BASELINE REPORT (JUNE 2013)

SOIL AND WATER CONSERVATION FOR A SUSTAINABLE IMPROVEMENT OF LOCAL AGRICULTURE AND LIVING CONDITIONS FOR MARGINALISED FAMILIES

SUPPORTED BY

BMZ AND KNH GERMANY

IMPLEMENTED BY

RESOURCE CENTRE FOR PARTICIPATORY DEVELOPMENT STUDIES

Project Implemented by

Resource Centre for Participatory Development Studies

CHILD DEVELOPMENT · NETWORKING · ACTION RESEARCH · FOOD SECURITY

RCPDS

Project Supported by

BMZ Federal Ministry for Economic Cooperation and Development

kinder not hilfe

Contents

List of Tables

List of Figures

Abbreviations

BDO	Block Development Office
BL	Baseline
BMZ	Federal Ministry for Economic Cooperation and Development
BPL	Below Poverty Line
CBO	Community Based Organization
CMS	Catalyst Management Services Pvt. Ltd
HH	Household
KNH	Kinder Not Hilfe
LFA	Log-frame Analysis
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
M&E	Monitoring and Evaluation
NRM	Natural Resources Management
PDS	Public Distribution System
RCPDS	Resource Centre for Development Studies
SC	Scheduled Caste
SHG	Self-Help Groups
SWC	Soil and Water Conservation
WMC	Watershed Management Committee

SOIL AND WATER CONSERVATION FOR A SUSTAINABLE IMPROVEMENT OF LOCAL AGRICULTURE AND LIVING CONDITIONS FOR MARGINALISED FAMILIES

BASELINE REPORT

1 Project Overview

1.1. Background

The role of agriculture in poverty reduction is supreme in India. Tamil Nadu, the 7th populous state in India has 70% of the population involved in agriculture and allied activities. Small scale land holders and landless agricultural labourers constitute more than 80% of this population. However there has been a gradual decline in the percentage of growth contribution of agriculture from 8.51% (1997-98) to 3.44% (2006-07). The productivity of various crops has shown a sharp decline in Tamil Nadu, which are influenced by many factors such as climate, irrigation, soil properties and knowledge about agricultural practices and techniques.One of the key reasons for crop failure or low productivity is acute water shortage attribute to irregular monsoon, poor maintenance of water storage and conveyance structures, lack of awareness and adoption of soil and water conservation measures, poor access to seeds and agricultural inputs, lack of adoption of improved crop management practices etc. The frequent crop failures lead farmers to poverty and food insecurity and shifting their livelihood away from agriculture. The worst affected are smallholder families, especially women and their children.

To contribute to increase income and ensure food security,Resource Centre for Participatory Development Studies has been implementing a project entitled “Food security through sustainable agriculture and health options”, supported by BMZ and KNH, Germany.The project works into blocks of Virudhunagar Districtviz. Tiruchuli and Narikudi, covering a total of 8860 families, spread across nine panchayats.The project aims to improving the living conditions of the inhabitants of 9 panchayats by means of sustainable resource protection, a more environmentally responsible use of resources, diversification of sources of income and provision of sanitation facilities. The project adopts an inclusive approach of livelihood development for landless, catchment farmers, and command farmers in the project villages.

1.2. Project Objectives

Development Goal(s):

Food security and poverty reduction by improving soil, water and land management, by protecting livelihoods and by strengthening women's and children's rights in Virudunagar District, Tamil Nadu.

Project's overall objective:

Improving the living conditions of the inhabitants of 9 panchayats by means of sustainable resource protection, a more environmentally responsible use of resources, diversification of sources of income and provision of sanitation equipment.

Specific objectives:

- 1,500 farming families dependent on irrigated farming grow and harvest food crops on a regular basis.
- 4,000 farming families dependent on rain-fed farming grow food crops in ways that conserve water and land.
- 1,600 landless families and women-led households improve their regular income possibilities.
- 2,500 families improve their sanitation equipment and personal hygiene.
- The target communities have access to various state institutions and public services. farmers and women headed households. The sampling scheme prepared for the study is given below.

2 Baseline Study

2.1 Study Design

The project envisages a rigorous impact assessment study to measure the outcomes and impact created by the project as well as attribution to project intervention. For the study design, given that the impact evaluation questions need to address both impact and also the attributability, this can be done using a longitudinal (before and after) method, a treatment-control method, or a combination of both.

In general, a combination of longitudinal measures across control and treatment points is considered ideal. Using only longitudinal techniques fails to account for changes caused by exogenous factors, such as a government policy which affects all people, while measuring outputs in treatment and control groups without a time lapse makes it impossible to assess the changes brought about by the programme. Thus a combination of before and after as well as with and without treatment is considered to be the most rigorous way to measure impact.

2.2 Methods and tools

The focus of this study was to understand the baseline situation and develop benchmark on key performance indicators so that the achievements made by the project could be measured. Hence, the study used quantitative methods for data collection. The logical framework of the project provides the base for result and impact indicators which need to be measured both at the baseline and end line. Based on the log-frame indicators, an information procurement plan (IPP) was developed, shared during baseline study inception meeting and finalized. RCPDS with the support of Catalyst Management Services Pvt. Ltd. (CMS) designed the overall sampling scheme and conducted the baseline survey during the first quarter of project implementation. Well trained post-graduate students and RCPDS field teams (staff from other projects) were recruited; oriented and used in data collection. Data entry and analysis was done in SPSS.

2.3 Sampling scheme

The study has to be synchronized with the programme M&E system, which allows for a large amount of data to be collected in the treatment areas. Control samples were selected from villages nearby, mostly adjacent to project villages where the project is being implemented. This has two purposes – first, the households will share many characteristics like, income level from agriculture, soil type, cropping pattern, cultivation practices, access to services and livelihood profiles. Second, control samples in neighborhood villages can demonstrate spill-over effects of the intervention.

The project intends to work with 8860 households. Using 95% confidence level, and a confidence interval of 5% with a 50% response distribution, a sample of 368 randomly selected samples will give significant results. Adding a design effect of 1.5 (allowance for stratification) and an attrition rate of 20% between baseline and end line gives 664. However, to improve the accuracy level, the project has covered 900sample households from treatment, and300 samples from control (considering one-third of treatment), totaled to 1200 households. The number of sample households in each village was selected proportionately to the total number of households to be covered by the project. The profile of households covered within each village include landless, catchment farmers, command farmers and women headed households. The sampling scheme prepared for the study is given below.

