



PROJECT REVIEW CUM IMPACT REPORT

KGVK, Ranchi, Jharkhand

Abstract

Impact report on food security and sustainable agricultural practices for indigenous people in ormanjhi block through community based integrated land and water development, jharkhand, india.

Year of Assignment

2021

Place

Ormanjhi, Ranchi

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Background information

Tribal communities across India are situated in peculiar geographical locations. Because of historic, social, economic, and political reasons they could not assimilate well in the main development streams. The degree of assimilation further varies from place to place. With time, different grassroots organizations explored the urgency of development in the tribal areas and started working with the deprived community. KGVK is one such NGO that is working in Jharkhand region to make substantial changes in the rural and tribal community life.

In the year 2019, the KGVK and its development partner Karl Kubel Stiftung (KKS) initiated the implementation of a holistic development project in the Ormanjhi Block, Jharkhand. The project title was "Food Security and sustainable agricultural practices for indigenous people in Ormanjhi Block through community-based integrated land and water management, Jharkhand, India". The project identified 500 households in eight villages in the Ormanjhi block for activity implementation. This report will look at the impact of the project on the community, under different dimensions which are covered under this project. Apart from fact-finding this document, will also suggest what further can be done to make significant changes in the life of the poor community. This document would also focus on the project learning which will help to develop other sustainable projects ameliorating the community's condition through natural resource management.

Project Objectives

1. To increase the agricultural production of 500 smallholder household of eight villages in Ormanjhi block.
2. To integrate the farmers to the market for increased income
3. To ascertain food security to the households

Expected outcomes from the project

1. Natural resource conservation through community led conservation and protection in eight villages
2. Improvement in land resource productivity as a result of natural resource management
3. Income enhancement and ascertaining food security of 500 HH, through diversified sustainable agriculture and off-farm, non-farm livelihood interventions

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4. Network strengthening of community based self-help groups and facilitating them to implement the project development plans.
5. Strengthening liaising with the government institutions at block and district level and increase access to government schemes.

The assignment

The project proposes to measure the performance of the project at the end of project period. It is a project review and impact report for the project title "Food security and sustainable agricultural practices for indigenous people in Ormanjhi Block through community-based integrated land and water development, Jharkhand, India."

The assignment will look after different indicators which has been initially identified as impact measurements. These major indicators are related to crop diversification, irrigation, household income, and perennial food security of a household. The project envisaged to measure positive impact on these indicators through interventions like farm diversification, water resource management, irrigation area expansion, mushroom cultivation, livestock, and promotion of village-level groups like women Self Help Groups. This assignment will capture the project impact in a month duration and an extensive field study will be conducted by group of expert researchers and practitioners.

Area of study

Ormanjhi Block is situated in the Jharkhand state. As per the 2011 Aadhar estimates, Ormanjhi Block population in 2021 will be 116,730. According to 2011 census of India, Ormanjhi population was 94,137. The population of Ormanjhi in 2020 was 112,964. This project has been implemented in the two panchayats of this block, Gagari and Tundahauli. There is total 8 villages situated in these two panchayats. The detailed information as per census 2011 is given in the table number 1. It is expected that tabular data has been significantly changed as this study has been conducted after one decade of the census study. The Census 2021 will provide recent updates about different indicators which is not yet available.

Table 1- Census 2011, the government of India

Gram Panchayat	Village Name	Area (Hec)	Households	Population	Scheduled Caste	Scheduled Tribe	Literacy %
Gagari	Gagari	288	230	1,143	182	781	58.99
Gagari	Chapra Kocha	190	73	407	0	403	67.91
Gagari	Lupunga	114	39	217	0	207	41.9
Gagari	Bijang	143	92	501	6	491	47.77
Tunahuli	Piprabanda	171	83	440	0	85	49.54
Tunahuli	Kukui	46	86	408	0	12	63.14
Tunahuli	Chapabar	193	153	762	27	371	56.84
Tunahuli	Baghinbanda	73	37	175	35	39	31.42
Total	8 Villages	1199	801	4015	215	2581	57.6

Study methodology

The study covered all eight working villages in the Ormanjhi block. One detailed discussion chart as developed for collecting field insights from individual households. We targeted 20% sample to survey the in the 8 villages. The household survey will be conducted via a stratified random sample method, where it will be ensured that respondents belong to each working village. The sample size from each village has been planned based on the total population of that village. The sampling size may get change also, depending on the field situation and total targeted benefit from each village. The households for the survey will be chosen randomly from each village. The head of the household will be the primary respondent from each village but he/she is not available, any adult will be chosen for providing the relevant information.

