

Role of Village Knowledge Centre in Building Resilience of Small Farmers

A case of Chikarada, Ganjam district in Odisha

RESILIENCE

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JRD Tata Ecotechnology Centre
M S Swaminathan Research Foundation
Third Cross Street, Taramani Institutional Area
Taramani, Chennai - 600 113

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Photo credits

Village Knowledge Centre of Chikarada

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M S Swaminathan Research Foundation

Third Cross Street, Taramani Institutional Area

Taramani, Chennai - 600 113

Tel: +91-044-2254 1229, 2254 2698

Foreword

M S Swaminathan Research Foundation, a partner and implementing agency of the RESILIENCE Project, supported by The Royal Norwegian Embassy, New Delhi in Ganjam district of Odisha has been striving to reach as many resource poor farmers as possible to improve their lives and livelihood through the platform of Village Knowledge Centre (VKC). The VKC focuses on building the resilience of farm women and men by promoting adoption of climate smart crops and sustainable agricultural practices to combat the effects of climate change by providing knowledge and training through its specialised digital services such as video based learning, audio-video conference and Helpline services. The VKC services, directly or indirectly reach four districts apart from the project district of Ganjam. The feedback from the farming community has been encouraging; their awareness level has been enhanced; they are able to experience yield increase in their crops and reduction in farm expenditure subsequent to their adoption of climate smart agricultural practices.

Access to knowledge and technology has made hitherto shy and timid farm women to come out of their restricted space and confident enough to make their choices. Their participation in the meetings and capacity building programmes has increased their awareness level and knowledge base. They participate in large numbers in video and audio based learning and adopt climate smart crops. They encourage other women to cultivate climate smart crops and adopt sustainable agricultural practices. They make use of KVK, IFFCO and other government schemes/subsidies.

Dr L Vedavalli has lucidly brought out the changes experienced by farm women and men as a result of their knowledge empowerment and capacity building. I thank her for her sincere efforts in documenting the impact of this project on the farming community. I thank Dr R Rajakumar, Principal Scientist and Dr R Rengalakshmi, Executive Director-Area Operations for their valuable service in making this initiative a fruitful one. My thanks are also due to the team of Village Knowledge Centre, Chikarada for their contribution.

I wish that the benefits of this programme is further strengthened and sustained in reaching out a large section of the farming community particularly the women.



Soumya Swaminathan

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Dr L Vedavalli

Executive Support

Dr R Rengalakshmi

Dr R Rajakumar

Mr Rabindra Behera

Ms Sunita Kumari Nayak

Ms Rajlaxmi Behera

Women and men from Chikarada and surrounding villages enthusiastically spoke about the benefits of the VKC programme in guiding and helping them to improve their lives and livelihood by promoting adoption of climate resilient crops and sustainable agricultural practices. Sincere thanks are due to each and every one of them which made this publication possible.

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Introduction

The present report is an attempt to get an idea about the various activities and services of Village Knowledge Centre (VKC) in Chikarada Village of Ganjam district, Odisha. This VKC was inaugurated on 6 June, 2019 as part of knowledge management and capacity building work package under RESILIENCE Project¹, Norway in partnership with Odisha University of Agriculture and Technology (OUAT), and Chikarada Gram *Panchayat* in Ganjam district; and M S Swaminathan Research Foundation (MSSRF), a pioneer of VKC programme as implementing agency.

The overall goal of the RESILIENCE project is to improve agricultural productivity, adaptive capacity and livelihoods of small land holders to climate and economic changes, by building resilience and strengthening the agricultural product market values chains. The services and activities of the VKC focus on realising the goal of the project through knowledge management and capacity building of women and men from small land holdings and gender mainstreaming and gender analysis

The VKC acts as knowledge platform, strengthening the farming community's capacity by addressing their knowledge and technology/training needs by employing innovative applications and technological solutions, particularly in the context of climate variability and climate change in agriculture. The aim is to maximise water-use efficiency, promote sustainable agriculture, and improve livelihoods in agrarian ecosystems.

It may be mentioned here that Village Knowledge Centre programme is a flagship programme of MSSRF. Its primary goal is to provide scientific and locale-specific, demand-driven information and knowledge to rural communities. The programme also organises training and awareness programmes based on blueprint protocols. By empowering communities to make informed decisions and reducing risks and vulnerabilities, the VKCs strive to contribute economic returns, self-sufficiency, and

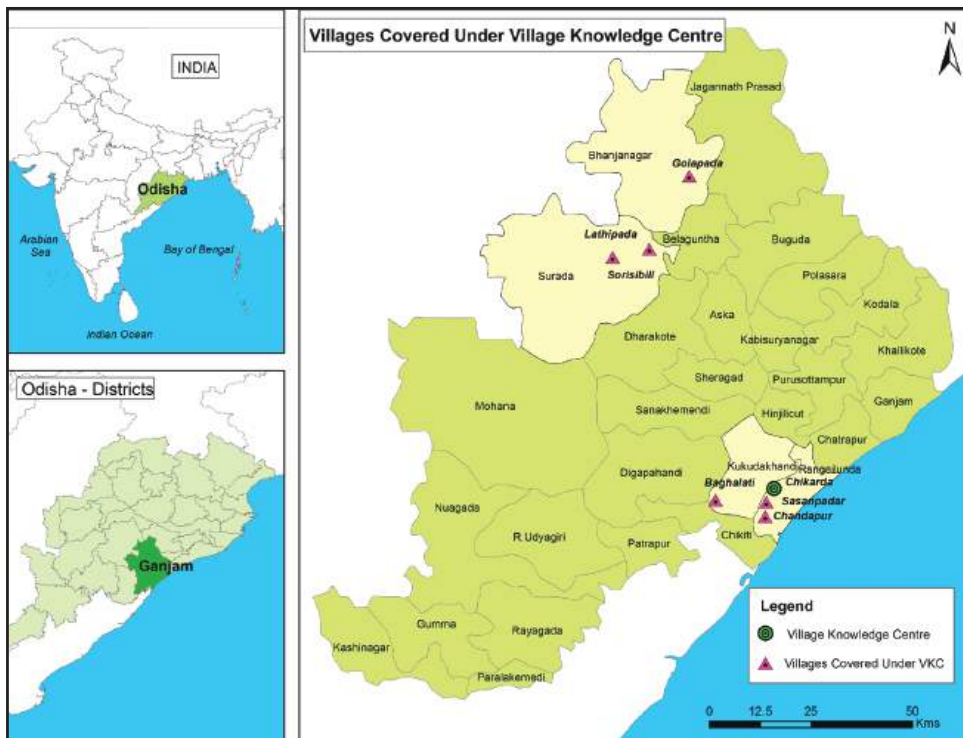
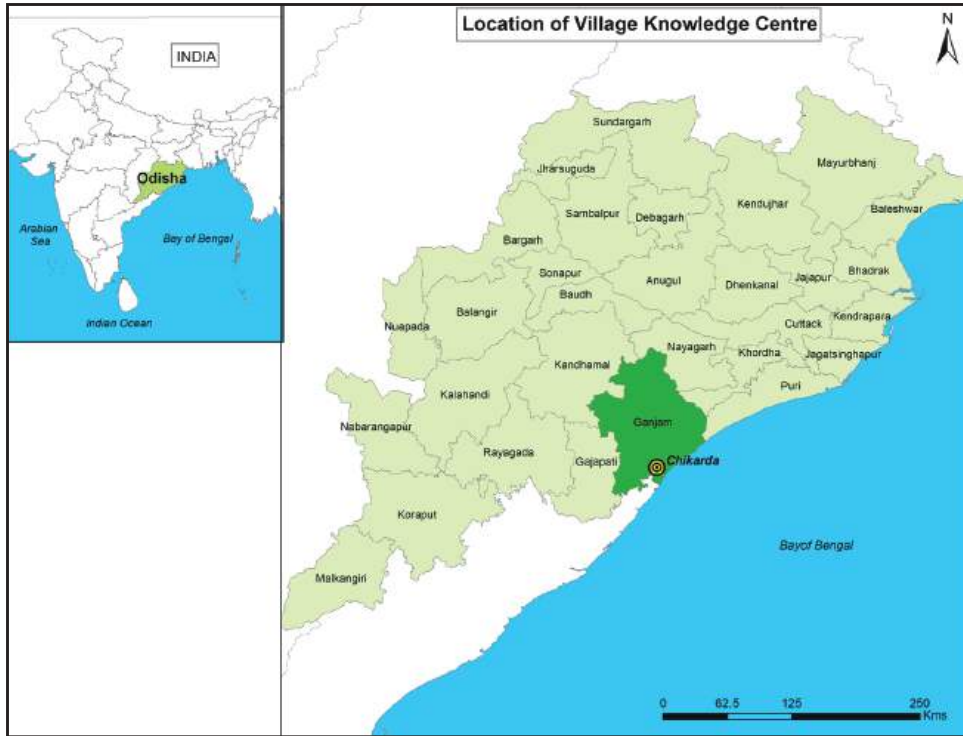
1. As part of the RESILIENCE Project Village Knowledge Centre has been set up in Cuttack, Odisha with Indian Council of Agricultural Research - National Rice Research Institute (ICAR-NRRI) in Cuttack, Odisha as its partner and also in Assam in partnership with Assam Agricultural University (AAU), the International Water Management Institute (IWMI) in Colombo, Sri Lanka/New Delhi, and the Norwegian Institute of Bioeconomy Research (NIBIO) in Norway. The project is funded by the Ministry of Foreign Affairs, Norway, and the Norwegian Embassy, New Delhi. MSSRF is the implementing agency of knowledge management and capacity building programme in both Odisha and Assam.

sustainability. The VKCs also facilitate access to information through various community informatics instruments such as audio advisories, help lines, video conferences, audio conferences, phone-in programmes, and webinars. This comprehensive information process establishes a sustainable knowledge extension system that caters to the community's information and knowledge needs over time. It also helps build the adaptive capacity of both male and female farmers. Innovative platforms, such as participatory farmer-led videos and sharing farmer-based innovations through social media, enable men and women farmers to exchange their perceptions and experiences of changing climate. Also, the farm women and men learn about crop input management, latest technologies, government schemes, market trends, and more through these tools. The VKCs, in general aim to create an effective information and knowledge sharing network which is important to promote sustainable agriculture particularly in the changing climate scenario.

Chikarada is a village in Ganjam district of Odisha. There are about 692 households. This village is neither backward nor advanced. It is located two kilometres from the highway. According to the information collected from *Anganwadi* Centre there are around 692 households (118 households from Scheduled Caste (SC) and other castes 574) having a total population of 3330 persons (female 304 and male 313 from SC; male 1414 and female 1299 from other castes). Sixty percent of the households own lands and 40 per cent are landless; they are sharecroppers or engaged as vegetable vendors. Main occupation of the villagers is agriculture and people are engaged in doing small business (mostly vegetables). They sell vegetables in the nearby Berhampur Municipal Corporation. Main crop cultivated is rice followed by vegetables such as egg plant, tomato, cow pea and green chilly. During *rabi* season black gram and green gram are cultivated. Wherever water facility is available vegetables are cultivated. Most of the farmers are sharecroppers. Households having cattle is very less in both the villages. Sasanapadar is neighbouring village of Chikarada; here 20 percent of the households own land and 60 per cent are landless; 20 percent are either big farmers or traders/input dealers (who are also in a way engaged as money lenders); big farmers provide loan to the small and marginal farmers charging heavy interest; input dealers give agricultural inputs on credit; the farmers, after harvest of their crops repay the dealers with high interest.

The VKC set up at Chikarada as part of the RESILIENCE Project² has made positive impact on the lives of women and men farmers in the project villages –Chikarada, Sasanapadar

2. To start with Resilience Project covered four villages in two blocks- Ganjam I and Ganjam II; VKC is in Ganjam II block. After two years two more blocks and three villages have been included under the project. At present the project covers four blocks and seven villages. Services of the VKC, apart from Chikarada and Sasanapadar also cover villages of Chandapur, Baghalati, Sorisabilli, Lathipada and Golapada.



and other nearby villages. MSSRF did not have its presence in this part of Odisha until the RESILIENCE Project was initiated. This village was identified by the *Krishi Vigyan Kendra* (KVK) Ganjam, who is the technology partner of the project. The VKC plays a significant role in providing locale-specific scientific information/ knowledge related to climate-smart agriculture, animal husbandry, health and nutrition, employment, education, government services and market to rural farm women and men including agricultural labourers. It also organises training and awareness programmes for the farmers to build their skills and capacities and also through building linkages with institutions / organisations for translating the content into field-based applications.