The diagram below (Fig-1) details out the sampling framework used in the study

Name of the panchayat	Tot.No. Families	Treatment Samples	Control Samples	Total Samples
Senelkudi	368	37	12	50
Udanayampatty	414	42	14	56
K.Pudhur	818	83	28	111
Agathakulam	1700	173	58	230
Pillayarnatham	900	91	30	122
Nallukuruchi	1800	183	61	244
Nathakulam	1700	173	58	230
lilupaiyur	900	91	30	122
Veerachozan	260	26	9	35
Total families in the target panchayats	**8860**	**900**	**300**	**1200**

Table 1 - Sampling Scheme

2.4 Sampling Framework

RCPDS-BMZ-KNH - Baseline Study				
Sampling Framework and Methodology				
Universe - HHs engaged in farm activity				
Total Number of Household Samples to be Covered - 1200 HHs				
Study objective - To develop baseline indicators for the project entitled " Soil and water conservation for a sustainable improvement of local agriculture and living conditions for marginalized families"				
Method - Stratified, Random Sampling				
Stage	**Level**	**Criteria for Selecting the Sample**	**Selection of Entities at each Level**	**Nos to be covered at the Level**
Stage 1	Block selection	Not applicable	All project blocks - Tiruchuli and Narikudi	2
Stage 2	Panchayat selection	Not applicable	All project panchayats	9
Stage 3	Household selection	Random - stratification based on landless, catchment and command farmers	Proportionate to the total number of households in each level	1200
Methodology and Coverage				
Method	**Tool**	**Areas of Info to be collected**	**Source of Information**	**Coverage**
HH Interview	Questionnaire	Socio-economic profile, occupation pattern, migration, sanitation facilities and practices, CBOs, agricultural practices, access to credit, food security, livestock	Target Households	Total 1200 Treatment - 900 Control - 300

2.5 Limitations

As the study focus is on developing benchmark on key performance indicators, the study did not look at qualitative part of data collection to find answers for 'why' part of the study. However, the analysis framework was designed to capture the factors or pattern to validate the situation. For instance, if some people are not having access to sanitation facilities, the study tried to find out the profile of such communities who have access and who don't have. The other challenge faced by the field team is 'estimation of cost of cultivation and average yield rate of major crops' as the respondents could not understand/calculate unitization of these with respect to per acre of land, but provided the figures based on their own land holding pattern. This aspect of the study was validated through focused group discussions with select farmers in the project region.

2.1Key Processes

The sequence of key processes followed in the study and the outcomes are presented in the below table (Table-2)

Key Processes	Participants	Outcomes
BL study - Planning Meeting	RCPDS and Johnson (VRUTTI)	The overall study framework, methodologies, tools, sampling, field work plan for pilot discussed and finalized
Preparation of Information Procurement Plan	RCPDS	A draft IPP was prepared and shared with project team and Johnson (VRUTTI) for feedback and finalized
Tools development – Household questionnaire	RCPDS and Johnson (VRUTTI)	A household questionnaire was jointly developed by RCPDS and Johnson (VRUTTI)
Pilot testing and tool finalization	RCPDS and Johnson (VRUTTI)	Pilot test was done in one village by RCPDS team; changes were made in the tool based on pilot experience
Orientation for field team at Kethanayakanpatti	RCPDS and Johnson (VRUTTI)	Field team was oriented on the project, study design, method, and tool . Samples were finalized and field work plan prepared
Field work	Hired network consultants and field team of other projects (under the supervision of Project Coordinator)	1200 household forms completed, quality checked and sent for data entry
Data Management	RCPDS	Database designed, data entered, quality checked
Analysis and Draft Presentation	Johnson (VRUTTI) with support from RCPDS Team	Preliminary analysis was done by Johnson (VRUTTI) team and the key findings were shared with RCPDS team during review, and validated
Final report	Johnson (VRUTTI)	Final report prepared and shared with RCPDS

3 Key Findings

3.1 Overview of the sample

During the field work, there were very few variations with respect to coverage of households due to availability of respondents for the interview. The actual coverage of households by the study disaggregated for type of sample (treatment/control) and Panchayat wise is given in the table below (Table-3)

Name of the panchayat	Tot.No. Families	Treatment Samples	Control Samples	Total Samples
Senelkudi	368	38	12	50
Udanayampatty	414	42	12	54
K.Pudhur	818	86	25	111
Agathakulam	1700	173	58	230
Pillayarnatham	900	96	26	122
Nallukuruchi	1800	182	60	242
Nathakulam	1700	173	55	228
lilupaiyur	900	92	32	124
Veerachozan	260	26	12	38
Total Households	**8860**	**908**	**292**	**1200**

Table 2 - Overview of sample coverage

Table below (Table-4) shows disaggregated data by various categories to provide a quick summary of the kind of households covered in the study.

Area	Respondent Categories	Control	Treatment	Total
	Total	**292**	**908**	**1200**
Gender	Female	55%	52%	53%
	Male	45%	48%	47%
Head of HH	Female Headed HH	14%	18%	17%
	Male Headed HH	86%	82%	83%
Type of farmer/HH category	Landless	24%	23%	24%
	Catchment farmers	45%	46%	46%
	Command farmers	44%	43%	43%
Literacy	Illiterate	34%	45%	43%
	Primary	29%	29%	29%
	Middle	15%	14%	15%
	High/higher secondary	14%	8%	9%
	Graduate and above	6%	3%	4%

Table 3 - Household Profile

It can be seen from the above table, the profile of households covered by the study across treatment and control samples looks almost similar except for very few variations in literacy levels. Among the total, 10% households belong to scheduled caste category (Dalits) and just 1% have differently abled member.

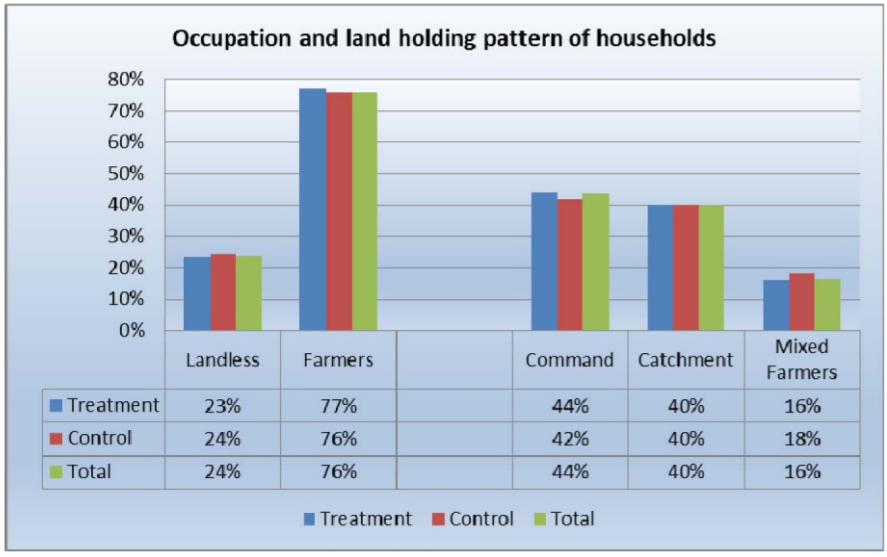
As for type and ownership of household, 28% live in pucca houses, 69% in semi-pucca and 4% in Kutcha houses; About 94% have own houses, 1% live in rented houses, 1% in leased houses and 4% in houses provided by government. About 96% of the households have no access to toilet facilities; 97% of households have BPL ration cards and 85% of households are beneficiaries of Mahatma Gandhi National Rural Employment Guarantee Act (A scheme which provides 100 days of assured employment to rural poor households). An analysis of socio-economic profile of the target households reveals that the selection of villages and target households are highly relevant for the project. The table below (Table-5) shows that there is no significant variation between treatment and control samples concerning the socio-economic characteristics of households.

