

## 1. Cover Page

BIMP- EAGA- ROK Cooperation Fund (BKCF) Project Proposal	
<b>Project Title</b>	Developing Land Management Options for Diverse Cacao-based system in Mindanao
<b>Organization and Focal Persons</b>	Name: Email: Address:
	<input type="checkbox"/> Brunei Darussalam <input checked="" type="checkbox"/> Philippines <input type="checkbox"/> Malaysia <input type="checkbox"/> Indonesia <input type="checkbox"/> Republic of Korea
<b>Target Country(ies)</b>	<input type="checkbox"/> Brunei Darussalam <input type="checkbox"/> Malaysia <input type="checkbox"/> Indonesia <input checked="" type="checkbox"/> Philippines
<b>Geographic Location(s)</b> <i>(Please tick the box and indicate location accordingly)</i>	<input checked="" type="checkbox"/> <b>BIMP-EAGA</b> - Location: North Cotabato, Mindanao  <input type="checkbox"/> <b>Not within BIMP-EAGA</b> - Location:
<b>Project Duration</b>	<input type="checkbox"/> 1 year <input checked="" type="checkbox"/> 2 years Proposed project start date: 08.04.2022 Expected project completion date: 07.31.2024
<b>Total Budget (USD)</b>	Year 1: Year 2: Project total:
<b>Project Beneficiaries</b> <i>(200 words max)</i>	<i>The project will benefit the Agrarian Reform Beneficiaries (ARB) small-holder cacao farmer organized by UNORKA-Mindanao. The project will be engaging (directly) 30 cacao farmers as cooperator representing the 30 organizations of cacao-based farmer-members of UNORKA Mindanao in Davao City and North Cotabato. In addition, the project will benefit at least around 6,000 cacao farmers in North Cotabato and Davao City.</i>
<b>Project Partners</b>	<i>UNORKA Mindanao Mindanao Development Authority Municipal Agriculture Offices in Davao City and North Cotabato</i>
<b>Goal and Objective</b> <i>(300 words max)</i>	The project aims to empower small-holder cacao farmers in addressing the impact of climate change and other market challenges by providing them the appropriate technologies and capacity to harness local resources towards producing quality and safe cacao beans. The implementation of the project activities intends to accomplish the following objectives: Objective 1: Determine effective, regenerative, and climate-resilient soil management options for a safe and sustainable cacao-based cropping system in Davao City and North Cotabato. Objective 2: Showcase the advantages of the different soil

	management technologies to cacao farmers and other players in the industry.
<b>Potential Project Co-Financing (optional)</b> <i>(If yes, proof of evidence indicating committed project co-financing from interested co-financing partners. For instance, proof of communication with potential co-financing partners, and a letter of intent from concerned government authority/a letter from potential co-financing partners)</i>	None
<b>Project Sector &amp; Areas</b> <i>(Please tick the relevant sector and indicate its area(s). For more details, refer to the BKCF guideline.)</i>	<input checked="" type="checkbox"/> Environment - <i>Area(s): Nature-based solution, water, and soil management</i> <input type="checkbox"/> Tourism - <i>Area(s):</i> <input type="checkbox"/> Connectivity - <i>Area(s):</i>
<b>Category of Project to be implemented</b>	<input type="checkbox"/> Policy and regulatory framework <input type="checkbox"/> Sector master plan <input type="checkbox"/> Pre-feasibility or feasibility study <input checked="" type="checkbox"/> A small-scale demonstration <input type="checkbox"/> National Determined Contribution implementation <input type="checkbox"/> Green recovery and green employment <input type="checkbox"/> Gender equality <input checked="" type="checkbox"/> Capacity building and public awareness <input type="checkbox"/> Others (50 words max. ):

## 2. Project Justification

### 2.1 Project Justification and Beneficiary – 600 words max.

#### Current Issues

*Give a brief explanation of the problem the project is trying to address. Explain the cause of these problems. The description must be clearly linked to the project's objectives and how the project will address the problem.*

*The Philippines and other members of BIMP-EAGA are among the few countries in the world growing cocoa as they lie within the cacao belt (18oN and 15oS of the equator). In the Philippines, registered cacao farms reached around 31, 299 hectares in 2020 with an annual expansion of around 3.4% (PSA, 2021). The majority of the cacao farms are located in the southern part of the country (P-EAGA area), particularly in the upland areas surrounding the rich soil of Mt. Apo. PSA (2021) showed that the two major cacao-producing areas of Davao City and North Cotabato have registered an annual growth of around 10% and 5%, respectively in terms of their production area. Globally, cocoa has a market value of around 8.6 billion in 2017 and a compound growth rate of 7.3%. The global cocoa market value is estimated to reach 189.89 billion by 2026 (Voora et al., 2019).*

