DOST Form 3

NON-R&D PROJECT PROPOSAL

(Technology Transfer, S&T Promotion and Linkages, Policy Advocacy, Provision of S&T Services, Human Resource Development and Capacity-Building)

I. PROJECT PROFILE

(1) Program Title: Grants-in-Aid
Project Title: Establishment of Model Farm for Smart and Sustainable Irrigation for High-value Crop Production of Young Farmers in Odiongan, Romblon

(2) Project Leader/Sex: Hon. Ricmel S. Falqueza/Male
Agency (smallest unit)**:** Mayha 4H Club
Address/Telephone/Fax/Email (Barangay, Municipality, District, Province, Region)**:** Brgy. Mayha, Odiongan, Romblon

(3) Cooperating Agency/ies (Name/s and Address/es)**:**
DA, DA-ATI, TESDA

(4) Implementing Agency (Municipality / District / Province / Region)
Base Station: Mayha, Odiongan, Romblon
Other Implementation Site (s): None

(5) Project Duration (number of months): 12 months implementation, 24 months monitoring
Project Start Date: January 2024
Project End Date: December 2024

(6) Total Project Cost: PhP 1,250,000.00(indicate Counterpart Funds; use Form 4 for the Line-Item Budget)

Implementing Agency/ies	PS	MOOE	EO	Total
A. Requested Fund				
GIA		PhP220,920.30	PhP1,029,079.70	PhP1,250,000.00
B. Counterpart Fund				
4H Club		PhP 1,060,000.00		PhP1,060,000.00
TOTAL		**PhP 1,280,920.30**	**PhP1,029,079.70**	**PhP2,310,000.00**

II. PROJECT SUMMARY

(7) Executive Summary (not to exceed 200 words)

This project aims to establish a model farm for smart and sustainable irrigation for high-value crop (HVC) production of young farmers at Brgy. Mayha, Odiongan, Romblon. The farm will be a pilot demo farm to showcase a Solar-powered Automated Drip Irrigation System across an 8000sqm. agricultural land. The model farm will also feature a 150sqm. processing area, and roughly 2000sqm. open field for training young and aspiring farmers. The drip irrigation system will include high-quality solar-assisted power generation system, moisture sensors, automated drips and its control system, data logger, and accessories (emitters, pipes, valves, filters). This technology is expected to increase farm productivity through accurate, convenient, and efficient crop irrigation while maintaining environment-friendly power generation.

While the model farm will produce HVCs like cucumbers, eggplants, string beans, bitter gourd, squash, bell peppers, chili peppers, okra, and tomatoes, it will also serve to encourage other farmers and communities to adopt smarter irrigation methods leading to increased crop productivity and water conservation. The innovation also seeks to inspire more youth to invest in agriculture through eliminating the idea that farming is hard work and that there are available technologies for smart agriculture. The 4H Club, an organized group of 15 young, dedicated farmers, will manage the project under close supervision of the PSTO-Romblon.

(8) Introduction (Not to exceed 15 pages)

Rationale/Significance (Not to exceed 300 words)

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 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.

Objectives (General and Specific)

The general objective of this project is to establish a model farm for smart and sustainable irrigation for increased productivity on high-value crop (HVC) production of young farmers at Brgy. Mayha, Odiongan, Romblon.

Specifically, it seeks to:

1. improve the farm's productivity and increase crop yield by at least 30% through more precise scheduling and monitoring of crop irrigation using the solar-powered automated drip irrigation system installed across the 8000sqm. agricultural land of the organization;
2. improve agricultural practices and reduce water wastage by at least 30% by providing a

sustainable and efficient water management solution;
3. improve the farm's income by at least 30%;
4. improve capability of farmers through provision of technology training and orientation on the system's installation, operation, and maintenance;
5. encourage the youth to invest in agriculture through showcasing technologies for smart agriculture with an aim to eliminate the idea that farming is hard work; and
6. strengthen collaboration among NGAs and other stakeholders that may be involved in the project.

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 provided 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 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.

Expected Outputs (6Ps):

The project is expected to provide innovative solution to the gaps in the irrigation system of 4H Club in Mayha, Odiongan, Romblon. In terms of physical targets, the following are expected:

Publication	At least one news article and one research paper related to the project drafted
Patent/ Intellectual Property	None
Product	Various high-value crops such as but not limited to cucumbers, eggplants, string beans, bitter gourd, squash, bell peppers, chili peppers, okra, and tomatoes
People Service	local farmers, young farmers, and community members
Place and Partnership	DA, DA-ATI, TESDA, 4H club
Policy	None

Expected Outcomes:

1. increased crop productivity and yield through precise water delivery to plants roots.