Methodology

The study was conducted during the second week of February, 2023. Primary data were collected by the author through unstructured in depth interviews with various stakeholders. Interviews were carried out in such a manner that people were free to share their experiences and views without any reservations. The essential data collecting methods employed were in-depth unstructured interviews and personal observation with the subjects. An attempt was made to collect case studies wherever possible. The information thus generated was of great use in providing insights regarding the impact of the programme and the capacity building of the farm women and men.

Interaction with the stakeholders (the Village Management Committee of the VKC, the users of the VKC, Knowledge Workers³ (VKC Managers), and staff of MSSRF) helped us to get details concerning various aspects of the functioning of the VKC. The case studies of women and men have brought out in what way this programme has led to improvements in their lives. We also got an idea about various climate smart technologies adopted by women and men farmers and the positive effect of the same in their lives and livelihood.

Setting up of VKC in Chikarada: the process

MSSRF has wide experience in setting up VKCs and implementing the programme. This has greatly helped in developing strategies to approach the village community and create awareness about the programme among them.

Normally, setting up of a VKC is considered only when there is a demand or desire from the community for a Village Knowledge Centre. A set of procedures are adopted to study the feasibility to set up such a Centre. The conventional practice normally include conducting a baseline survey, need assessment, participatory rural appraisal,

3. The two women Knowledge Workers have been promoted as staff of MSSRF since November 1, 2022. They would be referred to as Knowledge Workers throughout this report.

focus group discussion, holding meetings with Boundary Partners⁴ like the village *Panchayat* and important people in the village. As VKC is community oriented it is essential to have the support and encouragement of the Boundary Partner and important persons in the community. In order to identify the general felt need of the community need assessment programmes are conducted with different groups of the village community. Most of the programmes and activities carried out are essentially demand driven. In general, all the services and activities are structured in such a way that they serve the needs of the community. A similar procedure was adopted while setting up the VKC in Chikarada Village.

The field staff approached the traditional village *Panchayat* elders⁵ in Chikarada Village for their help and support to gain entry and create awareness about the VKC programme (knowledge management and capacity building) in the village. They were very supportive and based on their information contact details were collected and organised small meetings with farmers including agricultural labourers and discussed intended project activities. This was followed by visiting the farmers' fields to know about the crops grown and the related problems/issues. It was stated that it took one month to know about the village and create awareness about the VKC programme. During February-April 2019 the MSSRF staff met village people to collect details in the data sheet for sending audio advisories. This also helped the staff to get into contact with more households. And, the villagers also got an idea about the VKC programme.

The VKC programme aims at empowering both women and men farmers with knowledge and information for their socioeconomic development. So it is important to involve both women and men from the beginning. However, the staff had some difficulty in approaching the women. In the initial stages women did not come forward. Fortunately, a young woman from the same village was identified by the *Panchayat* as the VKC manager. She was (and still) engaged in organising and forming Self Help Group. Through her the MSSRF field staff could approach and talk to women about the various services and activities of the VKC and they were encouraged to participate in

4. Boundary Partners are those who provide space for the VKC and take care of its electricity charges and also identify Knowledge Workers or the managers of VKC.

5. It was mentioned that though the elected *Panchayat* members were there the VKC approached the traditional *Panchayat* who commanded respect from the former also. It was stated that the elected representatives were nominated by the traditional *Panchayat*. There was no election process. The traditional *Panchayat* used to decide who would be the President and ward members and councilors. For all practical purpose both were regarded one and the same by the villagers. Things changed when a person from this village but residing in nearby town became the elected *Panchayat* President and fought the election on party basis in March 2022. It is learnt that the new President is not supportive and gives some problem or the other. However, the VMC is very strong and committed to the programme.

the programme. It was a slow process but gradually and steadily women's participation increased. It was difficult to mobilise even 10 women for any programme in the initial days but today it does not require any effort to organise and mobilise women for training or any other programme, mentioned the VKC managers. Such has been the positive impact of the VKC programme on them and their men now.

In order to monitor the activities of the VKC and support the VKC in taking its services and activities to a larger village population, Village Management Committee⁶ (VMC) is formed in consultation with the villagers. Constituting VMC, consisting of different stakeholders both women and men is an important facet of the VKC programme. VMC, a community based organisation is formed to create a sense of ownership and commitment among the members which is important for the sustainability of the VKC, even after the project is phased out. It is essential that the VMC has a clear understanding of the utility of the VKC programme. The Village Committee Members' commitment and interest in improving the village both socially and economically is one of the very important factors for the sustainability of the VKC programme.

The VMC of VKC of Chikarada Village consists of 20 members and 50% is women (including two women and two men from the Scheduled Caste (SC)). The VMC is headed by a President. The present President is the second one. Previous President was not regular in organising and attending VMC meetings; so the members decided to change the leadership. The present leader is committed to the VKC programme. We could gather from our interactions that the members are very regular in meeting every month to review the activities carried out during the month and discuss the following month's activities of the Centre. Exchange of information also takes place between members from different backgrounds. There is perfect understanding and coordination among the VMC members irrespective of age, sex and caste. The VMC believes that the VKC programme is a perfect platform to improve the livelihood of the villagers and their social conditions.

Initially, the VKC was provided space in the Village *Panchayat* building by the *Panchayat* President. After few months it had to be shifted from there to another private rented building because of the change in the leadership of the Village *Panchayat*. The newly elected person is not supportive to the VKC programme and raised objection to the

6. The VMC is comprised of the boundary partner, Knowledge Worker, key individuals from the village including women, SHG leader, leading Champion Farmers, *Anganwadi* worker, *Panchayat* raj institution member, staff from MSSRF and few strategic partners like the KVK scientist and so on. The VMC is oriented about their roles and responsibilities in handling or managing the affairs of the VKC, their relations with the various stakeholders such as the Department of Agriculture/Horticulture, MSSRF, Knowledge Worker, local administration and different department personnel. MSSRF as an implementing agency of the programme takes earnest efforts to empower the members of the VMC to take care of the functioning and maintenance of the VKC. It is important that the VMC members have clear understanding of their roles and responsibilities.

functioning of the VKC from *Panchayat* building. It is learnt that he continues to oppose the programme in indirect manner because of conflict of interest. For the first two months the VMC paid the rent for the VKC; now MSSRF pays the rent.

Services of the VKC

The main purpose of the VKC is to provide scientific and locale-specific information and knowledge related to climate-smart agriculture, animal husbandry, health and nutrition, employment, education and government services to the rural farm women and men including the agricultural labourers. In consultation with various stakeholders, the QUAT as a knowledge or technology partner identifies suitable technologies and good agronomic practices. The VKC plays a critical role with the help of strategic partners⁷ (such as agricultural/horticulture departments, and so on) in developing training modules, audio, video and text content for the identified technologies and conducting capacity building programmes for farm women and men to address the challenges of climate variability and climate change in agriculture.

Services of the VKC at present cover seven villages and three hamlets. Directly and indirectly, its services are extended to nearly 107 villages (covering around 2454 persons including 976 women) spreading across the districts of Ganjam, Gajapati, Kandhamal, Cuttack and Nayagarh through Information and Communication Technology (ICT) and non ICT tools.

Services through ICT tools

The VKC encourages farmers to adopt climate smart technologies⁸ such as improved varieties, tolerant variety and pest management and so on by providing knowledge through ICT tools. The VKC adopts a multi-pronged communication strategy through its specialised digital services -mobile based audio advisories, Farmer's Helpline Services, audio-video conferences, video based learning and plant clinics and social media-Whatsapp group and so on to disseminate dynamic and static information and knowledge to the farming community. Videos available on YouTube are shared with the farmers which they watch with interest and improve their knowledge base.

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7. The VKC programme encourages VKCs to build up partnerships with institutes/organisations (strategic partners) which will be mutually beneficial and helpful in promoting socioeconomic development of the rural community. Partnerships facilitate sharing of knowledge and experiences. So, MSSRF facilitates and offers help to the VKCs in building partnerships with government departments, NGOS and so on.
 8. Climate smart technologies promoted under the Resilience Project: vermi compost production technology, land bunding and levelling, drip cum poly mulching, seed treatment, paddy and vegetable line transplanting method, green manuring cultivation practices, Integrated nutrient management in rice and vegetables, Integrated pest management in rice, vegetables and pulses crops and so on.

Video based learning programme

Video based learning⁹ is one of the methods adopted by the VKC to introduce new simple sustainable technologies to the farmers both women and men to improve the crop yield and reduce unnecessary farm expenditure. We learnt that initially this method of learning did not evoke much interest among the farmers. But gradually, they, particularly women began to appreciate and adopt the technologies. According to the needs expressed by the farm women and men the programmes are organised. Normally, video based learning is conducted in common places such as community hall, *Panchayat* building and SHG building. VKC is not preferred for conducting the programme due to paucity of space. Normally, around 20-25 persons participate in the programme. Sometimes the participation is 40-60 also. In almost all the programmes more than 50 per cent participation is from women farmers. During January, 2023 Chilli Transplanting programme was held in Chikarada Village which was attended by 24 persons (18 women and 6 men); in Sasanapadar, 18 women and seven men participated. After the programme or even during the programme the farmers' queries are addressed; the necessary clarification is provided to the farmers. The question and answer session helps the participants to share their views and get their doubts clarified. Other participants also get benefited through this question and answer session.

It is evident that when a farmer is convinced of the utility and adoptability of a new technology the resistance level gradually decreases and she or he adopts the same. He or she is also motivated to get additional or associated crop management details. For instance, when raised seed bed preparation through video based learning was introduced there was lot of reluctance from the farmers' side. In the following year there was slight change in their attitude and in the third and fourth year one could observe their willingness to adopt the technology. In traditional method normally 20 (10 gram per packet; cost per packet - Rs 300) packets of seed material was used per acre; in the second year the farmers were suggested to use 15 packets; in the third year 121/2 packets and in the fourth year the seed used was 10-12 packets per acre. It considerably reduced the expense and seed wastage. We were also told that while adopting the method of raised seed bed, the farmers started asking additional but related details for a healthy growth of the crop. In case a farmer observed wilting she/he would enquire as to how to prevent and control it. Because he/she knows it is important to control it so as to ensure healthy growth of the crop and increased yield; or else, she/he knows that it would affect the harvest of the crop. In such cases the farmer is guided to do seed treatment with bio inputs like *Trichoderma* to control disease and promote plant growth

9. Some of the topics covered under video based learning-paddy line transplanting, chilli nursery bed preparation, tomato poly mulching, pest and disease management in vegetables such as egg plant, tomato, chilli, leaf curl management in tomato, chilli and so on, trellis method (support to plants through sticks).

and yield. Similarly, the farmers have also reduced number of seedlings in a bunch to be transplanted by leaving sufficient spacing between the two bunches of seedlings (from 1 -11/2 feet to 21/2 -3 feet). It is encouraging to learn that the farmers are planning ahead about various agricultural operation/practices such as seed treatment, raising nurseries and preventive and control measures for disease/pest.

Audio conference

Audio conference is another mode of dissemination of information and sharing of experiences between the farm women/men and the concerned expert in a particular field. Integrated Nutrient Management in vegetables and paddy, Integrated Pest Management (IPM), vermi compost preparation and soil management are few of the topics covered through audio conference. The response from the farm women and men has been good.

Audio advisories and Whatsapp

It is learnt that so far 4500 audio advisories (related to season and crop based value added information, livestock, government schemes/subsidies and weather information) are disseminated to farmers¹⁰ in Ganjam and few other districts. Feedback from the farmers about the audio advisories are encouraging, mentioned the staff. It is stated that the farmers including women pay attention to the audio advisories and if they have any doubt regarding the message they would immediately come to the VKC the following day for clarifications. Farmers post subject specific questions (related to seed treatment, transplanting and so on) in the Whatsapp groups and the concerned expert/resource person responds within two hours. Weather information is greatly appreciated by the farm women and men. It helps them plan their agricultural operations and avoid wastage of inputs. There is also a separate weather Whatsapp group helpful in knowing the weather related details in advance. Farmers Helpline is widely used by the farmers even from far off places that do not come under the project area.

