

FSS and EETWG Joint Field Visit

9 June 2022

Climate Smart Agriculture





Programme title : Strengthening of Market Linkages and Technical Capacity for Agricultural Groups to Promote Income Generation in Cox's Bazar

Visited location: Tulatali, Ratna Palong union, Ukhiya sub-district

Overview: The project aims to foster linkages between community groups and the rapidly growing markets in the district. The project is also building the capacity of farmer groups to improve production. Sustainable technologies focused on high-efficiency water use, integrated pest management, inter-cropping, climate control and soil improvement will be key design elements. FAO provides inputs support such as seeds, farm mechanization, demo inputs, improved irrigation systems, feeds etc.

Project duration: 01 December, 2018 – June 2022 (extended)

Number of Beneficiaries and selection criteria: 25,000 HHs of host community; All three following criteria include priority/preference for female headed, with pregnant lactating women (PLW), with people with disabilities.

- **Marginal farmer:** Household engaged in small-scale agricultural livelihoods. Owns land between 0.05-0.5 hectare (12-123 decimal)
- **Small holder farmer:** Household engaged in agricultural livelihoods. Owns land between 0.5-1.0 hectare (124-247 decimal)
- **Large farmer:** Household engaged in commercial agricultural farming. Household has access to input and output markets. Owns land above 1.0 hectare (247 decimal) (will be flexible for the farmers already engaged in commercial farming)

Activities:

1. Homestead gardening

Considering the environmental contexts of monsoon and summer dry seasons, six production methods are practiced by in the host communities such as - pit, bed, trellis, sack, vertical and multilayer. It contributes to increased household access to high-quality, nutritious food and dietary diversity in a densely populated and stressed environment (hilly areas, flood, heavy rainfall, land slide, fertile soil scarcity, drought etc) thereby increasing household resilience to meet their own nutritional needs and income.

2. Digital Extension Services

E-agriculture is an emerging field focusing on the enhancement of agricultural and rural development through improved information and communication processes during any disaster/hazards. In this context, ICT is used as an umbrella term encompassing all information and communication technologies including devices, networks, mobiles, services, and applications; these range from innovative Internet-era technologies and sensors to other pre-existing aids such as fixed telephones, televisions, radios, and satellites.

In presence, Digital Service Provider (DSP) Nurul Islam is practicing the mobile apps like- Krishoker Janala, Krishoker digital tikana, Livestock Dairy, Motsho Poramorsho, BMD Weather app for forecasting. He /she installs above apps to farmers who has SMART phone (Bangla language with photo and steps to be taken). It contributes to awareness of farmers for crop production to reduce risks from the hazards and effects of climate change.



3. Solar operated irrigation system

FAO, in collaboration with the Department of Agricultural Extension (DAE) and supported by the Government of Japan (GoJ) establishes a solar-powered buried-pipe irrigation system at Halukia village under Haludia Palong Union of Ukhiya, Cox's Bazar in March 2020. The objectives of the irrigation system is to support the local farming community to promote the use of surface water and to reduce their dependency on groundwater and fossil fuel-run shallow pumps that contribute to climate change.

Electric/shallow pump irrigation system cost is 6000 BDT per Kani (40 decimal) whereas Solar pump irrigation system is 4000 BDT. Farmer can save 1000 BDT compared with electric irrigation system.



4. Vegetable seedling production

The selected skilled farmers are producing vegetable seedling in the household level to minimize the loss of standing crops due to sudden flood/heavy rainfall/storm/drought etc. The farmers easily replace the polybag seedlings and continue crop production. In addition, advance seedlings are the source of income in the rural areas.

Phase out: June 2022 (but it will be continued support by FAO`s other project from July 2022)

Good practices:

- Entrepreneurial knowledge and skill development.
- IGA skills development trainings (technical).
- 49 Farmer Facilitators are responsible to conduct IFM-FFS. They receive 30 days training. They are model farmers and were selected from community.
- 441 Farmer Field Schools in total
- There are three cycle IFM-FFS with few weeks' interval. Each IFM-FFS consists of 30 farmers for 7 months training session along with 2 months follow up. 4 or 5 sessions conducted every month by FF.

Photo Credit: FAO/ Shushilan

Disclaimer: FSS planned to visit Solar operated irrigation system and Vegetable seedling production sites. Due to weather conditions, this part was skipped during the field visit.

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Programme title : Community Empowerment through Livelihoods & Self-reliance and Nature based Solutions project

Visited location: Jadimora, Hnila, Teknaf

Overview: Commenced in 2019, the project is protracted to 2022, and it intends to further improve and sustain the natural environment in and around refugee camps and create a self-empowering environment for the communities. To this end, the project aims to improve the livelihoods of 2,035 host community members in three unions, namely Whykong, Hnila and Sabrang, and 4,500 refugees living in and around camp 21, 24 and 27 in Teknaf Upazila in 2022.

Project duration: January 2022 - December 2022

Number of Beneficiaries and selection criteria: Total beneficiaries: 6,535 (Refugees 4,500 & Host 2,035)

i. Selection criteria for Refugees beneficiaries are:

Previous experience of home gardening or agricultural knowledge, have minimum cultivable space for vegetable production.

ii. Selection criteria for host beneficiaries are:

Poor and extreme poor, with cultivable land less than 20 decimal, monthly income less than BDT 5000 to 10000, does farming by leasing land or day labour, could not intake three meals regularly, clay or bamboo fencing or straw roof housing condition, living in khas land etc.