Area	Respondent Categories	Control	Treatment	Total
	Total	**292**	**908**	**1200**
Type of house	Pucca	26%	32%	28%
	Semi-Pucca	70%	64%	69%
	Kutcha	4%	4%	4%
Ownership of HH	Own	94%	95%	94%
	Rented	1%	1%	1%
	Leased	1%	1%	1%
	Govt.	4%	3%	4%
HH have toilet	Yes	4%	5%	4%
	No	96%	95%	96%
Type of ration card	BPL	96%	98%	97%
	APL	1%	0%	1%
	Don't know	3%	2%	2%
Beneficiary of MGNREGA	Yes	85%	85%	85%
	No	15%	15%	15%

Table 4 - Household Characteristics

3.2Occupation and income profile of the households

It can be seen from the graph below (Fig-2), a little over 3/4th of the households are farmer households and 24% are landless. Of the total farmer households, about 44%of the households are belong to command farmer category, 40%are catchment farmers and about 16% are having lands in both command and catchment area. There are no significant variations between treatment and control samples in terms of land holding pattern.



	Landless	Farmers		Command	Catchment	Mixed Farmers
Treatment	23%	77%		44%	40%	16%
Control	24%	76%		42%	40%	18%
Total	24%	76%		44%	40%	16%

Figure 1 - Land holding pattern of HH

Within the farmer category, more than 85% are belong to marginal and small farmer category, followed by medium and large category (Fig-3). The percentage of marginal and small farmer category is slightly higher for catchment farmers than command farmers.

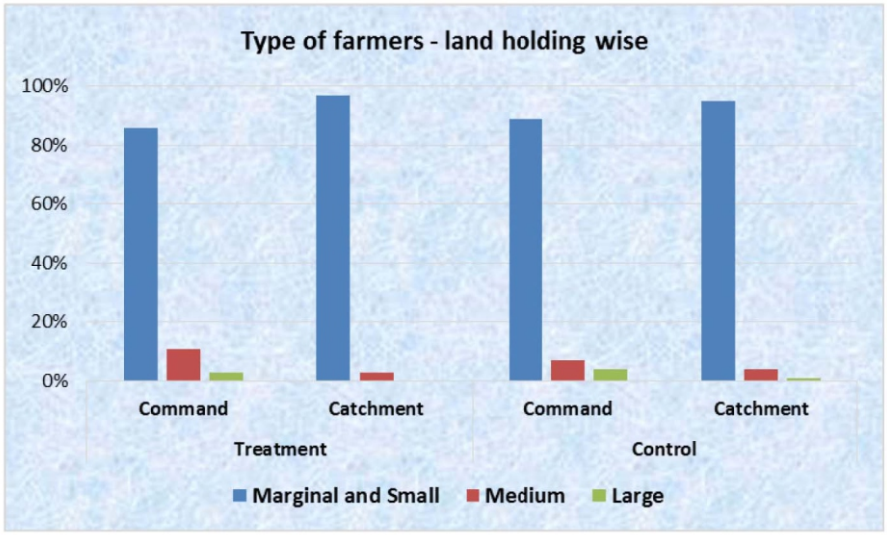


Figure 2 - Type of farmers

With regard to average household annual net income, more than 90% of the households are falling either under 'extreme poor' category (<Rs. 24,000) or 'poor' (Rs. 24,000-Rs. 46,000) category, with less than 10% belong to vulnerable poor or others category. The graph below (Fig – 4) shows that the percentage of extreme poor category is more than double for landless farmers compared to catchment and command farmers. The pattern of poverty levels are almost similar for catchment and command farmers.

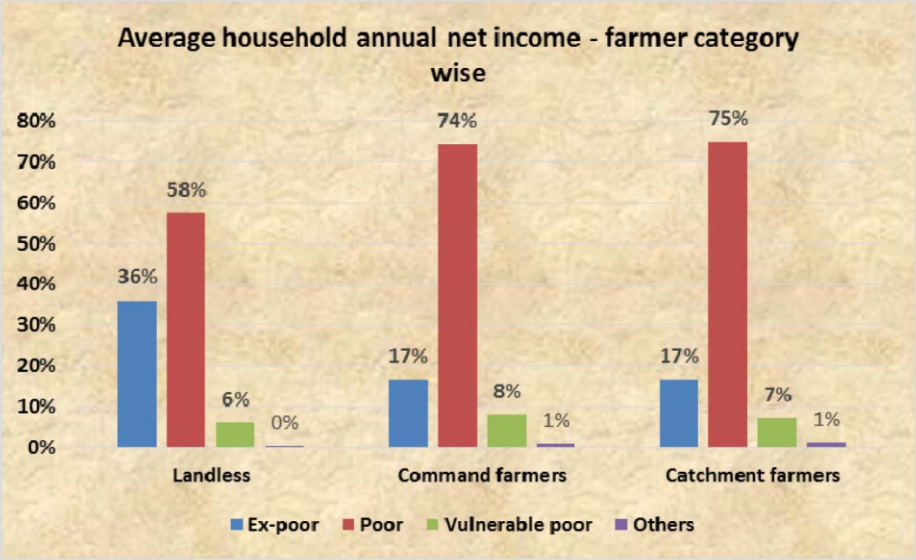


Figure 3 - Avg. HH annual net income

Looking at the income level farmer category wise, the average household annual net income for 'landless' is Rs. 28,263, 'catchment farmer' is Rs. 33,902, 'command farmer' is Rs. 34,255 and for farmers having lands both in command and catchment is Rs. 35,526.