It is mentioned that the knowledge /information shared by the experts through the various ICT tools encourage farmers to adopt in their fields; this motivates his/her neighbour to experiment in his/her field; in this manner from one farmer the knowledge is spread to many farmers and thus a wider area is covered. The staff of MSSRF who coordinates the activities of the VKC mentioned that "...this is our idea and vision (to reach as many farmers as possible through the services of the VKC to improve their lives and livelihood)". It seems there is a demand from farmers to add their mobile numbers in Whatsapp group for receiving and exchanging crop related information.

10. The data about farmers details for audio advisories dissemination are collected through volunteers, and during regional level agricultural fair; some are collected through NGOs. It is said some persons from 30-40 kms came to the VKC to register their names to get advisories through various ICT tools.

Plant clinic¹¹

Plant clinic is one of the most popular programmes of the VKC which plays a great role in the lives of the women and men farmers. The VKC conducts plant clinic by taking the help of plant protection scientist from KVK, Ganjam. The farmer is able to directly interact with the agricultural scientist or expert. The access to crop advisories and why it is recommended and how it should be applied is greatly appreciated by the farming community. This is helping them carry out farming operations based on knowledge; he/she has the clarity now. They, in most cases are careful to adopt a technology or follow a crop advisory based on understanding. In the plant clinic the farmer is told the symptoms of a disease/pest (season based), the precautions or control methods to be adopted at various stages of a crop growth and other necessary details. In short, the farm women and men get guidance and crop advisories at various stages of a crop cycle (from sowing to harvest).

We learnt from our interaction with the farm women and men that prior to the implementation of plant clinic programme in the villages, they largely depended on the input dealers for crop advisories. Level of awareness of the pest/diseases was very less. They used the random inputs suggested and sold by the input dealer. They mentioned that in the beginning they were hesitant to go to the plant clinic. But, now the moment they notice some abnormality in the crop they become alert. They would immediately consult the agricultural expert. They stated that they are more careful now in taking preventive/management measures for pests/diseases in the initial stage based on the symptoms by consulting the agricultural expert. So, they are able to avoid crop loss and experience increased yield. Their cultivation cost has also been reduced to a great extent because they are using only required inputs and adopt sustainable agricultural practices. They said that 80% of the advisories work out well and there is reduction of farm expenses from 30-40%. The Knowledge Workers present during the interaction with the farmers mentioned that when the VKC programme started the yield was 18 to 20 bags (75 kg per bag); after plant clinic intervention they are getting 25 to 28 bags per acre. This was confirmed by the farmers present during the interaction.

11. Plant clinics are meeting places (mostly operating from village common place) or diagnostic centres where the farming community including women have access to find solutions to the health problems they face in their crops. Common problems faced by the farmers – sucking pest, wilting, shoot and root borer and leaf curl. They take the samples of affected plants to the plant clinics where the trained agricultural background persons (referred to as plant doctors) from KVK or similar department for diagnosis and treatment for the same. Plant doctors provide technological solutions that are ecologically safe and environmentally sustainable; the aim is to provide right knowledge to the farm women and men to enhance plant health and bring economic benefits to the farm women and men.

The staff at the VKC was very happy to share with us that before the VKC programme and particularly the plant clinic programme the farmers were not connected with experts or government offices; now they are connected with line departments and experts. The plant clinic programme offers ample opportunity for the farmers to interact with the plant doctor. The plant doctor and the farmers are connected through whatsapp and mobile phone.

After seeing the impact of plant clinic on the farmers in the two villages there is demand from others for a plant clinic. However, the VKC is limiting the services because of inadequate resource persons. It has been encouraging to observe that the farmers particularly women's ability to communicate and articulate has improved a lot. The Knowledge Workers mentioned that during the initial plant clinic sessions when the farmers were asked some questions they could not answer. Now the situation is different. After participating in four-five sessions the farmers including women have begun to share issues and problems they are facing. Also the plant clinic offers lot of opportunity for farmers to interact with one another and share their experiences. The improvement in their knowledge base is helping them to handle the problem better. Depending on the severity of the pest/disease attack, control and management methods are advised. In extreme case chemical method of control is recommended. If it is below ETC some physical and mechanical control measures (as an integrated part of effective IPM) are advised; biological control measures such as neem based products, bio fertilisers, *Jivaamruth*, *Nimhastra* and *Handikhta* are recommended.

The concept of plant clinic was not welcomed by the input dealers because they felt that plant clinics conducted in the villages affected their business; so they started looking at the plant clinic with hostile attitude. But soon one could observe a positive change in the attitude of the input dealers in the last two- three years, mentioned the staff. The hostile input dealers have later begun to consult the VKC if they needed any clarification in giving the inputs prescribed by the plant clinic. For example, they would consult the VKC before giving an alternate chemical if a particular input prescribed by the plant clinic is not available with him. The VKC suggests the alternate input. The Department of Agriculture/horticulture and IFFCO guide and encourages the farmers to go to the VKC and not to the input dealer for crop advisories.

It has been encouraging to learn that plans are underway to upscale plant clinic activities with the help of NABARD funding of Rs 19 lakhs ; proposal has been submitted to NABARD by the VKC to implement 200 plant clinic programme in the district covering 22 blocks. DDM visited four blocks and she was happy with the work being carried out through the plant clinic, mentioned the VKC staff.

Online services

The VKC's contribution is significant in providing online services¹² (by collecting nominal charges) to the village community; it helps the people to apply or register for availing government schemes; to get their nativity/community/residence certificate, to apply for government jobs and so on. They can get their work done within the village itself.

Champion Farmers

As part of the knowledge management and capacity building, a cadre of Champion Farmers (both women and men) have been created; they were identified during the process of conducting PRA and need assessment programme in the project villages- Chikarada, Sasanapadar, Lathipada and Sorisbill. It has been stated that whoever showed interest and involved themselves in the VKC programme - right from mobilisation of the village community- also based on their experience in agriculture, leadership qualities and other necessary aptitude have been selected as Champion Farmers. The purpose of selecting Champion Farmers is to provide them with training and build up their capacities in Climate Smart Technologies so that they would share the knowledge and skills with their fellow farmers. It is believed that when a farmer learns and adopts new and unconventional practices his/her fellow farmers would normally like to experiment the same if it has shown positive results. It is believed that the Champion Farmers would play a key role in motivating many more to adopt climate smart technologies and agro ecology based farming. Also, they are central to capacity building programmes and can potentially be master farmers.

Currently, there are 50 Champion Farmers including 16 women selected from the four project villages of Chikarada, Sasanapadar, Lathipada and Sorisbill. It has been stated that 40 per cent of them are actively practising different CSA technologies¹³; it has not only improved their capacity they also indirectly or directly encourage others in adopting the same; the Champion Farmers do their best in spreading the knowledge and skills to their fellow farmers.

12. Some of the online services provided include Kalia Yojana Scheme, PM Kisan Yojana, Krushak Odisha, Old Age Pension and Widow Pension (Madhubabu pension yojana- state government and Indira Gandhi National Old Age Pension by Central Government), Adarsha Odisha (Education Scheme) Abhaa health card and so on.

13. CSA technologies include Seed treatment, linetransplanting, linesowing, INM, IPM, greenmanuring, land development, vermi compost producing, integrated weed and water management (drip and sprinkler), polymulching, agroforestry, poly tunnel, pro tray nursery, community nursery, scientific method of vegetable production (planting single seedling, maintain proper spacing line to line, row to row, trellises method of creeper crop), stacking method of bitter gourd production, marigold flower cultivation, intercropping, millet cultivation, organic farming, soil treatment, horticulture plantation, growing of azolla, raising bed nursery, seed production and preservation and so on.

VMC of the VKC

One of the important pillars of the VKC programme is VMC; sustainability of the VKC to a large extent depends on the VMC members' commitment and sense of ownership to the VKC programme. In spite of the hostile attitude of the present elected *Panchayat* President, the VMC has not lost its confidence in taking forward the VKC programme. The entire committee has been actively involved in the implementation of VKC programme. They work along with the Knowledge Workers and the staff of MSSRF in carrying out various activities and services.

As it has already been mentioned the VMC consists of 20 members (10 female and 10 male) including two women and two men from the Scheduled Caste; the members are from the traditional village *Panchayat*. The VMC does not have any association with the elected village *Panchayat* President because of his hostile attitude. In spite of the hurdles created by the new elected *Panchayat* President, VMC members continue to play a significant and active role in implementing knowledge management and capacity building activities through the VKC. Monthly meetings are regularly held where activities carried out are reviewed and discuss about issues that need to be focused in the following month. Most of the VMC members are farmers and their interaction is mostly with farmers. So they are aware of farmers' needs/problems. Whenever, they come across incidence of pest and disease in the farmers' fields they immediately take it to the notice of the VKC for immediate action. The VMC members including women members help in guiding the villagers in selling their product through the FPO (Farmers Producers Organisation associated with the VKC). When one of the women VMC members came to know that some farmers were selling black gram at a low rate of Rs 60 to the outside trader she guided him and others to market their product through the FPO for Rs 70.

The VMC members have developed good rapport with government departments and have access to information. They directly contact government offices and KVK. They share the details of subsidies/schemes with the villagers and encourage them to make use of it. Some villagers including women have contact with KVK to get information on pest/disease management, for seedlings, green net, poly mulching sheet and so on. When some farmers went to the agricultural department for buying inputs they were informed about the availability of the same inputs in the FPO and encouraged them to buy from the FPO so that they can avoid travelling cost, save time and energy .

The VMC members take active part along with the Knowledge Workers and staff in mobilising women and men for training programmes and create awareness on various government schemes/subsidies. They also monitor farmers' fields adopting climate

smart technologies such as paddy line transplanting and scientific method of vegetable cultivation. The VMC decides the charges for online services.

The VMC also observes carefully the role played by the two women Knowledge Workers and offers their support. In case the Knowledge Worker faces difficulty in carrying out her task and she is under pressure when the work load is heavy (eg online registration of ID card), the VMC stands by them. The VMC plays a significant role in conflict resolution of the staff of the VKC. The VMC, having observed the work load and the stress of the Knowledge Workers recommended to increase their honorarium from Rs 6000 to Rs 9000/. Based on the VMC recommendation, the Knowledge Workers are paid a monthly salary of Rs 9000 and it is important to mention again here that they have also become part of MSSRF staff since November 1, 2022. All this reflect the VMC's ownership of the VKC and its commitment in implementing the programme for the benefit of the village agricultural community.

VKC and other stakeholders: mutual help and support

It is encouraging to know that VKC functions in carrying out its activities with the help of various people from different spheres such as Village Health Nurse, *Anganwadi* teacher, SHGs, Village *Panchayat*, line department and vice versa. It may be pointed out here that most of them are members of the management committee of the VKC. As members of the VMC they participate in the monthly meetings. It also provides a platform to share information related to their respective sphere.

VKC acts as a central place of contact for all the stakeholders/different departments/government offices because they have been observing the usefulness of the VKC's services to the village community. It is learnt that almost 50% of the work of departments such as Department of Agriculture /KVK is carried out through or by the VKC; for instance creating Farmer's Registration of Krushak ID-linking farmers digitally with all the schemes/subsidies/loans. And, under Crop Insurance Scheme if the targeted population is 500 persons the VKC would be requested to help the department to cover at least 250 farmers. The officer in-charge directly calls and requests the VKC to link more number of targeted farmers. The VKC disseminates the information about the scheme/subsidy through audio advisory. It is also pointed out that if 100 sprayers are available on subsidy, the Department of Agriculture /KVK would give 50 of them to the VKC for distributing to the eligible farmers.

One of the Knowledge Workers mentioned about an incident of a woman teacher who was assigned with the task of linking Voters ID with Aadhar card. It seems the teacher tried her best but not many responded in that particular ward (where VKC is also located); the teacher called the VKC and explained her difficulty in getting her

assigned work done because there was no cooperation from the people. The VKC then disseminated the related information and its importance through audio advisory; the Knowledge Workers also met few potential persons who can help in this. It had a desirable impact.