2. conserved water resources by minimizing wastage through water runoff.
3. improved the economic well-being of local farmers through increased crop production.
4. empowered farmers and youth through training sessions on system operation and maintenance.
5. promoted sustainable agricultural practices and environmental stewardship.
6. enhanced community resilience by mitigating the impact of water wastage and fostering self-reliance in crop production.

Potential Impacts (2Is):

Through the comprehensive training activities, and technological advancements involved in the project, a positive and lasting impact on local farmers and the community as well as environmental sustainability is expected.

Social Impact

1. Enhanced food security by improving crop yields through more reliable water supply for agricultural activities.
2. Empowered local farmers, particularly youth, by equipping them with new skills and knowledge in sustainable farming practices.
3. Fostered community cohesion and collaboration among farmers as they will be encouraged to come together and adopt the benefits from the shared irrigation system, leading to a stronger sense and mutual support.

Economic impact

1. Enough production of HVCs will result to lower prices of the same. This will further create economic opportunities and stimulate overall economic growth in Brgy. Mayha and in Odiongan.
2. Increased agricultural productivity and higher crop yields will result in improved income for local farmers, fostering economic prosperity in the community.
3. Adoption of this advanced irrigation system will reduce labor costs and improve viability of high-value crop cultivation in Mayha, Odiongan.

Discussion on the results of related project handled by the same proponent (if any):

The Mayha 4H Club is the most organized group of young farmers in Odiongan. Having the largest agricultural land managed, it has received various agricultural assistance from agency-funded projects. One of which is a 3-horsepower water pump provided by the Department of Agriculture (DA). This water pump has greatly improved the club's farming operations through an adequate water supply in the farm. It also received numerous mentorship training activities, and coaching/guidance sessions from trusted NGAs like DA-ATI and TESDA. All this support inspires them to pursue upgraded farm management, and agri-entrepreneurship. To date, the Mayha 4H club is engaged in active collaboration with other private and public institutions to expand its agricultural network.

Target Beneficiaries:

The target beneficiaries of the project are the young farmers and other local farmers in the municipality of Odiongan. The project aims to provide them with a reliable model farm to explore and learn from the solar-powered automated drip irrigation system. Agricultural students from the Romblon State University will also benefit from the project as the model farm will be open for trainees to practice actual and hands-on farming. They will also be exposed to appropriate agricultural practices and modern farming system such as the proposed intervention in this project. The increased crop productivity, and improved crop quality will also benefit the workers of the farm as they will have higher income to sustain their day-to-day living. The project will also have broader impacts on the community, including enhanced food

security, economic growth, and the empowerment of the youth through training and capacity-building opportunities in sustainable agriculture practices.

Sustainability Plan (if applicable)**:**

The DOST-MIMAROPA through its Romblon Provincial Office together with the Mayha 4H Club Youth Organization and other agricultural agencies such as DA, DA-ATI, and TESDA will extend collaborative efforts to ensure sustainability of the project and maximize its impact and long-term purpose to local farmers and young aspiring farmers. On the part of operation, workers assigned in the farm will receive proper compensation and more comprehensive training programs to promote loyalty and commitment to the project. The proponent will also be encouraged to allot savings for maintenance of the system to prolong its service life. The 4H club with close supervision of the PSTO will be responsible for regular monitoring of the project's implementation and outputs. This monitoring process will keep the project on track, identify any potential issues and provide resolutions for the same, and allow for necessary adjustments to ensure its sustainability and overall success.

Gender and Development (GAD) Score (refer to the attached GAD checklist):

Risk analysis (refer to the attached risks and assumptions)**:**

(9) Workplan (See Form 5)

(10) Project Management (not to exceed one page)

The project will be implemented by DOST-MIMAROPA Romblon provincial office in close partnership with Mayha 4H Club. The PSTO would coordinate with the regional office in the purchase of the proposed system and other aspects of project implementation. The procurement of the automated drip irrigation from delivery to installation and commissioning will be facilitated by assigned staff from the office.

III. OTHER SUPPORTING DOCUMENTS REQUIRED (Please refer to page 2 for the additional necessary documents.)

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Endorsed by:

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Approved by:

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Regional Director, DOST-MIMAROPA

DOST Form 3
NON-R&D PROJECT PROPOSAL

I. General Instruction: Submit through the DOST Project Management Information System (DPMIS), http://dpmis.dost.gov.ph, the non-R&D proposal and other applicable supporting documents required under item III below. Also, submit four (4) copies of the proposal together with its supporting documents. Use Arial font, 11 font size.

