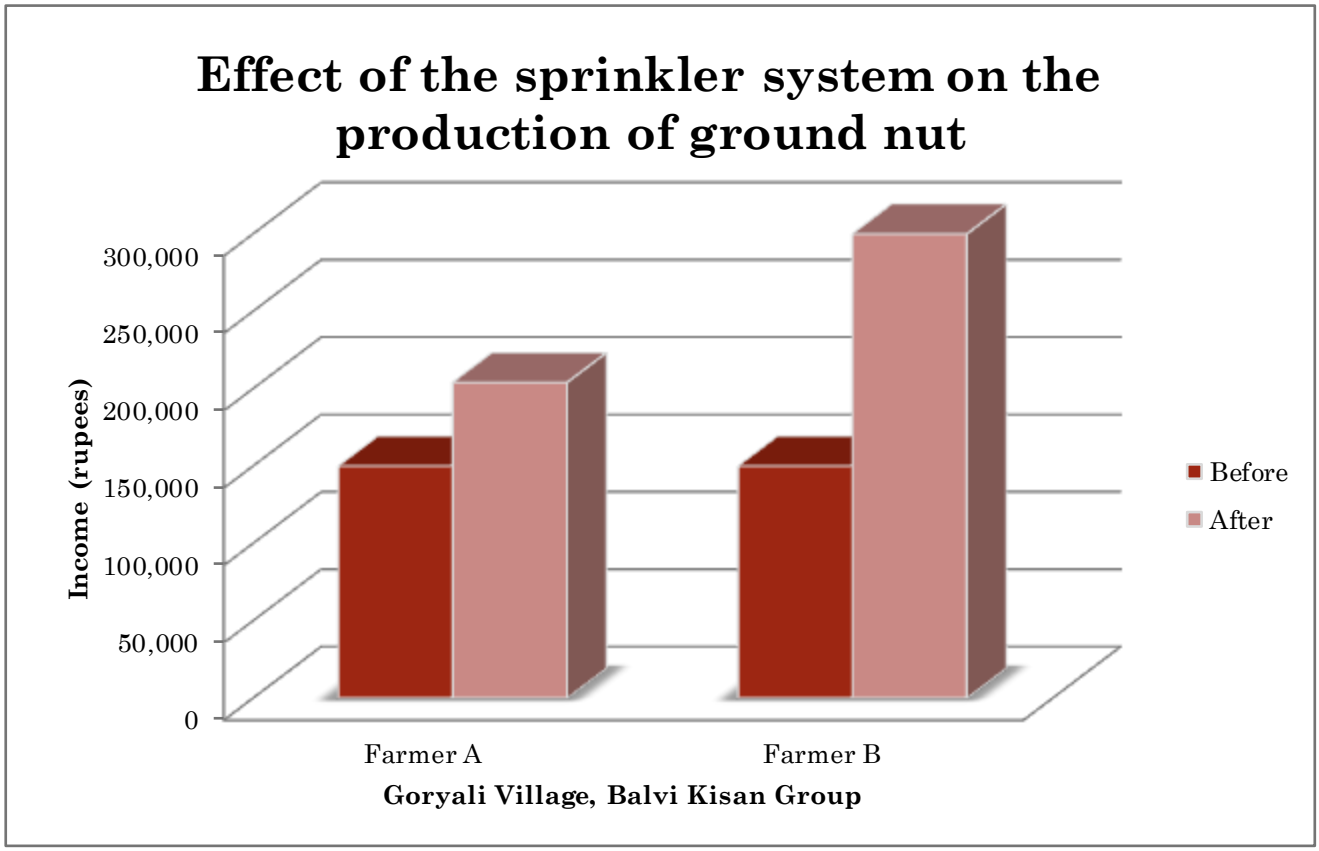
(Information from TCSRD database)

BENEFITS:

1. More area can be irrigated with the same quantity of water = increase in production.
2. Flow of water is maintained which maintains the composition of soil.
3. Saves labor costs.

FINANCIAL RESOURCES AND PARTNERS:

Total Cost of the Unit:RS 28,500/-
Contribution:
GGRC. - 50 % (14,250 Rs)
TCSRD - 25 % (7,125 Rs)
Community & Others -25 % (7,250 Rs) cash



RESULTS / IMPACTS:

Economical changes:

- Production of the crop increases.
- Increased area of irrgation and thus farming.
- As demonstrated in the graph above, both Farmer A and Farmer B had increased their turnover of the ground nut crop by a considerable amount.
- They can extend their irrigation activity to other seasons also.
- Knock on effect: used money from sprinklers to buy good quality fertilizers – and so here we see the beginning of the knock on effect (Rajabai, Aashapura Kisan Group, Goryali Village).

Social changes:

- Now can save the time and energy of their wives who can devote more time towards the education of their children.

