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TECHNOLOGY NEEDS ASSESSMENT (TNA) REPORT

COMPANY:	MAYHA-4H CLUB
ADDRESS:	MAYHA, ODIONGAN, ROMBLON

SCOPE OF ASSESSMENT

A. Strategic Directions
   a. Vision and Mission
   b. Goals and Objectives
   c. Strategic Alliances
B. Management Aspects
C. Technical Aspects
D. Marketing Aspects
E. Financial Aspects

SUMMARY OF ASSESSMENT

BACKGROUND:

The municipality of Odiongan is one of the main sources of economically important crops in Romblon. Its 25 barangays have their own agricultural products that are abundant in their areas. Rice for example is abundant in Brgy. Anahao while root crops are richly grown in Brgy. Amatong and Brgy. Panique. For high value crops on the other hand the barangays of Mayha and Progreso Este are the leading producer of the municipality. This is due to the abundant water sources of the barangays. However, most of the farmers in the municipality remain to implement traditional farming methods especially in their irrigation system. Most of them use handheld sprinklers and water hose to irrigate their crops. This method entails numerous disadvantages such as it is labor-intensive and time-consuming especially in large farming lands or during dry spells when plants require frequent watering. It lacks precision that could result to overwatering, water waste, uneven water distribution, inefficiency for deep root irrigation, high pressure damage on soil and delicate foliage, and increased risk of disease spread and fungal growth. These disadvantages adversely affect plant health and the overall productivity of the farm.

In 2007, a youth organization known as the 4H Club established a highly organized and productive farm in Mayha, consisting of 15 dedicated young farmers. The organization manages 2.3 hectares of agricultural land, which they effectively utilize for cultivating a diverse range of HVCs such as cucumbers, eggplants, string beans, bitter gourd, squash, bell peppers, chili peppers, okra, and tomatoes. However, the organization still use traditional irrigation method involving manual watering of plants using water from a deep well and the river beside the area. Watering the entire 8000sqm. agricultural land is daily administered by five (5) people from 7 am

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to 10 am. This entails much time and effort that could rather be spent on expanding farming areas, monitoring plant health, and marketing products. Absence of an automated irrigation system also results to high labor costs on water plants. This further leads to lower rate on return of investment (ROI). Despite the organization's success in providing HVCs to Odiongan and some neighboring municipalities such as San Andres, San Agustin, and Santa Fe, these municipalities still resort to importation of HVCs due to lack of supply. Some of the gaps that hinder farmers to meet local demand for HVCs are lack of efficient irrigation management that leads to low productivity of farms, and poor agricultural practices of farmers resulting to low quality crops. Moreover, most graduates of agricultural courses opt to work in the office rather than in the field due to lack of capitalization support and problems in trade system of agricultural products.

In this light, this project is conceptualized to showcase the solar-powered automated drip irrigation system and to involve more youth in the process of transforming traditional irrigation methods into smarter and more efficient irrigation system. The proposed technology could save much time and does not require constant vigilance from farmers. It can easily determine the amount of water in the soil using suitable sensors and provides precise water control that ensures equitable water distribution. Additionally, automation ensures precise scheduling and monitoring of irrigation, reduced labor requirements, minimized water loss and optimization of its use, increased crop yield, and conservation.

METHODOLOGY

The PSTO-Romblon conducted a Technology Needs Assessment (TNA) among various farmers in Odiongan to investigate gaps and explore possible innovative solutions applicable to the agricultural sector of the municipality. Results of the TNA revealed the need for the interventions proposed in this project, hence this proposal. Once the project has been approved and the funding has been allocated, the DOST-MIMAROPA, with the help of the PSTO-Romblon, would facilitate the purchase of the proposed technology/system. Once everything is set and all the required data is established, project implementation would begin immediately.

The design for the automated drip irrigation uses a system to control the irrigation's water pressure and water delivery. The system was composed of a Relay, Moisture Sensor, DC water pump, motor controller, Solenoid Valve, Real Time Clock (RTC). In order to prevent power fluctuation and to have a reliable system. A casing would be constructed where the microcontroller system will be mounted. Water will convey from the siphon river and deep well as a source of water throughout the project implementation. The installation and other technical assistance will be provided by the winning service provider/ supplier. Other NGAs will also be invited as project partners to increase success rate of the project. The Department of Agriculture (DA) for one will be asked for quality and certified seeds for planting while its Agricultural Training Institute (DA-ATI) will be asked for necessary training activities to maximize the model farm. The Technical Education and Skills Development Authority (TESDA) could also provide training on processing and value adding the agricultural crops produced in the model farm. The 4H Club on the other hand will serve as the proponent to utilize the proposed technology and provide proper maintenance

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procedures to ensure the long service life of the interventions. Capability training on operation and maintenance will be required from the supplier of the equipment with the assistance of the PSTO. Lastly, the assigned staff will monitor the project and ensure that the objectives are met.