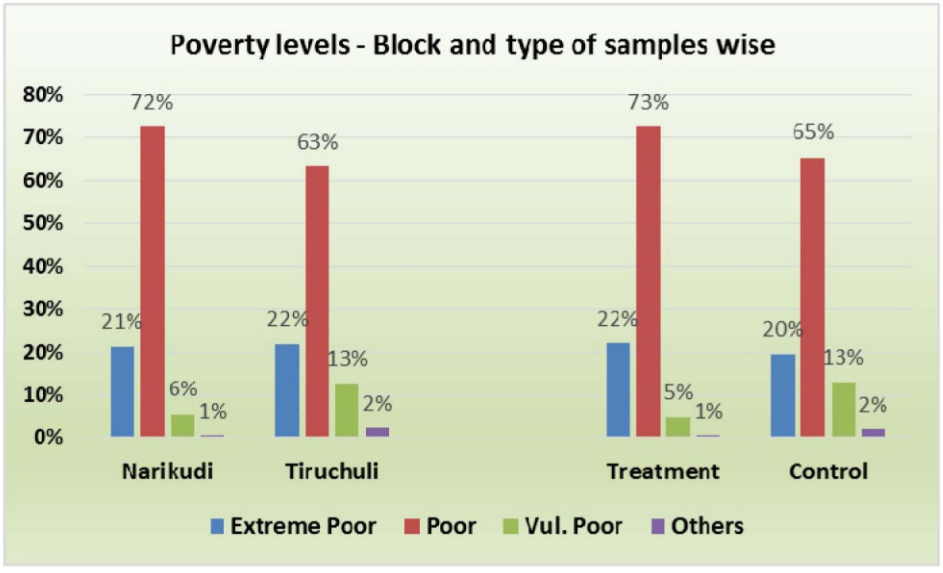


Figure 4 - Block and type of sample wise poverty levels

While there are no significant variations observed across blocks and type of samples, the percentage of households fall under the 'poor' category is slightly higher for Narikudi block than Tiruchuli block and for Treatment than Control samples (Fig – 5). The poverty level of various farmer categories justifies the proposed intervention, and the project shall consider special attention to 36% landless households who are in extreme poverty.

3.3 Irrigation – sources and water availability

Overall, 59% households from treatment and 51% households from control samples have access to water for irrigation.

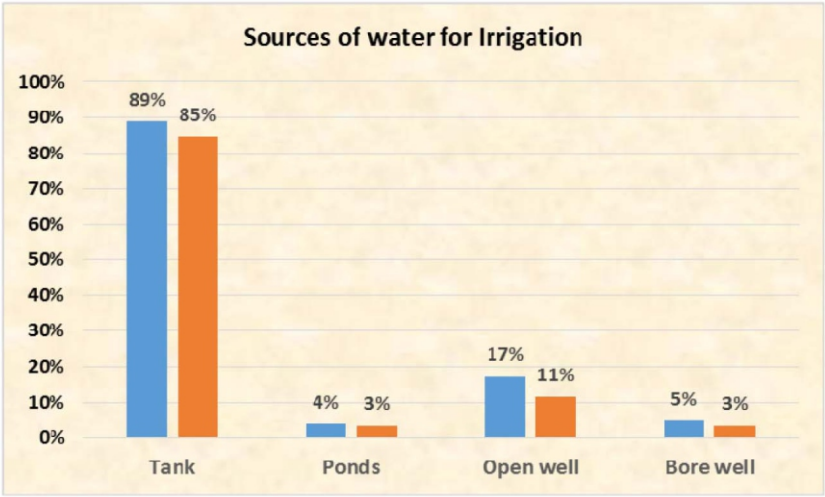


Figure 5 - Sources of water for irrigation

Of those having access to water for irrigation, the major source is Tank, followed by open wells, bore wells and ponds (Fig – 6). When asked about the duration of water availability from the tanks, a little over 80% report 2-4 months. There is no significant difference between treatment and control samples as for sources and water availability from tanks are concerned (Fig – 7)

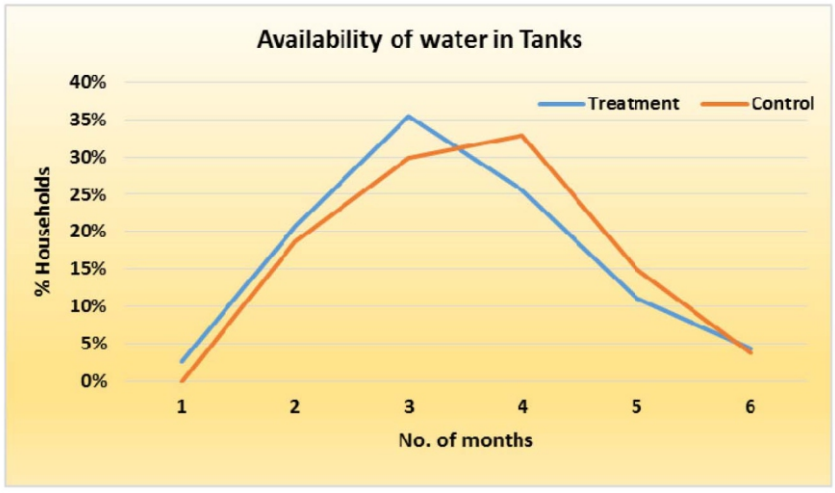


Figure 6 - Availability of water in tanks

Less than one percentage of the households report existence of community managed system to regulate water distribution from the tanks and just one householdhave membership in such committees. Of those having open and bore wells, 90% and more households do not have water to cultivate crops on a regular basis.

3.4 Household membership in CBOs

The adjacent table (Table – 6) shows the percentage of households having membership in various community based organizations and leadership position. A less than 20% of households have membership in women SHGs and of those leadership position is reported by less than 4% households. While few households reported existence of watershed management committees earlier initiated by Government during 1998 and farmers clubs, interactions with key stakeholders revealed that these were functioning but currently are defunct.

Type of CBOs	Membership		Leader	
	Control	Treatment	Control	Treatment
Women SHG	13.0%	19.8%	2.6%	3.9%
Farmers Sangams / Club	1.0%	1.1%	0.0%	20.0%
Women's Collective for Agriculture	0.7%	0.4%	0.0%	0.0%
Watershed Management Committee	1.0%	1.0%	0.0%	0.0%
Federation of Women SHGs	6.8%	0.3%	15.0%	66.7%

Table 5 - Membership in CBOs

3.5 Awareness level on entitlements

The following table (Table – 7) shows the level of awareness of study population on various schemes and services and the status of realization.