- One farmer commented that to begin with, the children were not going to school but following the intervention and subsequent increase in income, his children can go to school and receive higher education – become educated and learn about new style of farming etc or have options not to farm and get a city job etc (Farmer A, Rutu Dhvaj Kisan, Ghadechi).
- Changes to quality of life: Mud house to cement house (Rajabai, Aashapura Kisan Group, Goryali Village).

Institutional sustainability:

- The sustainability of such process is achieved when the economic benefits realised from the sprinkler system are reinvested in other farming projects that are not directly instigated by TCSRD but are rather initiated by the farmer themselves who are now in a position to take greater agency and control of their livelihood. Such process is part of what the report has termed the "knock-on" effect.
- TCSRD's intervention is specifically focused on self-sustainability. They are limiting the distribution of the subsidized sprinkler so that they are used for demonstrative purposes only. This ensures that farmers do not become reliant on TCSRD for subsidized agricultural equipment but at the same time through the demonstrative subsidized sprinklers on the surrounding farms they can see the benefits of the equipment and thus become encouraged to invest their own money into buying such irrigation system.

Solar Zatka fencing is a form of security used to protect the farms and valuable crops from wild animals. When any animal or person touches the live fence wire they will feel an impulse type shot that should deter the animal from entering the farm.

Cost:

- Last year 50% govt subsidized and TCSRD 25%.
- This year due to drought the govt has withdrawn their finance of the project.
- This year TCSRD pay 6,000 out of 18,000
- Standard TCSRD subsidy 20-25%.

OBJECTIVES:

- To stop wild animals eating the farmer's crops.
- To ensure that the farmer and family members can sleep at night and thus improve current working conditions.

Sr. No	No. of village	No. of solar Zatka machine	No. of Farmer	Covered area in acre
1	8	11	14	87

RESULTS / IMPACTS:

ECONOMIC BENEFITS:

- Crops are no longer eaten by wild animals = increase in output (see graph below).
- Increased energy during the day due to being able to sleep during the night = work efficiency and effectiveness increases.
- **Knock on effect:** invest the money being made from the increase in production on other agricultural practices and technology.

SOCIAL BENEFITS:

- Family members can now rest at night.
- Babu (Dwarka, Gomti Kisan Group) sent his child to a bigger school (Polytechnic Engineering University) and built a new house. Fencing helped him achieve his goals more quickly - if they did not have fencing – probably 2-3 years back in terms of income etc.

INSTITUTIONAL SUSTAINABILITY:

- The fences are subsidized and as such only a limited number of farmers can be provided them. However, from the research conducted in this report, one of the major issues affecting farmers was the issue of not having a wall to keep animals out. As such, TCSRD may have to look into alternative schemes in the long run to ensure that more farmers are acquiring the fencing at a faster rate.
- Sustainability is achieved when other farmers see the benefit of other farmers and then buy them themselves – it starts a catalytic process – to be felt but not to be seen. This is the current approach TCSRD are taking and if this is achieved - there should be a gradual withdrawal of subsidized fences with farmers fully financing it themselves.