SUMMARY OF FINDINGS

1. Strategic Direction

a. Vision and mission

One of the major goals of the association is to lead sustainable agriculture on Tablas Island through the Model Farm for Smart and Sustainable Irrigation. Also, to empower young farmers with advanced irrigation technologies, ensuring environmentally harmony, food security, and accessible high-quality HVCs at all times.

b. Plans and Objectives

The association is determined to improve the farm's productivity and increase crop yield and more precise monitoring of crop irrigation using solar-powered automated drip irrigation system and sustainable farm operations. Also, encourage the youth to invest in agriculture through showcasing technologies for smart agriculture.

c. Strategic alliances and current agreements

The association is currently allied with its patrons and private clients around the island.

2. Management Aspect

a. Human resources

The Mayha 4H Club will be responsible for the utilization of the technological assistance. The 4H club beneficiaries will be given trainings on the operation and maintenance of the equipment, occupational safety and health, cGMP, and other technology trainings.

b. Purchasing

The procurement of the automated drip irrigation from delivery to installation will be facilitated by assigned staff from the office.

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c. Work environment

The target work environment will be prepared ahead of time by the 4H Club beneficiaries. Health and safety kits in case of emergency will be also prepared.

d. Business ethics and social responsibility

The association is committed to organizing and facilitating several civic activities to develop and improve the welfare of its people.

e. Occupational health and safety management

The association's members observe occupational health and safety during its operation and processes. It has safety kits, and first-aid kits on standby, as well as emergency gear to minimize risks during untoward incidents.

3. Technical Aspect

a. Operational and outsourcing practices

Production system

The project will focus on deploying smart irrigation systems and sustainable practices to enhance high value crop production. The plan prioritizes hands-on training for farmers on technology use and sustainable techniques.

Production planning and control

Production planning and control depends on market needs and demands.

Production layout

The association has already an existing layout of their farm.

Work Study/Improvement

N/A

Equipment management and maintenance

The equipment will be housed to the designated facility of Mayha 4H Club. They will be responsible for the implementation of the project and the

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maintenance of the system. Training and capability enhancement will be provided to the 4H Club beneficiaries to ensure systematic and regular operation of the equipment.

Quality assurance system
N/A

Outsourcing practices
N/A

b. Product and process performance and improvement

Re-engineering and research development
N/A

Performance measures and results – Process
N/A

Performance measures and results – Product
N/A

Procedures for continuous improvement
N/A

Product quality standards
N/A

c. Environmental management system

Waste management
N/A

4. Marketing Aspect

a. Marketing plan

The association will promote their commodity through oral publicity and with the use of social media. They will also continue to actively participate in

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trade fairs. Showcasing the Model Farm as a hub for innovative, sustainable agriculture, the strategy aims to attract local farmers and stakeholders, fostering awareness and support for the transformative initiative.

b. Market outlets

N/A

c. Promotional activities

The association promotes their commodity through word of mouth.

d. Market competitors

Competition is not an issue because, once the Model Farm for Smart and Sustainable Irrigation is established, it will be the first pilot demo farm on the entire island of Tablas in the Province of Romblon.

5. Finance

a. Cash flow and other related documents

The association's secretary and treasurer are in-charge of the cash flow and transactions of the association.

b. Source of capital/credit

N/A

c. Accounting system

The treasurer of the association serves their accountant who usually takes care of the association's financial record system.

CONCLUSIONS:

Based on the interview and ocular inspection, the TNA team concludes the following:

1. The proponent has an organized management that is willing to implement projects under DOST-MIMAROPA'S project on Establishment of Model Farm for Smart and Sustainable Irrigation for High Value Crop Production. The proposed community could carry additional technology, workforce movement, and new

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processes.

2. The proponent has good management skills. Training activities and other interventions are needed.

3. The needed intervention applied under GIA would further enhance its production and productivity and put the association in top for the adoption of Model Farm for Smart and Sustainable Irrigation for High Value Crop Production in the province.

RECOMMENDATIONS:

The following are recommended by the TNA team:

1. DOST MIMAROPA should extend relevant interventions such as on Establishment of Model Farm for Smart and Sustainable Irrigation for High Value Crop Production of Young Farmers in Odiongan, Romblon.

2. If needed the DOST MIMAROPA should assist the community in training and other necessary interventions particularly on cGMP and HACCP.

3. The proponents should submit additional requirements to go with the proposal.

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