It is interesting to find that VKC takes the help and guidance of different stakeholders in addressing the issues of farm women and men. VKC has good rapport with the strategic partners. It is mutually beneficial. The VKC has good linkages with various government departments - Department of agriculture, Horticulture, Krishi Vigyan Kendra (KVK), IFFCO, Odisha Livelihood Mission (OLM), Department of Women and Child Development- who are also the strategic partners of the VKC. Plant clinics are conducted by taking the help and support of resource persons from the department of horticulture/agriculture. When the VKC organises Field Day¹⁴ it takes the help of resource persons from the departments of agriculture and horticulture. Though the KVK and the Department of Agriculture are directly connected with the villagers' livelihood and located only three kilometres from the village, except few, others did not know about the departments' existence until the VKC programme was initiated. Now, nearly 85%-90% including women are aware of the schemes and subsidies; credit goes to the VKC. The VKC has a good rapport with KVK and the agricultural department and through the VKC the villagers have developed good contact and some go to the departments to get seed material or other inputs.

VKC works with different departments; to cite an example, VKC along with KVK, Ganjam district and OUAT had a joint stall at the zone level exhibition organised by the Department of Agriculture during January 13-17, 2023. Various climate smart technologies piloted under the Resilience Project were showcased. A plant clinic session was organised to demonstrate how the intervention benefits farm women and men; products such as seed material, organic manure, bio-pesticides, trellis nets, value added products, farm machinery, and information about drip irrigation methods were displayed/demonstrated

Similarly, we understand that all the line departments have got a platform (the VKC) for implementing their respective programmes/activities. In other words, the VKC is

14. Field Day- Regular classes/training commonly known as filed day class is conducted to selected farm women and men covering the entire crop cycle (from sowing to harvest of a crop) on aspects such as seed treatment, nursery bed raising, transplanting, intercropping activities and so on. Subject matter experts are engaged to provide technical knowledge on season specific crops through class room teaching and also farmers field demonstration. This enables farmers to grasp the details pertaining to various topics related to crops and associated cultivation practices and adopt the same in their respective fields. The filed classes provide lot of opportunity for discussion among the farmers and between the farming community and the subject matter specialists. Through question and answer session farm women and men's doubts are cleared.

used as a main platform by various departments to reach their respective schemes, programmes and subsidies to the target population. Any agriculture/horticulture scheme or programme is connected through the VKC (For example: National Potato Mission, Hybrid Vegetable Cultivation Programme, Seed treatment campaign, Distribution of seeds to raise kitchen garden and in organising Farmers' Field Day and so on). It is mentioned that concern officers or persons would discuss with the VKC to identify interested farmers (with proper documents) for a programme. VKC's help was sought by the agricultural department in identifying the right persons to participate in paddy line transplanting. The participants were given a cash subsidy Rs 2000 per hectare along with other inputs such as seeds and fertilisers. The VKC coordinates with agricultural department and the farmers as well. The Knowledge Workers monitor whether they are practicing line transplanting or not. The VKC also facilitates in getting farm machinery such as sprayers, battery operated sprayers and weeder on 75 per cent subsidy to women self help groups.

Kalia Yojana/ Scheme

The VKC extends its support and guidance to apply or register eligible farmers' name for a government scheme such as Kalia Yojana scheme¹⁵. The VKC also comes to the rescue of a farmer, suppose his/her application gets rejected for some reason from the concerned department. Some of the farmers' application from the VKC villages (applied taking the help of the VKC) for availing benefits under Kalia Yojana were rejected. The VKC helped the farmers apply again and the farmers could avail the benefits of the scheme. It may be pointed out here that the VKC has helped farmers from four villages (4261 landless farmers (Rs 12500 given in four instalments) and 2301 marginal land holding farmers (Rs 4000 in two instalments per year) to avail the benefits of this scheme.

Farmers Registration ID

Another significant contribution by the VKC to the farmers has been facilitating and helping them get Farmers Registration ID (This was introduced in 2012 by the state government). This Farmer Id is mandatory to avail any government subsidy or a scheme. When the VKC programme was launched in June, 2019 only 80 farmers from Sasanapadar and 35-40 from Chikarada had their farmers registration ID; now 300 farmers from Sasanapadar and 200 from Chikarada have got their id. Thanks to the VKC.

15. Mission of KALIA(Krushak Assistance for Livelihood and Income Augmentation)is to relieve debt-ridden farmers from the debt-trap; to provide financial assistance to agriculture households - landless labourers as well as marginal cultivators of the state of Odisha. This scheme is a package for farmer's welfare launched by Odisha Government to accelerate agricultural prosperity and reduce poverty in the State.

The Krushak Odisha Portal

The VKC played a great role in helping the villagers when The Krushak Odisha Portal, a digitalised data base was launched during December 2018 by the State Government. The VKC had sent audio advisories giving details about this data base and its importance, the last date for entering the data in the portal and the documents required for that. It is open to all small, marginal, landless cultivators and agricultural labourers. The VKC helped the farmers to enter the details in the portal such as residential address, owners or share croppers, crops grown, cropping details, livestock reared, bank details and related information. Once the farmer's data is entered in the portal it is helpful for availing the different schemes. They are eligible to apply for financial assistance. It was mentioned that since every detail is linked with the Id there is no need for any document. Government can find out from the data base the details of a farmer. The VKC also helped the farmers to track the application status and find their name in Krushak Odisha beneficiary list.

The VKC does not stop just helping the farmers to apply for a scheme/subsidy it also provides its support and guidance when an application gets rejected for some reason from the concern department. When farmers from the VKC villages applied (through the Common Service Centre which collected Rs 60 from each farmer) for registering their name for Krushak Odisha scheme most of the applications (around 72 persons) got rejected because it was incomplete. The agricultural department requested the VKC to help the farmers to fill up the details correctly. The VKC suggested the farmers to give a letter regarding it; the farmers submitted the forms again; carried out necessary corrections; it could be done without much difficulty because of the better coordination between the agricultural department and the VKC.

VKC and Convergence of MGNREGA Scheme

VKC's contribution is significant in helping Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) registered households to improve their livelihood or increase their income through the activities or work taken in convergence with MGNREGA Scheme (implemented by the Village *Panchayat*) such as construction of vermi compost tank, land development, agro forestry plantation through the forest department, horticulture plants from KVK and the horticulture department, and bore well from the agriculture department. Ten men have been benefitted to prepare vermi compost pit; each farmer got Rs 20000 from Village *Panchayat* for this purpose. It was encouraging to find that these farmers' households are using vermi compost to their vegetable garden and they are able to increase vegetable yield. The VKC gave training to the farmers through video based learning in preparing the vermi compost. It was also dealt through audio conference. The VKC apart from giving training also regularly

monitors the farmers' work and how they put into practice the training they got from the VKC or the training given by any other department through the VKC. Under Land Development, 30 persons (majority men) got Rs 20000 each per hectare. Lemon plantation, promoted and implemented by Department of Horticulture under National Horticultural Mission is another scheme (in convergence with MGNREGA; during COVID 19, Government of Odisha provided additional support to the farmers under MGNREGA labour component support) facilitated by the VKC. This scheme is used by 16 male farmers; they are yet to harvest the crop. As part of the lemon plantation the farmers are given neem based fertiliser, green net, maintenance cost of Rs 32000 per acre for three years.

VKC in the social sphere

It is interesting to learn that VKC is roped in by different stakeholders in facilitating and promoting certain health and educational programmes and in their implementation. The VKC also takes the initiative in encouraging the villagers to avail the benefits of government social welfare schemes.

Health

The VKC extended its assistance to AHSA workers when they were involved in mobilising eligible people to bring them under Ayushman Bharat scheme. ASHA workers found it difficult to take it to the people. When VKC learnt about it, the Knowledge Workers sent audio advisory about the details of the scheme and its benefits. There was a good response from the villagers. The VKC provided hard copy of registration to 150 women; based on that one can get the digital card.

More than 100 women have been able to register with the help of VKC to get Abhaa Health Card (a Central Government Scheme) in December 2022 for getting medical facility in Government hospital.

Similarly, through VKC the department of Women and Child Development conducts programmes such as Nutrition Sensitive Programme for Pregnant Women and Lactating Mother Programme, and Women's Day programme. Similarly, *Anganwadi* worker seeks the help and support of the VKC whenever it organises programmes (eg Food Day) related to mother and child. The VKC and the VMC members help in mobilising and organising the programmes.

Old age and widow pension

The VKC helps in getting old age and widow pension through Madhu Babu Pension yojana by state government. Twelve women from Chikarada and Sasanapadar villages have got old age pension during the last year (2022).

Education

The VKC also helped the village students to avail the benefits of Adarsh Odisha, an educational scheme. One needs to apply every year to get the benefits of the scheme.

Under DenaDayalu Upadhyaya Grameen Kaushalya Yojana (DDUJKY) (2014), the VKC motivated and facilitated unemployed youth (18-35 years, with Class 5, Class 8 and up to graduate level) to get skill development in computers, hospitality, tailoring housekeeping, and as data entry operators. The VKC disseminated this information through audio advisory. On coming to know of this many visited the VKC to know as to how to avail the training. The VKC helped both women and men to fill up the application forms. The Knowledge Workers also personally visited some households to tell about the scheme. The Knowledge Workers were happy to share with us that thirteen students (male 5 and female 8; SC 1 and OBC 12) underwent different courses; they are employed in different jobs now (three as electrician, two in hotel management; four female are employed in call centres in Hyderabad who underwent two months training in learning basic computer knowledge; four women are engaged in tailoring now).

Women's empowerment

The VKC through its various services and activities has brought about appreciable and encouraging change among farm women of the project villages. Women's contribution is significant both at home and in farming. So, it was considered important to involve women in the VKC programme right from the beginning. It was thought that the entry point could be through the women's SHG. When the VKC programme was initiated in Chikarada Village only some SHGs (promoted by Odisha Livelihood Mission (OLM) and Women and Child Development (WCD)) were functioning and some were defunct, mentioned the Knowledge Worker who hails from Chikarada . It was felt that SHGs can be used as a tool to empower women. Information about them was collected with the help of the Knowledge Worker and awareness programmes were organised by the VKC for women SHGs where the concept of VKC was shared with them. In the initial days, women were not forth coming but it was considered important that they be equal partners in the VKC programme for the socioeconomic development of the village community. To empower women and fill the gender gap they should be brought together in a single platform. Income generation activities for women are important to enhance their confidence and self esteem. The VKC encouraged them to take part in capacity building programmes to improve their social and economic conditions. Gradually and steadily women started taking interest to participate in the various activities carried out through the VKC.

The VKC has been instrumental in reaching the subsidies/schemes and training programmes provided for women SHGs members through Odisha Livelihoods Mission (Department of Mission Shakthi), other government schemes and also in partnership with some NGOs¹⁶. The VKC facilitated and encouraged women to take part in livelihood training programmes (making *agaarbathi* (10 women underwent the training), small pots, *diyās*, making paper bags, preparation of value added food products such as tomato sauce, ketch up (100 women participated) and so on . One year ago (2022) three women groups were given training in preparing herbal products such as hand wash. VKC is promoting vegetable/nutri- garden in the back yard of landless women. During January 2023, 30 women farmers from Chikarada and Sasanapadar underwent training in value added products using tomato. It is encouraging to learn that some women have been making use of the training to earn income.

Some women SHGs have taken specific work (facilitated by the VKC) to earn income- one group helps in linking bank; another group pays electricity bill; yet another group functions as Fair Price Shop Dealer under Public Distribution System (PDS) and another group prepares *badi* (a local sweet) from black gram and sells (Rs 160-180 per kg) through the FPO.

The VKC with the active support and involvement of the President of the VMC facilitated in the formation of federation of women groups at different levels- small Cluster level Federation (CLF), then Gram *Panchayat* level (GPL) and at Block level (BLF). It is heartening to know that one of the VMC members is the President of Block level Federation. The purpose of forming federations at different levels is to bring women in single platform for self help and mutual benefit and most importantly women's empowerment and poverty reduction. It is aimed that women become active participants of the FPO for their own and households/society's development.