II. Operational Definition of Terms:

1. Title- the identification of the Program and the component projects.

Program- refers to a group of interrelated or complementing S&T projects that require an interdisciplinary or multidisciplinary approach to meet established goal(s) within a specific time frame.

Project- refers to the basic unit in the investigation of specific S&T problem/s with predetermined objective/s to be accomplished within a specific time frame.

2. Project Leader- refers to a project's principal researcher/implementer.

Agency- the institution of the Project Leader**.**

Smallest Unit of an Agency- refers to a Section, Division, Department or College provided that the Project Leader directly reports to the Head of said Section, Division, Department or College.

3. Cooperating Agency/ies- refers to the agency that support/s the project by participating in its implementation as collaborator, co-grantor, committed adopter of resulting technology, or potential investor in technology development or through other similar means.

4. Implementing Agency- the primary organization involved in the execution of a program/project which can be a public or private entity

Site/s of Implementation- location/s where the project will be conducted. Indicate the barangay, municipality, district, province, region, and country.

5. Project Duration- refers to the grant period or timeframe that covers the approved start and completion dates of the project, and the number of months the project will be implemented.

6. Project Cost- refers to the amount or budget requested by the Implementing/Monitoring Agency and/or approved by the Funding Agency.

7. Executive Summary- briefly discusses what the whole proposal is about

8. Introduction- a formally written declaration of the project and its idea and context to explain the goals and objectives to be reached and other relevant information that explains the need for the project and aims to describe the amount of work planned for implementation; refers to a simple explanation or depiction of the project that can be used as communication material.

Rationale- brief analysis of the problems identified related to the project

Significance- refers to the alignment to national S&T priorities, strategic relevance to national development and sensitivity to Philippine political context, culture, tradition and gender and development.

Objectives- statements of the general and specific purposes to address the problem areas of the project.

Methodology- discusses the following: (a) variables or parameters to be measured and evaluated or analyzed; (b) treatments to be used and their layout; (c) experimental procedures and design; (d) statistical analysis; (e) evaluation method and observations to be made, strategies for implementation (Conceptual/Analytical framework).

Expected Outputs (6Ps)- deliverables of the project based on the 6Ps metrics (Publication, Patent/Intellectual Property, Product, People Service, Place and Partnership, and Policy).

Publication- published aspect of the research, or the whole of it, in a scientific journal or conference proceeding for peer review, or in a popular form.

Patent/Intellectual Property- proprietary invention or scientific process for potential future profit.

Product- invention with a potential for commercialization.
People Service- people or groups of people, who receive technical knowledge and training.
Place and Partnership- linkage forged because of the study.
Policy- science-based policy crafted and adopted by the government or academe as a result of the study.

Potential Outcomes- refer to the result that the proponent hopes to deliver three (3) years after the successful completion of the project.

Potential Impacts

Social Impact- refers to the effect or influence of the project to the reinforcement of social ties and building of local communities.

Economic Impact- refers to the effect or influence of the project to the commercialization of its products and services, improvement of the competitiveness of the private sector, and local, regional, and national economic development.

Target Beneficiaries- refers to groups/persons who will be positively affected by the conduct of the project.

Sustainability plan- refers to the continuity of the project or how it shall be operated amidst financial, social, and environmental risks.

Gender and Development (GAD) Score- refers to the result of accomplishing GAD checklists (for project monitoring and evaluation/project management and implementation) to highlight the contribution of the project in the achievement of the objectives of Republic Act 7192, "Women in Development and Nation Building Act," interpreted as gender-responsive, gender-sensitive, has promising GAD concepts, or GAD is invisible.

9. Workplan- refers to the plan of completing the project within a given time and in compliance to the set budget.

10. Project Management- includes discussion on the organizational set-up by which the project shall be implemented,
and also on the monitoring scheme to be done by the Project Leader to ensure objectives are attained. Not to exceed one (1) page.