Table 2- Proportionate sampling from each village

Gram Panchayat	Village Name	Household	Projected sample size
Gagari	Gagari	230	29
Gagari	Chapra Kocha	73	9
Gagari	Lupunga	39	5
Gagari	Bijang	92	12
Tunahuli	Piprabanda	83	11
Tunahuli	Kukui	86	11
Tunahuli	Chapabar	153	19
Tunahuli	Baghinbanda	37	5
Total	8 Villages	801	100

Four focus group discussions (FGDs) will be conducted with different targeted groups and selected respondents. The secondary data will also be look after provided by the KGVK. The captured data will be analyzed by a team of expert researchers and final report will be submitted to the KGVK in a month period time.

Specific Objective (Project Objective)

500 smallholder HHs residing in 8 villages of Ormanjhi block increase their agricultural production, market integration and food security.

Objectively verifiable indicators of achievement

1. 400 HHs adopt diversified and sustainable cultivation methods and reduce risk in production and income.
2. 20% (ca. 12 ha) increase in irrigated area to support second crop (starting with the 4th project year)
3. 25% increase in HH income through a farm and off/non-farm-based activities
4. Round the year food security based on the field and garden work for the target group

Baseline

1. Nearly 300-350 HHs practice monoculture of paddy
2. Current irrigated area is 70 ha (~15 % of total cultivated area)
3. Mean HH income is Rs. 43,535 per annum.
4. Food security for 8-9 months/year

Cumulative achievements from start of project until end of reporting period

It is observed that 311 farmers have been benefitted from the agriculture interventions and cultivated second and third cropping in addition to paddy. 20.77 hectare of the additional unirrigated land brought under effective irrigation in these 8 villages through 35 Wells renovations (Command area 14.19 hectare) and 6 Pond Renovation (Command area - 6.57 hectare). Total 35 farmers whose well is renovated under the project also supported with solar pumps which has the potential to cater 0.40 hectare of area in a single day. Due to its portability, it serves beyond 35 farmers for irrigation. Average additional income of Rs. 42920 per HH have been generated through different on-farm activity in crops Paddy, Wheat, Vegetable cultivation and Kitchen Garden. It is also seen that the Income has been enhanced through different off-farm activity Mushroom Cultivation, Pig and Duck Rearing etc ranges from 3500-45000. SRI for paddy has been done with (100 Farmers) and for wheat, with (200 Farmers) whose income generation is yet be recorded. Total of 40 farmers have been supported with hand drip which have potential to generate Rs. 8 to 10 thousand per household. In addition to that, 70 farmers were supported with "Poly-House (L-8.5' X W-7')" for nursery preparation in October 2021, through which they can generate Rs. 10 to 12 thousand per poly house in a year.

Further, the achievement of the projects has been discussed based on the three key result areas and the activities comes under these key result areas with the specific indicators.

Result 1

Improved community conservation and protection of natural resources in 8 villages leading to improve productivity of land resources

Increase in the irrigation area

Across the work area, there are different irrigation sources like well and ponds. The project **objective was to increase at least 20% of irrigation area** during three years of implementation. The project identified the existing resources which could be utilized for irrigation upgradation without putting much burden on the poor households. The data suggest that gradually the irrigation land has been increasing and it directly helped to increase the crop intensity of the households. In the baseline study, it was observed that 70-hectare land was irrigated. The study finds out that for expanding the irrigation area, the project connected with the community and took their support for the renovation of existing wells and ponds.

Table 3- water body renovation work

Irrigation facility	Target	2019	2020	2021	Total achieved	Total achieved in %
Pond Renovation	14	0	0	6	6	42.86
Well Renovation	35	0	25	10	35	100.00

In the first year of the project, 10.85 hectares of the additional land area was brought under effective irrigation through pond and well renovation. To bind this impact, well renovation was done for 10 existing wells. This helped to increase the command area up to 4.28 hectares. Few wells are owned by the individual and few wells developed as group well. Similarly, pond renovation was also done for six ponds in the first year. This helped to increase command area by 6.57 hectares. Total 137 individuals get benefitted from well renovation activity. Ponds are the community structure so they are benefitting many households in the region.

Table 4- Farmers benefitted from water body renovation work

Activity	Members benefitted (Year wise)		
	2019	2020	2021
Pond Renovation	0	0	0
Well Renovation	0	102	35

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The initial work, convinced other community members also to take up this work. At the end of the project, 20.77 hectares of additional unirrigated land area have been developed for effective irrigation through the project interventions. A total 35 well renovation has been done to cover a total 14.19-hectare command area. Six ponds renovation upgraded irrigation facility for 6.57-hectare command area.

At the end of the project, total 90.77 hectare land is under irrigation facility. It means through the **project total 21% irrigation area have been increased**. However, this project, has much bigger impact than merely digging wells and renovating ponds. It has accelerated the community work hope among the community and they realized that to rejuvenate the irrigation facility they do not have to wait for government agencies or donor agencies. Now the attitude has been changed and individual farmers are willing to take self-interest in developing irrigation facilities for their respective farms.