Example

Village: Dwarka

Group: Gomti Kisan Group

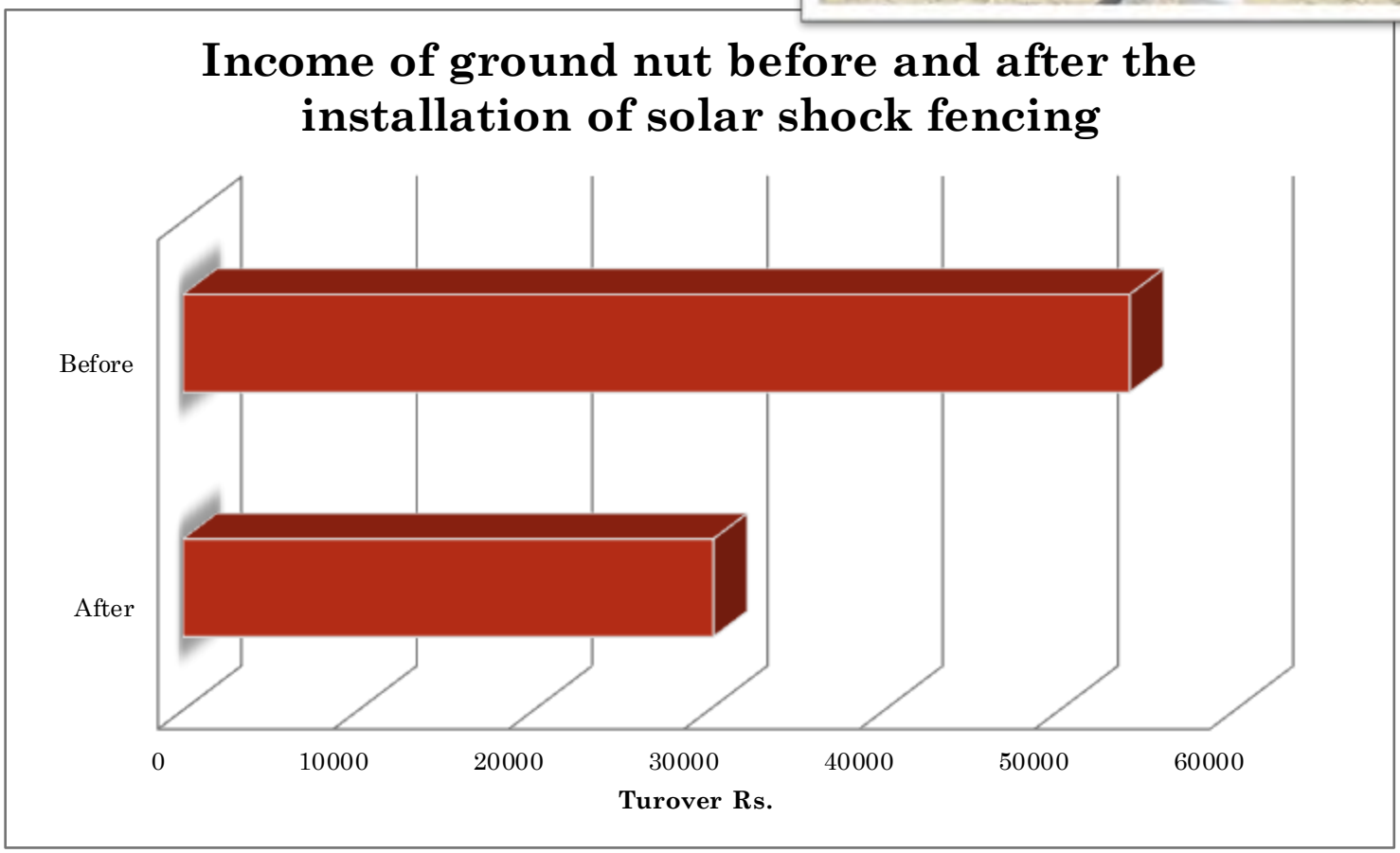
Farmer Name: Babu

Cost: 4,700 (the rest subsidized by TCSRD and Govt).

Crop: Ground nut

Before: 3 acres of land (production 1000kg-1200kg) selling at 550 rupees per 20kg.

After: producing 1600kg-2000kg. 600 rupees per 20 kg



Under the OSGP project in the year 2011-12 efforts were made with the help of new technology to increase the agriculture income of farmers. One particular project that has proven extremely successful has been the net house. The total cost was Rs. 26, 0000 (now Rs 35,000) out of which currently these three farmers have already recovered 30% amount (Rs. 78000/-) in off season by cultivating palak, methi, dhania & Marigold like plantation & Vegetables.

(Source: Annual Report 11-12)

Farmer only pays 10-15%

Total: 300,000 Rs (Rs. 35,000 Farmers, TCSRD Rs. 55,000 and the rest the government pays).

Case Example:

Village: Shivrajpur

Beneficiary Name: Karabar Sajanba Sumania

Details:

- 1 year net house and sprinkler system.
- 7 acres
- Farmer famous for his Palak.

This farmer mainly farms vegetables but due to the coastal line and lack of water he was unable to grow a sufficient amount of crop each season. The salt from the sea breeze, heavy winds and natural disasters such as cyclones meant that the farmer was not achieving optimum output levels.

However after receiving the net house, he has gained many benefits that have transformed not only his farming practices but also his livelihood:

- Outside it takes 30-40 days to grow crops and inside the net house it takes 17-18 days.
- The farmer is receiving more money from the inside crops that the outside crops (15 rupees more).
- In the net house, the crops can continue to grow for up to 80 days, where outside the crops lasts for 40 days

- ❖ With the leaf vegetables, before he was getting 50 rupees per kg but now he is getting 100 Rs per kg.
- ❖ Ten years ago, his father was producing high yields of the chili crop. However, for the last 10 years, he was not able to grow the chili crop due to the salinity in the air. Now because of the net house he is able to grow such crop and as the farmer stated "I am 110% sure we will see great results".
- ❖ Since now his can grow chilies, they no longer have to buy them from the market. Generally, the chili crop lasts for 6 months but his has lasted for over one year and is still producing a good amount of chilies.
- ❖ The crops in the net house require less water.
- ❖ The crops are also protected from exposure to direct sunlight and as such he can easily grow the crop.

ECONOMIC AND SOCIAL BENEFITS

- Agricultural development
- Education (son going to school) – BCA (Bachelors of Computer Application) – not possible without extra money from net house
- Marriage
- Building a house (plan to construct one more house).
- Compound wall (now willing to go for)

Future Plans:

- Build another net house
- Add more land.

