



## ADAPTATION FUND

# CONCEPT NOTE FOR REGIONAL PROJECT/PROGRAMME

### PART I: PROJECT/PROGRAMME INFORMATION

**Title of Project/Programme:** Strengthening climate resilience and food security through south-south cooperation in adaptive rice production in Malaysia and the Philippines

**Countries:** Malaysia, The Philippines

**Thematic Focal Area<sup>1</sup>:** Food security

**Type of Implementing Entity:** Multilateral Implementing Entity

**Implementing Entity:** United Nations Industrial Development Organization (UNIDO)

**Executing Entities:** UNIDO; Malaysian Bioeconomy Development Corporation, Asian Disaster Preparedness Center (ADPC)

**Amount of Financing Requested:** 13,651,000 (in U.S Dollars Equivalent)

**Project Formulation Grant Request:** Yes  No

**Amount of Requested financing for PFG:** 130,000 (in U.S Dollars Equivalent)

**Letters of Endorsement (LOE) signed for all countries:** Yes  No

*NOTE: LOEs should be signed by the Designated Authority (DA). The signatory DA must be on file with the Adaptation Fund. To find the DA currently on file check this*

*page: <https://www.adaptation-fund.org/apply-funding/designated-authorities>*

#### **Stage of Submission:**

This proposal has been submitted before. Last re-submission of the document was on the 24th of November.

This is the first submission ever of the proposal at any stage

In case of a resubmission, please indicate the last submission date: 14/01/2026

**Please note that the Concept note proposal document should not exceed 50 pages, including annexes.**

<sup>1</sup> Thematic areas are: Food security; Disaster risk reduction and early warning systems; Transboundary water management; Innovation in adaptation finance.

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## Project Background and Context:

### A. Background on Climate Vulnerability

1. The Philippines ranks 10th in the Long-Term CRI Index<sup>2</sup> as of 2025, because of the number of people affected, and the associated fatalities and economic losses. By contrast, Malaysia's Long-Term CRI Index rank is 116th, and it is not as highly disaster-prone, but most rice farmers have little knowledge of climate change and variability and require water guidance on management innovations, seed selection, and crop management. Malaysia's Climate Change Adaptation Framework (CCAF) for Water Sectors, 2021<sup>3</sup> identifies the three most significant climate-related hazards: sea level rise, flood & drought, and storm surge. The Philippines is exposed to the same threats and to typhoons. Both countries are key rice producers where yields and food security are threatened. These shared challenges provide a strong rationale for a South-South Cooperation project aimed at climate resilience. A regional approach allows both countries to collectively tackle these vulnerabilities and draw on each other's experiences. The ASEAN Food, Agriculture, and Forestry Division (FAFD) will be engaged at the next stage of project development through national channels, and successful approaches can be emulated across other rice-producing ASEAN countries.

2. A study by Vaghefi et al. (2013)<sup>4</sup> used the DSSAT Crop Simulation Model to project rice yield reductions in eight granary areas of Peninsular Malaysia until 2030 of 8.4% to 18.6% in the main season and 7.5% to 47.8% in the off-season. Another study by Vaghefi et al. (2015)<sup>5</sup> reported average yield reductions of 12% and 31.3% for the main and off-seasons. Excessive rainfall during the main season causes flooding, while droughts in the off-season exacerbate water scarcity. The World Bank has estimated yield reduction could be 60%<sup>6</sup>. A study by Tan. Et. al. (2021)<sup>7</sup> concluded that farm-level adaptations will be crucial, to achieve long-term agricultural sustainability, particularly for small-scale farmers in the "off-season". A comprehensive study by Stuecker et al. (2018)<sup>8</sup> for the Philippines found soil moisture variations, largely driven by ENSO, account for about 10% of the variance in rice production anomalies. Rainfed upland rice systems are more sensitive to rising temperatures, changes in precipitation patterns and extreme weather events than irrigated paddy systems. Typhoon Noru in 2022 alone reduced the Philippines' rice production by approximately 3.5%. The impacts of climate change on rice production in the Philippines suggest warming temperatures cause a 10% reduction for every 1° C rise over 30° C<sup>9</sup>. Drought, especially during the El Nino years, has a compound effect<sup>10</sup>. The effects of climate change will lead to increasingly negative variability in crop yields throughout the region, causing ripple effects from the climate to the environment, productivity, and economic and social dimensions. The Philippines also recorded the greatest number of food-insecure people in Southeast Asia<sup>11</sup>. Unfortunately, limited funding for research and development hinders growth in agricultural productivity (especially of rice)<sup>12</sup>.

3. Rice cultivation is the primary temporary crop in the two countries in terms of land parcels, and the agriculture sector lies at the cornerstone of the economies of both countries, being the third most important economic sector after the manufacturing and service sectors. Over 50% of the 3.2 million holdings/farms in

<sup>2</sup> <https://www.germanwatch.org/sites/default/files/2025-02/Climate%20Risk%20Index%202025.pdf>

<sup>3</sup> <https://www.kasa.gov.my/resources/Climate-Change-Adaptation-Framework-for-Water-Sectors.pdf>

<sup>4</sup> Negin Vaghefi, Mad Nasir Shamsudin, Alias Radam and Khalid Abdul Rahim, 2013. Impact of Climate Change on Rice Yield in the Main Rice Growing Areas of Peninsular Malaysia. *Research Journal of Environmental Sciences*, 7: 59-67. DOI: 10.3923/rjes.2013.59.67

<sup>5</sup> Vaghefi, N., Shamsudin, M. N., Radam, A., & Rahim, K. A. (2015). Impact of climate change on food security in Malaysia: economic and policy adjustments for rice industry. *Journal of Integrative Environmental Sciences*, 13(1), 19–35. <https://doi.org/10.1080/1943815X.2015.1112292>

<sup>6</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15868-WB\\_Malaysia%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15868-WB_Malaysia%20Country%20Profile-WEB.pdf)

<sup>7</sup> Tan, B.T.; Fam, P.S.; Firdaus, R.B.R.; Tan, M.L.; Gunaratne, M.S. *Impact of Climate Change on Rice Yield in Malaysia: A Panel Data Analysis*. *Agriculture* 2021, 11, 569. <https://doi.org/10.3390/agriculture11060569>

<sup>8</sup> Stuecker MF, Tigchelaar M, Kantar MB (2018) Climate variability impacts on rice production in the Philippines. *PLoS ONE* 13(8): e0201426. <https://doi.org/10.1371/journal.pone.0201426>

<sup>9</sup> Cuaton, G.P., Delina, L.L. Two decades of rice research in Indonesia and the Philippines: A systematic review and research agenda for the social sciences. *Humanit Soc Sci Commun* 9, 372 (2022). <https://doi.org/10.1057/s41599-022-01394-z> (URL: <https://www.nature.com/articles/s41599-022-01394-z>)

<sup>10</sup> (Stuecker et al., 2018). doi: 10.1371/journal.pone.0201426

<sup>11</sup> 2020 State of Food Security and Nutrition in the World

<sup>12</sup> <https://www.worldbank.org/en/country/malaysia/publication/assessing-the-effectiveness-of-public-research-institutions-in-fostering-knowledge-linkages-and-transferring-technology>

the Philippines are less than one hectare. The Philippines reported a total of 5.4 million households, with at least one member identified as a farm holder had an average earning of PhP 8,000 per month<sup>13</sup> which is below national poverty threshold. In Malaysia, rice is also produced in small holdings (2 hectares per family) and rice farmers make up almost 40% of the food subsector. The average monthly income from paddy cultivation is around RM 1,000 which is less than 50% of the national poverty line of RM 2,208 per month in 2020<sup>14</sup>.

4. In the Philippines, particularly in Nueva Ecija<sup>15</sup>, the shift in planting and growing seasons has significantly impacted rice cultivation. The traditional planting calendar has been greatly impacted, with the onset of the rainy season moving from June to August. This shift has reduced water availability for early planting and increased vulnerability to stronger typhoons during harvest months, leading to substantial crop losses. Irregular weather patterns, characterized by intense heat during the summer and severe flooding in the rainy season, have further impacted the production. These changes in climate have resulted in reduced yields, increased pest prevalence, and exacerbated water scarcity, especially in areas lacking sufficient irrigation. As a consequence, farmers face greater financial burdens, often resorting to high-interest loans to sustain their farming activities. Similarly, rice cultivation in Malaysia<sup>16</sup> has been adversely affected by shifting seasons and inconsistent weather patterns. In regions like Kedah, Palau Pinang, and Sarawak, prolonged wet conditions during harvest and droughts during planting have disrupted the cultivation cycle. The soft soil phenomenon has hindered machinery operations, causing partial harvest losses and field abandonment. Moreover, the rise in pest attacks and uncontrollable weed growth, exacerbated by hot and humid conditions, has increased production costs. Some farmers have abandoned their fields due to the escalating expenses linked to herbicides, pesticides, and machinery operations. The Malaysian government has introduced mitigation strategies, such as installing submersible pumps and promoting new rice varieties, but challenges in infrastructure and climate unpredictability continue to affect rice productivity and sustainability.

5. Both the Philippines and Malaysia are impacted by climate change but with different severity. Both countries face climate-induced hazards of flood, drought and sea-level rise. Studies have shown that Malaysia, Sabah, and Sarawak regions will experience a surface mean temperature increase of 0.14°C–0.25°C per decade. An increase in rainfall is projected and is expected to be larger in Sabah and Sarawak than in Peninsular Malaysia while the frequency and intensity of heat waves experienced in Malaysia is projected to increase significantly due to a warming climate. Malaysia will experience a decrease in monsoon precipitation in the southeast and an increase in the northwest during the southwest monsoon season<sup>17</sup>. Similarly, climate change impacts will be felt significantly in the Philippines, leading to increased temperatures, extreme weather events like typhoons, altered rainfall patterns leading to water scarcity and so on. The country is already frequented by more than 20 typhoons annually while there are concerns of sea level rise up to 60 cm which is three times the global average of 19 cm (National Integrated Climate Change Database, Information Exchange, and Sharing System (NICCDIES)<sup>18</sup>. Erratic rainfall is another area of concern driven by climate variability such as the El Niño Southern Oscillation (ENSO), leading to droughts and floods, as analysed by the Philippine Atmospheric, Geophysical and Astronomical Services Administration (PAGASA)<sup>19</sup> using the PRECIS model.