*As local production continues to rise over the years in order to satisfy the market and consumer, issues and concerns such quality and safety of cacao beans, as well as environmental issues emerged. After many decades of cacao cultivation, soil fertility, land productivity, and available cultivation areas per family are shrinking. Evidence shows how much the cacao plots are getting degraded and need fertilization to replenish the soil nutrients and recover their production levels and income (Snoeck et al., 2016). Fertilization is, therefore, a major issue for the future of cacao cultivation and cacao farmers (Ruf, 2012). Furthermore, cacao being perennial in nature is faced with the impact of climate change even during a single generation or in a standing plantation (Balasimha, 2016). Climate factors such as rainfall and temperature have a significant effect on the production of cacao, thus a slight deviation in the normal microclimate of cacao farms will pose a challenge to the cacao farming communities.*

*In addition to production and supply gap issues, the quality of cacao products is becoming a significant trade criterion. Recently, sticker regulations for food safety were put forward through the Codex Alimentarius Commission of the Joint FAO/WHO Food Standards Programme, setting maximum levels for Cadmium (Cd) in chocolate and cocoa-derived products. Similarly, the European Union has imposed parallel measures starting January 01, 2019, through Regulation (EU) No 488/2014 implemented the regulations governing chocolate and cocoa products containing excessive levels of Cd and pesticide residues (Ecolex, 2021).*

*If not properly studied, land management options and fertilization programs may lead to the production of poor quality and unsafe cacao beans. The exposure of cacao production areas to natural sources of heavy metals especially Cd (contaminated soil and water), and excessive use of synthetic fertilizers may lead to the accumulation of heavy metals in the cacao beans. Cacao, being a small evergreen tree, has a high propensity for Cd uptake. According to Ramtahal et al. (2016), the primary source of cadmium in cocoa beans has been linked to the direct uptake by the cacao plant from cadmium-contaminated soils. In addition to this, excessive and repeated application of P-fertilizer (Maddela et al., 2020) and long-term use of phosphate fertilizer (Chengrahi et al., 2011) are the key contributions to increased levels of Cd in both soil and cacao crops. Putting solutions to these issues along with the growing preference of the market and consumers for safe and healthy food products are among the key priorities of our present generation. In 2021, the UN convened the Food Systems Summit and launched bold new actions to deliver progress on all 17 SDGs, each of which relies to some degree on healthier, more sustainable, BKCF Project Proposal Template (2021.12)4and equitable food systems (United Nations, 2021).*

*These recent regulations and environmental trends pose a challenge to the growing cacao industry in Mindanao. Staying afloat would simply mean improving productivity and complying with the prevailing quality and safety standards and regulations for cacao. The proposed project will produce the concrete results that will guide the small-holder cacao farmers in improving their production of cacao in terms of quality*

#### Project History

List any related projects or activities, whether current or complete. Describe how this new proposal would complement them. Details of any related current or complete projects, as well as lessons learned.

In 2019, Sales et al., of UPLB and USM, had conducted research funded by DOST-ASTHRDP and CHED-K12 scholarship programs. The research evaluated the land use system of Davao City to determine its suitability for cacao production and identify soil related constraints to achieve the potential yield of cacao in the area. The said research recommended the conduct of site-specific experiments to determine the appropriate soil management technologies that will address the soil-related limitations of the area. The identified limitations of the soil in Davao city for cacao production are: low soil fertility, shallow and drought-prone soil in some areas and sloping topography in midland areas. Improper use of fertilizer and inputs to production as well as the lack of water and soil conservation measures were also documented by the said study.

**Project Beneficiaries (direct/indirect)**

Please state who and approximately how many people would directly benefit from this project, and how many of these direct beneficiaries would be men and how many would be women. Proponents should also identify who will indirectly benefit from implementation.

The project will be engaging (directly) 30 farmer as cooperator representing the 30 organizations of cacao-based farmer-members of UNORKA Mindanao in Davao City and North Cotabato. The farmer-cooperator will be mentored by the project team in the field. The project team will engage the farmer –cooperators in the establishment of the experimental sites, gathering of data and information and interpretation of the experiment results. This is to show to the farmers the scientific process of evaluating different technologies and gave them the actual experience of growing cacao under different management technologies/ practices.