INSTITUTIONAL SUSTAINABILITY

- When the net house project began it was heavily subsidized by TCSRD and the Government (and still is), especially due to the difficulty of convincing farmers to invest such large amounts for an intervention that they may not fully understand or trust it works (risk factor is extremely important when considering interventions and whether they will work or not).
- However, following successful demonstrations including the farmer in this report, an increasing amount of farmers are requesting for the construction of a net house.
- The long term sustainability of such project will be achieved when farmers are aware of the benefits of the net house and are willing to invest in such projects and thus TCSRD and the Government can reduce the subsidies that they currently pay.

- A group consists between 11 and a maximum of 19 members. In which there is a President, Vice-President and Secretary (voted by the group members) who are responsible for bank and group related work.

- To become a member of the group, each farmer is required to pay Rs. 2000.

- The purpose of the group is to provide a forum for discussion where farmers can interact with other farmers and discuss farming related issues.

- The farmer group can also provide an effective way of communicating with TCSRD.

- The farmer group also provides an effective vehicle for the dissemination of training programs, farming related information and government schemes.

- Through the farmer groups, farmers gain access to agricultural insurance e.g. they need to pay 275 rupees for 4 months and will receive 5,000 per acre if there is a problem (not enough water or flooding).

- The farmer group also has the provision for small loans to be taken in cases of emergencies: the interest on the loan is 1%. This is a sort of micro-finance which can be used for medical issues and other emergencies etc. 20-25,000 rupees is the maximum that can be borrowed.

SWOT ANALYSIS OF FARMER GROUPS

STRENGTHS	WEAKNESSES
• Brings farmers together – to ensure they are not isolated from each other. This provides opportunity for the farmers to help each other e.g. finance or sharing farming techniques. • Sharing of information and the creation of a support network – especially during the drought season. • Access to small funds in case of emergency. • Access to agricultural insurance. • Access to sprinkler systems and other TCSRD projects. • Information is more easily distributed. • Sharing of resources such as water and fodder. • Farmer's confidence increases with support of a strong social network.	• Not enough resources such as solar shock fencing available to all farmers in a farmer group and as such a lottery system is in place to decide who receives what. • Farmers in certain villages want to form a farmer group but do not have enough people to form a group due to the reluctance of other farmers in the village.
OPPORTUNITIES	**THREATS**
• Scalability. • Introduction of competition to enhance unity and foster confidence among farmers. • Bulk selling to markets further away. • Using farmer groups as a focus of training programs. • Training farmers in the group in certain skills such as on how to understand market trends etc. • Developing a system where farmer groups can sell their fodder to each other at a reduced rate instead of having to buy from the market. • The sharing of resources such as tractors etc so that the farmers can share the risk of investment.	• Possible government intervention that could either add more bureaucracy to the process or distribute resources away to other projects that might not work as effectively e.g. Kishra Mitra.

KNOCK-ON EFFECT

The concept of the *"knock on"* effect that has been referred to throughout this report relates to the long-term positive developments that arise from an intervention. Unlike direct economic or social measurements, the knock-on effect is much more difficult to evaluate as these effects may not materialise until 5-10 years post-intervention. For example, a farmer who implements a sprinkler system may increase their produce or output by 40% which would inevitably results in economic and social benefits that can be directly measured as this report has demonstrated. However, the long term benefits of this initial intervention may be demonstrated in the subsequent agricultural developments that take place as the farmer gains the financial capability to further invest in his farming practices. As such, the initial intervention acts as a catalyst for the long term investment and development of a farmer's agricultural livelihood.

It was common to find farmers who had self-financed and built their own water management systems to have been previous beneficiaries of a TCSRD intervention. The earlier intervention would have provided a knock-on effect in terms of both increased income and the confidence for farmers to finance future projects on their own. Whilst TCSRD may not be directly dealing with the farmer anymore, the effect of the original intervention was still being felt.

The purpose of the knock-on effect is that it takes into account the current status of the farmer as an accumulation of benefits that may have been triggered by an intervention that had taken place years before.

Self-sustainability should be the long term aim of TCSRD's projects and interventions avoiding what could be termed as the "reliance" or "expectation" effect, where farmers avoid using their own initiative and instead become reliant on external help. Such expectation was evident when interviewing farmer groups who voiced criticism that only one or two in a farmer group received an intervention such as shock fencing. However, the purpose of only distributing two shock fences for example is to demonstrate the benefits of said equipment and thus encourage farmers to invest in it themselves and not to rely on NGOs or Government agencies for free or heavily subsidised "hand outs".

As such, after interviewing farmers and speaking with TCSRD staff, this theory of "to be felt but not to be seen" developed. This idea touches on the fact that TCSRD should focus their attention on encouraging farmers to invest in their own agricultural practices rather than providing the farmers with subsidised or free equipment (an unsustainable practice). By targeting a few and limited number of farmers to take part in TCSRD schemes they can be used as demonstrations which can then be copied by other farmers at their own cost.