## **B. Historical Climate Trends**

### **B.1. Malaysia**

6. Malaysia's equatorial climate is hot and humid, with cooler, wetter highlands, warm humid lowlands (23°–32°C), and sunnier, drier coasts. Two monsoons occur: Southwest (April–September) and Northeast

<sup>13</sup> <https://psa.gov.ph/content/family-income-and-expenditure-survey-fies-0>

<sup>14</sup> Household Income Estimates and Incidence of Poverty Report, Department of Statistics Malaysia, 2020

<sup>15</sup> Key findings from the Consultation workshop held in the Philippines in August 2024

<sup>16</sup> Key findings from the Consultation workshop held in Malaysia in August 2024

<sup>17</sup> Projected near-term changes in monsoon precipitation over Peninsular Malaysia in the HighResMIP multi-model ensembles (2022).

<https://doi.org/10.1007/s00382-022-06363-5>

<sup>18</sup> <https://niccdies.climate.gov.ph/climate-change-impacts>

<sup>19</sup> <https://www.pagasa.dost.gov.ph/information/climate-change-in-the-philippines>

(October–March)<sup>20</sup>. Mean annual temperature is 25.4°C with low seasonal variation, and rainfall averages 3,085.5 mm and varies regionally (Figure 1). From 1951–2021, temperatures rose by 0.2°C per decade<sup>21</sup>. From 1969–2019, mean surface temperatures rose by 0.13°C to 0.24°C per decade across Peninsular Malaysia, Sabah, and Sarawak<sup>22</sup>. The scenario shows rainfall fluctuates with monsoons and ENSO between 2,400 – 3,700 mm<sup>Error! Bookmark not defined.</sup>, and coastal sea levels increased 2.9–3.2 mm/year, heightening climate vulnerability<sup>Error! Bookmark not defined.</sup>.

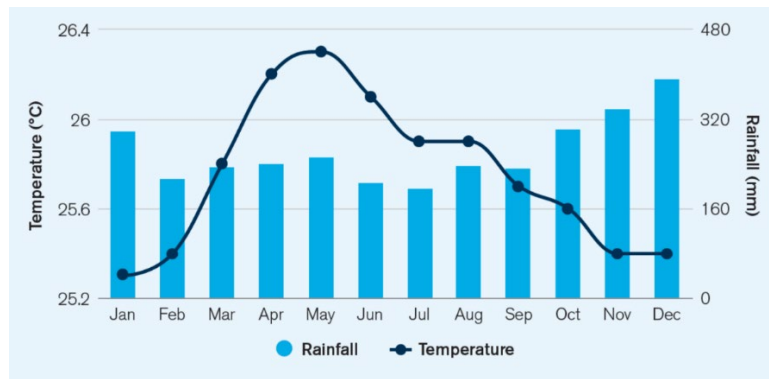


Figure 1: Average monthly temperature and rainfall in Malaysia (1991–2020)  
Source: WBG Climate Change Knowledge Portal

7. The average monthly precipitation remains relatively constant throughout the year, ranging between approximately 200 mm during June and July and 350 mm in November and December. Figure 2 also shows the spatial variation of the average annual precipitation and temperature across Malaysia.

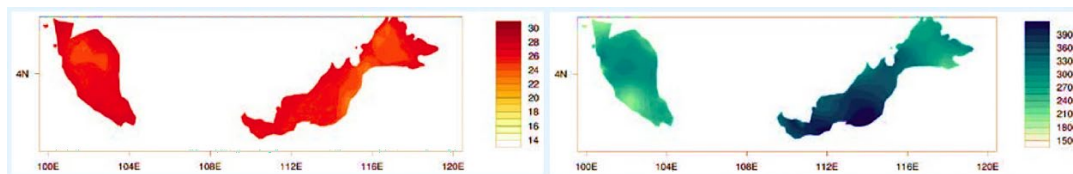


Figure 2: (Left) annual mean temperature (°C), and (right) annual mean rainfall (mm) in Malaysia over the period 1991–2020. (Source: WBG Climate Change Knowledge Portal (CCKP), 2021).

8. Malaysia’s interannual temperature variations are strongly influenced by the El Niño Southern Oscillation (ENSO). El Niño years bring higher-than-average temperatures, while La Niña years tend to result in cooler conditions. Between 1970 and 2013, Peninsular Malaysia, Sabah, and Sarawak, recorded surface mean temperature increases of 0.14°C–0.25°C per decade. Between 1951 and 2021, maximum temperatures rose by 0.3°C per decade, indicating a growing range of extremes influenced by regional topography and localized climate factors<sup>Error! Bookmark not defined.</sup>. From 1951 to 2019, Peninsular Malaysia and Sarawak showed slight increases in annual rainfall, while Sabah experienced a slight decrease. Since the 1990s, rainfall has risen consistently across all regions. Figure 3 shows Malaysia’s annual precipitation trends (1951–2020) with three trend lines. The overall trend (1951–2020) indicates gradual rainfall increase, while 1971–2020 shows a steeper rise. From 1991–2020, rainfall intensified further, highlighting recent wetter conditions that may increasingly impact rice cultivation cycles across the country.

<sup>20</sup> Malaysia (2015). First Biennial Update Report to the UNFCCC. Ministry of Natural Resources and Environment Malaysia. URL: <https://unfccc.int/sites/default/files/resource/MALBUR1.pdf>

<sup>21</sup> Malaysia. 2024 Biennial Transparency Report (BTR). BTR1. URL: <https://unfccc.int/documents/645171>

<sup>22</sup> [https://unfccc.int/sites/default/files/resource/NRES\\_NC4\\_To%20UNFCCC\\_2024%20v1.0.pdf](https://unfccc.int/sites/default/files/resource/NRES_NC4_To%20UNFCCC_2024%20v1.0.pdf)

**Precipitation Annual Trends with Significance of Trend per Decade; 1951-2023; Malaysia**

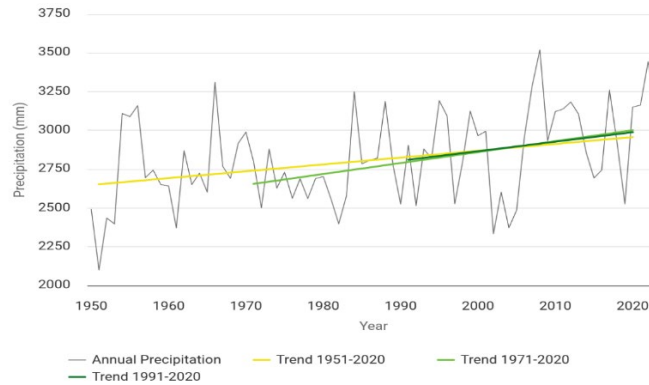


Figure 3: Precipitation Annual Trends with Significance of Trend per Decade (1951-2020) for Malaysia. Source: WBG Climate Change Knowledge Portal.

## B.2. The Philippines

9. The Philippines has a humid climate with average annual rainfall of 2,348 mm, ranging from 960 mm in southeast Mindanao to over 4,050 mm in central Luzon. Temperatures average at 27°C, with a humidity of over 82%. Rainfall is driven by monsoons, tropical cyclones, and ENSO, with droughts often linked to El Niño<sup>23</sup>. The Philippines’ hottest months are April and May, while December to February are the coldest. The mean annual temperature is 27.1°C, with a low seasonal variation of about 3°C (Figure 4). Historical data show a 0.62°C rise in annual mean temperature from 1958–2014 in the Philippines, with significant number of hot days and warm nights observed between 1960–2003<sup>24</sup>. Berkeley Earth historical data indicate Manila warmed by 0.75°C between 1900–2017 and 2000–2017 on an average, reflecting broader Pacific regional patterns<sup>25,26</sup>.

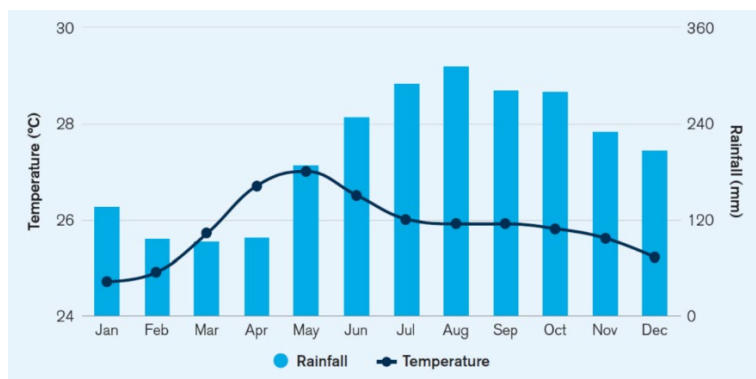


Figure 4: Average monthly temperature and rainfall in the Philippines (1991–2020) (Source: WBG Climate Change Knowledge Portal (CCKP, 2021).

10. The Philippines has seen increased rainfall amount and intensity since the 1990s, with wetter dry seasons, more typhoon-strength cyclones during El Niño period, and monthly rainfall increase by 0.34 mm/year (Salvacion et al., (2018)). Figure 5 shows annual precipitation trends in the Philippines (1951–

<sup>23</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15852-WB\\_Philippines%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15852-WB_Philippines%20Country%20Profile-WEB.pdf)

<sup>24</sup> Philippines (2014). Second National Communication to the UNFCCC. URL: <https://unfccc.int/sites/default/files/resource/phlnc2.pdf>

<sup>25</sup> Griffiths, G & Chambers, Lynda & R. Haylock, M & J. Manton, M & Nicholls, Neville & Baek, H.-J & Choi, Youngeun & Della-Marta, Paul & Gosai, A & Iga, N & Lata, R & Laurent, Victoire & Maitrepierre, Luc & Nakamigawa, H & Ouprasitwong, N & Solofa, D & Tahani, L & T. Thuy, D & Tibig, L & Zhai, Panmao. (2005). Change in mean temperature as a predictor of extreme temperature change in the Asia–Pacific region. *International Journal of Climatology*. 25. 1301 - 1330. URL: <https://rmets.onlinelibrary.wiley.com/doi/pdf/10.1002/joc.1194>

<sup>26</sup> Carbon Brief (2018). Mapped: How every part of the world has warmed - and could continue to. Infographics, Berkeley Dataset. 26 September 2018]. URL: <https://www.carbonbrief.org/mapped-how-every-part-of-the-world-has-warmed-and-could-continue-to-warm>

2023). Yearly fluctuations are evident, with gradual rainfall increases from 1951–2020. Upward trends are observed between 1971–2020, while a more pronounced rainfall was seen from 1991–2020. This pattern suggests the country to be facing more wetter conditions, impacting planting seasons, increasing flood risks, and creating unpredictability in agricultural cycles, especially for rice cultivation.