Crop intensity and diversity

In the 8 working villages, before the project implementation, the farmers were mostly cultivating one crop i.e., paddy per year, because farming was rain-fed irrigation sources were limited. Farmers were not adequately aware about the benefits of multi-cropping, nutritional security offered by the multi-cropping, and how to expand irrigation area. Regular paddy cultivation year after year was raising few key issues - Food and nutritional in-security year around; and degradation; limited food choices for family. To address these issues, project team implemented different set of activities, which are enlisted below.

System of Crop intensification

One of the targets under this project was "400 HHs adopt diversified and sustainable cultivation methods and securing their yield." The study finds out that a substantial progress was made on this front. As per the base line data, around 70 % of the households were practicing paddy mono-culture. Once the project implemented, the respondent shared that initially they were reluctant to change as they felt it was risky and could jeopardize their livelihood and food security based on paddy cultivation. However, in the initial phase only 35 families adopted diversification and shifted to wheat and gram.

Table 5- Project targets achieved for agriculture trainings

Agro ecological farming, diversification and sustainable agriculture	Target	2019	2020	2021	Total achieved	Total achieved in %
Agro Ecological Farming Practices	400	0	0	0	0	0
SRI-Paddy (Optional-Wheat, Mustard)	400	0	381	100	481	120.25
Demonstration and Model Farms	8	0	0	0	0	0

The respondent shared that even in the paddy cultivation they have adopted the improved paddy cultivation method - system of rice intensification (SRI). SRI helped them to improve paddy production by 30-40%. By the end of the project, around 200 households have reported that now they are cultivating second and third crops other than paddy. The cropping intensity increased without affecting the paddy yield and while improving the land productivity. The organization adopted multiple interventions at the field level which will be covered in the upcoming sections.

Seed supply

With the farming activity, seed supply activity was also taken under the project. Under this activity, to each farmer practicing SRI, 2.5 kg paddy seed and 2 kg wheat seed was distributed. The seed distribution activity has benefitted in two ways; improving seed replacement rate; good quality seed increased yield by 30-40%. Respondents shared that they shared seeds with in the farmers which helped them sustain through the COVID lockdown period and because farmers got paddy and wheat seed so they have cultivated crops in two seasons.

- 1- Tree cover in the project area
- 2- Land treatment to check erosion
- 3- Nutritional security via kitchen garden and Mushroom cultivation

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Kitchen garden

Under this activity, nine types of vegetable seeds were provided to every interested individual farmer. The basic objective for promotion of this activity is to ensure nutritional security; crop diversification; increasing vegetable availability in the village; reduce dependence on the market and ensure vegetable supply to households for 6 months in a year.

The respondents shared during individual interaction and group discussion that activity helped them to increase vegetable consumption. Few households sold out surplus vegetables to get some additional income. The income component and total number of households adopting this activity has been shared in the next section (Income section).

Soil conservation activity

Across the work area, farmers were facing the problem of soil erosion and undulated land. It was causing a problem for the farmers as there were not able to use their land efficiently for farming purpose. It was also hurting overall farm production and productivity. To address this problem soil conservation measures have been taken at the selective land.

Table 6-Soil conservation work details across work area

Soil and water conservation activity	Target	2019	2020	2021	Total achieved	Total achieved in %
Field Bunding/Contour Trench (SCT/CCT) /Plantation	30	0	16.89	10.73	27.62	92.07
Gully Plug	24	0	19	5	24	100.00
Boulder check	10	0	10	1	11	110.00
Valley Line/ Low Land Well	8	0	0	0	0	0.00
Check Dam Deepening	1	0	0	0	0	0.00
Wasteland Development-Fodder development, Leguminous Crops, Medicinal Plants etc.	8	0	8	0	8	100.00

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The data suggest that no work has been done in the first year of the project. It is obvious to understand as a community takes time to understand the nature of the work. Also soil conservation activity needs to be taken in a particular period which was already passed in the first year of the project.

Farm bunding was the prominent activity under the project which has been implemented extensively under the project and the community directly connect with this activity. The farm bunding popularly known as Medhbandi, in the local region, has been implemented at 30-hectare land. During the field visit, it was found that most of the bunding work has been done on undulated land, non-cultivated land, and barren land. Benefitted farmers shared that this activity has brought significant change for transforming agriculture at the local level. A few key points are enlisted below which come after interaction with the respondents-

1. 70% of farmers are now taking two crops on the same land, where they were not taking even a single crop. They now cultivate paddy in kharif season mustard, red lentil, gram in rabi. Rabi crop thrive well with residual moisture, created because of farm bunding.
2. Income from additional rabi crop is around Rs. 10000 for small and marginal farmers
3. It also creates employment to the local villagers as all the works of farm bunding was done by the tribal community itself. It was a great help during COVID phase.
4. The payment process to get wages are fast, villagers were very appreciative about the payment process. It was much faster, efficient, and transparent that the community suggested it as a model for MGNREGA also.
6. Farmers are practicing crop diversity in newly developed farms. During the field visit, it was observed that few farmers have grown vegetables like tomato and beans in these plots.