Indicators	Awareness Level		Schemes Aviled Status	
	Control	Treatment	Control	Treatment
Agriculture Credit Facilities	63%	61%	7%	8%
Land Development Schemes (SWC related)	37%	35%	5%	4%
Irrigation related schemes (drip/sprinkler)	42%	40%	3%	3%
Seed/Sapling subsidy schemes	43%	45%	10%	13%
Public Distribution System (PDS)	93%	95%	99%	96%
State Health Insurance Scheme	91%	90%	40%	41%
Noon Meal Scheme for Children	90%	87%	73%	73%
Livestock related (dairy, goat, sheep, poultry)	73%	71%	15%	15%
MGNREGA	89%	93%	83%	86%

Table 6 - Entitlements

It is evident from the above table that the percentage of households aware of agriculture related schemes is much lower than that of other general welfare schemes of government. Though the awareness level on agriculture credit facilities is reasonably good, the percentage of households that availed the services is less than 10%. The awareness level and realization status is good for schemes and programmes like PDS and MGNREGA.

3.6 Awareness level and Practices related to NRM

The study assessed awareness and practices related to various natural resource management practices, focusing on soil and water conservation, which are summarized and given in the below table (Table – 8). The table suggests that barring 'use of fertilizers and soil conditioners' and 'application of organic manure', none of the other practices have been followed regularly. Even though there is reasonable awareness shown on many practices the adoption level is found to be low. There are no significant variations between treatment and control villages.

Awareness and adoption of soil and water conservation practices									
S.No	Knowledge and practices	Control				Treatment			
		Not aware	Aware, but not adopting	Aware and practiced sometimes	Aware and practiced regularly	Not aware	Aware, but not adopting	Aware and practiced sometimes	Aware and practiced regularly
1	Maintain crop residues, use them during ploughing	14%	75%	7%	4%	16%	73%	6%	6%
2	Cultivation of cover crops/legume crops/green manure	15%	65%	17%	3%	13%	68%	16%	3%
3	Crop rotation	11%	41%	34%	14%	7%	44%	36%	14%
4	Use of organic Manure (FYM, Vermi, Neem, PK)	4%	25%	41%	30%	2%	27%	46%	25%
5	Appropriate quantity and right timing of application of any fertilisers (three Key stages) and soil conditioners	7%	15%	19%	59%	5%	17%	28%	50%
6	Visual inspections, any tests done to take any decisions on fertilizer applications	22%	40%	20%	19%	18%	38%	23%	20%
7	Soil test done for taking decisions on nutrient applications	42%	33%	14%	11%	36%	30%	20%	13%
8	Mulching	50%	35%	10%	5%	42%	45%	9%	4%
9	Contour bunding/trenching	25%	28%	27%	21%	18%	32%	30%	20%
10	Farm bunding	24%	50%	17%	9%	17%	52%	19%	12%
11	Ploughing across slope	26%	43%	22%	9%	18%	54%	23%	4%
12	Gully plugs/checks	32%	50%	12%	6%	25%	59%	12%	3%
13	Vegetative hedges	38%	48%	9%	5%	38%	55%	6%	2%
14	Tree planting along the banks/field bunds	27%	58%	10%	6%	24%	63%	11%	3%
15	Intensive/Inter cropping	24%	49%	17%	10%	20%	51%	17%	12%

Table 7 - Awareness and adoption of SWC practices

3.7 Migration

5% households from treatment and 7% households from control samples migrate for occupational reasons. There are significant variations observed between treatment and control samples with respect to duration of migration. Of those migrate among treatment samples, 47% report seasonal migration of 3-6 months and 26% each report short term migration (12 months) and long term migration (3 years and above). On the contrary, among control samples, 26% each report seasonal and short term migration and the rest 47% migrate for longer term. Migration is high in Pillaiyarnatham (Pillayarendal) panchayt (15%) compared to other panchayats where the percentage of households report to be migrated is less than 10%. No significant variations in migrating pattern observed across different farmer category types. During the time of migration, usually the parents either left their children with their relatives or taking along with them. As per the records of Pillayarnatham high school records reviewed for three previous years, an average of 15% children drop out after class nine and ten. Of this major proportion (10% plus) attributed to family migration. However, the head master cautioned that all these drop-outs could not be attributed to migration of families, but most children.

3.8 Sanitation facilities and practices

Overall, 5% or less households have access to toilet facilities. Of those having access, more than 90% have own toilets, and the rest either use community toilets or shared type. 68% households from treatment and 92% from control report availability of adequate water facilities for toilets. About 43% households from treatment and 67% households from control samples report availability of safe disposal system. Of those practicing open defecation, more than 90% of households report issues such as abuse by others, snake/insects bite, infections and safety issues. About 41% of those practicing open defecation are aware of ill effects of this practice and reporting them as frequent infections and other health complications such as stomach ache. Concerning adoption of hygienic practices, more than 90% of households report all their household members are following practices such as hand washing before food and after toilet, nail cutting, and safe disposal of used sanitary napkins (women). However, less than 80% of households use footwear while going out for open defecation.

Interactions with community leaders and police officials regarding abuse of girls reveal that in most cases these are verbal abuses/teasing which usually goes without making any formal complaint with the police or village administration. Whenever there is an issue raised in this regard by a girl or her family, the issue gets sorted out through negotiations and censuring of the accused. Making formal complaints to police or village administration is not commonly in practice in any of the target Panchayats due to cultural issues, specifically considering the future of the girl children.

Interview with the Block Medical Officer (BMO) bring to light that the average number of cases reporting to a health sub-centre of this region is as follows.

Stomach pain/diarrhea – 1500 per month, Worm infection – 900 per month - of which, adult proportion stand at 64% and children 36%, snake bites – 10 to 12 (yearly) and insect bites – 35 – 40 (yearly). While all these cases cannot be attributed directly to 'open defecation practice', the officer further said 'most cases' are due to this practice

3.9 Access to common property resources (CPR)

The adjacent graph shows (Fig – 8) the percentage of households have access to various common property resources. About 70% households have fishing rights, 50% have access to tanks or ponds and 30% have access to grazing lands. Another 20% to 30% of households have access to these resources to some extent. There are no significant variations observed across treatment and control samples.

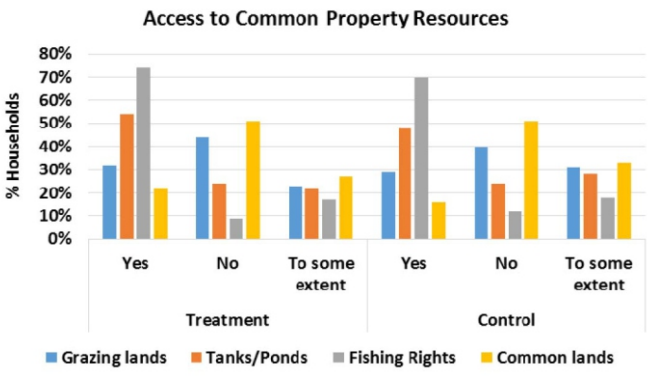


Figure 7 - Access to CPR

3.10. Linkages with Government Departments

The adjacent graph shows (Fig – 9) the percentage of households have links with various government departments. It can be seen that less than 15% of households have links with various government departments like agriculture research station, agriculture department, agricultural engineering department, social forestry and BDO. The percentage levels are slightly higher for treatment samples than control samples especially for linkages with agricultural engineering department and social forestry.