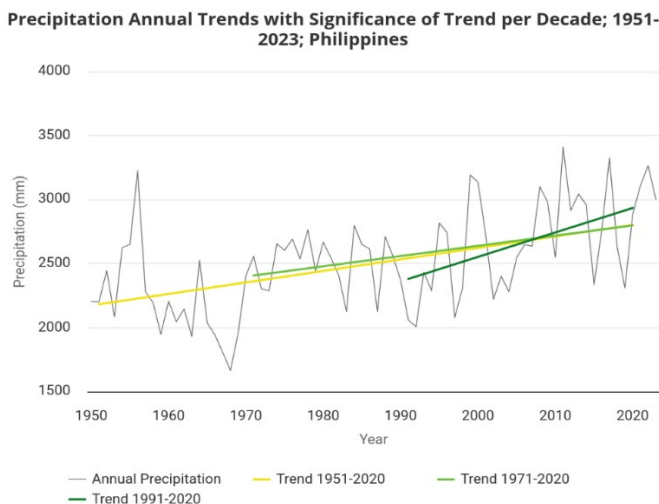


Figure 5: Precipitation Annual Trends with Significance of Trend per Decade (1951-2020) for the Philippines. Source: WBG Climate Change Knowledge Portal

### C. Future Climate Scenarios

11. The climate projection data are derived from global climate models compiled under the Coupled Model Intercomparison Project (CMIP) framework, managed by the World Climate Research Programme. CMIP6, the sixth phase, supports the IPCC Sixth Assessment Report and provides data at a  $0.25^\circ \times 0.25^\circ$  (25 km) resolution. Projections use Shared Socioeconomic Pathways (SSPs), linking socioeconomic development to greenhouse gas emissions. Key scenarios include: SSP1-1.9/2.6 (Sustainability, low emissions), SSP2-4.5 (Middle-of-the-Road), SSP3-7.0 (Regional Rivalry, high emissions), SSP4-3.4 (Inequality, limited mitigation), and SSP5-8.5 (Fossil-Fuel-Driven Development, very high emissions). These pathways guide emission scenarios and climate policy planning through 2100, reflecting potential futures under varying socioeconomic and mitigation conditions.

#### C.1. Malaysia

12. Projected Precipitation Percent Change Anomaly for 2040-2059 for Malaysia under SSP2-4.5: Under the SSP2-4.5 scenario (2040–2059, relative to 1995–2014), Malaysia is projected to experience an overall increase in annual precipitation (Figure 6). Most regions show moderate increase in precipitation, with seasonal fluctuations being observed with slight decreases in March to April and significant increases from June to December. The highest positive anomalies are projected during August and December.

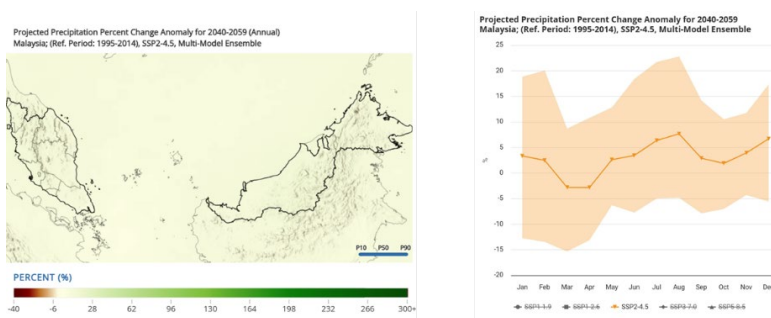


Figure 6: Percentage precipitation change under (a) SSP2-4.5 for 2060 in Malaysia  
Source: WBG Climate Change Knowledge Portal

13. Projected Precipitation Percent Change Anomaly for 2040-2059 for Malaysia under SSP5-8.5: Under the SSP5-8.5 scenario (2040–2059, relative to 1995–2014), Malaysia is projected to see overall increases in annual precipitation. Seasonal trends show slight decreases from January to March, followed by a gradual increase from May onwards, and peaking in November–December. Despite variability and uncertainty, the scenario indicates generally wetter conditions, especially in the year’s later months (Figure 7).

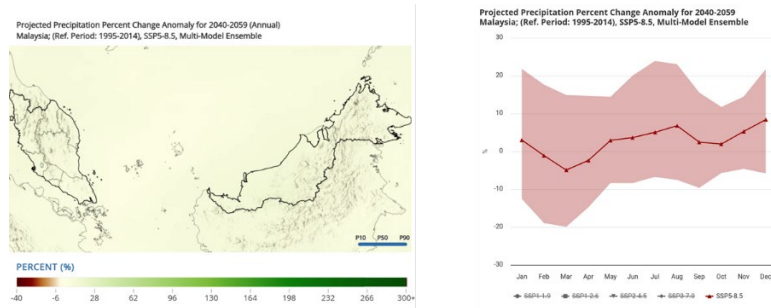


Figure 7: Percentage precipitation change under (a) SSP5-8.5 for 2060 in Malaysia  
Source: WBG Climate Change Knowledge Portal

14. Projected Temperature Change Anomaly for 2040-2059 for Malaysia under SSP2-4.5: Under SSP2-4.5 (2040–2059), Malaysia’s average annual temperature is projected to rise 1.0–1.2°C above 1995–2014 levels (Figure 8). Increases are fairly uniform nationwide, with slight monthly fluctuations peaking around May and September, indicating a steady warming trend under moderate emissions.

15. Projected Temperature Change Anomaly for 2040-2059 for Malaysia under SSP5-8.5: Under SSP5-8.5 (2040–2059), Malaysia’s temperatures are projected to rise between 1.5–2.0°C, with a fairly uniform spatial distribution and minor monthly fluctuations, peaking in April and September, reflecting accelerated warming under high emissions (Figure 9).

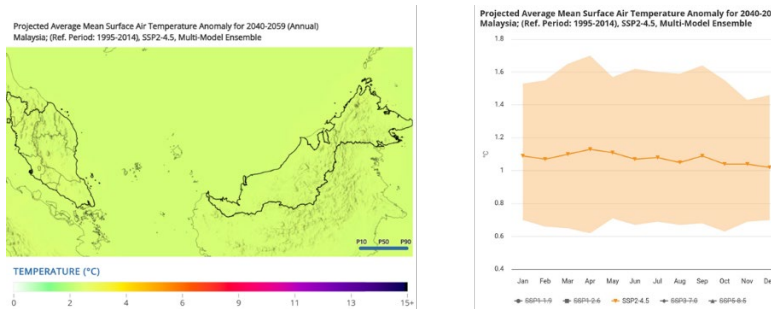


Figure 8: Projected temperature change under (a) SSP2-4.5 for 2060 in Malaysia  
Source: WBG Climate Change Knowledge Portal

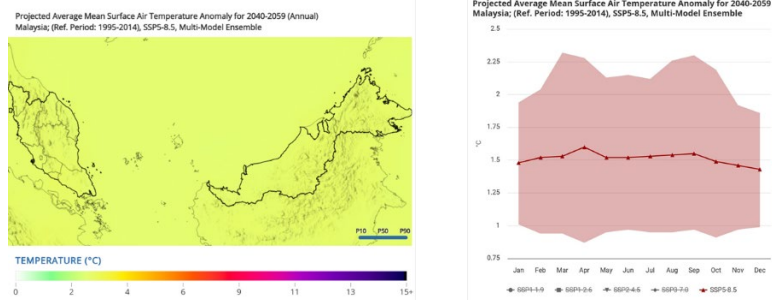


Figure 9: Projected temperature change under (a) SSP5-8.5 for 2060 in Malaysia  
Source: WBG Climate Change Knowledge Portal

## C.2. The Philippines

16. By mid-century, the Philippines and Malaysia are projected to warm 1.2–1.9°C in most seasons, with more variable rainfall patterns. Historical trends for the Philippines show rising temperatures of about 0.6°C and a significant increase in hot days, while Northern and central Philippines will get wetter and south getting drier<sup>27</sup>. Floods, droughts, and altered precipitation threaten rice yields<sup>28</sup>, necessitating adaptation for resilient farming. The project is being designed based on SSP2-4.5 with consideration of resilience under SSP5-8.5.

17. Projected Precipitation Percent Change Anomaly for 2040-2059 for the Philippines under SSP2-4.5: Under SSP2-4.5 (2040–2059), the Philippines is projected to experience a slight overall increase in precipitation, with spatial and seasonal variability with slight increases from June–December and slight decreases from March to May, reflecting relatively stable but regionally uneven rainfall patterns (Figure 10).

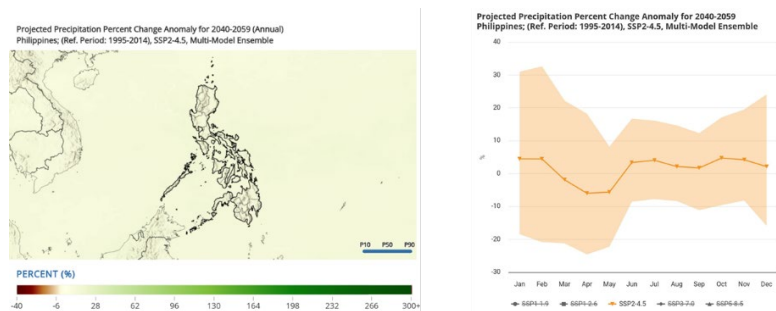


Figure 10: Percentage precipitation change under (a) SSP2-4.5 for 2060 in the Philippines  
Source: WBG Climate Change Knowledge Portal

18. Projected Precipitation Percent Change Anomaly for 2040-2059 for the Philippines under SSP5-8.5: The projection data for precipitation changes in the Philippines under the SSP5-8.5 scenario for 2040-2059 indicates a varied pattern (Figure 11).

<sup>27</sup> <https://doi.org/10.1002/joc.6301>

<sup>28</sup> [https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15852-WB\\_Philippines%20Country%20Profile-WEB.pdf](https://climateknowledgeportal.worldbank.org/sites/default/files/2021-08/15852-WB_Philippines%20Country%20Profile-WEB.pdf)

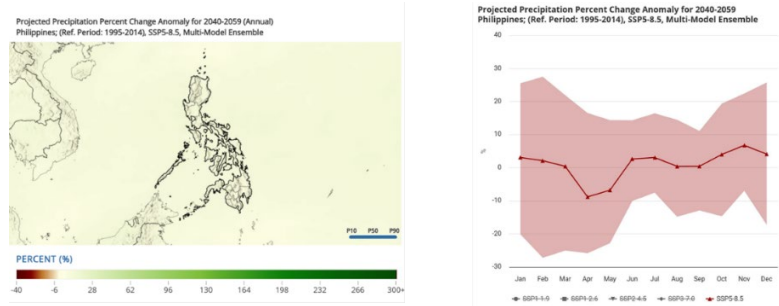


Figure 11: Percentage precipitation change under (a) SSP5-8.5 for 2060 in the Philippines  
Source: WBG Climate Change Knowledge Portal

Most regions of the Philippines are projected to see increased annual precipitation, with slight decreases in April–May and increases from October–December, while uncertainty ranges indicating generally wetter conditions, especially during the wet season.

