PROJECT PROPOSAL
2023 DOST-GIA FUNDING

I. PROJECT PROFILE

(1) Project Title: Adoption of Portable Solar Dryers (PORTASOL) for Rice Farmer Associations in Magdiwang, Romblon

(2) Project Leader/Sex: Hon. Arthur Rey Tansiongco, MD/ Male
Agency: LGU-Magdiwang
Address/Telephone/Fax/Email: Poblacion, Magdiwang, Romblon/09088923194

(3) Cooperating Agency/ies: DA

(4) Site/s of Implementation (Municipality / District / Province / Region)
Base Station: Magdiwang, Romblon
Other Implementation Site (s): None

(5) Project Duration: One (1) Year implementation
Two (2) Years Monitoring of Outcomes

(6) Total Project Cost: (indicate Counterpart Funds; use Form A for the Line-Item Budget)

Source of Fund / Site(s) of Implementation	PS	MOOE	EO	Total
A. DOST-MIMAROPA		PhP 505,600.00	PhP 657,000.00	PhP 1,162,600.00
B. LGU-Magdiwang		PhP 50,000.00	PhP 500,000.00	PhP 550,000.00
TOTAL		**PhP 555,600.00**	**PhP 1,157,000.00**	**PhP 1,715,600.00**

II. PROJECT SUMMARY

(7) Rationale (Not to exceed one page)

In rice production, drying is the most critical operation after harvesting a crop. Up to 25% of moisture may be present in the rice grain when it is harvested. High moisture levels during storage can cause grain discoloration, promote the growth of molds, and raise the risk of pest attack. The rate at which rice seeds germinate may also be affected that's why it is important to dry rice paddy as soon as possible into a moisture content of 14% or less to prevent quality deterioration *(Rice Knowledge Bank, IRRI)*. Sun drying is a traditional drying method for reducing the moisture content of paddy by spreading the grains under the sun. It is the most common drying method because it is low cost compared to mechanical drying. In Romblon, it is also the common method of drying paddy. The grains were laid on pavements or along the shoulder of the road which is both hazardous to both rice dryers and motorists. Problems of contamination and intermittent drying are generally encountered with sun drying especially during rainy season. It was also estimated that there is a total of 10% loss during pavement or sun drying.

To solve the common problem incurred with pavement or sun drying, Portasol technology is proposed to be deployed to rice farmers associations of the municipality of Magdiwang in Sibuyan Island. Portasol is a portable and lightweight solar dryer composed of aluminum thermal trays that can be laid down on an open field or assembled into racks with a plastic sheet cover as protection from pests and fungus. Developed by Mr. Francisco Pagayon, the technology aims to eradicate this perennial problem of harvest losses and will provide fast, safe, and clean solar dryers on any ground, away from roads and highways. The technology can hold up to 150 kg of produce and its drying rate as per a study conducted on a different set of grains provide that it is 2-3 time faster than the usual method. Magdiwang, Romblon, on the other hand, is a 5th class municipality with 3,186.60 hectares, or 37.49 percent of the total land area, set aside for agricultural use. Following the area for coconut, the municipality's rice land is 561 hectares in total. There are nine (9) registered rice farmer's associations (RFAs) in the municipality with a total land area of 243.39 hectares and an annual yield of 939.26 metric tons of rice paddy. This technology intervention for farmers in Magdiwang would increase their rice percentage recovery and head rice yield compared to traditional drying method. During rainy season, the Portasol could utilize induced heat from charcoal or rice hull cinders. It also has a canopy to cover to avoid dampness of grains thus, prevents harvest losses, promotes higher grain quality and food hygiene.

(8) Project Description

The project will provide technical assistance to the rice farmers of Magdiwang, Romblon. The DOST-MIMAROPA through the PSTC Romblon will provide two (2) units of Portasol solar drying technology to each nine (9) registered

rice farmer associations (RFAs) of LGU-Magdiwang. The recipients are the registered and active RFAs identified by LGU-Magdiwang Municipal Agriculture Office. Below are the data of land area and annual yield of the RFA beneficiaries as per records of MAO-Magdiwang:

Name of RFA	Land Area (ha.)	Yield/Year (metric tons/ year)
Agnocnoc	26.89	204.36
Agsao	14.41	112.40
Agutay	5.47	41.57
Ambulong	20.59	156.48
Cataja	23.12	175.71
Dulangan	22.34	169.78
Ilawod	64.90	506.25
Ipil	9.79	76.10
Jao-Asan	55.88	435.84