An example of such practice working effectively is where one farmer who may not have had direct contact with a TCSRD intervention but may have witnessed the positive effects of a certain project on his neighbour's farm. The subsequent result is that whilst TCSRD may not have had direct contact with the second farmer, the effect of TCSRD's earlier intervention with the first farmer encourages surrounding farmers to invest their own money into the new technology or equipment. TCSRD are focusing on making the area self-sustainable and this should continue to lie at the heart of their activities.

Focus Group 1

Example of data collected

27/07/12

Question	Answer
1. What are the various problems /issues that the farmers are currently facing?	• Electricity problem. • Paying too much for cattle fodder, especially during the drought season. • Problem of access to sufficient water supply during drought season.
2. How did they hear about TCSRD activities?	• The people working in TCSRD visit the villages and only after some time does trust develop between the farmers and TCSRD employees.
3. Do they trust TCSRD?	• In the beginning they did not trust TCSRD – possibility that TCSRD employees were working for the government– but now they trust TCSRD.
4. Formation of farmer groups? And do they have agricultural insurance?	• New project started one year back involves the formation of farmer groups. • In one farmer group there are farmers from different villages – group meeting ever 1 ½ month. • Three people = president, vice-president and secretary. • Every member of the farmer group has insurance for drought. • They need to pay 275 rupees for 4 months and will receive 5,000 per acre if there is a problem (not enough water or flooding). • For the farmer groups – collect 2,000 each – and the farmers have access to a loan system. This interest on the loan is 1%. This is a sort of micro-finance system that can be used for medical issues and other emergencies etc. • 20-25,000 rupees is the max that can be borrowed.
5. Have the farmer groups changed the way they interact with other farmers?	• After joining the farmer groups – if any of the farmers have completed any experiments –the results are shared with each other. Also if they come to learn from the outside any information regarding farming – they will share this

	information. • Internally – they are helping each other.
6. Has their confidence changed by joining the farmer groups, skills learning (university) and TCSRD programs etc?	• No doubt the farmers' confidence is improving but the outreach of the programs are sometimes limited. Only 50% outreach (e.g. better seeds, better fertilizer and better machinery etc). N.B. There are 13 groups (more than 75 farmers) – TCSRD cannot give the kits to everybody – so if there are 10 groups and 20 kits, each group will get 2 – and then the groups will have to decide who the kits go to.
7. How did they develop skills through TCSRD?	• Farmers were sent to Junagadh University – to develop knowledge about crops and which seeds to use etc . • How many farmers went? Most of the up and coming farmers went – so they can invest in new technology – this was funded: 200 rupees by farmers and the rest TCSRD. • Are there any problems with illiteracy and training? Most people can read and write – and if anyone is illiterate – other farmers can help them out.
8. How do they find information about the weather, which crops to grow etc?	• Some receive texts twice a day (regarding weather, crop information etc), • Messages and call from Ahmedabad (one year free and then after 350 rupees a year – so farmers do not want to pay for this). . • 12 farmer group (12-15 member) 180-90 and they all have this facility but expectation is that 50% will stop using it due to cost. • There is a free government number they can call for the information. • How does this information help them? It means that their money is not wasted – they have knowledge of what to do and what to plant.
9. Is there anything else they require?	• They require electricity – this is important for extracting water from the well. • Interesting: these farmers were discussing solar power energy and its operations for motoring the water extraction systems. They read about solar systems in agriculture magazine. • The farmers want better technology.

	• They want to know what is selling in the market and which crop they will get more money. • Do they have this information? Some of this information they have.
10. TCSRD activities in this area	• This village has the net house, sprinkler, drip irrigation, plantation and seeds (selling of seeds to farmers).
11. How has TCSRD activities affected their family life and lifestyle?	• The increase in production has already demonstrated benefits: e.g. sprinkler system saves the energy and time of the women, which can now be spent on their children and their education. • Long term impact? To start with, their children were not going to school but now they can afford for their children to attend school above a certain standard. • Moreover, they now have the funds for their children to attend university and either further develop their farming skills or aim to get a job in the city. • These developments have been taking place over ten years- and there seems to be a direct correlation between TCSRD activities and the children going to school. • What is their hope for their children in the future? 100% hope – for children to become educated – to learn about more technological ways of farming etc.
12. Do they know how much other villages sell their crops for? They do not know about other areas (only through newspaper). Would it help them if they know about other villages?	• They want to improve the information flow. Price of crops in the market – most demandable crops etc. • They want to know about the trends in the market. This could be an area – to look into. The availability of information may be sporadic.
13. Vulnerability to disaster	• Drought – they want help from TCSRD and help from government. • If they are not getting any help – they have to deal with it on their own. How do they prepare for this? The area which is most important to deal with is cattle – fodder for the cattle – so this is main priority. • Have they received help yet? In the past TCSR has helped them with drought and the government should in the future. TCSRD