**19. Projected Temperature Change Anomaly for 2040-2059 for the Philippines under SSP2-4.5:** Under SSP2-4.5 (2040–2059), the Philippines is projected to warm 1.0–1.5°C above 1995–2014 levels, with fairly uniform temperature increases and slight monthly peaks around May. Some uncertainty exists, suggesting that while the central estimate is about 1.1°C, the overall trends indicate significant warming, highlighting the need for climate adaptation and resilience planning.

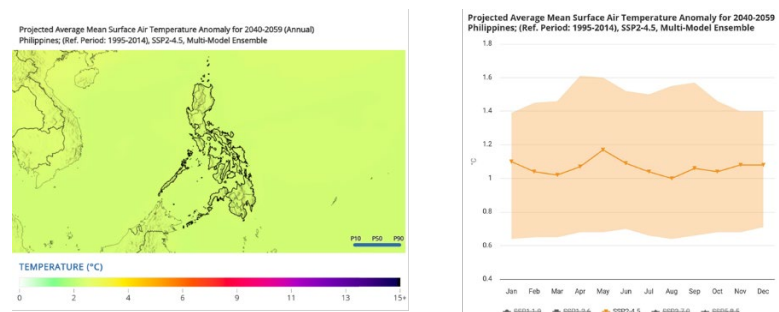


Figure 12: Projected temperature change under (a) SSP2-4.5 for 2060 in the Philippines  
Source: WBG Climate Change Knowledge Portal

**20. Projected Temperature Change Anomaly for 2040-2059 for the Philippines under SSP5-8.5:** Under SSP5-8.5 (2040–2059), the Philippines is projected to warm by 1.4–1.6°C, peaking in April and May. However, a higher uncertainty is also observed, emphasizing the urgent need for mitigation to limit long-term climate impacts (Figure 13). Overall, the scenario projects a higher level of warming.

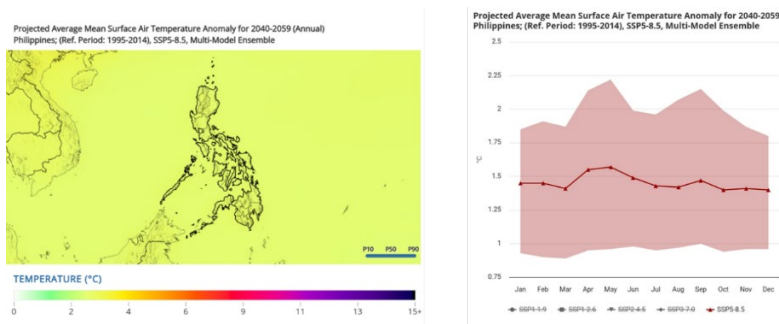


Figure 13: Projected temperature change under (a) SSP5-8.5 for 2060 in the Philippines Source: WBG Climate Change Knowledge Portal

#### D. Project Objectives:

21. To enhance the climate resilience and food security of smallholder rice farmers in Malaysia and the Philippines by strengthening adaptive capacity against specific climate hazards, such as floods, droughts, rising temperatures, and pest outbreaks, through innovative agricultural technologies, improved climate intelligence, and inclusive institutional frameworks.

Specific objectives are:

- i) Enhance adaptive capacity against drought and water scarcity of smallholder rice farmers in drought-prone regions of Malaysia and the Philippines by deploying climate-resilient rice varieties, biofertilizers, and precision water management technologies.
- ii) Strengthen resilience to flooding and soil degradation by building resilience of rice farming communities in flood-prone regions of Malaysia and the Philippines by implementing flood-tolerant rice varieties, sustainable soil management practices, and improved drainage planning and management approaches.
- iii) Mitigate yield variability due to temperature rise and pest outbreaks with the aim towards reducing yield variability for smallholder farmers in Malaysia and the Philippines by introducing heat-tolerant rice varieties, integrated pest management (IPM), and impact-based forecasting systems to anticipate climate-induced pest outbreaks and extreme weather events.
- iv) Improve access to climate-resilient extension services for marginalized groups by empowering smallholder farmers, particularly women and indigenous communities in Malaysia and the Philippines through gender-responsive training, climate-smart extension services, and inclusive adaptation planning to address limited access to resources and information.

22. In line with the IPCC AR6 framework, the project will ensure that all interventions are designed and implemented to avoid maladaptation and generate equitable co-benefits for people and ecosystems.

#### E. Project/Programme Components and Financing:

*Table 1: Project components, expected outcomes and outputs, and their estimated financing requirements*

Project/Programme Components	Expected Outcomes	Expected Outputs	Countries	Amount (US\$)
1. Medium and large-scale climate-smart agriculture technologies and practices deployed through public-private partnerships to increase and diversify production, and to build the resilience of rice farming communities	1.1. Improved paddy production and resilience to climate change	1.1.1. Climate-resilient rice varieties introduced together with biofertilizer and other "Agriculture 4.0" applications and tools in Malaysia and the Philippines.	Malaysia, The Philippines	2,500,000
		1.1.2. Deploy technologies to diversify income from biomass waste (e.g., rice-bran oil, compost)		
	1.2. Increased adoption of climate-smart rice varieties and technologies in the Philippines	1.2.1. Establish climate-resilient farming demonstration sites and private-sector partnerships	The Philippines	1,000,000

	1.3. Enhanced productivity and resilience of rice farming communities	1.3.1 Implement climate-smart agriculture techniques in key regions	Malaysia	1,500,000
2. Strengthened integrated information & climate intelligence for farmers and institutions	2.1. Increased farmer capacity to adapt to climate change	2.1.1. Train farmers in CSA, GAP, water management, and digital tools via Farmer Climate Field Living Labs	Malaysia, the Philippines	950,000
	2.2. Improved access to data and climate information for decision-making	2.2.1. Develop impact-based forecasting, early warning systems, and localized climate-smart maps	The Philippines	1,480,000
		2.2.2. Strengthen data collection and water allocation frameworks	Malaysia	370,000
	2.3. Strengthened data-driven agricultural planning	2.3.1. Establish real-time climate intelligence platforms and decision-making tools	Malaysia	700,000
3. Institutional capacity building for localized adaptation strategies to create enabling environment for investments in Agriculture Marketing Services	3.1. Enhanced policies, frameworks and institutional capacity to invest for better climate change adaptation	3.1.1. Train government staff and farmers (especially women) on CSA and market risk management	Malaysia, the Philippines	1,850,000
		3.1.2. Develop climate adaptation and investment plans for Agricultural Marketing Services		
	3.2. Increased institutional support for climate-adaptive farming practices	3.2.1. Strengthen DA-AMIA and farmer organizations for resilience and market integration	The Philippines	300,000
	3.3. Improved policy support and investment in climate-resilient agriculture	3.3.1. Conduct policy dialogues and capacity buildings with research collaboration (e.g., Malaysian Agricultural Research and Development Institute (MARDI))	Malaysia	350,000
4. Regional knowledge platform for South-South Cooperation	4.1. Established regional platform for climate information and best practices	4.1.1. Share best practices, policy recommendations, and results via a regional knowledge hub	Malaysia, the Philippines, other relevant countries	500,000
	4.2. Enhanced regional collaboration and exchange of best practices	4.2.1. Support joint demonstrations and cooperation frameworks (e.g., Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA))		

5. 7. Project/Programme Execution cost	910,000
<b>8. Total Project/Programme Cost</b>	<b>12,410,000</b>
<b>9. Project Cycle Management Fee</b>	<b>1,241,000</b>
<b>Amount of Financing Requested</b>	<b>13,651,000</b>

### Projected Calendar:

Project Duration: 4 years (48 months)

*Table 2: Indicative milestone dates for the proposed project*

Milestones	Expected Dates
Start of Project/Programme Implementation	Q2, 2027
Mid-term Review (if planned)	Q4, 2029
Project/Programme Closing	Q2, 2031
Terminal Evaluation	Q4, 2031

## PART II: PROJECT / PROGRAMME JUSTIFICATION

### 23. Alignment with the Adaptation Fund Results Framework:

The proposed project contributes directly to four outcomes of the Adaptation Fund Results Framework, as outlined below and detailed in Table 11:

Outcome 1. The project reduces exposure to climate-related hazards by strengthening access to climate information, impact-based forecasting and risk-reduction systems that support anticipatory decision-making by smallholder rice farmers.

Outcome 2. The project strengthens institutional capacity to reduce climate-induced risks through capacity-building, coordination and planning support for national and sub national institutions involved in climate-resilient rice sector development.

Outcome 3. The project strengthens awareness and ownership of adaptation processes at local level by enabling smallholder rice farmers (including marginalized groups) to apply CSA and other appropriate adaptation practices.

Outcome 4. The project increases adaptive capacity within agricultural sector services by promoting the adoption of climate-resilient rice varieties, climate-smart farming practices and strengthened agricultural service delivery systems.

### A. Project Components

24. Target locations in the Philippines and Malaysia have been identified based on vulnerability assessments of rice farmers, supported by preliminary data collected during national level consultations. In **Malaysia**, the selected locations are in the States projected to experience significant rice productivity losses

due to climate impacts include Kedah, Pulau Pinang, and Sarawak.<sup>29,30</sup> In the **Philippines**, the four proposed target locations, Ilo Ilo, Bukidno, North Cotabato, and Nueva Ecija<sup>31</sup>, represent some of the country's major rice-producing regions that are most exposed to severe climate-related hazards. The specific characteristics and vulnerabilities of these locations are presented in Table 3 and Table 4.

*Table 3: Climate Vulnerabilities by Province in Malaysia*

Target Communities	Province	Unique Vulnerabilities	Key Impacts
Farmers in Pendang (MADA area)	Kedah	Water backflow, flooding, droughts, pests	Abandoned fields, economic losses, food insecurity
Farmers in IADA Pulau Pinang	Pulau Pinang	Soft soil, droughts, water scarcity, pests	Unharvested crops, reduced yields, financial strain
Iban ethnic farmers in Rh. Mancha, Daro	Sarawak	Droughts, pest attacks, lack of irrigation, soil issues	Crop failures, shift to other crops, loss of tradition

*Table 4: Climate Vulnerabilities by Province in the Philippines*

Target Communities	Province	Unique Vulnerabilities	Key Impacts
Farmers in Dumangas, Banate, Oton, Dingle	Iloilo	Shifted planting, increased El Niño, water scarcity, pests	Reduced yields, debt cycles, low incomes
Farmers in Kitaotao, Damulog	Bukidnon	Droughts, soil erosion, pests, low adaptive capacity	Reduced yields, economic instability
Farmers in Kabacan, Pigcawayan	North Cotabato	Frequent flooding, El Niño, water issues, pests, soil degradation	Crop failures, debt, low market prices
Non-irrigated rice farmers	Nueva Ecija	Typhoon risks, erratic weather, water scarcity, pests, soil degradation	Crop losses, debt traps, poverty

**25. Theory of Change:** The Theory of Change (ToC) for the project outlines a clear pathway to enhance climate resilience and food security among smallholder rice farmers by addressing vulnerabilities to climate hazards such as flooding, drought, rising temperatures, and pest outbreaks. The project's interventions are structured across four components that collectively drive a transformative shift in rice farming productivity and resilience.