Most of these rice fields has its own irrigation systems and have two (2) cropping seasons in a year. The farmers also also received seeds and fertilizer assistance as well as some agricultural machineries such as threshers from the Department of Agriculture and the LGU-Magdiwang. However, technological assistance in terms of drying were not yet given to these RFAs since they continue to apply the traditional drying method which is sun or pavement drying along the roads. Thus, the proposal wherein cleaner and safer way of drying rice paddy would be promoted to the farmers. Moreover, this would also ease the drying efforts of rice farmers from intensive labor due to pavement drying and intermittent drying during rainy season. Training on its operation and maintenance of Portasol technology will also be given. The LGU-Magdiwang through its Municipal Agriculture Office (MAO) will facilitate and coordinate with their rice farmers associations and ensure to have a facility dedicated for storage of the Portasol technology. Members of the association will operate the equipment by schedule in order to give equal chances to every member who would use the solar dryer which would also serve as a common service facility for each association.

Objectives

Generally, the project aims to deploy the PORTASOL technology to rice farmers to increase their productivity and decrease post-harvest losses and contamination during drying of palay. Specifically, the project aims to:

1. Provide 18 units of Portasol technology to nine (9) rice farmer associations in Magdiwang, Romblon;
2. Provide trainings to these rice farmers such as basic occupational safety and health, cGMP, and other related technology trainings;
3. Improve product quality and minimize contamination and yield losses during drying of palay by at least 30%; and
4. Improve rice farmer's productivity by at least 30%.

METHODOLOGY

Upon the approval of the project and funds were alloted, the DOST-MIMAROPA with the help of PSTC-Romblon would facilitate the procurement of the Portasol technology. The unit will be housed to the designated facility of Magdiwang RFAs. They will also be responsible for the implementation of the project and the maintenance of the Portasol units. Other stakeholders like the Department of Agriculture will be invited to have its participation in the project through providing the rice farmers with agricultural production materials and/or additional operating capital for the associations. The LGU-Magdwang MAO will also be responsible in monitoring the utilization and productivity of rice farmers after the deployment of the technology. The PSTC, on the other hand, will manage the project and ensure that the objectives are met. The impact of the project will also be assessed based on its objectives and would be reported after the first year of implementation.

EXPECTED OUTPUTS

The project is expected to provide an innovative solution to the perennial problems on harvest losses and promote fast, safe, and clean drying method of *palay*. In terms of physical target, the following are expected:

a. **P**ublication: None
b. **P**atent: None

c. **P**roduct: Portasol multi-grain drying technology
d. **P**eople Services: The project will improve the productivity and ease the labor of rice farmers of Magdiwang, Romblon through reducing post-harvest losses and improved product quality and drying method using Portasol.
e. **P**artnership: The project will collaborate DOST-MIMAROPA, LGU-Magdiwang, and DA.

EXPECTED OUTCOMES

- ✓ Provided Portasol technology to nine (9) rice farmer associations of Magdiwang, Romblon;
- ✓ Conducted capability enhancement trainings for cGMP and HACCP;
- ✓ Increased product quality and minimized losses during drying of *palay*; and
- ✓ Improved rice farmer's productivity by at least 10%.

PERCEIVED IMPACT

Social Impact
The realization of the project would encourage the Magdiwang rice farmers to stop the hazardous highway drying and improve their annual yield through reduction of postharvest losses. Good and quality grains would also be produced and ease in labor for drying paddies would also be realized.

Economic impact
The technology assistance would improve the productivity of rice farmers and reduce post-harvest losses in drying rice paddies. The project would also enhance product quality and promotes safe and clean drying method for rice farmers which could be translated to increase in income of the proponent.

SUSTAINABILITY PLAN

The DOST-MIMAROPA in partnership with the Department of Agriculture will provide relevant training and capability enhancement to the RFA beneficiaries. Project monitoring would also be done by the DOST with the assistance of the LGU-Magdiwang through data gathering. Monthly monitoring of output will be accomplished to ensure optimum utilization of the technology assistance.

(9) Workplan (See Form B)

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

The DOST-MIMAROPA through the PSTC-Romblon will provide the technological assistance for the procurement of the Portasol technology. The office would also provide capability building for the RFAs through trainings and consultancy. The LGU-Magdiwang MAO will be responsible in monitoring the RFA beneficiaries for the utilization the technological assistance and will report to the PSTC-Romblon as reference in the assessment of the impact of the project. The rice farmers associations will provide a housing for the Portasol unit and ensure its optimum utilization as well as facilitate its repair and maintenance.

III. ATTACHMENTS (Please refer to the DOST-GIA Guidelines for the necessary documents.)

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