Most of the targets have been achieved under the project as the table suggests however few targets are untouched. When the question asked about it to the community, they responded that these structures have limited scope and limited cost-benefit ratio so it was declined after mutual discussion. Only two activities could not implement; 1- Valley Line/ Low Land Well. 2- Check dam deepening.

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The data also suggest that most of the activity was done in the 2020; this is remarkable because COVID was at its peak and community livelihood was suffering. The community shared that, soil conservation work in the village provide a livelihood to the many families which was much appreciated by them during an interaction.

The respondent shared that the location was identified with the mutual discussion and the community was taken under confidence before implementing the work. The family members also contributed for the work and they get paid as local labour was used for the same. During the field visit, it was found most of the targets were achieved by the project team. The work impact is visible also in the project area as a community is able to see its impact. Now the community shared that they will take this initiative themselves also for soil conservation.

Result 2

Increase in income and food security of 500 HH, through improved and diversified sustainable agriculture and off/non-farm livelihood interventions

Annual Household income

The project target was to increase 25% Household income through farm and off/non-farm-based activities. The baseline data suggested that before the project implementation, average household income was 43,535 Rs per year. This income included all the farm and non-farm income sources for a household. Under the project, a set of activities mostly farm related, was implemented in a planned manner. The respondent reported that multiple incremental improvement was done by the team at the household level helped individual family to enhance the income.

Under the agriculture activities, better paddy cultivation practice (System of Rice Intensification) was promoted. Around 30% paddy growers today are cultivating paddy with SRI method which helped them to increase production by 30%. In addition of that, in the Rabi session, wheat, gram, vegetable cultivation has been initiated by selective households. Around 200 Households are engaged in these additional activities. Kitchen garden, a key activity has been promoted with women farmers (around 200 women farmers) to ensure the nutritional security for the family. Marketable surplus from the kitchen garden was sold by them in the market. Overall improved agriculture practices helped selective households to increase their annual income by average 50% (data based on the Focus group discussions). The data suggest that, from the farm activities, per hectare around 21000 Rs per year income has been increased. The income breakup has been given below from different farm sources-

Table 7- Income from different farm activities in a year

Farm activity	Total households	Income per season
Paddy + Mustard (SRI and improved practices)	360	14000
Wheat	121	2800
Horticulture and Vegetable cultivation	224	4500
Demonstration and Model Farms	0	0

Allied activities

Other than farm activities, a few allied activities were also promoted. These activities are - piggery, mushroom cultivation, and duck rearing. These activities supplemented the regular farm activities and bioproduct of farm activities effectively used as raw material for allied activities.

Table 8- Farmers benefitted from livestock activity year wise

Livestock enterprise- targets	Target	2019	2020	2021	Total achieved	Total achieved in %
Backyard Duck Farming- 300 HHs	300	0	300	0	300	100
Pig Rearing- 50 HHs	50	0	50	0	50	100
Micro-Enterprises Development-8 Unit (one unit each village)	8	0	0	0	0	0

Piggery

It has been done with 50 families in the working villages. The activity was adopted after the community have given its consensus and they have shown cultural acceptance for it. Initially, they had limited idea about scientific methods of pig rearing. They get proper training, exposure, veterinary support for the same so the activity became a real success for the households. 35 youth have been trained for services in livestock management and agriculture development which provided primary medical treatment to the piggery rearing farmers.

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Today piggy rearing is one of the most profitable activities for households and they have developed a scientific method for rearing it. Under the project, one farmer received 3 pigs, 2 female one male. The offspring are around 3-7 in 6 months duration. One pig weighs around 70-80 kg and few grow up to 100 Kg. The lowest market rate for the pork is 200/kg. By this rate also every farmer earns around 40-70 thousand in a year. As per community feedback and field assessment, this is one of the most profitable activity for the community which can be further pickup for future expansion.

This initiative has ensured a few key benefits like, effective use of biowaste from home and farm; regular cash flow; and nutritional security for the family. The activity ensures a regular income supply for the poor households even during the COVID period. Because of running market of pork households did not have to worry about pork selling.

Duck Rearing

Small poultry rearing is common for tribal households. In continuation of that, duck rearing practices have been initiated with 300 households across the work area. These duck units are smaller in size and mostly given to those households which have limited land space for agriculture. The duck income is regular in the nature and individual households have responded that average Rs.3000 they are earning from the unit. The bigger impact of the duck unit is still needs to be seen in the coming years as still duck unit at the household level is expanding. High mortality is the biggest issue the duck unit is facing across the work areas. Regular medical support and best rearing practice training to the household is the need of the project for its success in the near future.

The micro enterprise unit

Rice dehusking machines to the SHG groups have given. Few of them have just been running on piloting basis. Same is the case with the utilities for wedding ceremony and other functions in villages, like chair, table, utensils for cooking etc. After doing business for few months, KGVC team would review the and accordingly prepare a business plans for each individual unit.