**26. Interventions and Outcomes:** Component 1 will enhance paddy production and the resilience of farming communities to climate change (Outcome 1). This will generate co-benefits including the establishment of public-private partnerships and the diversification of production systems. Component 2 will strengthen farmers' capacity to obtain, use, and integrate climate information and intelligence (Outcome

<sup>29</sup> Malaysia Third National Communication and Second Biennial Update Report to the UNFCCC (2018). "Based on model simulations for the periods of 2030 and 2050, MADA, KADA and IADA BLS may face significant reductions in average rice yield productions over all the seasons."

<sup>30</sup> Kedah is known as Malaysia's "Rice Bowl," and produces over half of the country's rice. However, rising temperatures and irregular monsoon patterns are leading to water stress and reduced yields. Increased pest outbreaks due to changing climate conditions also threaten rice productivity. Rice cultivation in Sarawak is largely subsistence-based with shifting cultivation common among indigenous communities. Increased flooding and changing rainfall patterns have shortened the growing season and led to lower yields. Although rice farming in Pulau Pinang is less extensive compared to other states, areas like Seberang Jaya rely on irrigation for paddy cultivation. However, increasing temperatures and irregular rainfall patterns are causing water shortages and yield reduction, while rising sea levels are posing a risk of saltwater intrusion into farmlands.

<sup>31</sup> Ilo Ilo is known as the "Rice Granary of the Visayas." It has fertile plains suitable for rice cultivation. However, rising temperatures, erratic rainfall, and saltwater intrusion from rising sea levels threaten productivity. Bukidnon is a major rice and corn producer in Mindanao that benefits from highland agro-climatic conditions. However, shifting rainfall patterns and prolonged droughts due to climate change are affecting water availability for irrigation. North Cotabato is a key agricultural hub in Mindanao that has vast rice fields but is increasingly vulnerable to flooding and drought. Climate change-induced extreme weather events pose risks to both yield stability and farmer livelihoods. Nueva Ecija is known as the "Rice Granary of the Philippines," that relies on extensive irrigation systems for high rice production. However, increasing temperatures and more frequent typhoons threaten yields, requiring climate-resilient farming practices.

2). In parallel, it will support the development of data-driven agricultural planning, enabling more informed decision-making at the farm and policy levels. Component 3 will improve policies, frameworks, and institutional capacity for climate-adaptive farming practices (Outcome 3), fostering an enabling environment for investments in agricultural marketing services and promoting integrated approaches across departments and farmer organizations. Component 4 will establish a regional knowledge platform for climate information exchange and best practices sharing (Outcome 4), thereby enhancing South-South cooperation and scaling up climate resilience efforts through collaborative learning and innovation.

**27. Contribution to Climate Resilience:** Building on the integrated interventions outlined above, the project will equip farmers with resilient seed varieties, real-time climate data, and diversified income sources, the project will directly mitigate yield losses from climate hazards, as evidenced by the projected 10% yield decline per 1°C temperature rise in the Philippines. Training and institutional strengthening will ensure that adaptive capacity is embedded in local governance and farmer practices, while the regional platform will scale solutions across ASEAN, leveraging frameworks like BIMP-EAGA. These efforts can collectively help achieve the long-term impact of increased, climate-resilient rice productivity, reducing food insecurity for vulnerable communities in Malaysia and the Philippines, aligning with the Adaptation Fund's goals of transformative adaptation.

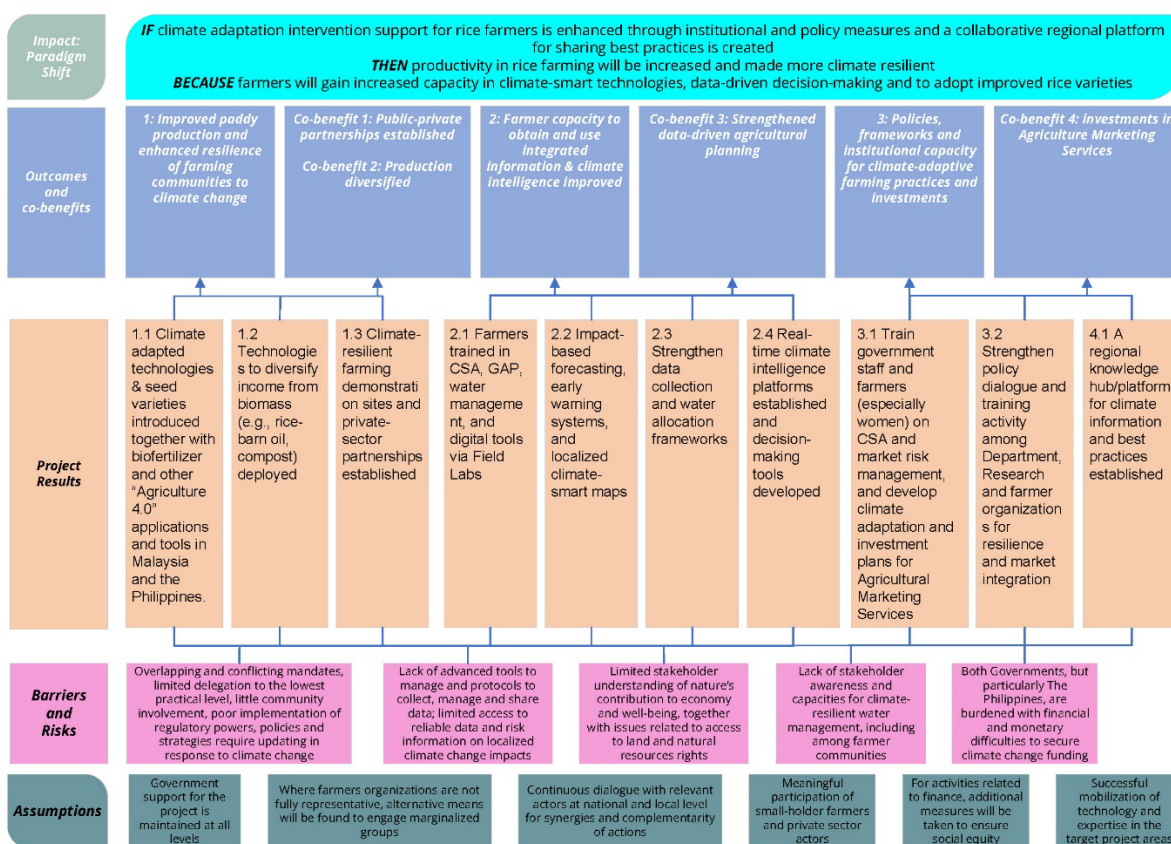


Figure 14: Project Theory of Change (ToC)

**28. Component 1.** This component aims to increase and diversify rice production while enhancing resilience among farming communities by adopting climate-smart agricultural technologies. In Malaysia, climate-resilient rice varieties and biofertilizers will be introduced alongside precision farming tools, drone technology, and digital monitoring systems to optimize rice production and adapt to climate risks. Technologies that enhance biomass utilization, such as rice-bran oil extraction and composting, will be deployed to create alternative income streams for farmers. In the Philippines, the focus will be on establishing climate-resilient farming demonstration sites in collaboration with the private sector to promote best practices in climate-smart agriculture. These sites will serve as training hubs for farmers, enabling

them to adopt advanced techniques such as sustainable water management, integrated pest management, and soil fertility enhancement.

### **Outcome 1.1. Improved paddy production and resilience to climate change**

#### ***Output 1.1.1. Climate change resistant seed varieties introduced together with biofertilizer and other “Agriculture 4.0” applications and tools in Malaysia and the Philippines.***

29. The implementation of this output will start with the selection of climate-resilient rice varieties suitable for local agro-climatic conditions in Malaysia and the Philippines, without introducing non-indigenous species. Research institutions, agricultural agencies, and private partners will support seed development, testing, and distribution, including pilot trials in Malaysia across key rice-growing regions. Biofertilizers will be introduced to improve soil health and reduce reliance on chemical inputs. Precision agriculture tools, including remote sensing, drones, and digital decision-support platforms, will support optimized water use, crop management, and pest control, complemented by farm demonstrations and targeted training.

#### ***Output 1.1.2. Deploy technologies to diversify income from biomass (e.g., rice-barn oil, compost)***

30. To enhance income opportunities and resource efficiency, scalable technologies for processing rice biomass into value-added products such as rice-bran oil and organic compost will be introduced. In Malaysia, pilot biomass processing facilities will be supported, while in the Philippines, community-based cooperatives will manage localized biomass processing units, strengthening value chain linkages and income generation.

### **Outcome 1.2. Increased adoption of climate-smart rice varieties and technologies in the Philippines**

#### ***Output 1.2.1. Establish climate-resilient farming demonstration sites and private-sector partnerships***

31. In the Philippines, climate-resilient farming demonstration sites will showcase adaptive rice varieties, efficient irrigation methods, and integrated pest management practices. These sites will serve as platforms for farmer training and adoption of climate-smart technologies, supported by digital tools and climate information services.

### **Outcome 1.3. Enhanced productivity and resilience of rice farming communities**

#### ***Output 1.3.1 Implement climate-smart cultivation techniques in key regions***

32. In Malaysia, climate-smart cultivation techniques will be implemented in key rice-growing regions to enhance productivity and resilience, including sustainable water management, precision agriculture practices, and soil fertility enhancement. Demonstration sites and targeted training will support farmer uptake, while digital tools and climate intelligence services will enable real-time farm decision-making and optimized resource use.

33. **Component 2.** This component aims to enhance farmers’ adaptive capacity and institutional decision-making by improving access to climate information, impact based forecasting and early warning systems. Farmer Climate Field Living Labs will be established in Malaysia and the Philippines to provide hand-on training in climate-smart agriculture (CSA), good agricultural practices (GAP), water management, and digital tools. In the Philippines, impact-based forecasting and early warning mechanisms, including localized climate-smart mapping, will be developed to support anticipatory action. In Malaysia, the project will strengthen climate and agricultural data collection systems, introduce water allocation frameworks, and deploy real-time climate intelligence and decision-support tools to support data-driven agricultural planning.