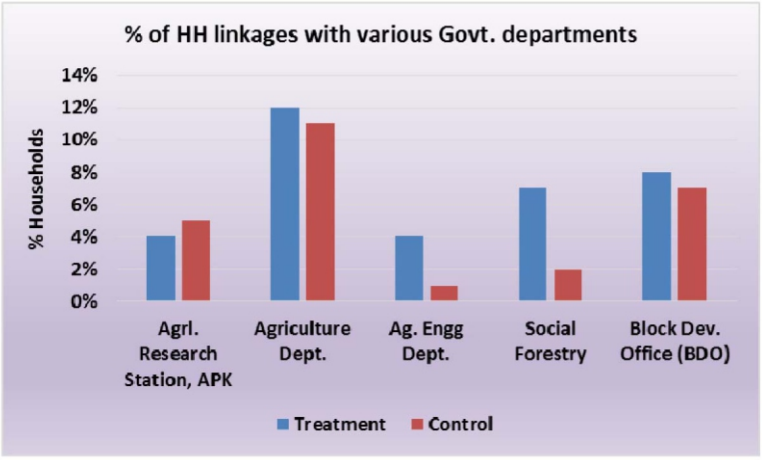


Figure 8 - Linkages with Govt. Departments

3.11 Source of seeds and issues

The study finds that groundnut is the predominant crop in the project villages followed by black gram, green gram, red gram and paddy. While ground nut and paddy are cultivated as main crops the pulses are mostly grow as an intercrop. The following graph (Fig - 10) shows the main sources of seedsfor various crops.

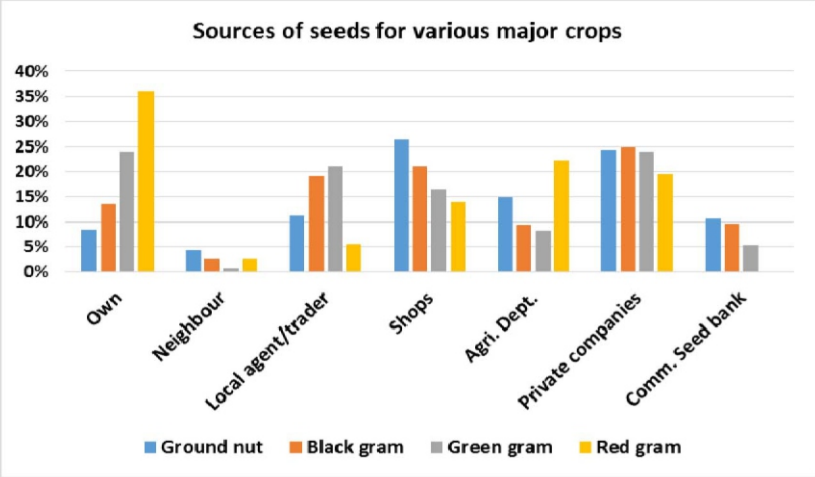


Figure 9 - Sources of seeds

High cost is reported to be the key issue in sourcing of seeds as reported by most households, followed by not available in time, not available in required quantity and poor quality. There is no significant variations observed across treatment and control samples.

3.12 Cost of Cultivation and Productivity

The following table (Table - 9) provides the cost of cultivation of major crops being cultivated in the project villages. Green gram and Red gram are predominantly cultivated as inter crops.

Average Cost of Cultivation of major crops (Rs/Acre)						
S.No	Variety	Overall	Narikudi	Tiruchuli	Control	Treatment
1	Groundnut	13285	13080	13667	13132	13262
2	Paddy	11938	11500	12300	12150	11800
3	Blackgram	7113	6750	7750	6500	7450
4	Green gram (IC)	1788	1600	2100	1550	1900
5	Red gram (IC)	1438	1300	1650	1600	1200

Table 8 - Cost of cultivation of major crops

It can be seen from the above table that there is no significant variations in cost of cultivation of all major crops either by type of samples or blocks. Overall, the cost of cultivation of all crops are quite high and it can be brought down through appropriate training packages and facilitation of community seed bank models.

The table below (Table – 10) shows the average yield rate of major crops.

Average Yield (Kg/Acre)						
S.No	Variety	Overall	Narikudi	Tiruchuli	Control	Treatment
1	Groundnut	499	530	480	530	455
2	Paddy	1418	1450	1300	1500	1420
3	Black gram	303	270	320	345	275
4	Green gram (IC)	79	75	90	82	70
5	Red gram (IC)	200	180	220	210	190

Table 9 - Average Yield Rate of Crops

From the table above, the productivity of major crops is far lower than its potential and the project has an opportunity to increase the yield through appropriate technology and management based interventions. No significant variations observed across either type of samples or between blocks.

3.13 Access to credit services

Overall, 16% respondent households (12% from control villages and 18% from treatment villages) have availed credit during the last two crop seasons. It can be seen from the graph below (Fig – 11) that the major sources of credit are local money lenders, nationalized banks and private banks or chit funds. Among those who have availed loans, about 36% received from local money lenders, followed by 25% from nationalized banks, 21% from private banks/chit funds, 9% from SHGs and 8% from cooperative societies.

Comparatively, higher proportion of households from treatment samples access loans from local money lenders and this is contrary for those access loans from private banks or chit funds.

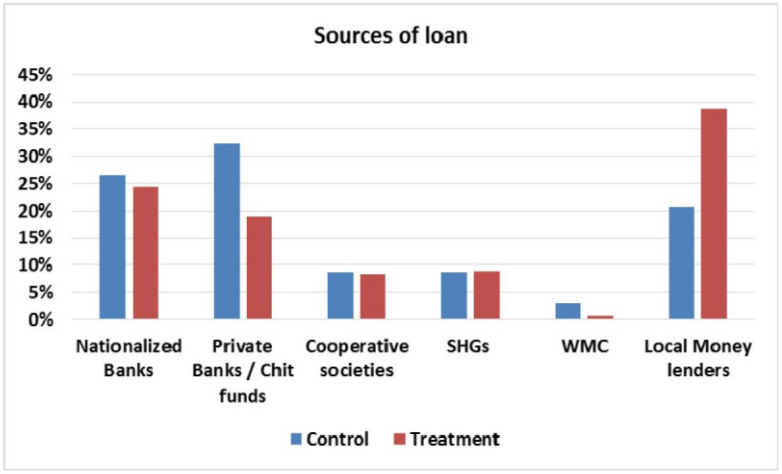


Figure 10 - Sources of loan

As for size of loans (Fig – 12), around 3/5th have received loans more than Rs. 20,000 and 30% between Rs. 10,000-Rs. 20,000. There are no significant variations between treatment and control villages as far as size of loans is concerned. As for interest rate for credit from these sources, the exorbitant rates are charged by local money lenders and private banks/chit funds (24%-60%) as reported by most households. Concerning satisfaction level on credit services, except SHGs, all other services have been rated as either average or poor by 60% or more households.

