



Individual Level Assorted Vegetable Farming:

**A boon in ensuring
food security,
nutritional
requirement and a
viable income
generating option**

**Monitoring and Evaluation Report
(Internal Social Audit)**



**Science & Technology Resource Centre
Gondwana University, Gadchiroli**

Individual level Assorted Vegetable Farming: a boon in ensuring food security, nutritional requirement and a viable income generating option

Monitoring and Evaluation Report

Background

The “Individual level Assorted High Value Vegetable Farming project is an initiative aiming to improve the livelihood of small and marginal farmers involved in paddy cultivation and having irrigation facility in selected of Kurkheda block, Wadsa and Armory Block. This is achieved by introducing an individual vegetable farming model, applying improved Package of Practices (PoP), and strengthening their traditional methods. Project beneficiaries are paddy farmers across the Three Blocks. The project had strong pro poor and participatory features and directly benefited 20 households (many of them male-headed).

Monitoring and Evaluation of this project is intended for the purpose of the social audit, mid-course corrections. Findings will be beneficial for further improvement.

Project's Objectives

- To introduce crop diversification in Gadchiroli district.
- To provide opportunity of additional income to the farmer.
- To meet the demand of fresh vegetable & become self-sufficient in the district.
- To address nutritional requirement of the community.
- To introduce advanced agriculture practices, tools & Techniques to local farmers.

Target Beneficiaries

Minimum 20 paddy and vegetable growers who adopted Good Agriculture Practices (GAP) having micro-irrigation facility at their farm.

Proposed Activities in the Project

Major activities of this project are conducting *training for farmers, provision of limited inputs like seed, monitoring, and evaluation.*

- **Selection of beneficiaries.**
- **Conducting field training**
The first activity of this project is to train beneficiaries on ‘how to cultivate vegetables in modern way’.
- **Provision of seed and introduction of small tools**
When the farmers are trained, they are provided with improved varieties of seeds of vegetables.
- **Monitoring and evaluation**

STRC's Contribution

STRC will provide following support and little input to the farmers

- Best Package of Practice (PoP) for each crop
- Technical and hand holding support
- Time to time monitoring of field activities
- Seeds of improved varieties

Farmers Contribution

Farmers ask to provide following things during the activity

- Land resource
- Irrigation Facility (basic)
- Labor support
- Plant Protection and manure
- Logistics for marketing
- Other resources

Study Area / location

Geography selection was done on the basis of STRC's previous on-going interventions in particular area. Also, the geography where STRC's field staffs were easily accessible. Our aim to select the particular geography was to easily access to that place at the time of monitoring and the local market also accessible to sell vegetable produce in satisfactory rates.

On the basis of these criteria's, we have selected the three blocks from the north Gadchiroli region name are as follows:

- Armori
- Wadsa
- Kurkheda

Methods

Sampling

Around 30 % (7 beneficiaries) of the sample size out of total (20 beneficiaries) were selected randomly for assessment. Beneficiaries from all blocks Kurkheda, Armori and Wadasa were selected for assessment as show in figure 1.

Telephonic interviews were conducted in order to save time after pilot testing. Respondents participated positively for telephonic interviews. Communication was recorded and simultaneously filled in the MS-Excel sheet.

Approach of the Social Audit

We have used two approaches here

- Assessment of project objectives
- Assessment of associated benefits

Following indicators were developed in the brainstorming session through with expert advice and the same were tested using the designed questionnaire in the fieldtesting. After field testing, indicators and questionnaire were finalized.

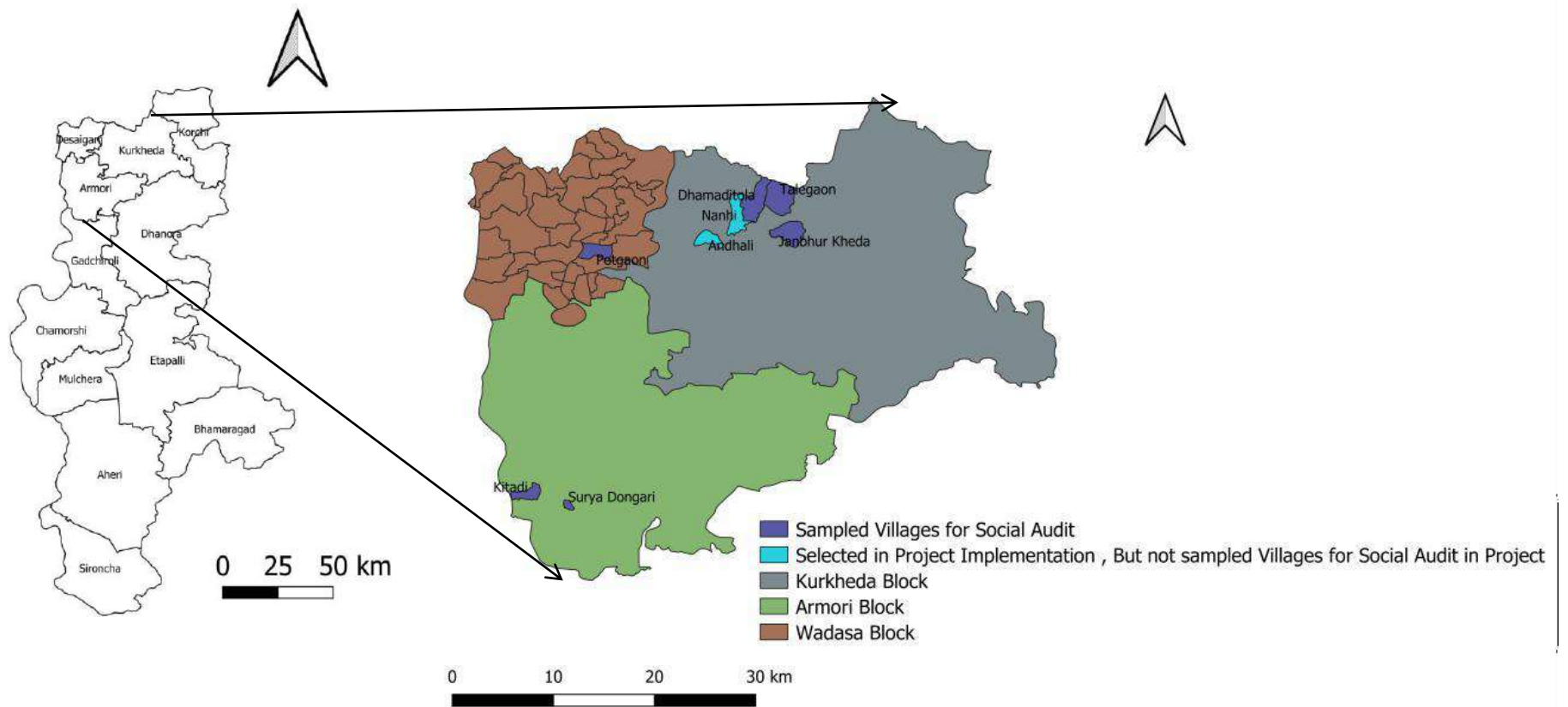


Figure 1: Study Area

Assessment of project objectives

- To introduce crop diversification in Gadchiroli district.

Crop Diversification

Indicators

The assessment used the inverse Simpson Index of Diversity to measure livelihood diversity. As per the index, if there are 'n' number of different income sources and if P1, P2, P3, ----, Pn denote the proportion of household income generated by different activities, diversity can be measured by using the following index:

$$[1 / \sum P_i^2]$$

Where; i= 1 to n

The index considers the number of income sources and the distribution of income among the different sources. Households with higher diversified income will get the highest diversity value. Households with only one source of income will get a value of 1, which is the minimum value possible.

Here, instead of income we have considered the areas under cultivation.

- **To provide opportunity of additional income to the farmer.**

Additional Income generated through project activity (Business as usual and Business as per project activity). Here, business as usual activity is considered as situation when vegetables are not cultivated. Project activity stands for the situation when vegetables are cultivated.

Indicators

- A. Cost
- B. Yield or Benefits
- C. Ratio of Cost/ Benefits

- **To meet the demand of fresh vegetable & became self-sufficient in the district.**

Define/Discuss “Demand” and “self-sufficiency” expected or considered in this project.

Indicators

Just For Example (can be discussed and changed)

$$\text{Indicator at Village level or Individual Level} = \frac{\text{Production of Fresh Vegetables}}{\text{Local Demand of fresh vegetables}} \times 100$$

- **To address nutritional requirement of the community.**

Nutritional requirement through the consumption of vegetables can be fulfilled. Most of the studies and article say that daily consumption fruits and vegetables are needed for healthy life. Some says two times a daily consumption is needed. Some says for a person having diverse diet pattern; consumption of vegetables in a day is more than enough.

In the study area; the consumption of non-vegetables is more frequent. Poultry and Fish-food are part regular diet. Thus, 7 times in a week is considered as maximum possible and suitable vegetable intake in the study area. The following indicators are used for calculations.

Frequency of having fresh vegetables in a week

Once in a week / Actual Need
Twice in a week / Actual Need
Three in a week / Actual Need
Four times in a week / Actual Need

- **To introduce advance agriculture practices, tools & Techniques to local farmers.**

(No of advance agriculture practices, tools & Techniques introduced)

Indicators:

The level of introduction of advanced agriculture practices, tools and techniques are measured as below:

Level	Indicators	Score or weight given (%)
1	With <i>Awareness</i> about advance agriculture practices, tools & Techniques introduced.	25
2	With <i>Knowledge</i> about advance agriculture practices, tools & Techniques introduced	25
3	<i>Adoption</i> of advance agriculture practices, tools & Techniques introduced	25
4	<i>Adoption without external dependence</i> of advance agriculture practices, tools & Techniques introduced	25

Extra Indicators

A. No of visits to farmers for Monitoring and Evaluation during Crop Season (by Scientific and Jr Scientific Officers, LRPs, Change Agents, etc.)

$$\text{Indicator} = \frac{\text{Actual Visits during Crop Season}}{\text{Expected Visits during Crop Season}}$$

Assessment of associated benefits

Some benefits of the project activities are not visible easily. Social impact like public participation and organized beneficiaries, etc are hardly seen if we don't observe and measure it. Many development projects now a days consider triple bottom line approach for the assessment of project's output and outcome.

Associated benefits are assessed in order to know followings

- 1) To assess the sustainability of the Agro-ecosystem of the vegetable cultivation at farm level in a local context with fewer resources available for study.
- 2) To identify and know the present status of activities that need to be improved for sustainability of vegetable farming.

Table 1 Framework for associated Benefits (social, institutional, economical, and environmental) of the project

Attribute	Sustainability Dimensions	Vertical III: NTFP/ Med. Plants and Other Livelihoods (Calleros-Islas, 2019; López-Ridaura, 2002)
Self-Reliance and Equity	Social	Participation in decision making
		Organized beneficiaries
		Level of commitment / responsibility
		External-Input Dependence
		Adoption of new practices / technology
		Level of trust in public institutions
		Reliance on subsidies
Productivity and Stability	Economical	Yield
		Benefit-Cost Ratio
		Costs
Resilience and Reliability	Environmental	Number of different Crops grown
		Chemical Inputs used

Results and Discussion

Objective based-Outcome oriented benefits/assessment

Introduction of crop diversification in Gadchiroli District

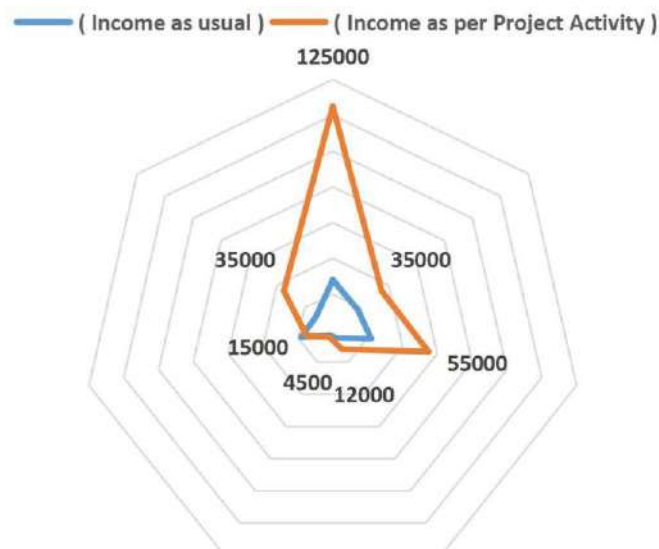
Crop diversification

CDI varies between 0.33 to 4.00 it means some farmers are still have less diversification but is I because of the less agriculture land available for agriculture. Most of the farmers have CDI more than 1 (5 out of 7 sampled farmers).

1. Opportunity of additional income to the farmer

Income

Additional income generated through project activity (business as usual and business as per project



activity) is considered and represented as below:

Figure 2: Income of farmers as per project activity and business as usual

Figure , clearly says that for most of the farmers income has been increased due to vegetable farming by significant margin. Here, Income as usual is considered as income generated by doing traditional agricultural practices. Cultivation of traditionally cultivated crops like rice, *chana*, etc. Vegetable farming have provided comparatively more income.

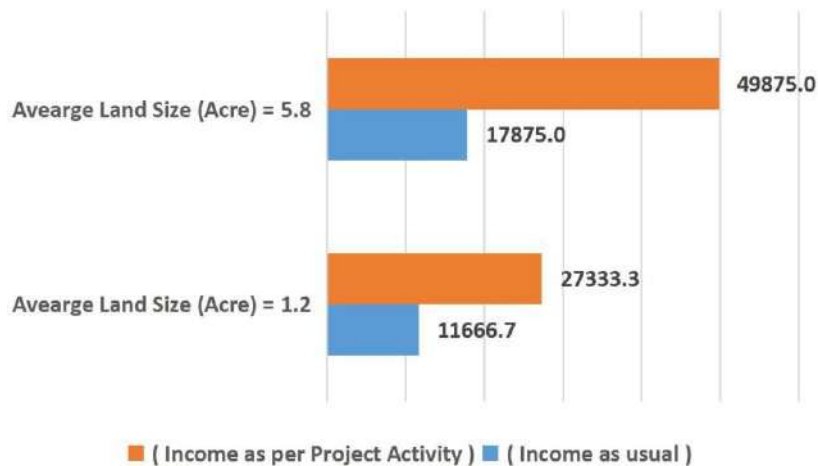


Figure 3: Income (INR) of different sized landholders as per project activity and Business as usual For both type of land holding (small and large) income from vegetable farming has been improved. Land size has not been a barrier in improved income.

Cost:

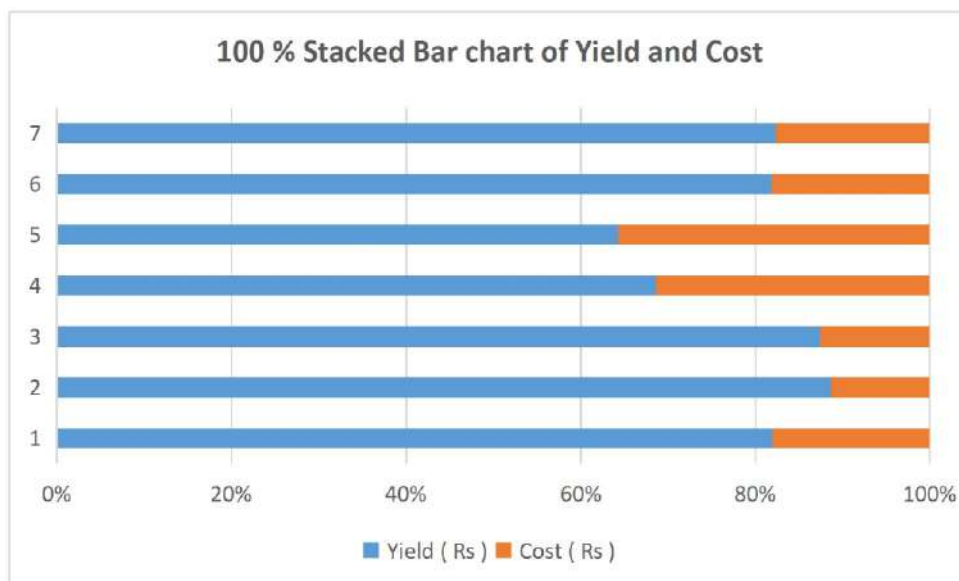


Figure 4: % Share of Yield and Cost

For most of the farmers yield has more share than cost. The cost ranges between 10 to 40%. As it varies

among farmers; various inputs like labour, fertilizers, tillage operations, spraying, etc. varies from farmer to farmer. The share of Yield (Rs) ranges between 60 to 85%. Thus, difference between yield is not much. Cost of the cultivation can be reduced using different practices.

2. Meet the demand of fresh vegetable & became self-sufficient in the district

Indicators

All the farmers expect one reported that vegetable produced was locally consumed. During the peak time of production; it was sold in the big market. Local small market demand is large thus whatever is cultivated is sold in local market most of the time.

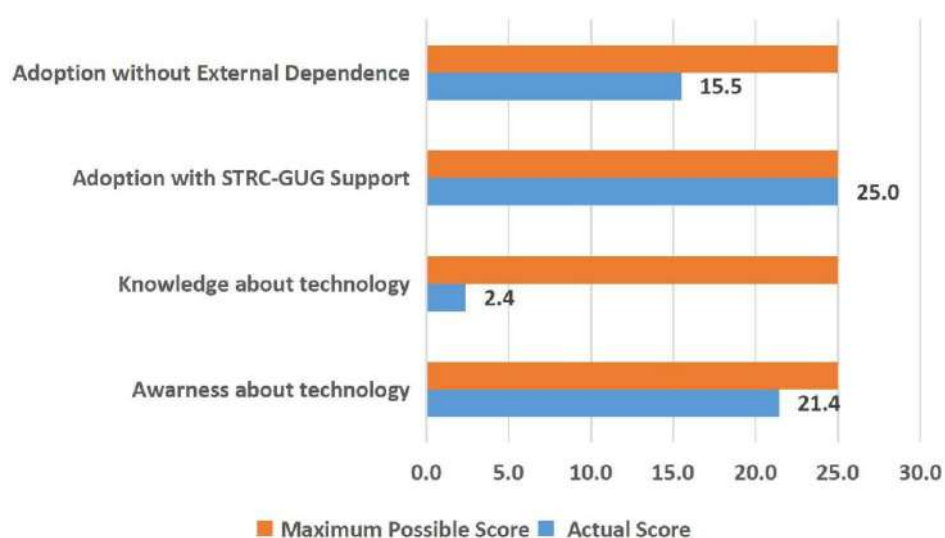
One farmers reported problem for sale during COVID-19 situation. As this was expected and observed. All this indicate that market for vegetable sale is not saturated yet. People want to buy vegetables from the local market.

3. To address nutritional requirement of the community

The 39.29 % score was measured from the collected data. Here, daily consumption of vegetables are expected. The most of the beneficiaries are having vegetables four times or three times in a day. The 39.29 % score itself indicate that although beneficiaries are cultivating vegetables; they are having less amount of fresh vegetables in their diet. Reason may be anything like intake of proteins through fish, poultry, etc on several occasions or less awareness.

4. To introduce advance agriculture practices, tools & Techniques to local farmers

With the Mobile Demonstration Unit (MDU) and expert advice; training regarding vegetable farming were conducted. The same was assessed based on four indicators: **a.** Awareness about practices and technology, **b.** Knowledge about practices and technology, **c.** Adoption with STRC-GUG Support, **d.** Adoption without External Dependence. All these four indicators were weighted equally maximum possible score is 25 %).



It is observed that awareness about practice or technology have been good (21.4 %); but knowledge about practice or technology have been observed low(2.4 %). Thus, detail and specific knowledge

should be inculcated among farmer communities for the adoption. Also, all beneficiaries are ready to continue vegetable farming with the STRC-GUG support. This is one of the big positive of the project. Some farmers are expecting STRC-GUG support at the same time; majority of them are willing to continue without support.

Extra Indicators

Expected Visits from STRC-GUG staff

Most of the farmers (except one) said that STRC-GUG staff have visited our farm or us 4-5 times in a crop cycle. They are happy about this. Only concern they said is about the visit of staff at top level of management. LRPs visit farmers most of the time and they said for specific advice and knowledge they need from STRC-GUG staff (from the top of the management).

Assessment of Associated Benefits

As per the framework mentioned in the methodology section; social, institutional, economical and environmental themes were assessed as below.

Social

In social indicators, mainly organized farmers and the level of commitment showed low values. Thus, it indicates that farmers are more thinking at their own level. Although thinking at an individual level is needed, for the conservation of Agro ecosystem, integrated thinking required (Ikerd, 1993). Thus, co-operation, trust in public institutions, farmer's training, and participation in decision making have to be important drivers for sustainable agriculture in the study area. Farmer's co-operatives can aid in farmer's participation and organization. Group farming, Self Help Group are missing in the study area.

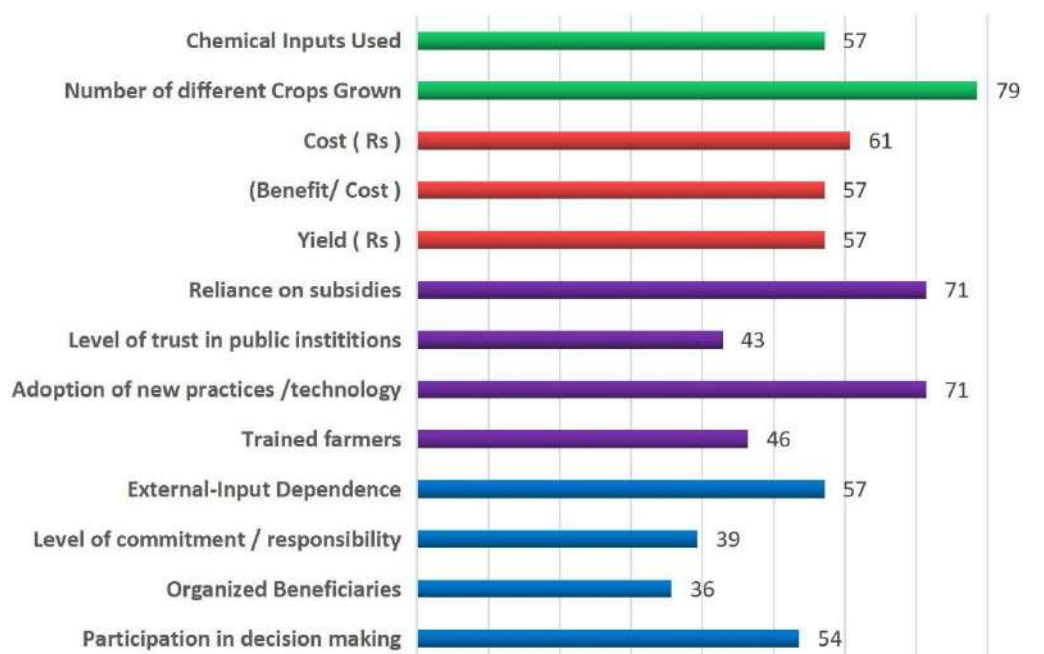


Figure 5: Assessment of triple bottom line of agro-ecosystem of vegetable farming in the study area

Indicators like 'Participation in decision making' and 'External Input dependence' have shown

comparatively decent score. Still, there is chance for improvement as score is just above average. Some farmers are ready to continue package of practice without any external dependency. But, around half % of sample need STRC-GUG or other organization's support.

Institutional

Efficient governance of natural ecosystem need trust in public institutions. Institutions workshops, trainings, R & D and communication of R & D with community for sustainable farming are need of the time. The 'level of trust in public institutions' and 'trained farmers' have shown comparatively less score (less than 50 %) than 'Reliance on subsidies' and 'adoption of new new technology and practices'. We need to focus on farmer training for skills and knowledge up gradation.

It is positive to see that farmers are less dependent on subsidies to continue present practices. They have shown proactive response for the adoption of package of practices and technology.

Economical

The measurable variation is observed in indicators like Benefit-Cost ratio, cost, and yield. Much improvement in economic indicators are possible. The score of all these three indicators are around 55 %. Relatively, there is much variation among them. We need to look at these issues carefully and focus on the same for improvement.

Environmental

'Numbers of different crops grown' scored highest among all indicator suggest that crop diversification is very good in the project area. Farmer cultivate different crop and they value diverse cropping system.

Although Gadchiroli is one of district rich in forest and other natural resources; farmers are moving toward use of chemical inputs in agriculture. Tribal people started to use chemical inputs. Awareness about efficient use of agricultural inputs like fertilizers and sprayers, dusters is the needed for sustainable agriculture.

Proposed Outcomes of project

- Improved vegetable production
- Increase livelihood of vegetable growers
- Each farmer will get minimum Rs. 5000/- per crop in three months.
- Restricted use of chemicals and fertilizers
- Adaption of improved PoP's
- Additional option of livelihood enhancement for paddy farmers.

Outcome of M and E (social audit)

Objective Based Assessment and Outcome-Based Assessment was conducted and followings are observed score for same.

Sr No	Objective Based Assessment	Score In %	Outcome-Based Assessment	Score In %
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1	Introduction of crop diversification	71.42	Improved vegetable production	100
2	Opportunity of additional income to the farmer	71.42	Increase livelihood of vegetable growers	100
3	Meet the demand of fresh vegetable & became self-sufficient	100	Each farmer will get minimum Rs. 5000/- per crop in three months.	100
4	address nutritional requirement of the community	39.29	Restricted use of chemicals and fertilizers	57
5	introduce advance agriculture practices, tools & Techniques to local farmers	64.3	Adaption of improved POPs	64.3
			Additional option of livelihood enhancement for paddy farmers	100

Associated benefits (social audit) clearly say that farmers capacity on the social aspects need to be strengthened. Institutional support for training, capacity building, R & D and scientific communication of the same with the community is needed. On economic front, some farmers are far better and others can learn from them. Communication is the key here. All these issues strengthened; can help in more improved economic returns. Market is not issue here. Market is not saturated yet for local farmers. Environmental issues like crop diversification is far better but chemical use need to be careful with the knowledge on the same.

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