### **Outcome 2.1. Increased farmer capacity to adapt to climate change**

### ***Output 2.1.1. Train farmers in CSA, GAP, water management, and digital tools via Field Labs***

34. Farmer Climate Field Living Labs will serve as practical learning centers where farmers gain hands-on experience in climate-smart agriculture, efficient irrigation and the use of digital technologies for climate adaptation. Training programmes will be developed in collaboration with research institutions, agricultural agencies and private sector partners, and will integrate climate intelligence and decision-support tools to strengthen farm-level decision-making and resilience.

## **Outcome 2.2. Improved access to data and climate information for decision-making**

### ***Output 2.2.1. Develop impact-based forecasting, early warning systems, and localized climate-smart maps***

35. The project will enhance national early warning services by introducing impact-based and sub-seasonal agricultural advisories for rice farming, piloted in the Philippines. These advisories will translate climate information into actionable guidance to support anticipatory actions for floods, droughts, and extreme weather.

### ***Output 2.2.2. Strengthen data collection and water allocation frameworks***

36. To support informed decision-making, the output intends to strengthen the data collection systems by enhancing local databases through integration of climate and agricultural data and improving accessibility for farmers and institutions in Malaysia. A water accounting and allocation framework will also be introduced to ensure efficient water use in agriculture as droughts are likely to be more frequent in the future in the region<sup>32</sup>.

37. Overall, Outcome 2.2 will seek to enhance the institutional coordination by improving the flow of climate and natural resource data between regional, national, and local entities. The work under this component will be effectively prepared and coordinated during implementation with the national agencies and ASEAN and will learn from and build on regional and national initiatives like the ASEAN framework for disaster risk reduction<sup>33</sup> and CREWS<sup>34</sup> and SERVIR SEA<sup>35</sup> initiatives. This integrated approach will ensure that farmers and institutions have access to actionable climate intelligence, strengthening their resilience to climate change impacts.

## **Outcome 2.3. Strengthened data-driven agricultural planning**

### ***Output 2.3.1. Establish real-time climate intelligence platforms and decision-making tools***

38. To strengthen data-driven agricultural planning in Malaysia, the project will develop and deploy real-time climate intelligence platforms that will integrate advanced data analytics, satellite observations, and on-the-ground sensors. These platforms will provide farmers and institutions with actionable insights on weather patterns, soil conditions, and crop health, enabling informed decision-making to optimize agricultural productivity and resilience. Decision-support tools will be designed to facilitate adaptive planning, allowing stakeholders and farming communities to respond proactively to climate-related risks. Training programs and capacity-building initiatives (Component 3) will be implemented to ensure that farmers and policymakers can effectively utilize these digital tools, bridging the gap between climate data and on-farm applications.

39. **Component 3.** This component focuses on strengthening institutional capacity to support the interventions identified in Component 1 and 2. The successful implementation of climate and localized

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<sup>32</sup> Additionally, the component will improve and coordinate information flow for climate, agricultural, water resources and land use/land cover data between regional, national and local level institutions to manage impacts of climate change and climate extremes.

<sup>33</sup> Specifically, Priority Program 2, "Prevention and Mitigation" and 3, "Preparedness and Response" of the ASEAN Agreement on Disaster Management and Emergency Response Work Programme 2021-2025. <https://mneawp.asean.org/aadmer-work-programme-2021-2025>

<sup>34</sup> "Building Resilience to High-Impact Hydro-meteorological Events through Strengthening Multi-Hazard Early Warning Systems in SIDS and South East Asia" <https://crews-initiative.org/news/southeast-asia-strengthens-multi-hazard-early-warning-systems/> and later work in Cambodia and Lao PDR.

<sup>35</sup> SERVIR Southeast Asia <https://servir.adpc.net/>

adaptation strategies in agriculture will require robust institutional frameworks, coherent policies and investment mechanisms. Accordingly, this component will enhance policies, strengthen institutional frameworks, and build the technical capacity of government agencies and farmers to promote effective climate adaptation and encourage investments in agricultural marketing services.

**Outcome 3.1. Enhanced policies, frameworks and institutional capacity to invest for better climate change adaptation**

***Output 3.1.1. Train government staff and farmers (especially women) on CSA and market risk management***

40. Targeted training will be provided to district, provincial, and national government staff on climate adaptation measures, implementation procedures, and the integration of climate-smart agriculture (CSA) and good agricultural practices (GAP). The project will also strengthen the capacity of farmers, particularly women, to manage climate and market risks through training on risk diversification, sustainable resource management, and financial planning, supporting informed investment and resilience in agricultural livelihoods.

***Output 3.1.2. Develop climate adaptation and investment plans for Agricultural Marketing Services***

41. Through this output, the project will strengthen farmers' resilience by supporting development and improvement of localized climate adaptation plans and investment strategies for Agricultural Marketing Services, while ensuring alignment with national policies and private sector engagement. An Agricultural Protection Scheme will also be introduced to address residual climate risks, offering risk transfer mechanisms such as insurance and contingency funds.

**Outcome 3.2 Increased institutional support for climate-adaptive farming practices**

***Output 3.2.1. Strengthen DA-AMIA and farmer organizations for resilience and market integration***

42. To enhance institutional support for climate-adaptive farming in the Philippines, the project will strengthen DA-AMIA (Department of Agriculture – Adaptation and Mitigation Initiative in Agriculture) and farmer organizations by building their capacity in climate resilience strategies and market integration. Training programs will be conducted to improve knowledge of climate-smart practices, risk management, and financial literacy. Farmer cooperatives will be supported in accessing climate-resilient inputs, financial resources, and market opportunities. Efforts will be made to establish partnerships with the private sector and financial institutions to facilitate investment in climate-resilient rice farming, ensuring that smallholder farmers benefit from improved market access and sustainable income generation.

**Outcome 3.3. Improved policy support and investment in climate-resilient agriculture**

***Output 3.3.1. Conduct policy dialogues and training with research collaboration (e.g., Malaysian Agricultural Research and Development Institute (MARDI))***

43. The project will facilitate policy dialogues and research collaboration to enhance support for climate-resilient agriculture in Malaysia. Engagements with the ministries, Malaysian Agricultural Research and Development Institute (MARDI) and relevant agencies will be organized to develop evidence-based policy recommendations and investment strategies for climate-smart rice farming while dialogues will be carried out to bring policymakers, private sector representatives, and farmer organizations to align agricultural policies with climate adaptation goals.

44. Training programs and capacity-building workshops will also be conducted to enhance institutional knowledge of climate-smart practices, market-driven agricultural policies, and innovative financing mechanisms. Through collaboration with research institutions, the project will generate data-driven insights

to inform policy decisions, ensuring that climate resilience is mainstreamed into national and regional agricultural strategies.

45. **Component 4:** This component aims to foster collaboration and knowledge-sharing across countries by establishing a **Regional Platform for Climate Information Exchange and Transfer of Best Practices**. The platform will consolidate insights and lesson from all the project components, as well as from other similar initiatives in the region, enabling governments, research institutions, and agricultural stakeholders to access and share critical knowledge on climate resilience in rice farming. Through this platform, the project will strengthen South-South cooperation and promote the scaling up of effective adaptation solution across the ASEAN region.

46. **Added Value of South–South Cooperation:** South-South cooperation between Malaysia and the Philippines aims to strengthen agricultural resilience and sustainability in the face of climate change, in alignment with the ASEAN Action Plan for Sustainable Agriculture (Jakarta, October 2024), which identifies climate change as a major risk to regional food systems and calls for coordinated action to enhance the resilience of agri-food systems. In particular, the Action Plan prioritised strengthening climate resilient and climate smart agricultural production, promoting the development and uptake of resilient crop varieties and sustainable water management practices, enhancing regional research and technology transfer, and supporting evidence based policies and investments to safeguard food security under changing climate conditions<sup>36</sup>. Climate change is a transboundary challenge that requires coordinated regional action. Through collaboration, harmonized approaches can be developed to address shared climate impacts, such as droughts, floods, pest outbreaks and water scarcity more effectively than through isolated national efforts.

47. By sharing best practices, technologies and lessons learned, Malaysia and the Philippines can accelerate mutual learning and adopt effective solutions more rapidly. Regional cooperation enables the adaptation of successful interventions to local contexts while maintaining coherence with broader regional objectives, ensuring their relevance and sustainability across diverse agro-ecological zones. It also allows both countries to pool financial, technical, and human resources, achieving economies of scale and greater impact compared to isolated national interventions.

48. Furthermore, the partnership will facilitate joint research initiatives, data sharing, and the co-development of technologies that address common challenges and enhance climate-resilient rice production. It will also foster cross-border partnerships among governments, research institutions, NGOs, and the private sector, strengthening networks for knowledge exchange and regional policy dialogue. Ultimately, these efforts contribute to ASEAN’s goals of regional food security, resilience and economic integration, creating a unified platform for scaling up effective adaptation practise in the rice sector.

49. UNIDO will collaborate with executing entities to establish the Regional Platform for Climate Information Exchange and Transfer of Best Practices and enhance regional cooperation among participating countries. The platform will be guided by the Project Steering Committee and will involve participation from related projects funded by GEF, GCF, and other development partners in the region<sup>37</sup>. It will serve as a centralized hub for documenting and sharing best practices, policy recommendations, and project results, showcasing how lessons from adaptation initiatives can be scaled and replicated across Southeast Asia. This component will also strengthen regional cooperation and promote facilitate joint initiatives on climate resilience in the rice sector. Under this component, regional workshops and knowledge-sharing events will be organized, bringing together policymakers, researcher, farmer organizations, and private sector stakeholders to exchange ideas, share emerging challenges, and promote innovative solutions for climate smart agriculture.

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<sup>36</sup> Action Plan for Sustainable Agriculture in ASEAN. Jakarta, October 2024. [https://asean.org/wp-content/uploads/2024/11/Action-Plan-for-Sustainable-Agriculture\\_.pdf](https://asean.org/wp-content/uploads/2024/11/Action-Plan-for-Sustainable-Agriculture_.pdf)

Other relevant ASEAN policies are discussed at paragraph 81.

<sup>37</sup> For instance, GEFID10207: Building climate resilient livelihoods in vulnerable landscapes in Bangladesh (BCRL); GEFID10177: Promoting Climate-Resilient Livelihoods in Rice-Based Communities in the Tonle Sap Region; GEFID10187: Climate Smart Agriculture alternatives for upland production systems in Lao PDR; GEFID10929: Public-Private Blended Finance Facility for Climate-Resilient Rice Landscapes (Bangladesh, Cambodia, Vietnam).