Good Practices:

1. Climate Smart Vegetable Nursery Development: CNRS established vegetable nurseries which were very effective and played a vital role in seedling production and contingency support amid COVID-19 and excessive rainfall periods. CNRS improvised the nurseries into climate smart vegetable nursery in terms of incorporating improved technology, better seedling production, climate resilient vegetable production and early production to adjust to natural calamities. The learnings will be disseminated among refugee beneficiaries.



2. Vegetable Vertical Structure (Over the roof top structure) Prepared for HHs in Refugee camps situated in Teknaf. Considering limited space for vegetable cultivation, vertical gardening will be more emphasized. Over the roof top gardening technology allows them to grow vegetables year-round. Female members of refugees household are trained to enhance their skills on over the roof top farming systems. Suitability of technology in congested refugees camps:

- Vegetables are grown in highly land scarce settings.
- Utilization of limited land resources for food production.
- Increased dietary diversity ensures nutritional security of refugees.
- Zero tillage farming systems reduces soil erosion.
- Eco and women friendly farming systems.
- Reduced loss & damages of assets caused due to hill sliding.



3. Tiara (Vertical Structure for Climber Crops):

Multiple crops expand in over the roof top structure. There are certain vegetables which hamper growth of other crops in the limited space. A separate vertical structure created opportunity for other crops to expand properly and provide more production.



4. Tower garden: Tower garden is a clean, easy-to-use, eco-friendly vertical growing system. It is an instant garden that can grow fruits and vegetables year-round in the beneficiary's household.

5. Organic method of vegetable production: We are providing organic fertilizer among the beneficiaries since the beginning of the project. Organic fertilizers are naturally available mineral sources that contain moderate amount of plant essential nutrients. They are capable of mitigating problems associated with synthetic fertilizers. Organic fertilizer contributes to mitigating the greenhouse effect and global warming through its ability to sequester carbon in the soil. Many management practices used by organic agriculture increase the return of carbon to the soil, raising productivity and favouring carbon storage, reduce the necessity of repeated application of synthetic fertilizers to maintain soil fertility. Also used sex pheromone trap & lure for insects' organic pest management.



6. Organic Intercultural Operation: (Eco-bagging, mulching, sex pheromone trap and lure support) The intervention experience in refugee camps emphasize that there is requirement of management and nursing using organic method after seed and seedling sowing until product harvesting

7. Establish Collection Points for Selling Beneficiary Products: Based on previous years' experience the collection points contributed receiving fair price for their products and inspired more farmers for more production. Three new vegetable collection points will be established besides existing three collection points.



Phase out: 31.12.2022

Recommendations:

- Practice of organic vegetable production inside the refugee camps addresses climate change mitigation and adaptation
- Climate resilience and short duration crops should be selected considering disaster and natural calamities due to geographical location and water scarcity.

Photo Credit: CNRS

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Programme title : Saline Agriculture and Halophyte Production

Visited location: Halophyte production with integrated approach of Aquaculture farming for the host community in Chowkidarpara of Baharchara Union, Teknaf, Cox's Bazar

Overview: This project focuses on the potential of regenerative agriculture techniques through saline tolerant vegetable varieties, and blue ecosystems such as halophytes, seaweed and spirulina to produce high value crops. The project includes training farmers on improved production technologies including right seeds to use, right soil management techniques, adopting circular economy (locally produced and locally consumed), right fertilization and right irrigation (solar based irrigation, drip irrigation etc.)

Project duration: 1 March 2021 to 31 May 2022 (Including extended period), 15 Months

Number of Beneficiaries and selection criteria: Total 500 (Saline Agriculture 480 & Halophyte 20). Survey based on inclusion and exclusion criteria (e.g., lack of regular income source, HHs affected by salinity for 2 years, ultra-poor but without excessive debt).

Good practices :

The intervention focuses on degraded land, with high salinity for part of the year. Selected areas are prone to saline water floods. Once completed, the intervention would provide an economical and effective coastal defense system through nature-based system.

Additionally, the intervention would provide blue economy livelihoods through ecological restoration. Naturally, fish would benefit from an environment rich in nutrients (fast growth and immune system boost) while plants would benefit from the presence of fish in the water (feces would function as fertilizer).



High value biomasses along with animal proteins such as salt adapted Tilapia fishes: inspired by nature-based solutions, the project would focus on creating a simplified ecosystem on a smaller scale to ensure the production of high-value biomasses (halophytes and seaweed) which have enormous potential when it comes to animal feeding (rich in proteins), human consumption (besides protein, such plants are nutritious in terms of micronutrients) and cosmetic (considering halophytes are full of different oils).



Saline adapted tested vegetable variety of seed: one of the main objectives of the project is to increase the seedbank recognised by the relevant authorities when it comes to crops resistant to high salinity soils. In fact, the number of seeds is limited and, thanks to the involvement of the private sector (input suppliers), the project would ensure sustainability when it comes to introducing new varieties of high value crops (cherry tomatoes, broccoli, lettuce, etc.).

CSA is a holistic approach to the growing challenge of soil salinity. Besides seeds selection, to better control the problem and ensure successful crops, it's important to approach the problem from various angles: raising beds with new soil, mulching to avoid irrigation dispersion, organic fertilizers to reduce the amount of chemicals and ensure long term sustainability, and drip irrigation system (solar powered) to mitigate soil salinity.

Phase out: May 2022 – followed by a project expansion in different catchment areas



Recommendations:

- Consider the approach of “produce to sell” instead of “produce and sell”; let the market drive the demand and adjust accordingly.
- While fighting soil salinity, approach the problem holistically (see above).
- Target early late seasons, when the price of crops is higher.
- Involve local authorities and different bodies to provide quantitative and qualitative test results (BARI, DAE, SRDI, DAM or universities) and include private sector actors.

Photo Credit: WFP/Cordaid

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