The VKC managers/Knowledge Workers were happy to share with us that there has been a perceptible change in women; they eagerly participate in almost all the training programmes related to agriculture and other livelihood based training. According to them, "...in the early days it was not easy for us to mobilise even 20-30 women; now without much effort we can easily mobilise 80 women; if we say 100, 200 will turn up for a programme". It was also pointed out that there were instances when women (if not informed or invited) used to ask the VKC why they were not invited for a particular programme; such has been the impact of the VKC programme on women,

16. VKC works in association with NGOs- Social Action for Community Alternative Learning (SACAL) (for IPM, INM, Seed variety, preparation of bio pesticides, green manure through Help line, audio advisory, Whats App group). Other NGOs include Views ,Maha Shakthi Foundation, WOTRA, Women Organisation for Rural Development (WORD), Habitat for Humanity India and Gram Nivas

added the VKC managers. Minimum five to six women come to the VKC in a day to find out about government or agricultural schemes/subsidy offered such as by KVK and IFFCO. Some women directly contact KVK to get information on pest/disease management, for seedlings, green net, poly mulching sheet and so on. Their confidence level has increased in carrying out agricultural operations; they do not hesitate to ask for guidance and suggestions from the VKC/crop experts of plant clinic. They are enthusiastic in learning about climate smart agricultural practices and adopt the same in their fields. They share the knowledge with their relatives and friends and motivate them to follow sustainable agricultural practices.

According to the Knowledge Workers“... earlier women were very shy and timid. They were not involved in decision making; they were not given opportunity to be part of decision making process. However, their participation in the meetings and capacity building programmes organised and conducted by the VKC has increased their awareness level and knowledge base. They know about new agricultural technologies and have the confidence and clarity to adopt the same in their fields. Men also recognise their abilities now. Women are connected to each other now. So there is sharing of information and knowledge among them. Many of them do not use thump impression; they have learnt to put their signature. They are participating in the programmes organised by the government without inhibition. Gone are the days of feeling diffident! For instance, when government organised Food Fair at the block level they participated .They showcased their home made preparations such as *laddu*, pickle, *paappad* and *murki*. The women are able to speak boldly and clearly in block and district level meetings”. The Knowledge Workers/staff of MSSRF mentioned that they are happy to see women getting empowered and act confidently.

Upscaling of VKC and formation of Farmers Producers Organisation (FPO)

Sustainability of the VKC programme is important even after the project withdraws. So, as upscaling of VKC programme and sustainability of the VKC, FPO has been formed and registered as Smart Tech Farmers Producer Company Ltd, Chikarada on August 23, 2021 through Resilience Project though it has been functioning informally since March 2020. FPO is consisted of 10 Directors. The President of the VMC is also the Chairman of the FPO. All the Directors are also members of VMC. Presently, the FPO consists of 203 members including 82 women. FPO is expected to play a critical role in providing new market linkages, promoting climate smart agricultural technologies and providing managerial skills to the farm women and men. These are all important for the sustainability of the FPO and also the VKC

The main objectives of the FPO are to reduce cost of cultivation, enhance collective bargaining power and income of farmers by leveraging the entire agricultural value chain. FPO aims to integrate the farm women and men with agricultural marketing system and offer remunerative prices with low transaction cost. Therefore, creating and strengthening market linkages for the local crop products produced by the farmers is one of the important tasks undertaken by the FPO. Through the FPO the farm women and men have been able to sell their vegetables directly to the trader in the market instead of local vendors who offer less price than given in the market. So, now to an extent farmers bargaining capacity has increased mentioned the staff of MSSRF/VKC. Similarly, pulses such as black gram and aromatic rice seed material are procured and sold through the FPO. The farmers feel it is useful for them because they get extra 20-30 per cent profit by selling the product through the FPO. Also, it saves their time and energy; they are saved from distress selling.

FPO sells agricultural inputs (bought in bulk) such as seed material, bio and chemical fertilisers and other common inputs at subsidised rate. The FPO has license to sell the inputs. Farm machinery is also made available to the farmers at subsidised rate. Timely access to the inputs is a great help to the farm women and men. This helps the farmers to reduce cost of cultivation.

Zero Energy Cooling Chamber

In order to help the vegetable growers to make their marketing easy, a Zero Energy Cooling Chamber for vegetable storage up to seven days has been built one year ago (2022). Up to 200 kilos of vegetables can be stored in the cooling chamber. This technology developed by RUKART was first established by the FPO in Ganjam. Now that technology is gaining popularity in Ganjam and adjacent districts. Government provides Rs 35000/ as subsidy. Many NGOs contact the FPO for more details of the scheme and to know about the performance of the Cooling Chamber.

Planning for seed processing centre

It is strongly felt that without the sustainability of the FPO, sustainability of the VKC is not possible after the project is withdrawn. So, FPO, VMC along with MSSRF have started to think about it earnestly. There is a plan for setting up Seed Processing Centre through government grant, Rs 60 lakh through Odisha Integrated Irrigation Project for Climate Resilient Agriculture (OIIPCRA) (funded under *Panchayat* project) and Rs 50 lakh as loan through Start Up India (One year interest free for FPO). It is a loud but positive thinking and the FPO/MSSRF is hopeful to make their planning a reality.

Another idea is to apply for registration to produce (breeder and foundation seeds) , purchase and selling of certified seeds through the FPO.

Financial sustainability, a great challenge

Line departments also offer government subsidy schemes to FPO but it may not be in a position to avail the same because of its low or inadequate capital base. For example, Department of Agriculture offered Custom Service Centre at 50 per cent subsidy; the balance 50 percent is to be borne by the FPO. But because of lack of finances, FPO could not take it up. "... where is the money; we could not go ahead with it", pointed out the staff of MSSRF.

A minimum membership of 500 and above is a must to get financial assistance; for instance, credit guarantee cover from Small Farmers Agri-Business Consortium (SFAC) in respect of collateral free-lending is available only to the FPOs with a minimum membership of 500 and above.

Without FPO sustainability one cannot think of sustainability of the VKC programme, is the unanimous view of the stakeholders concerned. To a greater extent it is possible. It can be achieved. The advantage is the Chairman of the FPO is also the President of the VMC and all the Directors of the FPO are members of VMC; they are all committed people and strive for the sustainability of the FPO/VKC.

Reflections from the farmers

Arun Kumar, 49 years

Mr Arun Kumar hails from Chikarada Village. He has studied up to Class 10. He is married with three children (one son and two daughters). He owns 2.40 acres of irrigated land. His wife helps him in carrying out the agricultural activities. In Kharif season he grows paddy and in Rabi season green gram is cultivated in 1.40 acres and chilli, brinjal and few other vegetables are grown in 80 cents of the land.

Mr Arun Kumar appreciates the services of plant clinic to the farmers. He says he has been benefitting a lot through the plant clinic; so far he had participated in 13 plant clinic sessions since 2019-2020. He says he was not aware of the differences between pest and disease and nutrition deficiency. He was totally dependent on the local input dealer in handling crop related problems. Whatever the chemicals the input dealer gave he used to apply them. He did not realise that he was using the inputs indiscriminately until he came into contact with the plant clinic. He has come to know of the disease/pest and nutrient deficiency in the crop. He appreciates the way the expert guides the farmers in pest/disease management and in giving written prescription.

Mr Arun Kumar mentioned about shoot and borer attack on his brinjal crop during Rabi season in the year 2020. He applied three-four chemicals as suggested by the input dealer but there was no relief from the pest attack. Luckily, he participated in the

plant clinic conducted during that time and showed his affected crop to the expert. He came to know that the brinjal crop was affected by shoot and borer attack. The expert prescribed harmless chemicals to control and manage the pest. He appreciated the plant clinic experts patience in explaining the application methods (dosage and how many times and so on) and also the precaution methods to be taken. He was relieved when he observed improvement in his crop growth. .

Mr Arun Kumar stated that the plant clinic expert advised him to treat soil with neem cake before planting of next crop and also application of neem oil every 10-15 days immediately after transplanting until the flowering stage. He had been adopting the prescribed advisories by the plant clinic and he has been benefitting a lot; he has been able to cut down on expenditure and prevent crop loss. The pesticide expenses have come down from Rs 4000-4500 to Rs 1500-2000. Yield has increased compared to earlier years.

Mr Arun Kumar is confident that he would act immediately when his crop is affected by pest/disease and avoid the loss.

Mr Laxmi Das, Class 3

Mr Laxmi Das (50 years) comes from Chikarada Village. He has studied up to Class 3. He has been engaged in farming since his childhood. He is father of a son and two daughters. He owns three acres of land where he cultivates paddy in Kharif season and in the Rabi season green gram in 1.40 acres and vegetables in 0.80 cents where irrigation facility is available.

Mr Laxmi Das is also one of the farmers using the services of VKC programme since 2019. He mentions about a video based learning programme where he participated. Through video based learning programme he has come to know of different farming techniques such as line transplanting, poly mulching, use of nano urea instead of urea and ,application of pesticides. He is able to take precaution in the initial stages of pest/disease attack and save input expenditure and crop loss when compared to the earlier years.

Mr Laxmi Das adopted line transplanting method; he experienced seed reduction of 10kg per acre. The cost of labour also reduced by Rs 1000-Rs 1500/- and the cost of fertiliser by Rs 5000 per acre. He was happy to share with us that he is harvesting 60 bags of paddy from three acres and before he used to harvest 40 to 45 bags paddy (1 bag=50kg) from the same three acre land.

For green gram he uses nano urea and NPK in vegetables; he adopts polymulching and trellise method. Earlier he got 100kg green gram from one acre of land but now

300kg from the same land. Also, he was happy to share with us that his earnings from vegetable crop cultivation in 0.80 cents was Rs 30000/ (after deducting cultivation cost); now there is an increase of Rs 12000/-

Mr Laxmi Das has participated nearly in 20 plant clinic sessions so far and he has been experiencing the benefits. He says he shares the information with his fellow farmers, so they also indirectly get benefitted.

Mr Laxmi Das is also grateful to the VKC because he has got sprayer with subsidy, high yielding seed material, polythene cover from KVK .

Mr Narusu Nayak, 60 Years

Mr Narusu Nayak belongs to Sasanapadar Village. He is 60 years old and has studied up to Class 5. He does not own land but he has leased in two acres. Paddy is cultivated in the two acres during Kharif season and in the pre-rabi season vegetable crops (Tomato 0.20 acre, Cow pea 0.10 acre, chilli 0.20 acre, Bitter gourd 0.20 acre) are cultivated where irrigation facility is available.

Mr Narasu Nayak's association with the VKC started in the year 2019. Since then he has been participating in various programmes organised by the VKC. MrNarasu Naik remembers his participation in the first video based learning programme conducted by the VKC on paddy seed treatment and line transplanting. He said after watching the programme he developed interest and adopted line transplanting practices in 2020 and still continuing this practice . He mentioned that earlier he used to get 18 to 20 bags (75 Kg per bag; Rs 20.40 per one Kg) yield per one acre; there is steady yield increase (two-three bags every year) by adopting this method of transplanting. "Presently" , he is proud to say "I am harvesting 28 to 30 bags per acre; there is reduction in input cost and labour charges – Rs 4000 to 5000 per acre; because I am using less quantity of seed, fertilizer and pesticide, less number of labour. I got a profit of Rs 15000/ per acre". He is very happy to share with us that he has participated in more than 15 programmes related to farming organised by the VKC and he shares the knowledge and his experiences with around 30 farmers.

Ms Sabita Behera , 31 years

Ms Sabita Behera studied up to Class 7 from ChikaradaVillage has been involved in farming activities since she was 20 years old. She is a mother of two children. She does farming in one acre of her land with the help of her mother and sister. She cultivates paddy in one acre during Kharif season; in the Rabi season tomato and chilli are cultivated normally only in 40 cents of the land. Other 60 cents is left fallow Because of shortage of water

Ms Sabitha Behra came to know about the VKC programme from other farmers who had already participated in the meetings/programmes organised by the VKC. She has been regular in attending to audio advisory calls related to agriculture, weather information, govt scheme etc. She also uses Farmers Helpline service. She finds weather information is very useful for her; she is able to plan her agricultural operations; if rain is predicted she post pones application of inputs; she would not apply fertilisers or pesticides. It is also helpful in water management. She says this saves her from unnecessarily spending on inputs and saves household members energy. She follows the audio advisory and carries out her agricultural operations accordingly. She does not hesitate to call Helpline number if she has any doubt or need any clarification. The queries addressed are written down in a register which she uses whenever she needs.