In addition, the project will benefit at least around 6,000 cacao farmers and stakeholders in North Cotabato and Davao City from the knowledge sharing sessions and information drive activities that will be conducted by the project team.

Total project beneficiary: 780 farmers\_direct beneficiary; 5250\_indirect beneficiary  
Outcome 1: 30\_direct beneficiary  
Outcome 2: 750\_direct beneficiary

**2.2 Project Result**

**Project Objective**

Please indicate the overall objective of the project.

Objective 1: Determine effective, regenerative and climate resilient soil management options for safe and sustainable cacao-based cropping system in Davao City and North Cotabato. To achieve this objective, an experiment will be conducted in at least two sites as follows:

Treatments (different soil management technologies)	Factor 1- water conservation technology using agricultural waste and indigenous materials Factor 2- different levels/ combinations of organic and synthetic fertilizers, and lime Factor 3 - good practices in land management from other countries (result of benchmarking activities with GGGI expert)
Experimental Design	Split-split-plot design with 3 replications
Duration	2 harvest seasons (1 peak, 1 low)

The experimental site will also serve as the demonstration area during the conduct of knowledge sharing sessions and farmers’ field visits.

Objective 2: Showcase the advantages of the different soil management technologies.

**Expected Outcome(s) & Indicator(s), Output(s) & Indicator(s) and Activities**

Please describe expected outcome(s) and indicators to measure project achievements.  
Please describe expected outputs and indicators to measure project achievement with sources/means of verification.  
(Sample)

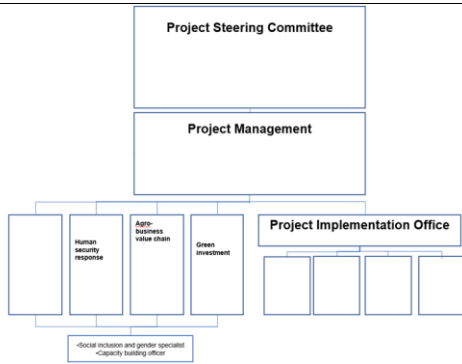
1	Outcome	Indicator(s)
	Significant increase in yield of cacao grown under different soil management technologies/ techniques.	At least 20% increased in yield of cacao grown under soil management technologies/ techniques
1.1	Output	Indicator(s)
	Site-specific performance of different soil management technologies/ techniques on cacao production evaluated	At least 2 Experimental fields established, monitored and concluded; Effective soil management technologies/ techniques on cacao production determined
	<b>Activity</b>	
1.1.1	Procurement of materials and apparatus for the establishment of experimental sites, data gathering, processing and analysis of data and information	
1.1.2	Establishment of experimental field; and mentoring of farmer-cooperators At least 1 agreement forged with a cooperative/ group per site At least 1 outline for the establishment of	
1.2	Output	Indicator(s)
	Publication of the result of the experiment in a scientific journal	At least 1 research article published
	<b>Activity</b>	
1.2.1	Packaging of the article	
1.2.2	Submission of the article to a scientific journal	
2	Outcome	Indicator(s)
	Knowledge and skills gained and practiced by the farmers and other players	At least 50% of the farmer cooperators adopted and implemented new soil management technology/ technique At least 25% of the farmer participants use the information gained from the knowledge sharing in their existing practices
2.1	Output	Indicator(s)
	Training and IEC materials on effective, regenerative and climate resilient soil management technologies for cacao production developed	At least 1 training module/material prepared At least 1 IEC printed and distributed to farmers
3	Outcome...etc	

### 2.3 Project Implementation Arrangement

#### Management Arrangements

Describe the project's management structure, including GGGI's responsibilities (if applicable), coordination mechanisms, and the project-management reporting line.

The USM will serve as the lead project implementing agency. In partnership with the Mindanao Development Authority (MinDA), UNORKA Mindanao and the Local Agriculture Offices, a project advisory group will be created to guide the implementation of the project activities, monitor the progress, and facilitate the unclogging of bottlenecks in the implementations. A GGGI expert will be tapped as a resource person on a learning session activity as part of the benchmarking/ scoping of good practices on soil/ land management for agricultural crop production.



### Human Resource Inputs

Specify the type and number of personnel involved in the project. Include the terms of reference for each position in the Annexes.

	Title	Main Functions
1	Project director	•
2	Project Manager	
3	Energy Expert	
4	Agriculture Expert	
	...	