III. Other supporting documents required (as stated in Section VII of DOST A.O. No. 011, Series of 2020 – Revised Guidelines for the Grants-in-Aid Program):

1. Detailed breakdown of the required fund assistance to indicate the counterpart of the proponent and other fund sources including letter/s of commitment from the implementing, collaborating and coordinating agency/entity/ies;[1]
2. A counterpart fund, in kind and/or in cash, shall be required from the implementing agency/entity as one of the application requirements. All projects must have a minimum of 15% counterpart contribution except for projects involving public good;[1]
3. Curriculum Vitae or Personal Data Sheet (PDS) of Project Leader and other co-researchers/implementers. The service record may be requested if needed;[1]
4. Clearance from the DOST or the Funding Agency (e.g., DOST Councils) on previously funded completed projects handled by the Project Leader;[1]
5. Approval from the institution's ethics review board for research involving human subjects or in the case of animal subjects, approval from the Bureau of Animal Industry (BAI) (for PCAARRD- and PCHRD-monitored projects);
6. Clearance from the DOST Biosafety Committee (DOST-BC) shall be required for research proposals involving the use of GMOs under contained use (i.e., experiments done in laboratories, screen house, green house). For projects other than contained use, they shall be referred to the appropriate agency. The DOST Sectoral Councils, after determination as to whether or not the proposal has biosafety implications, shall endorse the same to the DOST-BC in accordance with the prescribed format under Annex 3 of the Philippine Biosafety Guidelines for Contained Use of Genetically Modified Organisms (series of 2014) (if applicable); and
7. For the private non-profit/non-government/people's organizations and startups:
    a. Up-to-date Securities and Exchange Commission (SEC) registration, or Department of Trade and Industry (DTI) registration, or Cooperative Development Authority (CDA) registration certificate, or other authenticated copy of latest Articles of Cooperation and other related legal documents;
    b. Co-signers Statement (if applicable);
    c. Copy of latest Income Tax Return;
    d. Mayor's permit where the business is located;
    e. Audited Financial Statements for the past three (3) years preceding the date of project implementation or in case of those with operation of less than 3 years, for the years in operation and proof of previous implementation of similar projects (or in the case of startups, at least for one (1) year);

f. Document showing that NGO/PO has equity to 20 percent of the total project cost, which shall be in the form of labor, land for the project site, facilities, equipment and the like, to be used in the project;
g. Disclosure of other related business, if any;
h. List and/or photographs of similar projects previously completed, if any, indicating the source of funds for implementation;
i. Sworn affidavit of secretary of the NGO/PO that none of its incorporators, organizers, directors or officers is an agent of or related by consanguinity or affinity up to the fourth civil degree to the official of the agency authorized to process and/or approved the proposed MOA, and release of funds;

8. For CSOs, compliance to regulations as required by the General Appropriations Act (GAA) pertaining to fund transfers to Civil Society Organizations (CSOs); and
9. For foundations, DOST certification as accredited by the Science and Technology Foundation Unit

[1] *required of all proposals*

IV. Criteria for Evaluation:

A. Criteria for Evaluating Proposals

Criterion	Definition
Relevance or Significance	Aligned to national S&T priorities, strategic relevance to national development and sensitivity to Philippine political context, culture, tradition and gender and development
Technical / Scientific Merit	Sound scientific basis to generate new knowledge or apply existing knowledge in an innovative manner
Budget Appropriateness	The proposed budget is commensurate to the proposed work plan and deliverables.
Competence of Proponent	Proponent's expertise is relevant to the proposal and with proven competence to implement, manage and complete R&D programs/projects within the approved duration and budget.

B. Governing Council / Board and EXECOM's Evaluation Criteria

Criteria	Indicators	Raw Score
A. Soundness of Proposal (20%)	R&D addresses relevant sectoral need (applicable to pressing concern)	5
	Solution provided is most effective (compared to other proposed solutions)	5
	Proposed budget is reasonable (project is not expensive vis-a-vis output)	5
	Work plan is doable in a given timeframe	5
B. Suitability of Output (30%)	R&D output is cost-effective (cost is competitive in relation to new or existing products or process)	5
	Has identified partners to adopt the technology (with letter of support from the head of the company)	5
	Output can be commercialized (through an existing manufacturer, spin-off or start-up company)	5
	R&D utilization is timely (output should not be overtaken by other solutions)	5
C. Significance of Outcome (30%)	Economic: increase in productivity, increase in income, new jobs generated, high return of investment (ROI)	5
	Social: working partnerships established, training opportunities provided, policies adopted, increased access to basic services (i.e., food, health, education); political, cultural, gender sensitivity and inclusivity	5

	Environment: enhanced environmental health standards, no adverse effect to the environment	5
	Sustainability: sustainability mechanisms established in terms of institutional, financial and human resources capability (submission of a new proposal to sustain a completed or ongoing proposal does not constitute sustainability of the project)	5
D. Competence of Proponent (20%)	Proponent's expertise aligned with the proposal	5
	Collaboration with relevant agencies and/or industry partners	5
	Thorough understanding of the proposal's deliverables	5
	DOST has good experience with the proponent	5

C. Additional Criteria on Gender and Development (GAD)