#### **Outcome 4.1. Established regional platform for climate information and best practices**

##### ***Output 4.1.1. Share best practices, policy recommendations, and results via a regional knowledge hub***

50. The project will establish a regional knowledge hub to facilitate the exchange of best practices, policy recommendations, and project results between Malaysia, the Philippines, and other ASEAN countries. This platform will serve as a repository of climate-smart agricultural innovations, including adaptive rice production techniques, resilient seed varieties, and digital farming tools.

51. In Malaysia, the hub will be integrated with existing research institutions such as MARDI, enabling policymakers and farmers to access data-driven insights and successful case studies. In the Philippines, DA-AMIA and other national institutions will contribute localized knowledge and experiences from climate-resilient farming initiatives. Regular knowledge-sharing events, webinars, and regional forums will be organized to foster South-South cooperation, ensuring that lessons learned from project interventions are widely disseminated and adopted across the region.

#### **Outcome 4.2. Enhanced regional collaboration and exchange of best practices**

##### ***Output 4.2.1. Support joint demonstrations and cooperation frameworks (e.g., Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA))***

52. The project will facilitate joint demonstrations and cooperation frameworks within the Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA) to enhance regional collaboration in climate-smart rice production.

53. In Malaysia, research institutions like MARDI will lead field demonstrations showcasing adaptive rice varieties, precision agriculture technologies, and biomass utilization techniques. These demonstrations will be linked with regional knowledge exchange programs to share best practices with neighbouring countries. In the Philippines, DA-AMIA and farmer cooperatives will participate in cross-border learning initiatives, engaging with regional partners to adopt and scale up successful climate adaptation strategies.

54. Regular multi-stakeholder dialogues, workshops, and joint training sessions will strengthen institutional collaboration, fostering long-term partnerships for sustainable agricultural development across the region.

#### **B. Innovations and scalable adaptation approaches**

55. The project introduces innovation primarily through its approach to climate change adaptation in rice-based systems, emphasizing participatory learning, climate-informed decision-making and scalable processes rather than the deployment of predefined technologies. The project supports farmers, extension services, research institutions and local authorities to jointly identify, test and refine climate-resilient practices that respond to local agro-ecological conditions and climate risks. Farmer Climate Field Living Labs provide a structured space for experimentation, peer learning and feedback allowing adaptation options to evolve based on evidence from the field.

56. A further innovative element of the project lies in strengthening the practical use of climate and weather information in agricultural decision-making. The project builds on existing climate information and early warning systems and focuses on improving their relevance, accessibility and application at farm level, including for decisions related to planting calendars, water management and risk-reduction measures. Improved water-use planning and management will also be supported through coordination with relevant institutions and farmer engagement, with specific practices identified and refined through local assessment and implementation.

57. The project's approach builds on adaptation practices that have already been applied successfully in other countries: in Myanmar, participatory, farmer-led platforms were used to support rice farmers and extension staff to work together on climate adaptation at field level. Through these platforms, farmers tested different adaptation options directly on their own plots, discussed results with peers and advisors, and

adjusted practices over successive seasons. Experience from Myanmar shows that this approach helped farmers better understand climate risks, increased confidence in trying new practices and supported wider uptake of climate-resilient farming options in rice-based systems. In Bangladesh climate and weather information was translated into clear, practical farm advisories and delivered through agricultural extension services and local communication channels. These advisories guided farmer decisions on planting dates, input use and protective actions ahead of floods, cyclones and periods of heavy rainfall. Evidence from these programmes shows that when climate information is timely, easy to understand and linked to extension support, farmers are more likely to use it to reduce climate-related losses. Building on these experiences, the proposed project applies similar participatory and climate-informed approaches in rice-based systems in Malaysia and the Philippines.

58. The project’s components expected outcomes and outputs, together with their indicative financing requirements are presented in Table 1 (project log frame). Table 5 provides additional detail on proposed activities and expected impacts based on lesson learned from similar projects in Malaysia and the Philippines. Additional activity details will be elaborated at the full-proposal stage, with the final selection of site-specific interventions determined through participatory consultations involving farmers and other stakeholders.

*Table 5: Indicative activities and proposed target impacts for each expected output*

Project/Programme Components	Expected Outputs	Indicative Activity	Expected Impact
1. Medium and large-scale climate-smart agriculture technologies and practices deployed through public-private partnerships to increase and diversify production, and to build the resilience of rice farming communities	1.1.1. Climate-resilient rice varieties introduced together with biofertilizer and other “Agriculture 4.0” applications and tools in Malaysia and the Philippines.	Deploy climate-resilient rice varieties in Pendang, IADA Pulau Pinang, and Neuva Ecija.  Introduce biofertilizers to enhance soil fertility in all target locations.	Target a yield increase of at least 20% in drought-prone areas like Neuva Ecija and Pendang IADA, Pulau Pinang.  Aim for 70% of farmers in these regions to adopt these varieties within three years.  Achieve a 30% increase in soil organic matter content in Pendang IADA, Pulau Pinang.  Reduce irrigation water usage by 15% in Neuva Ecija.
	1.1.2. Deploy technologies to diversify income from biomass (e.g., rice-barn oil, compost)	Implement biomass utilization technologies in all regions to create additional income streams.	Increase household income by 15% through new biomass products.
	1.2.1. Establish climate-resilient farming demonstration sites and private-sector partnerships	Set up demonstration sites in Dumangas, Banate, Oton, Dingle, and Kitaotao to showcase climate-resilient practices.	Increase the adoption of climate-resilient practices by 40% among local farmers.
	1.3.1 Implement climate-smart agriculture techniques in key regions	Apply climate-smart agriculture techniques in Pendang and IADA Pulau Pinang to address local environmental challenges.	Achieve a 15% increase in productivity in targeted regions.

2. Strengthened integrated information & climate intelligence for farmers and institutions	2.1.1. Train farmers in CSA, GAP, water management, and digital tools via Farmer Climate Field Living Labs	Conduct training sessions in all target locations, focusing on CSA, GAP, and water management practices.	Increase knowledge scores of participants by 30% post-training.
	2.2.1. Develop impact-based forecasting, early warning systems, and localized climate-smart maps	Create localized climate-smart maps and early warning systems for farmers in Dumangas and Kitaotao.	Enhance farmers' preparedness for climate impacts, reducing crop losses by 20%.
	2.2.2. Strengthen data collection and water allocation frameworks	Enhance data collection and water allocation frameworks in Pendang and IADA Pulau Pinang.	Improve water allocation efficiency by 25%.
	2.3.1. Establish real-time climate intelligence platforms and decision-making tools	Develop real-time climate intelligence platforms in Pendang to aid decision-making for farmers.	Increase the accuracy of farming decisions by 30%.
3. Institutional capacity building for localized adaptation strategies to create enabling environment for investments in Agriculture Marketing Services	3.1.1. Train government staff and farmers (especially women) on CSA and market risk management	Provide Gender-Responsive Training and increase the participation of women and marginalized groups in training programs across all target locations.	Achieve 50% female participation in training sessions in each location. Empower 60% of women farmers with new skills in CSA and market risk management. Increase participants' knowledge scores by 30% post-training, with a focus on local agricultural practices.
	3.1.2. Develop climate adaptation and investment plans for Agricultural Marketing Services	Create and implement climate adaptation and investment plans tailored to the needs of farmers in each region.	Involve 80% of local stakeholders in planning sessions in each target area. Create and implement seven inclusive adaptation plans across the targeted regions. Increase investment in agricultural services by 20%.
	3.2.1. Strengthen DA-AMIA and farmer organizations for resilience and market integration	Support the strengthening of DA-AMIA and farmer organizations in Dumangas and Kabacan for better market integration.	Enhance market access for farmers by 30%.
	3.3.1. Conduct policy dialogues and capacity buildings with research collaboration (e.g., Malaysian Agricultural Research and Development Institute (MARDI))	Facilitate policy dialogues and capacity-building sessions with MARDI and local stakeholders in Malaysia.	Improve agricultural policies based on research collaboration, impacting 50% of local farmers.

4. Regional knowledge platform for South-South Cooperation	4.1.1. Share best practices, policy recommendations, and results via a regional knowledge hub	Establish a regional knowledge hub to share best practices and policy recommendations across all target locations.	Increase the awareness of best practices by 40% among farmers and stakeholders.
	4.2.1. Support joint demonstrations and cooperation frameworks (e.g., Brunei-Indonesia-Malaysia-Philippines East ASEAN Growth Area (BIMP-EAGA))	Promote joint demonstrations and cooperation frameworks within the BIMP-EAGA initiative to enhance regional collaboration.	Strengthen regional cooperation, leading to a 25% increase in Malaysia-Philippines collaborative projects.

59. Building on this participatory design approach, the project will tailor specific climate-smart agricultural technologies and institutional innovations to the conditions each project location. Detailed consultations with local farmers, cooperatives and extension services will confirm site-specific climate risks and ensure that adaptation measures are context-appropriate and effective. Lessons from the Philippines indicate that women are generally better educated and more respective to adopting innovations, while indigenous and young women possess unique knowledge and digital skills essential for climate-resilient agriculture<sup>38</sup>. In Malaysia, studies show that access to extension services, income and awareness about climate change strongly influence adoption decisions. These insights will inform stakeholder engagement and communication strategies, which will be refined at the full-proposal stage<sup>39</sup>. Through this inclusive, evidence-based approach, the project will generate diverse economic, environmental, and social benefits for rice-farming communities in both countries.

**C. Economic, Social, and Environmental Benefits**

60. The project is designed to generate tangible economic, social, and environmental benefits for rice-farming communities in Malaysia and the Philippines, with a strong focus on supporting the most vulnerable groups such as women, smallholder farmers, youth and marginalized populations. The design ensures that these benefits are equitably distributed through participatory approaches, gender-responsive capacity building and community-based decision-making.

61. A total of 128,817 people (24,207 women and 104,610 men) are expected to benefit from project interventions across the three target locations in Malaysia and the four in the Philippines (Tables 1a and 1b). These beneficiaries were selected based on vulnerability and potential for productivity improvement, including groups such as the Iban community in Sarawak. Benefits will be realised through Farmer’s Climate Field Living Labs, which will introduce climate-resilient rice varieties, biofertilizers, agro-forestry buffers, Agriculture 4.0 technologies, impact-based forecasting and anticipatory action mechanisms. Knowledge dissemination and replication activities will reach an additional 195,000 indirect beneficiaries in both countries. A detailed breakdown of beneficiaries per component and activity will be provided during full proposal development.