### Monitoring and Evaluation Arrangements

Describe the monitoring and evaluation arrangement of the project. The proponent will submit a progress report every six months.

*Example)*

*Technical Working Group (TWG) will be established to manage the day-to-day operations of the project, lead the implementation of project activities, and coordinate with concerned government and non-government agencies.*

*The TWG will be led by.....*

*Technical experts including consultants and service providers will timely provide technical updates during the TWG meetings. The TWG meeting will be convened on a regular basis once every quarter, with possible ad-hoc meetings based on the situation. In order to provide a detailed monitoring and evaluation assessment, the TWG will be submitting three (3) bi-annual updates and one (1) completion report.*

### 2.4 Gender and Other Cross-Cutting Issues – 600 words max

#### Gender

Indicate how gender-related issues will be taken into account during project implementation, specifically addressing how women and men would equally benefit from the project and whether the proposed project has allocated resources for this purpose. Proposals must ensure that projects provide equal opportunities for participation, where appropriate, and how this will be monitored.

*Example) The role of women and empowering them will always be part of the cacao value chain and all aspects of these projects. This is true for both direct and indirect beneficiaries where women have equal opportunities to participate in all of the activities of the project.*

*Example) The Project recognizes the role of women in food security and agriculture, and will ensure that women are duly consulted and included in the activities. The capacity building activities target 50% of its activities addressing women, and 50% participation by women. The Project also includes youth participation, with the aim to have 50% of its total participants in capacity building projects to be 25 years old and younger.*

#### Other Cross-Cutting Issues

Indicate cross-cutting issues and state how these issues will be addressed by the project, as applicable.

*Example) The utilization of farm waste and indigenous materials will benefit both the environment and the economy. The components of the project will address environmental protection, livelihood, job generation, potential business enterprises, and more allied enterprises. The introduction of proper land management technology for cacao production will propel awareness on the importance of soil conservation, efficient resource utilization, and preservation of biodiversity in sustaining the production food system as well as to the future of the community.*

#### 2.5 Potential Risks - 400 words max.

#### Potential Risks & Mitigation Strategy and Measures

Outline all significant potential internal and external risks or threats in the Project Results along with corresponding mitigation strategies.

Risk/Threat	Mitigation Strategy
Delays in the implementation of project activities	Formulation of catch up plan to ensure implementation of the pending/ delayed activities. Conduct regular follow-up communication, meetings and monitoring activities to ensure that all activities including the procurement process are within the project timelines.
Changes in projects staff/Technical Working Group	The implementing agency and partner agencies shall ensure that the project staff are carefully selected based on their technical capabilities. In case of replacement, similar selection process will be conducted to ensure that the replacement staff will also be capable to perform the job.
Typhoon, earthquake and other natural disasters	Prepare emergency preparedness plans, routine emergency drills and information awareness campaigns, including but not limited to business continuity.
Stray animals, rodents and pests attack/disease outbreak	Conduct regular sanitation and cleanliness of the experimental sites and surroundings. Ensure that proper biosecurity protocols will also be placed and followed.
Travel and other restrictions due to Health issues (e.g. COVID-19)	Ensure that all health and safety protocols are being followed. The staff are regularly checked for health status. Emergency kits are placed including personal protective equipments.
Peace and order	Conduct regular coordination and communication with the Local Government Unit and Peace Keeping Forces such as the Philippine National Police and the Philippine Army.

**2.6 Project Sustainability and Scale-up – 400 words max**

State how the outputs and benefits of the project will be sustained and scaled up after the project is completed. The project is encouraged to be further developed into an upscalable and influential project that would economically or socially benefit the target country(ies).

*Example)*

*Due to the rising popularity of cacao brought by its competitive buying price in the market, the output of the project will serve as a vital input in ensuring sustainability and environmental protection in the process of scaling-up the existing level of cacao production as well as in expanding the production area for cacao. The technology and process that will be generated and documented by the project can be a model for other countries in generating solutions that will address the similar issues and concerns of the cacao industry of the BIM countries especially Indonesia –wherein cacao is widely cultivated in EAGA areas of the country. The same technology and process can also be packaged into a similar project proposal that will address the land management issues confronting other agricultural commodities such as tropical fruits, vegetables, herbs and spices, industrial crops and plantation crops. The experimental sites that will be established can be utilized and sustained by the recipient cooperative for the continued learning of their incoming/new members.*