Mushroom

Oyster mushroom production activity was planned for 300 households under in-bag model. As per the model, Oyster mushroom sponge has been to each beneficiary so they can raise up to 10 bags in the first lot trial. In the next phase the bag number expanded up to 30 bags per household.

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During field study it was found that one cylinder produced around three Kgs of mushrooms. When community has done mushroom in the first lot, mostly they consumed it and distributed it among them. In the second lot, now producers are selling the mushroom at 150/kg price to the village consumers. The rate is 200/Kg for restaurants. On an average, each cultivator earns around 8000-15000 per season from this activity.

In summary, the study finds out that, in the project area, community have received significant benefits if they are given a set of income generating activities for implementation. Mere one activity or two have not brought any significant change in the income. An efficient combination of farm and non-farm activities have helped individual household to see significant income rise.

Result 3

Community based self-help groups, guide and implement the project measures and development plans. They are networked with government institutions at the block and district level and have access to government support schemes.

Sustaining human capital

Any project bigger or smaller in size cannot uproot the poverty if it does not work on the human capital. Project started and get ended but it remains sustained only when local community own it and develop capacity to continue the development projects in the long run. In this project also has one objective to focus upon human capital development and enrich the expertise of the community at the grassroots level. This section will look after project success to build the human capital at the end of the intervention.

Capacity building for agriculture and allied sector

Under the project, major focus was given on livestock activities and its promotion. The livestock activity needs special training and capacity building on fodder management, space management, reducing mortality, vaccination and so on. To focus on that aspect, a different set of training have been proposed under the project.

Capacity building for livestock rearing

To develop livestock expertise and microenterprise experience total 24 trainings were proposed. The attached table has details of the training and achievement against the target year-wise.

Table 9- Youth training and capacity building details under project

Capacity Building Livestock and Micro-enterprises	Target	20 19	2020	2021	Total achieved	Total achieved in %
Training on Livestock Management (Duck,Poultry, Goat and Pig)	8	0	4	0	4	50
Goat Management- 500 HHs	8	0	1	1	2	25
Micro Enterprise Development	8	0	2	1	3	37.5

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The table indicates that total training was planned more but it could not achieve against the target. In the project initiation month, no meeting could be conducted as livestock distribution and rearing was not started. In the second year also training could be conducted much for a large part of the year as COVID did not allow people gather for the training events. A similar factor affected the training program in the 2021 also.

Table 10- Total participants under different livestock training

Activity	2019	2020	2021	Total Participants
Training on Livestock Management (Duck, Poultry, Goat and Pig)	0	155	0	155
Goat Management- 500 HHs	0	51	64	115
Micro Enterprise Development	0	41	22	63

Under these trainings more than 330 participants got knowledge about livestock rearing, goat management, and micro-enterprise activity. However, respondents suggested that there were limited group meetings, but the team visited home regularly and provide technical support, guidance, and handholding support at the individual level. Its impact is visible for pig rearing and goat rearing. There is significantly low mortality among the pigs and goat. The respondents suggested during the group discussions, that more focus needs to be given for duck and poultry rearing practice. The mortality rate is higher for the birds and the community need special training and guidance on that regard.

For the microenterprise development, total 3 trainings and sensitization meetings were conducted. The Primary idea of that workshop was to share the concept and identify the right candidate for that activity. However, it was not much successful as no individual have been identified for the activity and it has not been implemented under the project.

Capacity building for sustainable agriculture

Agriculture activities have a new challenge for every day, every season, and every year. These challenges have different names like heavy rainfall, drought, animal attack, paste attack, poor irrigation facility, and so on. Many of the challenges can be addressed by applying the technology but this is not viable for the small and marginal farmers as they are resource-scarce. To mitigate this gap, need of the hour is to build famers' capacity and equip them with the knowledge which will help them to reduce the externality in agriculture.

With this understanding, this project also has element of capacity building for the farmers. As per the project objective, deliverables are following-

Table 11- Capacity building training for crop diversification

Capacity Building sustainable, diversified agriculture	Training target under Project	2019	2020	2021
Formation and Application of organic soil fertility, Pest control and Bio-Fertilizer	8	1	3	2
System of Root Intensification-Paddy, Wheat, Mustard	8	0	3	1
Diversified cropping practices (Mixed, Inter etc)	8	1	3	1
Mushroom	8	0	1	0

These deliverables are limited as one event/training has been targeted to one village and even that target was not achieved under the project. This may not be enough to provide enough knowledge base as agriculture is the vast subject and community needs regular training. It was reflected during the focus group discussion also. The respondents had some idea about the SRI practices, organic farming, making organic compost but they were not much equipped with detailed information about topic. This gap needs to address in the next phase of the project or it can be taken as a lesson for the next phase of the project.