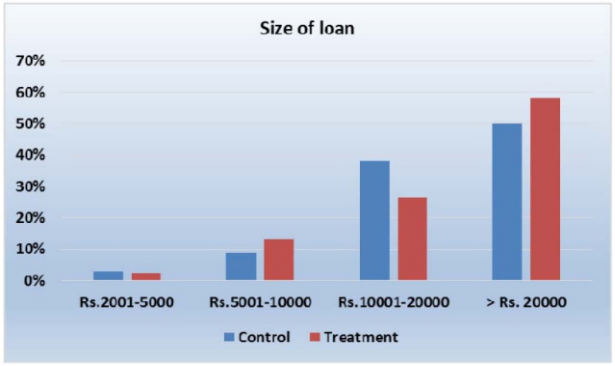


Figure 12 - Size of loan

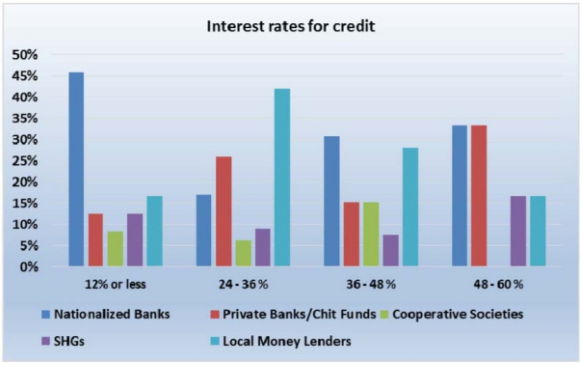


Figure 12 - Interest rates

3.14 Access to training and technical support services

Overall, 12% of the respondent households received training support during the last two crop seasons. No significant variations between treatment and control villages observed. Of those who attended any training programme, 34% participated in training on 'crop cultivation practices',21% on 'land preparation techniques', 14% on soil and water conservation, 9% each on post-harvest techniques and schemes and 6% of production of bio-fertilizers.

Of the total, 33% from treatment and 21% from control sample households received technical support during the last two crop seasons. The support has been mainly provided by brokers/commission agents, followed by neighbouring farmers and pesticide/fertilizer shops. Less than 5% households have accessed any kind of technical assistance from government institutions like agricultural research station, college, or agricultural department. The support were sought mainly on harvest/post-harvest, pest and disease management and selection of crop varieties.

3.15 Livestock

The following table (Table – 11) shows the percentage of households having milch animals and small ruminants.

	Control(% of Households)			Treatment(% of Households)		
Name of the Animal /Birds	One	Two	Three or More	One	Two	Three or More
Cow	20%	3%	6%	15%	7%	2%
Bullock	0%	3%	1%	1%	5%	0%
Buffalow	0%	0%	0%	0%	0%	0%
Sheep	0%	0%	8%	0%	1%	8%
Goat	7%	12%	37%	7%	14%	37%
Poultry	2%	11%	28%	2%	6%	15%

Table 10 - Livestock

It is observed that about 1/4th of households have at least one cow and a close to 60% have at least one goat. About 1/3rdof household rear poultry and the variations are significant as the percentage of households that rear poultry from control samples are almost double of sample households from treatment.

The project will collect household profile and village profile as part of Management Information System development (MIS) for all the households and villages which will be covered under animal husbandry and other entrepreneurship. The household profile will have socio-economic indicators, occupation pattern, membership in CBOs, status of women and children etc. This information and data will be, monitored as part of M&E and will be updated at regular intervals. Further the selection of beneficiaries will be based on a set of socio-economic indicators developed participative during the project.

4 Key takeaways from Baseline

The findings of baseline study substantiate the overall project logic of RCPDS-BMZ-KNH, i.e. the target group are largely poor; agriculture dependent; frequent monsoon failure and poor management of water harvesting, storage and conveyance structures leads to inadequate water for irrigation; lack of awareness and adoption of natural resources management practices, crop production methods, lack of access to affordable credit sources and poor access to government extension and technical support services leads to low productivity and high cost of cultivation. The study also validates the poor sanitation facilitiesin the project villages which make the communities and children vulnerable to high risks.

While most of the study findings corroborate what the project has stated in its proposal, there are few variations. For instance, the average annual household net income for farmer households obtained from the study is Rs. 33,000 – Rs. 34,000 as against Rs. 18,000 mentioned in the proposal. It could be because of their enrollment with MGNREGA scheme which provides them 100 days of assured employment in a year with Rs. 100 per day. The eligibility for becoming a beneficiary of this scheme is poverty and it is an indication that these farmer households are living below poverty line. Any crop failure during a particular year will make them entirely depend on this scheme which could fetch a maximum of Rs. 10,000 per year and this expose their vulnerability compared to landless.

The findings also indicate that there is a need to keep in mind the Panchayat/Block-wise variations, with baseline for few of the result indicators is varying in a major way (Eg: high migration in Pillayarnatham panchayat). Also, the contexts are different in each panchayat (few have farmer clubs/watershed committees and most not) and therefore the engagement mechanism and approaches will have to be different for each of these panchayat. The expected outcomes for each panchayat is therefore likely to be different.

The findings and analysis of baseline have provided pointers for the major areas related to project and impact evaluation which are explained below.

Programme Opportunities

- Water availability for irrigation – the study finds that the water availability in tanks for irrigation is just about 2-4 months in a year. By taking up the renovation activities as mentioned in the proposal such as de-silting of tanks, clearance of waterways and feeder channels, and repair of sluices as well as soil conservation measures such as contour bunds, gully checks etc. there is a scope of improving the water availability in tanks and wells, and conveyance efficiency. The project needs to ensure community involvement and contribution right from the beginning stage to make the benefits sustainable.
- Productivity and Cost of cultivation – the study finds that the productivity of major crops such as ground nut, paddy and black gram in the target panchayats has been low than its potential. Similarly the cost of production of these crops has been high. By facilitating services such as quality seeds, training and appropriate linkages there is a scope for improving the productivity and reduce the cost of cultivation at the end line, at least by 25% in each case.