According to Ms Sabitha Behra, she has been able to realise increased yield after she started following the crop advisories provided through audio advisory and plant clinic. Paddy yield has increased from 20-25 bags to 28-30 bags per acre. Now she is aware of the market price of the vegetables. She takes care only to use required inputs to the vegetables. She used to spend Rs 6000-7000 /- on inputs. Now inputs cost has considerably reduced (by around Rs 1500-2000). Earlier her earnings from selling vegetables used to be Rs 8000-10000/. She is very glad to share with us that from the same land she is able to get a profit of Rs 15000- Rs 16000/- “... this has been possible because I am applying only required quantity of fertilisers and pesticides at right time. I have come to know that it is very important to follow the right practice if one wants to avoid unnecessary expenses and earn more profit” mentioned Ms Behra.

Ms Sabitha Behra takes interest in participating in meetings and training programmes (ICT based) such as training on storage technology of paddy and vegetables. She is very proud to say that she has participated in more than 20 programmes which have really contributed in improving her knowledge and enhancing her confidence level. If she is able to do agriculture with clarity and based on knowledge, credit goes to the VKC says Ms Behra. She wants to put into practice the training she underwent on preparing tomato ketchup. She is waiting for the harvest of tomato from her field so that she can prepare ketch up for her household consumption which will be chemical free. She says she is going to encourage her friends and relatives to prepare and use tomato ketch up. She was very happy when she said that she is able to guide other farm women in adopting correct agricultural practices by using the VKC programme.

Ms Parimala Sethi, 44 years

Ms Parimala Sethi born in an agricultural background family is a resourceful woman from Chikarada Village. Her husband is a mason. The household used to cultivate in

leased land. Now they are not cultivating any crop. She has been in contact with the VKC from the time of its inauguration. She has been inspired to be in contact with the VKC and use its services after listening to the various speakers during the inauguration function. When the VKC staff visited her village a week after VKC was inaugurated to collect farmers' information to register for receiving audio advisories through the VKC she also got her name and mobile phone number registered. She was excited to receive audio message after two days of registration. The Voice message covers different local specific information such as pest and diseases management, dairy farming, cattle health care management, feed management, weather advisory and so on. She listens to the audio advisories or Voice SMS regularly because she finds them useful and it also improves her knowledge.

Ms Parimala Sethi was motivated to buy cows and earn income by selling milk after listening to voice message on cattle rearing. She discussed with her husband and purchased two Jersey cows in 2020. She is a member of SHG and this helped her to get a loan of Rs 30000/. She also had some personal savings. Using the savings and the loan amount from SHG she bought the cows.

Ms Parimala Sethi states that receiving regular audio advisories on cattle feed, health, seasonal outbreak of disease, precautions and management practices to be undertaken makes rearing cows less difficult. She is able to take timely precautions to prevent disease attack. She keeps the cattle shed clean and neat based on the instruction she gets through the audio advisories. In case she needs some additional information or has a doubt she calls Farmers Helpline for guidance. The cows yielded 14 liters of milk in the beginning. Now the yield has increased to 28 litres from both the cows. She milks the cow twice a day. One litre of milk is sold at Rs 50. She sells milk for Rs 40000/. On an average she earns Rs 24000 /- per month (after deducting cattle feed and maintenance cost of Rs 15000-16000).

Apart from selling milk she also earns yearly by selling two-three loads of tractor (Rs 1500 per tractor) of cow dung to the villagers. She says, " I am glad I took a decision of rearing cows as a livelihood option; I am thankful to the VKC; earlier it did not strike me that our household can earn income by rearing cows and selling milk. The income we get from selling milk is very helpful for us".

Ms Priyanka Behera, 24 years

Ms Priyanka Behera a graduate from Sasanapadar Village has been brought up along with her two sisters by her mother who is a daily wage labourer. Her father's whereabouts are not known since 20 years. Coming from such a background today she is earning Rs 15000 per month. She expresses her gratitude to the VKC through

which she came to know about various training given under DDUGKY (Dina Dayalu Upadhya Gramina Kausal Vikas Yojana).

Ms Priyanka Behera's household has known about VKC programme and its services since the year 2019. Like many households in her village her mother also registered her mobile number to receive voice message /audio advisories. Ms Priyanka Behera listens to the voice messages/audio advisories almost daily. During 2020 she came to know through audio message from the VKC about training in skill development under DDUGKY, a Central Govt scheme (for rural educated unemployed youth). After listening about free skill development training she wanted to explore whether she would be able to avail the benefit. So, she visited the VKC to get more details about the training. She appreciates the manner the staff/Knowledge Workers in the VKC explained in detail about the various training programmes given based on educational qualification; the training duration was six to 18 months (courses such as computer education, Hospitality management, Welder, Fitter, Plumber, tailoring, Electrician etc). And everything such as food, hostel facility, books, tools and uniform expenses are taken care of by the government under this scheme, DDUGKY. After getting to know of the various training programmes available she chose to apply for data entry operator course; she mentioned that she was moved by the way the VKC staff guided and helped her to apply for the course.

Ms Priyanka Behera underwent training for three months in Khorda district of Odisha and successfully completed her training. Her happiness knew no bounds when she got a job in Tech Mahindra PVT Company in Kolkata through the institution where she underwent training. Now she is earning a monthly salary of Rs 15000/- She is happy that she is of financial help to her mother. She sends Rs 9000 to her mother; she was also happy to mention that her mother uses that money for the younger siblings' education (one is doing Certified Teacher course and the other sister is doing B.A in college).

"My sincere thanks to the VKC; today I am employed and helping the family financially; credit goes to the VKC" mentioned Ms Priyanka Behera.

Mr Raghunatha Patra, 56 years

Mr Raghunatha Patra is one of the many farmers using the services of the VKC since 2019. He is from Chikarada Village and has 30 years of agricultural experience; he cultivates paddy in 2.4 acres, green gram in 2 acres, tomato and chilli on 0.4 acres; he has a bore well for irrigation.

Mr Raghunath has been a regular visitor to the VKC and uses its services in carrying out his agricultural operations; he says that he has been able to take precautions to avoid pest and disease attack on his crops and manage them; he adopts to the extent

possible climate smart agricultural practices/technologies (seed treatment, Paddy and vegetable line transplanting method, drip cum poly mulching and so on). He is experiencing some positive changes- there is reduction in the input cost and increase in yield; able to prevent and manage pest and disease on crops (blast in rice, sucking pests, shoot and fruit borer, wilting, leaf curl diseases in vegetables, Aphids, leaf cutter pests in pulses) on time.

Mr Raghunatha Patra stated that apart from getting crop advisories and training he is also getting benefitted through other schemes with the help of the VKC. He pointed out that VKC helps the villagers to improve their livelihood or increase their income through the activities or work taken under convergence with MGNREGA Scheme. He mentioned that under MGNREGA Convergence work he got Rs 45000/- for development of two acres of land and Rs 20000 for the construction of vermi compost pit from the Village *Panchayat* (2020). He says his house hold is able to produce one tonne of vermi compost which he uses in his land. He was happy to mention that he is saving nearly Rs 8000 on fertiliser now and rice yield has increased from 15 quintals to 19.50 quintal per acre. Along with other advisories followed from the VKC the application of vermi compost has further helped him to improve the soil quality and get increased income. There has been yield increase in green gram from 1.5 to 2.2 quintals per acre and tomato and chilli from 70 to 85 quintals per acre.

Mr Raghunatha Patra feels happy that his household's income from 2.4 acres of land has increased from Rs 60000-70000 to around Rs 1, 15,000/-. Adoption of climate-smart technologies helps him in reducing input costs by 30 to 40%. He also regularly participates in plant clinic sessions held in the village which plays a significant role in preventing and managing the pest/disease and promoting local specific technologies and suitable crops. He also feels confident that he is in a position to share the knowledge he received through the VKC with his fellow farmers.

Ms Bijyalaxmi Sethi, 56 years

Ms Bijyalaxmi Sethi, a very enthusiastic woman from Chikarada Village had an idea about the VKC programme even before it was set up because of her participation in the awareness meeting held in her village. She developed interest in the programme from the beginning because she felt that would help her in doing agriculture and in getting other help. She is a member in the VMC. She is also one of the Directors of FPO. Ms Bijyalaxmi Sethi had education up to Class 5. She is a mother of three children (two boys and a girl). She cultivates paddy, green gram and vegetables. She is a SHG leader. She participates in all the programmes and encourages others to participate. She shares the knowledge and information with her group members and others. She says that VKC has given a platform for her to improve her capacity as a leader and a farmer.

She is very proud to mention that she articulates her views on various things. This has been possible because of her regular participation in VMC meetings, FPO meetings and various ICT and non ICT programmes.

Ms Bijayalaxmi Sethi encourages others to make use of VKC services such as applying for various government schemes, visiting plant clinics and to learn about technologies. She sets an example for others to follow by adopting climate smart technologies such as line transplanting, seed treatment, inter cropping, green gram line sowing and so on. She has set up a kitchen garden and lemon plantation with the support of Horticulture department under MGNREGA scheme. She makes use of the schemes related to land development. Her income from 0.7 acres has increased from Rs 18000 to Rs 26000/ . With the help of the VKC she applied for government subsidy schemes and got Rs 70000/ . She makes use of different government schemes such as KaliaYojana and PM Kisan; through SHG related schemes she has got farm machinery

As one of the director of FPO she takes lot of effort to encourage the farmers to join as members of FPO and purchase farm inputs at nominal cost. She motivates them to use bio fertilizer/ pesticides, use of green manure and other climate smart technologies. She also encourages the farm women and men to sell their farm products to the FPO. She is happy to share with us that farmers are satisfied with the price offered by the FPO for their products (vegetables). Because it is higher than the rate they got from the market. She also sells basumati rice from her field to the FPO and gets good price.

Ms Bijayalaxmi Sethi has great appreciation for plant clinic services. She says it has created a great impact on the farm women and men. According to her, plant clinic is the most valuable service provided by VKC to the farmers. During plant clinic sessions farmers freely discuss with experts about pest and diseases related issues, pest management and preventive practices and so on. Farmers are using right inputs in right proportion to the crops. The earning capacity has increased and there is reduction in input cost by Rs 3000-Rs 4000/ . They are also experiencing yield increase of five to eight bags of paddy per acre. A majority has understood the utility of plant clinic services in improving their livelihood. It has been a great source of support and guidance to follow sustainable agricultural practices and reduce input cost. Now, there is no dependence on the input dealer” .

Whatever she learnt from the VKC she has been able to help others with the knowledge she gained, says Ms Bijayalaxmi. It is important she feels!

Mr Kura Patra, 54 Years

Mr Kura Patra, a hard working and enthusiastic farmer from Chikarada Village is one of the Champion Farmers. He cultivates crops such as paddy, chilli, tomato and okra in

six acres (owns four acres and leased in two acres) of land. He has his own bore well, which he uses for irrigation. Two of his sons work in a barbershop while the other two sons and his wife help him in farming operations. Observing his interest in farming and his capacity in mobilising farmers he was selected as one of the Champion Farmers under the Resilience Project.

It was interesting to learn that Mr Kura Patra, gradually started using the knowledge he received on different Climate-Smart Agriculture technologies by undergoing various trainings (such as paddy line transplanting method, seed treatment, stacking method of tomato cultivation, nursery bed raising technology, Integrated Nutrient Management in paddy, vermi composting and so on). For the first time he demonstrated mechanical transplanting of paddy under the Resilience project. He was glad to share with us that his participation in plant clinic sessions enhanced his plant knowledge on pests and diseases; he can identify the symptoms of major pests/diseases and he also cautions his fellow farmers when he notices any pest /disease attack in their fields. During Covid-19 he actively participated in online plant clinic sessions and able to manage the crop cultivation.