Under these training also not all the farmers have taken active participation. Total participant number who get trained also have been shared year wise in the below table-

Table 12- Total farmers benefitted from crop diversification training

Capacity Building sustainable, diversified agriculture	Total participants	2019	2020	2021
Formation and Application of organic soil fertility, Pest control and Bio-Fertilizer	261	42	119	100
System of Root Intensification-Paddy, Wheat, Mustard	199	0	149	50
Diversified cropping practices (Mixed, Inter etc)	204	30	124	50
Mushroom	33	0	33	0

Farmers could be trained for sustainable effect in the farming. However, during an interaction, it was found that those limited trainings were very effective as farmers were able to recall/ share most of the technical points asked by the interviewers. For the SRI most of the farmers had a good amount of knowledge but more work needs to be done for organic compost preparation and diversified crop practices. Few key aspects of drip irrigation, pest management, and post-harvest management need to add in the training module to ensure minimum loss of available resources.

Mushroom cultivation is one activity, in which still community needs more technical knowledge and guidance as it is a sensitive activity and requires a lot of care during cultivation. The respondents demanded more technical support for the same.

Village institution development

Community institutions are key to long run sustainability of activities in development. Unless the community is at forefront of the process chances are the social development stops the moment facilitators withdraw. Development organizations try to cultivate and nurture local leadership and promote the village institutions led interventions. There can be different types of village institutions like farmer groups, self-help groups, village development organization, and so on. To develop village institutions different trainings have been organized with the community members.

Under the project total 60 trainings were planned for the community development workers. Capacity building trainings included members from village committees, animal health workers, SHGs. Local skill was also developed to facilitate and overlook soil and water conservation activities and intervention. The detail year wise breakup against training target is given below in the table 13

Table 13- Total trainings conducted for institution building

Training self-help structures and institution building	Total target	2019	2020	2021	Total achieved
Village Development Committee	24	1	3	4	8
Animal Health Worker Training	10	0	2	5	7
Record Keeping (SHG Training)	16	0	0	14	14
Para-Engineer Training (Mates Training)	10	0	2	1	3

Under these trainings total 735 individuals received training for different kind of people institutions (all may not be unique individuals). The breakup of those households under different trainings given in the below table-

Table 14- Individuals participation in institutional building training

Training self-help structures and institution building	Total participants	2019	2020	2021
Village Development Committee	223	32	94	97
Animal Health Worker Training	216	0	48	168
Record Keeping (SHG Training)	268	0	0	268
Para-Engineer Training (Mates Training)	28	0	18	10

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Most of the training has been conducted in the 2020 and 2021. During the field interaction it was found the village development committee leader still need more handholding, guidance, and capacity building so they could lead the institutions in the long run. It was also observed that VDC training was conducted for the masses to help them to understand the concept of the village development committees but there was limited focus given for leadership nurturing. Under the SHG also, focus was given to choose women for accounting training and technical support to address challenges faced by SHGs. Animal health workers were also trained which need more training, guidance, exposure, and medicine kits so they will be more effective to address the community's need.

Case studies

Farm Bunding and solar Irrigation - Ramkisun Bediya,

Ramkisun Bediya, from the village Bijang do not feel aged at 50. He works on his two acres of farm full day, and yet he speaks cheerfully in the evening. On the way from his farm to home, he insisted that his 600 fellow villagers wanted to focus on agriculture and horticulture. He has a family size of six.

“Labor could secure food for a day but a farmer for entire year” says Ramkisun Bediya while speaking to the villagers. He is against the idea of youth migration who have paternal land but still they are migrating to the other places and living in poor conditions. In his initial days, Ramkisun Bediya’s ancestors were selling wood illegally, and were not involved in farming. Despite having sufficient land, they had no plan to start farming and they were not aware about advance agriculture technology. He owns almost about 2.5 acres land in two villages nearby. Before the intervention of the organization, he was cultivating half of his land in share cropping where He used to work coal mines, but now he is not. He cultivates paddy in two acres in June July and vegetables such as coriander, tomato, cucumber, beans, flowers until April.



His land was divided among his brothers. The solar interventions of the project helped him irrigate his entire land. Now he could exchange the land with other farmers who has land near by his main land. It is common in that area to do ~~mutual~~ exchange of the land with the fellow farmers. He thus cultivates vegetables now in his entire land. The vegetable cultivation assured him better income compare to paddy and wheat. He has taken multiple benefits under this project, he did farm bunding across his land. For irrigation he installed solar pump set in his land. For experiment purpose, he started mushrooming also in his farm. He had fallow land earlier but now he is a progressive farmer who adopts improved seeds for his all the crops.

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He is trying to diversify his farm with allied activity like duck farming and poultry. He understood value of irrigation for agriculture so engaged in well renovation for irrigation support. Explaining his expenditures, he says "I spent 30-35 thousand for education for my child, 24, 000 for food, 20,000 for agriculture, 25,000 others like medicine and festivals" before the intervention, he was struggling to manage the educational, medical and festive expenses. After agriculture intervention, he has enough to eat from his field and could save food expenses, bought from outside. All his earnings are from agriculture which makes about 2.5 to 3 lakhs, depending on the price of vegetables.

He says in good harvest tomato crop alone assure him 60-70 thousand Rs income. Adding to the project benefits he explained that Duck could not add much to the income, but it is important for health and he used it for meat consumption. He sees it source of protein and nutrition for his family.

In the family of size of six, he has two boys and two girls both are studying with his mother. His wife died four years ago due to some disease. Now he is planning to marry the girl from the saving he could make from farming. He is confident that he will meet all expenses from his savings. He does not want to do labor anymore and plans to focus on agriculture and allied activity. In the near future he wants to buy a tractor because in the recent time agriculture plowing cost has been increased from 700 per hour to 1200-1500 per hour.

The project has become bacon of light for his family and for himself, now the hope is that he may carry himself even when project bind up.



Pond Renovation - Parshuram munda

"*Agar Sarkar humko pension nahi degi to ye orchard humko pension dega*" says Parshuram Munda living in Piprabanda village who is a great example of a progressive farmers at the age of 48. In his village total 84 households are settled. He has five members in his family including one girl and two boys, all of them have discontinued study after 10th. He owns three acres land in which he grows two acres of orchid, paddy (using SRI), turmeric, vegetables, fruits – shakarkand, mango, udad, saru, munga, guava, lemon, banana, ginger, cashew, papaya, and teak.

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He got orchard training from Demotand, near Ormanjhi in 2004. Connecting the dots, he renovated well and is grown the orchard by taking benefits from KGVK. He has applied new technologies in his farm for orchard development. His orchard is one live example in the vicinity that how one development institution can be used by individual farmer effectively.

Under this project, he took benefit for renovation of the pond in the year 20-21. Once pond was ready, he had put 1000 fingerlings in the pond. He planned to sell fish 120-150/kg and earn 1 lakh to 1.5 lakh from the pond. This pond irrigates his entire orchard and rears fish aswell. The income from the orchard is around 2-3 lakh from, out of which around 25-30% income contributed by mango crop only.

Apart from the orchard and fish rearing, he cultivated mushrooms also and sold that in the local market of worth Rs. 6000. He does not travel much for marriages and functions to care for his orchard, he says *"this orchard is my life I celebrate this every day. I do whatever I feel to do. I experiment on many things, and in the next phase I am planning pig rearing whose waste can feed fish, and duck in the pond to increase farm income"* says Parshuram Munda.

He also added *"Initially villagers had no trust in me for orchard development. But I could make it possible with support from different institutions"* Now many farmers are planning to replicate the same model.



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Piggery - Sukhdev Munda

Sukhdev ji is in his early 40s, he lives with Wife fulmani devi and 2 children. His son studying in class four and daughter is studying in class 3. His main occupation is to drive a tractor for 300 Rs per day. He is having agricultural land of 2 acres where he is cultivating paddy, vegetables, and potato. He was supported by organization for piggery and got 3 pigs initially which includes 2 male and 1 female pig. After six months duration, he owns 7 pigs, which include 5 kids and 2 well grown. all the matured pigs have gained weight in between 50-75 kg whose market value is around 12-15 thousand Rs in total. if the cycle continues like this, Sukhdev Munda is expected to earn 40-50 thousand Rs in the next 6 months. By looking at the local demand for



pig meat, this could be the most successful activity among all the activities.

Sukhdev Munda told the return on investment is higher than any bank interest rate or any investment in the villages. After investing Rs. 10000 in six months he gets around 50,000 in return. He is planning to invest more on piggery activity by taking loan from the banks now.

Apart from the piggery, he is also supported for the Well repairing, solar irrigation, duck rearing, mini drip, and poly house which are done very recently in his farm. It is expected that he will reap benefit in the coming days.

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Leadership and Institution Building – Pramila Devi

Pramila Devi lives in Village Chaprakocha. She is the group leader of 20 SHGs, and secretary for her SHG. She also works as a health worker in village. There are 9 members in her family including 2 son and 2 daughters. Boys are studying in class 8th and 5th and the girls are in 10th. She has four acres of land but she was not doing much due to his husband's drinking habits. She had no savings. She shared that his husband merely contributes to the family income. After getting support through KGVK for farm bunding and livestock rearing – piggery and duck, she is now able to earn around, 2-3 lakhs in a year. She is one amongst the



happiest women one can meet in the village. Now she also saves in the SHGs and in the bank. She got connected to KGVK team and this project in 2019. By looking at her leadership skills, KGVK assigned project responsibilities to Pramila Devi.



The idea behind promoting the finest leader in the village was to create a role model of the project where a single woman can guide and nurture others by her leadership skill. Due to that, almost all the major activities were given to Pramila Devi. He gets benefit of farm bunding, piggery, duck, poly houses, rice mill in the group, SRI, kitchen garden, mushroom cultivation, and solar irrigation. She says people should not be in trouble, everyone should smile and live happy life. She firmly believes that project has given a hope to the localities, and the second phase of the project should come since there are many needy people to work with. She expressed "I will take these women forward with the help of KGVK and other institutions, will try expansion of the project by supporting them through bank linkages. Time availability is a bigger challenge; else I could do a little more for the project". She is a great help to all the villagers for dealing with outside institutions like dealing with banks, hospitals, schools, other institutions etc.

This case shows how a selfless, responsible and committed village leader or volunteer can be identified and groomed for the smooth implementation of the project that will lead to sustainability of the program.

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Well Renovation - Hari Bhai

Hari Bhai is a happy family of size six with four kids and his wife. A full-time farmer is very excited after receiving the project benefits from KGVK. One could not be excited more than him while showcasing his project benefits. He gets full support in agriculture from his wife Basanti devi. "Landholding is useless if farmers are unaware of the modern agriculture practices and land is not prepared to use for agriculture, and irrigation facility" - Hari bhai says. The three interventions have changed his life in last two years. KGVK identified this and worked with me in agriculture and livestock. Before this project implementation, he could merely stock the food for the entire year initially even when he has 6 acres of land.



In 2019, his well was repaired and water storage was increased as well area expanded to 600 feet square (30ft depth and 20ft width). Now across his farm, he cultivates paddy and vegetables. By showing his paddy, which he was supposed to harvest in the coming week, he says *"all my neighbor farmers started doing SRI by learning from me and their yields have doubled. Nearby farmers also get water from my well"* He has also constructed a facility for pigs behind his home and care them like his own family member. He is expecting good return from the pig activity.

With his own estimation he felt that in the last two years at least 2 lakhs Rs additional income he added in his total income, thanks to project interventions. He wanted that project should continue in the coming years also so he and other farmers will get more to learn and earn.

Suggestions and recommendations

To understand the real impact of this project, we need to duly consider that project was implemented in the work area when the whole world was facing the most severe pandemic of this century. At that time, when all the economic activity was closed and community was very much vulnerable to hunger and unemployment, this project was a ray of hope for them. The activity numbers may not be able to reflect the whole story but it was very much visible during field interactions and discussions, especially with women and youth.

After interaction with the community and analyzing the data, one major finding was that, the project is not over yet and many project outcomes will reflect the due course of time. However, based on the field responses and observations, few recommendations and suggestions are enlisted here. The team is not claiming that they have full authority to suggest these suggestions but it is based on the limited exposure with the community.

- 1- The project activity needs close monitoring during implementation, it will help for more efficient utilization of the scarce resources. A common committee can be formed (staff+ Village leaders) to monitor the project activities in the long run resource utilization and transparency.
- 2- Few innovations can be planned more effectively for smooth implementation. This will help to implement more efficiently as it could not happen with strawberry crop and drip irrigation activity.
- 3- More training and support are required for youth group which is targeted for livestock management. They need initial support for medicines, transportation and other admin management until they are not sustained (support timeline can be discussed mutually with the trained youth).
- 4- Involvement of community is required for procurement processes like pig breed and crop seed. It will help to ensure transparency and community ownership in the long run. Same time it helps to reduce blame game as few community members were not happy with the pig breed quality.
- 5- More training and handholding are important for new initiatives like mushroom cultivation and strawberry crop. The training is more important if the community is expected to do the innovation for commercial purpose and not just for self-consumption.
- 6- Duck rearing farmers are can be trained more for the same as mortality is significantly high for the same.
- 7- Livestock is one crucial activity and cost-intensive so household selection criteria need to be followed. It was found that few households get the livestock but they do not have enough space to livestock. It is adversely affecting animal health and growth.

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- 8- Solar operations need more training; many beneficiaries are not confident about using it because they are not technically proficient. Also, all the information should be floated to the farmers about the use of all the parts of the device. During visits, it was found that the battery was not attached with some of the solar systems. It was not given due to cost factor but farmers said they were not aware of the cost, else they would like to pay.
- 9- Materials have been given for the enterprises, but youths are not enough trained to run an enterprise. Directly or indirectly, 70-80% of the project is connected to the enterprises, hence it must provide enterprise basic training on an urgent basis.
- 10- Seasonality to be looked at before distributing livestock in the villages. Ducks were distributed in the winter season which caused higher mortality.

Project opportunities

If this project can be expanded or the community will take it for the next level through village institutions, there are few suggestions that can be implemented.

1. More farm bunding is required. This activity has huge demand among farmers and it has a direct relation with a rise in farm income. More technical surveys can be done to choose farm-land for bunding activity.
2. Four to five ponds are defunct in almost all the work villages. The renovation work for these ponds can be done.
3. A marriage tent can be arranged for any SHG or VOs for community use. It will reduce the consumption expenditure and has higher utility for the tribal community. The SHG women are willing to own it and provide others for rent purposes. It will help them to earn an additional around 1 Lakh Rupees in a year.
4. Rice Huller has been installed and it has great utility for the community in the local region. Youth need to be trained for its management so it will be a successful intervention in the long run.

Team Ecobasket in the field



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