- Community Institutions – the percentage of households having membership in community based organizations that have exclusive focus on 'agriculture and water management' is low. As per the project design, the project can promote watershed management committees in each watershedwhich can act as effective platforms for facilitation of services specific to agriculture and water management. Instead of forming new watershed management committees, the project can first consider revival of existing watershed committees in the Panchayats. As it can be seen that the WMCs promoted by other organizations are defunct now, the project needs to conduct periodical performance assessment of these WMCs and deliver customized training packages to make it functional beyond project period.
- Seeds – it is evident from the study that the farmers are sourcing seeds majorly from private companies and traders which are of high cost. As per the design, the project can promote seed banks in each watershed area which could be managed by WMCs. The institutional systems and procedures needs to be well thought of and implemented.
- Awareness on entitlements and realization status – the study reveals that the awareness level on various schemes, especially those related to agriculture and their capacities to realize them is low for the target households. These services can be effectively facilitated by the WMCs through networking and linkages with service providers such as agricultural research station, agricultural engineering department, agricultural department etc.
- Awareness and adoption of NRM and SWC practices – the findings show that the level of awareness and adoption of NRM and SWC practices has been low barring 'application of fertilizers and organic manure'. The project has the potential to provide knowledge inputs and make farmers to practice through seeing-is-believing concept by the way of building demonstration plots, so that these resources are well managed.
- Cultivation practices – less than one-third of the farmer households received any training/technical support services during the last two crop seasons, that too mainly from informal sources such as brokers, commission agents or fellow farmers. The project can equip farmers to adopt improved cultivation practices through appropriate training packages (trainings, field demonstrations, exposure…) and thereby contribute to reduce cost of cultivation as well as increase productivity
- Credit – it is observed that only 16% have availed loans during the last two crop seasons, that too mainly from informal sources such as local money lenders for a higher cost of credit. The project has the potential to design appropriate credit products and deliver through WMCs to improve access to credit for the farmers, especially small and marginal. This will not only help farmers but also these WMCsfinancially viable
- Livelihood support for landless – the study finds that the average annual household net income of landless is around Rs. 28,000 and again significant portion of it comes through MGNREGA scheme. In order to survive any shocks or disasters diversification is absolute necessity for these groups. Hence, as mentioned in the proposal, the project can work for livelihood promotion of these groups through animal husbandry, collective farming and other appropriate needs based interventions

- Sanitation facilities –as mentioned in the proposal, the access to sanitation facilities are very poor in the target villages. Apart from constructing the planned number of toilets, the project should walk the extra mile by creating awareness on the importance of sanitation facilities, linking with government programmes such as green housing scheme, total sanitation programme etc. and advocate for community toilets in the project villages. Special subsidized loans for construction of toilets can also be planned and implemented by WMCs.

Overall, there are many opportunities exists for the project to create substantial impact and make it sustainable. Given the strengths and experience of RCPDS in the sector and region, the potential of achieving these are high.

5

Revised indicators – Based on the study

2.4.2	Objectives:	Indicators (possibly also with a quantity structure)	
		'AS IS' – (from baseline study)	'TO BE' (target)
2.4.2.1	1,500 farming families dependent on irrigated farming grow and harvest food crops on a regular basis.	a) Irrigation water from tanks is available for a maximum period of 60 to 120 days p.a. b) 30% of farming families engaged in irrigated farming have a successful harvest per year. c) User-based water management committees neither exists nor functioning in the target Panchayats	a) Irrigation water from tanks is available for a minimum period of at least 120 days p.a. b) 60% of farming families engaged in irrigated farming have a successful harvest per year. c) A fair use of available water resources is ensured, effectively monitored and managed by 8 water management committees (WMCs).
2.4.2.2	4,000 farming families dependent on rain-fed farming grow food crops in ways that conserve water and land.	d) 13% of the farmers engage in organic farming and/or measures to protect soil and water. e) Average yield in kg per acre (some 4,047m²) for the most important crops (with the help of the baseline study) – given as a table in annex A f) Cost of production of major crops – given as a table in annex B g) 13% of the farmers use techniques for improving crop yields and water use.	d) 35% of the farmers engage in organic farming and60% use measures to protect soil and water. e) The average yield in kg per acre for the most important crops has risen by 30%. f) 40% of the farmers report lower production costs at least by 25% by using more cost-efficient organic input. (compared to control group) g) 45% of the farmers use techniques for improving crop yields and water use.
2.4.2.3	1,600 landless families and women-led households improve their regular income possibilities.	h) None of the landless families use leased land. i) 17% of women-led families are engaged in livestock raising. j) 1% landless households are involved in crop processing, value addition and marketing of harvest products. k) Landless women have no representation in the WMCs. l) The average annual net income of (Indian Rupees) a. Landless – 28,263 b. Catchment farmers – 33,902 c. Command farmers – 34,255 d. Women headed – 22,453	h) 20% of the landless families use collectively leased land for growing food crops jointly. i) 40% of women-led families engage in livestock raising. j) 125 landless women are involved in crop processing, value addition and marketing of harvest products. k) At least 36 landless women are represented in the WMCs (a minimum of 3 women per committee). l) The annual income of households, more specifically the landless families and of women-led households increases by INR 10,000 (some EUR 148).

2.4.2.4	2,500 families improve their sanitation equipment and personal hygiene.	m) Less than 50 families (5%) have access to toilets of their own. n) 90% of the families with female adolescents have knowledge about health and health care. o) 90% of the families report regular infections and snake bites. Female adolescents report verbal abuse/teasing	m) 1,700 families have their own toilets which are connected to the public disposal system. n) All the families with female adolescents have widened their knowledge about personal hygiene, health and health care. o) Infections and the abuse of female adolescents have gone down by at least 20%.
2.4.2.5	The target communities have access to various state institutions and public services.	p) % of the families have awareness and access to public services and programmes (given as table in annex C) q) 20-30% of the landless persons are able to exercise their right to use common property resources and water and sanitation services. r) Children whose parents migrate for income reasons are deprived of going to school. (15% children not going to school for various reasons including income related migration)	p) At least 25% increase in number of families having access to public services and programmes for poverty reduction, food security and health care. q) 60% of the landless persons have access to common property resources and water and sanitation services. r) Regardless of their parents' income-related migration, 90% of these children go to school.

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VRUTTI Livelihood Resource Centre

SUPPORTED BY

BMZ AND KNH GERMANY

IMPLEMENTED BY

RESOURCE CENTRE FOR PARTICIPATORY DEVELOPMENT STUDIES

Project Implemented by

Resource Centre for Participatory Development Studies

RCPDS

Project Supported by

BMZ Federal Ministry for Economic Cooperation and Development

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