**62. Environmental benefits.** The project promotes climate-smart agricultural practices that improve soil health, enhance water-use efficiency, and reduce reliance on chemical inputs. These practices are consistent with national frameworks such as Malaysia’s *Dasar Agromakanan Negara 2.0* and *National Policy on Climate Change 2.0*, and the Philippines’ *National Climate Change Action Plan 2011-2028* and *National Adaptation Plan 2023-2050*. Expected benefits include healthier soils through organic and precision nutrient management, enhanced biodiversity from reduced agrochemical runoff, and improved water productivity through upgraded irrigation and drainage systems. Where agroforestry buffers are introduced, co-benefits such as microclimate regulation, carbon sequestration, biodiversity enhancement, and the social value of fuelwood and fruit trees are anticipated. By linking the Living Labs to government entities and farmers’ self-

38 GCF-FAO Project “Adapting Philippine Agriculture to Climate Change”, Annex 8, Gender Assessment, page 9 <https://www.greenclimate.fund/sites/default/files/document/fp201-gender-assessment.pdf>  
39 Afroz, R. and Akhtar, R. 2017. Determinants of Malaysian Farmers’ Choice of Adaptation Strategies for Adapting to Climate Change in Kedah Malaysia. *Asian Journal of Agricultural Research*. <https://socialert.net/fulltext/?doi=ajar.2017.120.127>

help groups, the project will strengthen local ownership and institutional trust, reducing the risk of maladaptation. The precise quantification of these environmental gains, including potential reductions in GHG emissions from improved rice cultivation techniques (as referenced by IRRI and Philippine national counterparts during consultations, supported by Kathibi et al., 2024), will be assessed at the full-proposal stage once site-specific baselines are available. Preliminary estimates based on comparable projects suggest potential emission reductions of 10–20% from improved rice cultivation techniques, pending site-specific validation.

**63. Economic benefits.** The project will enhance the livelihoods and financial security of smallholder rice farmers by increasing productivity, stabilising yields, and diversifying income-generating activities. The adoption of climate-resilient rice varieties, precision farming, and optimised water management is expected to improve yields, particularly in lower-productivity areas such as Iloilo and Bukidnon in the Philippines. The project will also promote value-addition opportunities such as rice-bran oil and biomass utilisation, creating new markets and jobs. Strengthened institutional capacity and access to climate finance will help farming communities transition into more competitive and resilient value chains. These improvements align with Malaysia's *Twelfth Malaysia Plan (2021–2025)* and the Philippines' *Masagana Rice Industry Development Program (MARDIP)*. Indicative economic benefits are presented in **Table 6**, with detailed cost-effectiveness analysis to be completed at the full-proposal stage.

**64. Social Benefits.** The project will take an inclusive and community-driven approach by prioritizing the needs of women, youth, and marginalized farming communities. Communities that play a critical role in rice production will benefit from targeted training programmes that strengthen their role in decision-making, climate adaptation, and market integration. The project will support gender-responsive adaptation strategies to ensure that women farmers have equitable access to resources, information, and financial support. Hands-on training will be provided through the Farmers' Climate Field Living Labs, which will serve as platforms for learning, knowledge-sharing, and participatory planning to strengthen community resilience. Farmers will be selected as representatives in the Living Labs through a project-managed voting system that includes quotas for women and marginalized groups, ensuring that participation and decision-making are inclusive and transparent. The project will also address food security by helping vulnerable populations secure stable access to nutritious food, thereby improving nutrition and health outcomes, particularly for youth and children.

65. Beyond training, the project will enhance the resilience of women, youth, and marginalized farming communities by promoting equitable access to climate-resilient rice varieties, biofertilizers, and digital tools through gender-responsive strategies (Component 3, Output 3.1.1). These actions will help overcome barriers such as limited resource ownership and access to information. Youth will be engaged in agribusiness, entrepreneurship, and technology adoption, including opportunities in value-added products such as rice-bran oil (Component 1, Output 1.1.2). The project will also provide leadership opportunities for women and marginalized groups to contribute to localized adaptation plans (Output 3.1.2) and participate in regional knowledge-sharing platforms (Component 4, Output 4.2.1). Youth will have the opportunity to advocate for climate-smart practices within the *BIMP-EAGA* framework, strengthening regional cooperation and the exchange of adaptation experience. By embedding gender-responsive and socially inclusive approaches within project implementation, the project ensures that resilience, food security, and livelihood benefits are shared fairly among different social groups and across the participating regions. Details on these inclusion mechanisms will be further developed during the full-proposal stage in consultation with stakeholders, ensuring that benefits such as improved yields, income opportunities, and access to climate information are equitably distributed across gender, age, and social groups.

66. In summary, the project delivers complementary economic, environmental, and social benefits that together enhance climate resilience and food security in both countries. The integration of gender, youth, and social inclusion perspectives ensures inclusive participation and equitable access to project benefits. Further quantification of these benefits, supported by baseline studies and stakeholder validation, will be provided during the full-proposal formulation.

#### **D. Cost-effectiveness and regional value added**

67. The project, with a budget of \$13.65 million, demonstrates cost-effectiveness by integrating climate-smart agricultural technologies, capacity building and regional cooperation to maximize adaptation impact while optimizing resource allocation. The project's design targets climate-induced vulnerabilities in rice farming, such as flooding, droughts and temperature increases, through high-impact, scalable interventions that reduce long-term costs associated with climate shocks.

68. By focusing on climate-resilient rice varieties, biofertilizers, precision farming tools, and water management practices and decision-support tools (Component 1, \$5 million), the project will enhance productivity and reduce crop losses, which are critical given the projected 10% yield decline per 1°C temperature rise in the Philippines and up to 60% yield reductions from early-season droughts and floods in Malaysia. These technologies lower operational costs for farmers by reducing reliance on chemical inputs and improving resource efficiency, ensuring sustained economic benefits. The establishment of Farmer Climate Field Living Labs (Component 2, \$3.5 million) will allow farmers to test and adapt these innovations, minimizing the risk of costly maladaptation and ensuring scalable, locally relevant solutions. The project will further enhance cost-effectiveness through strengthened climate intelligence and early warning systems (Component 2), which will enable anticipatory action to mitigate losses from extreme weather events. Impact-based forecasting and water allocation frameworks will reduce financial impacts of floods and droughts, saving farmers and local governments from recurring recovery costs. Institutional capacity building (Component 3, \$2.5 million) therefore, ensuring that adaptation strategies are embedded in national policies, reducing the need for future external funding by fostering self-sustaining agricultural systems.

69. The focus on training, particularly for women and marginalized groups, will also enhance social inclusion, amplifying economic returns by empowering under-resourced farmers to contribute to resilient value chains. Similarly, the regional approach will significantly bolster cost-effectiveness by leveraging shared expertise and harmonizing adaptation strategies across Malaysia and the Philippines through a Regional Knowledge Platform (Component 4, \$500,000). This platform will facilitate the exchange of best practices, such as climate-resilient rice varieties and biomass utilization techniques, reducing research and development costs by avoiding duplication. For example, Malaysia's expertise in precision farming can benefit the Philippines, while the Philippines' experience with flood-tolerant rice varieties can inform Malaysia's strategies. Joint demonstrations within the BIMP-EAGA framework and collaboration with GEF/GCF-funded projects will ensure that resources are pooled, and successful models are scaled across ASEAN, maximizing impact per dollar spent.

70. The regional collaboration proposed in this project facilitates the sharing of knowledge and best practices, reducing the need for each country to develop its own training programs or research initiatives from scratch. Through this cooperation, countries can learn from each other's successes and challenges, resulting in more effective implementation of adaptation strategies. Collaborative research will foster innovations that benefit both Malaysia and the Philippines, enhancing the overall effectiveness of interventions. In addition, regional data collection systems and climate-intelligence platforms are more cost-effective than establishing separate systems in each country. A regional approach also enables the development of coherent policies that support climate-smart agriculture across borders, making it easier for farmers to adopt new practices. The common elements in the NDCs and adaptation plans of Malaysia and the Philippines—such as improved waste management and sustainable land use—underscore the value of this cooperation. A unified policy and regulatory framework can further promote regional marketing and strengthen supply chains. By establishing common metrics for success and a shared monitoring and evaluation framework, the project will improve accountability, mutual learning, and overall cost-effectiveness.

71. Table 6 below presents indicative costs and expected economic benefits of the proposed interventions, illustrating the project's overall cost-effectiveness. Detailed cost-benefit analysis will be refined during the full-proposal stage.

*Table 6: Indicative cost and economic benefit of the project*

All values are indicative estimates. They will be validated and refined at the full-proposal stage once site-specific baselines are available.

Project Component	Business-as-Usual Scenario	Scenario with Proposed Project Interventions	Cost (USD)	Project-wide Estimated Beneficiaries
1. Medium and large-scale climate-smart agriculture technologies and practices deployed through public-private partnerships to increase and diversify production, and to build the resilience of rice farming communities	Malaysia Yield 5.03 t/ha Annual production 639,602 tonnes	Malaysia Yield 6.0 t/ha Annual production 735,543 t	5,000,000	
	Philippines Yield 3.8 t/ha Annual production 389,000 tonnes	Philippines Yield 4.4 t/ha Annual production 450,000 t		
	No income from biomass waste	Malaysia Biomass income/farmer USD180 Total income USD9,975,000		
		Philippines Biomass income/farmer USD150 Total income USD11,010,000		
2. Strengthened integrated information & climate intelligence for farmers and institutions	Average annual yield loss in Malaysia 1.5 t/ha	Average annual yield loss in Malaysia 1.2 t/ha	3,500,000	
	Average annual yield loss in the Philippines 1.7 t/ha	Average annual yield loss in the Philippines 1.4 t/ha		
3. Institutional capacity building for localized adaptation strategies to create enabling environment for investments in Agriculture Marketing Services	Malaysia: Women farmer's average income: USD 900/annum	Malaysia: Women farmer's average income: USD 1080/annum Benefit of women's training USD 1,714,800	2,500,000	Malaysia 55,419 (45,892 M 9,527 F)  Philippines 73,398 (58,718 M 14,680 F)
	Philippines: Women farmer's average income: USD 800/annum	Philippines: Women farmer's average income: USD 9600/annum Benefit of women's training USD 2,348,800		
	Malaysia: Market access and production both limit income	Malaysia: Market access is improved by 30%. Production improved and losses reduced		

		by Components 1 & 2. Farmer's income is increased to USD 2000 Total beneficiary income is USD 56,428,000		
	Philippines: Market access and production both limit income	Philippines: Market access is improved by 30% Production improved and losses reduced by Components 1 & 2. