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Achieving Sustainable Development Goals (SDGs) in Meghalaya through KVK Interventions- A Success Story

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Sustainable Development Goals (SDGs) is an external funded programme assisted to KVK West Khasi Hills under Chief Minister's Catalytic Fund from the State Government of Meghalaya through the District Administration during the year 2023-24. With this support, KVK had identified the proven technologies such as production of buckwheat seed, mushroom production and paddy cum fish culture for demonstration at the farmers' field with the motive to achieve the objectives of the Sustainable Development Goals (SDGs) in Eastern West Khasi Hills district. This programme has significantly empowered the farming community in Eastern West Khasi Hills of Meghalaya through scientific interventions in mushroom production, buckwheat cultivation, paddy cum fish culture. The purpose of this article is to promote the KVK agricultural technologies through project approach especially for small and marginal farmers for productivity and sustainability.

Keywords: Farmers' income, Meghalaya, North Eastern Region (NER), Smallholder farmers, Sustainable Development Goals (SDGs),

Introduction

Meghalaya situated in the North Eastern part of India, is predominantly an agrarian economy. Agriculture and allied activities engage nearly two-thirds of the total work force in Meghalaya. However, the contribution of this sector to the Gross State Domestic Product (GSDP) is only 17.84 per cent. Agriculture in the state is characterized by low productivity and unsustainable farm practices, giving rise to a high incidence of rural poverty. The total geographical area of the state is reported to be 2.24 million hectare, of which about 10 per cent (about 0.22 million ha.) is brought under cultivation. However, the total cropped area has not been changed much and remains 0.27 million ha (12 per cent of the reported geographical area). This is an indicative that very small fraction of cultivated land is put under more than one cropping, whereas state agriculture is still continuing predominantly monocropping system. Food grains productions dominate the cropping system of the state, accounting for over 60 per cent of the total crop area in the state. The production of food grains is over 230 thousand tonnes. Rice being the major food grains occupying 80 per cent of the food grain production with an average yield of only 1.89 tons per ha in the state. Other important food grain crops are maize, wheat and a few other cereals and pulses, which average yields are also lower than national average and similarly is the case in all Eastern West Khasi Hills district of Meghalaya.

The 2030 Agenda for Sustainable Development, adopted by the United Nations Member States in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs), which are an urgent call for action by all countries in a global partnership. India is firmly committed to playing its internationally recognised role in determining the success or failure of the SDGs. India's success in doing so will depend considerably on initiatives of the

State governments and the Union Territories (UTs) to achieve the SDGs. Further, the focus of the SDGs on equality, justice and the core principle of “Leave No One Behind” makes the participation and contribution of States crucial in the pursuit of the SDGs. The North Eastern Region comprising eight of India’s 28 states plays a decisive role in India’s journey to achieve the 2030 Agenda. The region covering almost 8 per cent of India’s land and 3.77 per cent of the total population is its gateway to South East Asia. With over 5300 kms of international borders with several neighbouring countries, it is increasingly gaining significant strategic value. With ASEAN engagement becoming a central pillar of India’s foreign policy, these states play an important role as the physical and cultural bridge between India and East Asian countries. Hence, on account of its strategic positioning as well as geographical, demographic and social diversity, the region’s contribution to the nation’s striving to achieve the SDGs is very important.

The Government of India’s focus on the North Eastern Region (NER) through the Act East Policy (AEP) makes it clear that the region has great potential to develop not just as a self-sustaining economic unit but also contribute to the success story of the country. In this direction, the SDGs provide an appropriate framework for balanced and optimal development of the region for the following reasons. The region is not only an important and unique biogeographic zone, with abundant natural resources, but is also marked by considerable ecological fragility. Increasing population pressure and the extractive process of development has begun to exact a heavy toll on the environment in the NER. Development choices for the region must, therefore, integrate relevant strategies for natural resource management, green industrial and infrastructure development as well as sustainable consumption patterns. Development programming in pursuance of the SDG framework can satisfy all these strategic compulsions.

Methodology

During the year 2023-24, assistance known as “CM-Catalytic Fund” under SDG was received by KVK through the Deputy Commissioner’s office, Mairang. Using project approach, KVK had identified various proven technologies for demonstration at the farmers’ field with the motive to achieve the objectives of the Sustainable Development Goals (SDGs) in Eastern west Khasi Hills district. Production of buckwheat seed, mushroom production and paddy cum fish culture are few of the technologies identified. Through hands-on training, technical guidance, and input support, smallholder farmers have adopted improved practices, transforming buckwheat seed, mushroom production into profitable and sustainable enterprises. These practices have really attracted other farmers to adopt such interventions with the reliable profit returns along with food security, and employment, while fostering community-based knowledge sharing.

Results and discussion

A. Production of Oyster mushroom

Smt. Beautiful Thabah is a hardworking farmer from Nongshillong village, Mawthadraishan Block. She has 3 children and engaged fully in agriculture as her livelihood activity. She owns about 2 acre of agricultural land with more than 15 years of agriculture experience. She grows varieties of crops ranging from paddy, potato, maize, vegetables, *sohphlang*, buckwheat, etc. including livestock. She used to be actively participated in different trainings organized by KVK. She has a keen interest in growing oyster mushroom. Even though she is working hard day and night to support the family, still she is earning a minimal income because of market price fluctuations, insect and pest problems. With SDG support, she was identified as a beneficiary for technology demonstration and was supported with the critical inputs needed under Oyster mushroom production. She was supported with 200 bags of oyster mushroom spawn from KVK West Khasi Hills. With this intervention, a farmer has raised her extra earnings from mushroom with a net return of Rs 40000/- in which she could support the school fees for her children and daily household needs.

Low-cost production of Oyster Mushroom

Sl. No.	Items	Input details	Amount (Rs)
1.	Mushroom spawn supported	200 bags	
2.	Average production per bag	1.5 kg	
3.	Selling price	per kg	Rs 200
4.	Expenditure		Rs 20000/-
5.	Sales of oyster mushroom for one crop	1.5 kg x 200 bags x Rs 200	Rs 60000/-
6.	Net income from one crop	Rs 60000- Rs 20000	Rs 40000/-
7.	B:C ratio	3:1	



Fig. 1: Cultivation of Oyster mushroom at Nongshillong

b. Production of buckwheat seed

Shri. Shai Kharkrang is a farmer from Pyndengumiong Mairang, Dong Mawsawa. He has 3 acres of agricultural land growing different types of both field crops and vegetables. He used to be the early adopter for any new technologies especially for those which are of high market value. As soon as he heard about buckwheat -ease of cultivation practices and market linkages, he is ready to adopt the technology. With SDG support, he has received buckwheat seeds variety VL Ugal 7 from KVK West Khasi Hills and grown about 15 kg of seeds at his one acre land area during August-September 2023. Within three months he could harvest about 232 kgs of buckwheat seeds which is sold @ Rs 58 per kg to the Meghalaya Farmers' Empowerment Commission (MFEC) Shillong fetching him a gross return of more than Rs 13,000/-. With this cultivation, it has helped him also to control the insect pests namely Fall army worm which is a serious pest found in maize. Recently, he has been identified as one of the registered growers for buckwheat production.



Fig. 2: Flowering stage of Buckwheat at Mairang



Fig. 3: Storage of buckwheat seed

c. Scientific Paddy-cum-Fish Culture

In Eastern West Khasi Hills, agriculture forms the backbone of the rural economy with majority of the population depending on it for their livelihood. Paddy is the primary food crop, cultivated mainly as a monocrop under rain-fed conditions. While the high rainfall and natural water accumulation presented an opportunity, these resources remained largely underutilized. Farmers faced challenges such as low profit margins from single-season harvests and pest infestations in paddy crops. Recognizing the untapped potential and the pressing need for livelihood diversification, Paddy-cum-fish culture hold special position as it helps farmers to diversify farm production, reduce input cost and exploitation of unutilized resources. The integration of fish into the paddy ecosystem created a powerful symbiotic relationship. The fish acted as biological controllers, feeding on harmful paddy pests and weeds, which significantly reduced the need for chemical pesticides. Simultaneously, fish excreta enriched the soil with essential nutrients, enhancing the tillering and overall yield of the rice crop.

Demonstration on integrated rice-fish farming was conducted by the KVK West Khasi Hills in few villages. Before fish integration, paddy field was modified by digging canals or trenches of 0.5 – 0.8 m deep and 1 m wide around the field perimeter. Local rice variety (ba lwai) was transplanted when the field is ready. After two weeks of transplantation, fingerlings of Common carp were stocked @ 6000 nos. per hectare of paddy area. Minimal feed was given with rice bran and mustard oil cake in the ratio of 1:1. Liming and manuring was also done regularly. Before intervention, the yield of paddy (monocrop) was about 20 q/ha but after intervention, the yield of paddy enhanced to 22 q/ha (15 % increase) and what is more interesting, fish was also harvested from the same plot. The yield of fish from the paddy field was 500 kg/ha. According to the farmers, this technology is very simple and low cost with high economic return. The increase in rice production is also a result of stocking fish as a component of integrated pest management. Due to the integration of fish in the field, use of pesticides is completely stopped. The technology is gaining acceptance because of the simplicity and improved production. The resounding success of Paddy-cum-Fish culture has generated immense interest among neighbouring farmers. Economically, the model proved transformative. Farmers who previously relied on a single income stream now enjoyed a dual harvest. The concurrent production of fish not only subsidized the cost of paddy cultivation but also provided a lucrative cash crop at the end of the season.

Alignment with Sustainable Development Goals (SDGs)

This intervention by KVK West Khasi Hills directly advances several core SDGs:

- **SDG 1: No Poverty:** By maximizing land-use efficiency and creating a secondary income stream from fish sales, the net returns per hectare increased dramatically, pulling farming families toward economic stability.
- **SDG 2: Zero Hunger & Nutritional Security:** The local availability of fresh fish provided a critical source of high-quality protein and essential micronutrients, combating hidden hunger and improving household dietary diversity.
- **SDG 12: Responsible Consumption and Production:** The model promotes circular bio-economy principles. By utilizing farm by-products for fish feed and relying on fish for natural pest control and fertilization, the system drastically reduces the chemical footprint of farming.
- **SDG 15: Life on Land:** By reducing chemical runoff and promoting biodiversity within the agricultural landscape, the paddy-cum-fish system protects the delicate soil and aquatic ecosystems. The following are few of the success stories adopted by the farmers under the SDG programmes farmers.



Fig. 4: Paddy cum fish culture demonstration plot at Myriaw village

Conclusion

Chief Minister's Catalytic Fund -Sustainable Development Goals (SDGs) implemented by KVK West Khasi Hills has significantly empowered the farming community in Meghalaya through scientific interventions in mushroom production, buckwheat cultivation, paddy cum fish culture. Success stories of these adopted farmers proved that undergoing skill training programmes, technical guidance and input support from KVK transformed into profitable, resilient enterprises, improving income, nutrition, and food security. These practices have really attracted other farmers to adopt such interventions with the reliable profit returns along with food security, and employment, while fostering community-based knowledge sharing. Collectively, these stories highlight the transformative impact of participatory, science-led, and locally adaptive technologies in enhancing livelihoods, promoting community-based knowledge dissemination, and inspiring rural youth toward agri-entrepreneurship and integrated farming practices across North East India.