Mr Kura Patra mentioned that he is able to practice what he learnt through training programmes, plant clinic, audio advisories/conferences and his regular visits to the VKC and particularly because one of his sons greatly supports and helps him in all the agricultural activities/operations. Mr Kura Patra is very happy that his son is showing interest in learning the climate smart technologies and adopting the same in their fields. He mentioned that he did not have access to information on various new agricultural technologies and was not aware of climate smart technologies before he came into contact with the VKC.

“Prior to the Resilience project’s intervention, I used traditional seeds without seed treatment , applied excessive fertilizer and pesticides, and planted more seedlings per pit. Like any other farmer in our village I was also dependent on the local input dealer for crop advisories. There was no yield increase even after spending lot of money on inputs. However, gradually I could see positive outcome of adopting the new technologies one by one. My expenses were as high as Rs 25000 per acre (both seasons) prior to my association with the VKC. I am happy to tell you that my expenses have come down to Rs 8000/; we are earning a profit of Rs 70000-75000 (per acre Rs11000 to 12,500) from our six acres of land”. He and his son regularly listen to voice SMS, participate in plant clinics, audio conferences, and visit the VKC; these are their primary source of information, mentioned Mr Kura Patra.

Mr Kura Patra also mentioned about his household utilising several subsidy schemes from the government through VKC such as vermi compost tank, land development

under MGNREGA, agroforestry plantation through the forest department, horticulture plants from KVK and the horticulture department, and bore well from the agriculture department.

Mr Kura Patra has been able to enhance his capacity by learning and adopting Climate Smart Agriculture (CSA) technologies: scientific method of vegetable production by using high yielding and hybrid seed variety, maintaining line transplanting and trellis method; introduced resistance variety of paddy seed Swarna sub-1, vermicompost production, seed treatment, paddy line transplanting, pest and diseases management, nursery bed preparation, INM in paddy & vegetable, Agroforestry bund plantation. He sells all vegetables through FPO for a better rate.

With his enhanced knowledge and skills Mr Kura Patra helps his fellow farmers by sharing the necessary and required information and providing guidance. He is happy that as one of the Champion Farmers he is able to do what he can do to his village women and men.

Ms Kumari Sethy, 45 years

Ms Kumari Sethy is one of the Champion Farmers who manages almost single handed her household's agricultural operations in the two acres of land. She cultivates paddy, green gram, bitter gourd, tomato, chilli, ridge gourd, pumpkin, cow pee and cucumber. Her husband is away for at least nine months in Mumbai for work. Her two sons are working in a Bangalore based company and her daughter is married. She takes all the decisions concerning the farming. She has an open well and also a bore well for irrigation. Before she came into contact with the VKC in 2019, she cultivated paddy and vegetables in 25 cents during Karif season; in rabi season she used to leave one acre fallow.

Ms Kumari Sethy shows great interest in learning new technologies relevant to the present climate and agricultural conditions. She is very careful in managing weeds in the field. She does carefully seed treatment and adopts paddy line transplanting; she also shows interest in paddy seed production and preservation, inter cropping method and nutrient management; she follows stacking method of bitter gourd production. Also based on plant clinic's crop advisory she follows pest and diseases management, raising bed nursery, scientific method of vegetable cultivation practices such as planting single seedling, maintaining proper spacing - line to line and row to row, stacking and trellises method for creeper crop.

Ms Kumari Sethy was very proud to mention that for the first time in her village (in 2020) she had adopted paddy line transplanting and also motivated other eight women farmers to adopt the same in their fields; she was also happy to mention that

each of them got an extra yield of three-four bags (75 kg per bag); and there was less incidence of pest/disease attack. More than 100 households were inspired to adopt line transplanting method after 2021 covering an area of 123 acres.

Ms Kumari Sethy learnt and updated different types of climate smart agriculture technologies through video based learning, audio conference, regularly listening to audio advisory, through helpline and by visiting VKC. Her knowledge base has been further strengthened by participating in plant clinic sessions. Direct contact with the expert at the plant clinic makes lot of difference, says Ms Kumari Sethy. More importantly, the support and encouragement given by the VKC staff is something great, she added to say. With their guidance and encouragement she uses her two acres of land and does not leave any land as fallow these days. She also takes the guidance of KVK. As an example, she stated that during 2021 she got 45 bags from two acres but last year she harvested 52 bags from the same two acres- an increase of seven bags; she adopted line transplanting method and other climate smart technologies. By following bundle of climate smart technologies she has been able to reduce pesticide, fertiliser and other input cost. She has been encouraged to adopt sustainable agricultural practices (by reducing chemical fertilisers/pesticides and increasing the use of bio fertilisers/pesticides or less harmful chemicals). She also follows integrated weed management.

Ms Sethy is proud to mention that she is a confident woman now. Her participation in various meetings has given her clarity in thinking and improved her speaking skills. She is able to interact with others without any fear or inhibition, mentioned a happy Ms Sethy.

The above case studies give us an idea about the various activities (carried out as part of knowledge management and capacity building) and their benefits to the farm women and men by using different ICT tools and participating in capacity building programmes. The climate smart technologies is gaining popularity among the village community including women farmers because of its effectiveness in reducing the input costs and increasing the yield of the crop which is evident from the interaction with farm women and men.

Shifting VKC not accepted

The village women and men feel that the VKC is part and parcel of their lives. It was pointed out that four months ago MSSRF contemplated of shifting the VKC to the KVK premises; because they are the technology partners of Resilience Project and there is no need to pay rent. But, MSSRF had to give up the idea because there was resistance from the farming community in shifting the VKC to the KVK.; the villagers cannot have easy access to the VKC because of the distance from the village to the KVK.

Role of Knowledge Worker

In addition to the strong and committed VMC members, it is important that the managers of the VKC (Knowledge Workers) are proactive and committed for the successful implementation of the VKC programme. Ms Sunitha, who has been the Knowledge Worker from the beginning of the VKC programme, hails from Chikarada Village. Though she is a resident of the village she admitted that more than 50 per cent of the community did not know her and it was same with her. She was afraid as to how to interact and mobilise people. But, she is not facing any problem now in mobilising the community particularly women; the women come forward to participate in the VKC programmes. She feels very happy about it.

Ms Sunitha from Chikarada was humble to mention that she has improved a lot in many aspects. Before joining the VKC she had attended basic computer course but she had almost forgotten it. After joining the VKC she gradually remembered computer lessons. She did not know applying for a certificate or a scheme through online. Now she edits and uploads Voice SMS. The other Knowledge Worker namely Ms Rajalaxmi Behra from Sasanapadar Village is the third Knowledge Worker from that village. For her also it is a first job. She joined for work immediately after completing her under graduation. She joined 18 months ago (August 2021). Though she is the native of Sasanapadar she is not a resident of the village. Many knew her father but she was a stranger to the village women and men; so in the initial days she had difficulty to carry out her work (example: mobilising adolescent girls -10-19 years for a programme-National Girl Child Day, January 2022). But gradually she picked up the necessary skills; when she could not mobilise the girls Ms Rajalaxmi approached the village elders and through them she could do it. 'Today', she says 'we can mobilise more than 100 women for a programme; such is the positive impact the VKC has created. The village women get upset if some of them are not included in a particular programme for some reason'. Ms Rajalaxmi says that in the last 18 months she could see lot of changes in women; they used to be very shy; their participation in the VKC programmes and contact with more people have raised their confidence level; earlier they were not part of decision making process in the household; they took it for granted that it was men's domain. Presently, women are well connected with one another. So there has been sharing of experiences among them. They are aware of new technologies; they are consulted by their men folk on important matters concerning farming.

We learnt that there are days when Knowledge Workers would not get time to have their lunch. Their hands would be full with lot of work. During such times they do not consider that they are overloaded with work; they do it willingly; so there is no question of getting tired, mentioned Ms Sunitha and Ms Rajalaxmi. For instance, during registration of Krushak Odisha portal (a digital data base for the farmers) it was hectic

for the Knowledge Workers; they had to enter all the details of the eligible farmers in a proper format and the farmers had to submit it to the department of agriculture before the deadline. It was tiring work but the Knowledge Workers worked with enthusiasm which gave them a sense of fulfilment. When farm women and men tell them they have been able to get subsidy or benefitted through a scheme it gives them happiness. They pointed out that sense of satisfaction is very important in any work. They are also able to carry out their work with enthusiasm and interest also because of the appreciation they receive from the villagers and the support of understanding VMC committee members and their MSSRF colleagues. The Knowledge Workers were happy to share with us that their honorarium has been increased from Rs 6000 to 9000/ based on the recommendation of the VMC; they feel it is in recognition of their work and this has increased their self esteem and expressed their wish to work more earnestly for the rural people through the VKC programme.

Both Ms Sunitha and Ms Rajalaxmi mentioned that it is not only the farmers who have benefitted by the VKC programme they have also improved a lot by being part of implementing the VKC activities; they have come to know of new agricultural technologies, about common pests/diseases and their symptoms. They have a very good rapport with the villagers that if they don't visit the village the women would enquire them. While Ms Sunitha was able to recollect the computer lessons she learnt and strengthen her computer skills, Ms Rajalaxmi learnt computers after joining the VKC. Now she is of great help to Sunitha in providing online services to villagers.

Ms Rajalaxmi who has agricultural background is happy that she has been able to organise and participate along with KVK scientists in programmes like celebrating soil day and pulses day. And she is also able to give training in post harvest storage of tomato. She also came to know of pest/disease management in chilli, green gram and paddy.

What is that you like most about the VKC was a question posed to the Knowledge Workers. They instantly answered that it has helped to increase the awareness level and the knowledge base of the village women and men. According to them these two aspects are important for the rural population to handle the situation in a better manner; knowledge gives them confidence and enhance their self esteem. The rural women and men have been able to avail the benefits of government schemes/subsidies which help them significantly in their livelihood and other aspects. The Knowledge Workers are happy that they are part of creating awareness and knowledge empowerment of rural people through the VKC programme. They are very proud to point out that women farmers have been able to access the services of the VKC without any hurdles. They feel free to come to the VKC the moment they heard something about a new scheme or any information related to agriculture, livestock or health through audio advisory; the next

morning one can expect women (and also men) visiting the VKC to get more details; it is a great improvement mentioned the Knowledge Workers.

While talking about empowerment of women and also the impact of the VKC services on the community Ms Sunitha and Rajalaxmi pointed out that not only the community has benefited they have also gained a lot in the process. By being part of the knowledge empowerment and capacity building programme of Resilience Project implemented through the VKC they have been able to become aware of many aspects of the climate smart agriculture; they have developed good rapport with the community and other strategic partners. They have been able to learn and improve their computer/communication skills which help them in their day today activities at the VKC. The project is community based which means interacting with women and men of the village. Working with the community gives lot of happiness and satisfaction. It has enhanced their self esteem and confidence level, added Ms Rajalaxmi and Ms Sunitha.

The Knowledge Workers admitted that they did face some difficulties but now they realise that it has only 'polished' their performance. They also added to say that more than once they wished to resign; but the VMC members have always been understanding and supportive in helping them handle situations. They also pointed out that based on the VMC recommendation their honorarium/salary has been increased from Rs 6000 to Rs 9000/ about which they are happy and are inspired to do work with more zeal. They are also very happy and feel proud that they are staff of MSSRF now.

Challenges

Attitude of the elected village *Panchayat* president

One of the most important challenges confronted by the VKC programme is the present Village *Panchayat* President. He was elected as the Village *Panchayat* President one year ago. By then the VKC was three years old. His animosity with the traditional village *Panchayat* persons has also been directed against the VKC because of its close association with them. Using his power as the *Panchayat* President he objected to the functioning of the VKC in the *Panchayat* building. As a result the VKC had to be shifted to a rented building.

It is also understood from our interaction with the VMC members and MSSRF staff that even after shifting the VKC from the *Panchayat* building the present village *Panchayat* president tries to hinder the programmes of the VKC. He would not allow community hall to be used by the VKC for conducting any programme.

It was also mentioned that the present elected president discourages people from visiting the VKC. However, the VKC/VMC handles the situation well. It has built up a good rapport with the village community and the community also realises the role

played by the VKC/VMC/FPO in their lives. Since the women and men have realised the utility of the VKC services they are not influenced by the present Village President. They directly come to the VKC to get information or any detail.