	have helped with animal fodder (at a lower price than the market). • Is there a disaster management team in the village? The village works as a team – the villagers as a whole work together ("like a family"). • What would be the best solution to the drought solution? If they were in charge what would they do? They have a well – but they do not have electronic motors – if there is a motor they can use it for their farming and can help others farmers. • Farmers receiving only 8 hours a day of electricity – one week morning 8am- 4pm and second week 4-12pm. • Solar Power is currently too expensive. • BUT is being investigated and within the next 2 years – demonstration for solar power electricity. • Per demonstration 3-4 lakhs of solar panel, storage battery, electric motor and wire. One farm – water and irrigation. • 50% subsidy for the solar panel and all the equipment (25% TCSRD and 25% farmer). Four criteria for the demonstration (financial, own well, water in the well and active in agriculture and take care of their equipment).
14. Are there any criticisms of projects taking place?	• They are very happy with what they are getting. Electricity seems to be a key area that needs addressing.
15. Do their livelihoods depend on external help?	• They are not totally dependent – help is great encouragement for them in the future.
16. If they were in charge of the government/ TCSRD what would they change or improve?	• Competition may be an idea – they want to compare groups – want competition with each other – motivation. Possible rankings and publishing this – maybe awards for best group etc.

N.B.

The information recorded in this focus group was used to construct the framework of the second focus group the following week.

FARMER GROUP

Farmer groups comprise of 11-15 farmers from either the same or surrounding villages.

The farmer group model can be understood as a type of self-help group providing an effective system for the deliverance of various TCSRD interventions, the provision of micro-finance and other activities that aim to improve the farmers' livelihood. It creates a farmer network that encourages long term social sustainability ensuring that farmers are not isolated from information and resources available.

The farmer group is an extremely scalable model, with the potential of providing the necessary structure that is required for both bridging the current information gap that exists but also providing a more effective vehicle for the implementation of TCSRD interventions.

The following section discusses two areas that can be developed in the future to ensure the potential of the farmer group model is realised:

1. The introduction of competition
2. Training one farmer as the "market connector"

PROPOSAL 1

THE INTRODUCTION OF COMPETITION

Farmer group competition was originally an idea proposed by a group of farmers that were interviewed during the data collection stage. The idea has been further developed and discussed with other farmer groups in order to understand its potential function but also to ensure that it is an idea that is very much developed by the farmers for farmers.

Competition between farmer groups aims to further enhance the unity of members in the existing groups and reward those farmer groups who are taking the initiative to utilize the resources around them to further develop their agricultural practices. Moreover, introducing friendly "rivalry" aims to encourage farmers who may be lacking in confidence to become more involved with other farmers in surrounding areas and to further enhance the social network that is currently developing from these farmer groups.

The competition will be yearly based, and made up of sub-categories of awards such as "Best Team Work", "Best production" and "Most improved" etc (such titles will be best

decided by TCSRD field staff). TCSRD can subsequently hold a day celebration in Mithapur brining all the farmer groups together, and rewarding the winners in a formal ceremony.

The long term aim is that through different schemes such as the introduction of competition, the farmer group model develops into an institutionalized system within the villages, providing a more stable and conducive environment for other development projects.

Proposal 2

Connecting the farmer group to the market

"Accessing information on market conditions, prices and quality of produce from physically remote locations is extremely difficult. Groups of poor farmers are often isolated from each other with little collective organisation, limited experience of market negotiation and little understanding of ways in which to influence the terms and conditions under which they enter the market."[2]

The report found that many farmers in the villages lacked information on prices and trends of the market and as such were ultimately passive, rather than active players, vulnerable to exploitation by others (brokers) and missing out on opportunities to maximize the profit of their produce.

Such problem can be overcome through the use of farmer groups. Improving the communication channels and enabling farmer groups access to up-to-date market information will provide the opportunity for farmers to achieve better and more stable prices. The farmer groups offer an opportunity for the farmers to bulk sell. By collecting all of the farmer's produce together, the farmers can benefit from economies of scale that would reduce the cost of transport to markets that are further away such as Rajkot and Jamnagar and thus provide the opportunity of selling their produce at a higher price.

In order for such operation to be successful, the farmers will require not only frequent information from Rajkot and Jamnagar on market prices but also training in understanding such changes in trends and prices. As such, it is suggested that one person from a farmer group receives basic training in such area (a scheme that potentially could be run through Junagadh University). Not only does such training aim to empower the farmers with information that could increase their overall turnover but it also furthers the objective of making the farmer groups self-sustainable.

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[2] Page 9. Chapman,R, Slaymaker,T and Young, J. 2003. Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security. ODI. Research reports and studies.

FARMCOM

"Information is a basic and fundamentally important element in any development activity. Finding ways to harness it more effectively to assist those making decisions affecting the sustainability, productivity and profitability of their livelihoods is a priority concern (DFID 2000, 2002)."

Chapman, R, Slaymaker, T and Young, J. Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security. ODI. Page 7

Information has proven to have the catalytic role in improving the effectiveness of livelihood projects but it must be reliable and relevant to the needs of the user groups. Due to the limited sources of information that farmers can utilize and rely upon, they often find themselves reliant on Agro Centres for advice. It is evident however, that the information frequently provided by Agro Centres are both untested and unsound, resulting in farmers not only wasting their time planting the wrong crop but also money on purchasing the incorrect seeds or fertilizers.

As such, improved information can have the ability to enable farmers to *"better defend their interests and articulate their needs; and it increases their bargaining power and ability to influence decision-making processes which affect them."* [3]

Smallholder farmers (the focus of the majority of TCSRD's projects) in many parts of the world and certainly in India are reaching productivity levels that are only one third of the potential yield they could achieve under optimum conditions (IFAD 2001).[4]

The lack of information available to the rural poor is a major constraint to increased agricultural productivity. Agricultural education, training and access to correct and tested information can help farmers fulfill their potential (other conditions pending). Farmers

[3] Page 7. Chapman,R, Slaymaker,T and Young, J. 2003. Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security. ODI. Research reports and studies.

[4] Page. 8. Chapman,R, Slaymaker,T and Young, J. 2003. Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security. ODI. Research reports and studies.

require up-to-date information on both tested inputs but also on the potential of different techniques and technologies used for the production and processing of agricultural goods. As stated in the ODI Report, smallholders "can substantially increase their yields by adopting better methods, seeds and fertilisers whilst delayed adoption of new technologies among poor farmers can lead to exclusion from market opportunities"[5].

As such, generally speaking and quite predictably, from the field visits carried out during the project, the farmers who had access to frequent and correct information were generally the farmers who displayed the most confidence in their farming practices and subsequently were generally more successful than those farmers who lacked access to outside information.

Example
Interview with farmers from Lalpur Village
Objective: To understand the current information problems farmers are facing.

- This group of farmers interviewed during the focus group relied on Agro centers as their external source of information, and as expected and as previously documented, the information provided by the Agro centers is often incorrect or at least not in the best interests of the farmers.
- These farmers were aware of the free toll government number but have had bad experiences in the past using it. The process to talk to someone has often proven quite complicated and difficult for the farmers to understand. Moreover, there is often a long waiting time to speak to someone in which the farmers stated they were not prepared to wait for.
- With regards to the phone directory provided by Junagadh University, these farmers were not aware of it despite it being distributed to the block area.
- When questioned about the Kishri Mitra (government scheme that paid 1000 rupees a month to an official in the village to advise the farmers on agricultural issues), the farmers highlighted its failure and the fact that many of the individuals receiving the 1000 rupee salary failed to take their job seriously or actually perform it at all.
- These farmers do share information with other farmers from other villages, and therefore see the benefit of an improved communication system such as FARMCOM.
- Questioned on why they had not formed a farmer group: certain farmers highlighted the fact that there were enough people to potentially form such group but some farmers lack the confidence and trust to do so. As such, it would be important to introduce a type of information device to convince such farmers of the benefits of such group.

[5] Page 9. Chapman,R, Slaymaker,T and Young, J. 2003. Livelihoods Approaches to Information and Communication in Support of Rural Poverty Elimination and Food Security. ODI. Research reports and studies.

About FARMCOM

FARMCOM (FC) is a communication model that combines technology and social organisation, aiming to improve the flow and access of information for farmers in rural areas. Through the use of ICT, FARMCOM seeks to develop an effective system that would help provide a solution for the current information gap that exists in the rural villages.

Problems with the current information sources

- Agro centers providing incorrect information
- Government schemes have failed e.g. Kishri Mitra
- Videos produced by other NGOs are not produced in the local dialect and do not related directly to the local conditions.
- The videos are not being disseminated amongst the villagers.
- No sustainable system in place to ensure the effective flow of information between farmers.
- Lack of communication between farmers on both successful and unsuccessful practices.
- Lack of confidence of farmers who have not been exposed to TCSRD and their interventions or uncertainty about current projects.
- Lack of knowledge about other forms of information e.g. Government free number.

Actions needed to be taken:

- Improve the farmer network to encourage communication both within and between villages
- Distribute information on success stories to encourage other farmers to take up new practices.
- Ensure information is based on the conditions in the local area.
- Improve the general farmer network framework in the region to ensure sustainability of information flow.

How?

Using the basic model employed by Digital Green, this project has devised its own blueprint for an information/communication device that is not only extremely scalable but can be undertaken as a relatively cost-free activity.

"Technology to amplify the effectiveness of development efforts around the world to affect sustained, social change"

(http://www.digitalgreen.org/aboutus/)

FARMCOM proposes to include:

(1) A participatory process for local video production,

(2) A human-mediated instruction model for video dissemination and training to achieve Farmer to Farmer communication (F2F).

(3) The distribution of videos and other forms of communication across villages (regardless of distance) through TCSRD employees.

As Digital Green have already expressed, whilst the video side of the process provides a focus, it is the involvement of the farmers and the social dynamics that ultimately underpin the success of the project.

Already proven by DG, "the thrill of appearing "on TV" motivates farmers; and homophily is exploited to minimize the distance between teacher and learner."[6]

The FARCOM model proposes to combine technology and social organisation to maximize the potential of building the capacity of farmers on improved, sustainable agriculture and allied livelihood interventions.

The extension of agricultural information goes beyond the dissemination of data through the traditional top-down model (vertical approach) often employed by NGOs but now requires a more participatory and horizontal approach. The success of one farmer can now be communicated through the use of ICT to other farmers regardless of physical proximity. Such form of information flow can be understood as Farmer to Farmer communication, and not only does this increase validity of the information being shared (since it would have been tested and proven successful) but it can also be employed as a persuasive tool to encourage farmers who are reluctant to trust the information being deployed in the traditional top-down model.

[6] http://www.digitalgreen.org/keyprinciple/

It is essential that the videos are context specific and locally produced to ensure that the information being shared relates to the farmer's needs and requirements of the local area. Often the information produced by a state NGO or government agency has proved to be too general and often irrelevant to the local needs of farmers in the more rural areas. As such, what differentiates this form of information from that that already exists is its context specific characteristics. It is a product of local community involvement that farmers will most definitely be able to relate to, especially if those farmers in the video are recognizable to other farmers.

Production of the video

Every season (or when necessary) TCSRD employees will record farmers who have had particular success with a certain intervention, crop, seed or fertiliser and produce a short video (max 5 minutes) explaining how such success occurred. The video will then be transported with the TCSRD employee to other villages during their weekly or daily field trips and displayed to other farmers.

The project is about encouraging F2F communication and as such requires that farmers to present their own projects and success stories. It is about connecting villages to each other through a medium that can overcome the problem of distance.

Method of display:

The individuals in the best position for spreading this information are TCSRD field workers. They are meeting farmers on a regular basis, and as such are the ideal vehicle for transporting such information. The report proposes that TCSRD employees are given a phone with a projector or a pocket projector that can easily be transported and easily operated in the field.

An alternative and the current practice carried out by Digital Green is for villages to be provided a minimum of a TV and DVD player that is operated by NGO field staff and managed by local farmers. This is an alternative which could be investigated once FARMCOM has proved successful.

1) **Information is the first stage**. This involves identifying the success stories/ information that would be valuable in sharing across villages. The information should match the requirements of what farmers require in order to further develop their agricultural practices. The type of information that should be relayed in these videos involves both before and after results, and how the process is carried out. The purpose of the video is to be as detailed as possible as these videos can be used as both forms of encouraging alternative practices but also guides to how such practices can be carried out e.g. producing organic fertiliser.

2) **Production:** this process involves the production of the videos either using local volunteers, TCSRD employees or possibly those individuals who have trained in the vocational school. Here the information is formed into a storyboard, which describes how the video will be shot (a guide for shooting). The video is then shot in the local community.

3) **Diffusion:** process where the videos are circulated using TCSRD employees who can screen these using portable projectors. Alternatively, one person from a farmer group could be in charge of screening the video (depending on whether that farmer has a DVD player). TCSRD employees can obtain feedback from the group in the form of 1) questions and comments related to the video 2) interest in taking up the particular subject featured in the video.

SWOT Analysis

STRENGTHS	WEAKNESSES
❖ The information will be locally produced in the local dialect. ❖ The videos can be transported easily and displayed on mini projectors. ❖ It is produced by farmers encouraging a sense of homophily. ❖ TCSRD have the resources to produce such videos and the staff to distribute it. ❖ Farmers will feel part owner of the videos as they are in most senses producing and staring in them.	❖ It will cost to produce the videos e.g. cost of production etc. ❖ TCSRD employees will have to receive some form of training on how to deliver the information. ❖ A system will have to be developed to ensure the flow of information is systematic and sustainable and therefore does not follow the current sporadic style of dissemination that is taking place.
OPPORTUNITIES	**THREATS**
❖ Important information on farming practices can be delivered to farmers that has the potential to change their current farming techniques and in the long term increase output. ❖ Farmers become more interested in TCSRD projects as they discuss success stories with one another. ❖ Farmers are encouraged to become more involved in working together and communicating with each other. ❖ Information becomes much more democratically distributed. ❖ Farmers who are isolated from other farmers and access to information become part of a virtual network. ❖ Competing Information provided will hopefully begin to make Agro centers more accountable to their customers.	❖ Farmers are disinterested in sharing information or receiving advice. ❖ Competing information is provided by other sources that either undermines the information that is being distributed by TCSRD or confuses the farmers on which practice to undertake.


Because we care...