Space is a problem

Space is a big problem for the VKC. As we have mentioned earlier it is operating in a rented building. It is difficult to conduct even a small programme in the VKC. As it has been mentioned above, the Village *Panchayat* President would not let the VKC use the community hall for conducting any programme. It can accommodate more number of people. So, the VKC depending on the availability of space in any other building organises programmes. Programmes are organised keeping the availability of space in mind and how many people it can accommodate; the VKC does not have sufficient space even to conduct video based training. Therefore they are conducted in SHG building or any other available place.

Availability and maintenance of IT infrastructure

Maintenance of printer or scanner and computers is a problem. Aadhar card rectification cannot be done in the VKC because the Centre does not have finger print scanner, Web camera and retina scanner. The staff mentioned that they would request MSSRF to provide the necessary infrastructure for the VKC to carry out its services and activities more effectively to the community.

Financial constraints

Low capital base is a major challenge faced by the FPO. It hinders access or to avail financial support from government departments/institutions or banks.

Adequate finance is critical and it is a major challenge faced by the FPO (for marketing, value addition and processing; local traders provide inputs on credit). Shareholders are not taking much responsibility because of financial constrains and lack of benefits. FPO is not in a position to avail the benefit of 50 per cent subsidy provided by the government scheme because of the financial constrains. The VKC could not make use of the opportunity when the agricultural department offered Custom Service Centre to the VKC with 50% subsidy; the balance 50% had to be provided by the VKC. The VKC/FPO was not in a position to mobilise Rs 50000/- So it had to give up the idea of setting Common Service Centre.

We have mentioned earlier that FPO was formed as upscaling of VKC programme in Chikarada Village. Strengthening of FPO is important for the sustainability of the VKC programme. Commercial viability and financial sustainability of the FPO are very critical. Moving up the value chain to offer high-value products is crucial for FPOs'

success. Low capital base is a major challenge faced by the FPO. It may hinder FPO to access required financial support from banks/financial institutions.

It is a unanimous view of the major stakeholders concerned that sustainability of the FPO is very crucial for sustaining the VKC programme and sustainability of the FPO is greatly dependent on sustainability of the VKC. Both are dependent on each other for their sustainability.

FPO can be used to create income generating activities for women and men with the help of line departments and NGOs. It would be better if staff from a line department is included in the VMC so that he or she could divert some funds for the village through the FPO. As of now there is perfect understanding and support among the VMC members and the FPO. This is mainly because VMC members are also the Directors of FPO.

It is learnt that with effective functioning of the VMC and FPO and with continuous support from the line departments and other linkages there won't much hindrance in VKC continuing its services. However, it was also stated that for coordinating activities people will come forward and implement the activities; line departments such as KVK would provide technology support. But, the financial aspect is a critical one! How will be the services of the VKC/FPO continue without financial support?

The VMC members are of the view if MSSRF takes care of salary of two persons, it would be very helpful in sustaining the VKC programme and the functioning of the FPO. The VMC also expressed that it is important to have at least Rs 50000/- as core fund to meet any contingency.

We understand that FPO and VKC are mutually dependent for their sustainability. As one of the staff mentioned "...if FPO sustains the VKC will sustain; sustainability of one is dependent on the sustainability of another; it is mutual".

It is learnt that VKC is doing half of Common Service Centre's (CSC) work. If CSC is integrated it would be good for the VKC to function well. This may also help in taking care of the staff's salary. It is also learnt that talk is in progress. If CSC is brought under the umbrella of the VKC it would do lot good to the village community, felt one of the staff of MSSRF.

Another, important aspect to be kept in mind is the unfavourable attitude of the village *Panchayat* President towards the VKC programme.

Concluding Remarks

The Village Knowledge Centre in Chikarada in Ganjam district of Odisha was set up (June 6, 2019) as part of knowledge management and capacity building of the rural

small landholding farming community under the RESILIENCE Project, Norway in partnership with Odisha University of Agriculture and Technology (OUAT) and Chikarada Gram *Panchayat* in Ganjam district; M S Swaminathan Research Foundation is the implementing agency.

The VKC plays a significant role in providing locale-specific value added information/knowledge related to climate-smart agricultural practices, animal husbandry, employment, education, government services, market and weather to rural farm women and men including agricultural labourers through using ICT and non-ICT tools. It also organises training and awareness programmes to build their skills and capacities and also through building linkages with institutions / organisations for translating the content into field-based applications. MSSRF, through the VKC strives to provide knowledge and technology/training needs of the farm women and men, particularly in the context of climate change by employing different innovative digital technologies and capacity building programmes to promote sustainable agriculture and improve their livelihoods.

Involvement of a varied spectrum of community stakeholders is critical for the good reach and sustainability of the VKC programme. Village Management Committee (VMC) formed comprising different stakeholders (women and men engaged primarily in agriculture, *Anganwadi* worker, Knowledge Worker, Staff from MSSRF and so on) at the village level, monitors the work carried out by the Knowledge Workers and the functioning of the VKC. Sense of ownership and commitment on the part of VMC is crucial for the sustainability of the VKC. The support and encouragement provided by the VKC staff and the Knowledge Workers is greatly valued by the farming community. Continuous support and guidance from the MSSRF is expected by VMC members in implementing the programme.

We understand that women and men farmers have learnt and updated different types of climate smart agriculture technologies through video based learning, audio/video conference, regularly listening to audio advisory, through helpline and by visiting VKC. It is also learnt that their crop knowledge base has been further strengthened by participating in plant clinic sessions. The knowledge has been translated into action to a greater extent. It may be mentioned here that climate smart technologies and plant clinic programme seem to be playing a very significant role in improving the livelihood of the village community and have gained widespread recognition among the small land holding farmers of both sexes.

Impact of the project through the VKC programme is evident from our interaction with the farm women and men and also with the Knowledge Workers and VMC members. It is learnt that they adopt to the extent possible climate smart agricultural practices/ technologies (seed treatment, rice and vegetable line transplanting method, drip cum

poly mulching and so on). It is encouraging to know that they are experiencing some positive changes- there is reduction in the input cost and yield increase; they are able to prevent and manage pest and disease on crops.

It is interesting to note that knowledge sharing takes place among the farm women and men. One woman was very proud to mention that for the first time in her village (in 2020) she had adopted paddy line transplanting and also motivated eight women farmers to adopt the same in their respective fields; she was also happy to mention that each one of them got an extra yield of three-four bags (75 kg per bag); and there was less incidence of pest/disease attack and tilling was good. More than 100 were inspired to adopt line transplanting method after 2021 covering an area of 123 acres.

Farm women and men have great appreciation for plant clinic services. It is pointed out that majority has understood the utility of plant clinic services in improving their livelihood. It has been a great source of support and guidance to adopt sustainable agricultural practices; there has been knowledge enhancement on pests/diseases by 70 % -85%; input cost has been reduced by 30%-40%; yield increased by 20%-35%. There is equal participation of women and men in the plant clinic programme and sometimes female participation is more.

Farmers including women listen to the audio advisories or voice messages regularly because they find them useful in improving their socioeconomic conditions. It is heartening to know that listening to an audio advisory encouraged a woman from landless household to take cattle rearing as a livelihood option and in few cases the youngsters are motivated to undergo training to get employment. Weather audio advisory helps the farmers in planning their agricultural operations.

The Champion Farmers have been able to enhance their knowledge and skills; they help the fellow farmers by sharing the necessary and required information and by providing guidance to his/her fellow farmers.

VKC has played a considerable role in providing a platform for women to improve their capacity and skills in carrying out their agricultural operations; they are aware of the importance of adopting climate smart agricultural crops and related technologies; they have been able to acquire capacity as a farmer and also a leader. They are able to articulate their views on various aspects. They go to Krishi Vigyan Kendra (KVK) and agricultural department to get inputs and avail the subsidies. Their participation in the VKC programme has given them clarity in thinking and improve their communicating skills. They interact with others without any fear or inhibition. They are confident now. It is said that farm women are connected with each other which helps them learn from one another.

Online services available at the VKC help the villagers in a significant manner. They can get their work (such as getting community certificate, land/house *patta*, paying electricity bill and so on) done within the village itself. Online services are also used to apply for various government schemes - Kalia Yojana Yojana, PM Kisan Yojana, Krushak Odisha, Old Age Pension and Widow Pension (Madhubabu Pension Yojana- by state government and Indira Gandhi National Old Age Pension by Central Government), Adarsha Odisha (Education Scheme) Abhaa health card and so on.

The VKC is central place of contact for the government departments, NGOs and other institutions in carrying out their community based programmes. It is said that 50 per cent of the work of Department of Agriculture or *Krishi Vigyan Kendra* (KVK) is carried out through the VKC. There has been perfect coordination and cooperation among the VKC/FPO and various stakeholders/strategic partners in carrying out their respective programmes/activities for the village community.

VMC members coming from different walks of life and their coordinated efforts have been an important factor in the knowledge empowerment and capacity building of farm women and men. FPO directors and VMC members take effort to encourage farmers to join as members of FPO and purchase farm inputs at nominal cost. They also motivate them to apply bio fertilizer/ pesticides, green manure and other climate smart technologies. VMCs contact and regular follow up has been another important factor for the proper functioning of the VKC. VMC not only monitors the work of the Knowledge Workers but they are also very supportive to them.

The staff of MSSRF and the Knowledge Workers have a good rapport with the village women and men. They are proactive in taking the benefits of government programmes/ schemes to the village community and promoting climate smart technologies among farm women and men. They are good in communication. They would contact the strategic partners and get information related to the village.

The Knowledge Workers (who are now staff of MSSRF) are happy to share with us that their confidence level has increased and their self esteem has also enhanced. They have job satisfaction though many a times the work is more demanding. However, they do not get tired as they enjoy doing their work. They are very happy to share with us that they are staff of MSSRF now. It has boosted their morale further and encourages them to work among the community with more vigour.

In spite of well intentioned FPO/VMC, proactive staff and a very helpful role played by the MSSRF as a facilitator/implementing agency for conducting programmes/ training and getting linkages there are serious concerns that need to be looked into by all the stakeholders. How long MSSRF would be able to play a facilitator role and how it is going to pay the Knowledge Workers (who have become staff of MSSRF) is a major concern which needs to be addressed.

Strengthening of FPO (set up as an upscaling measure of VKC programme), is very crucial in taking the VKC programme further. It came out clearly during our discussion that sustainability of the VKC largely depends on the sustainability of the FPO. It is also learnt that insufficient working capital is major challenge faced by the FPO (for marketing, value addition and processing). It hinders access to or to avail financial support from government departments/institutions or banks. The VKC could not make use of the opportunity when the agricultural department offered Custom Service Centre (CSC) to the VKC with 50% subsidy; the balance 50% had to be provided by the VKC/FPO. The VKC/FPO was unable to mobilise the balance amount; so the idea of setting up CSC had to be dropped. FPO has to take sincere efforts in improving its capital base to have access and to avail financial support from government departments/institutions or banks.

The FPO should take earnest efforts to increase the membership. It is essential to create awareness on operations of collectives and their role/responsibilities to take complete ownership of the FPO. Patronage of members of FPO/VMC is very important. Creating strong market linkages is important to ensure regular cash flow (eg procuring vegetables and marketing and also procuring agricultural inputs in bulk and sell at reduced rate); this would promote the members' continuous patronage and the group's solidarity. This would also play a significant role in handling the present elected Village *Panchayat* President who is not supportive to the VKC programme.

Some income generating activities for the FPO can also be given a thought; computer classes and government exams coaching classes for school/college students can be undertaken charging nominal fees. This would encourage the youngsters and the parents to make use of the programme since they do not have to go outside the village. Another source of income may be generated through online services. It is important that VKC is equipped with sufficient number of computers with scan facility, printer and photocopying machine.

As suggested by one of the stakeholders, if CSC is integrated with VKC it may help the later at least in taking care of the staff's salary. If CSC is brought under the umbrella of the VKC it would do a lot of good to the village community.

The VKC programme has been going on reasonably well and the villagers are getting benefited; it is also well acknowledged by the village community. Sustainability of the VKC is an important issue that needs to be given a serious thought though the FPO and VMC members are committed to the programme. A well intentioned and useful programme for the village community should not be left to suffer for want of institutional and financial support and guidance!

Capacity Building Activities in the Village Knowledge Centre



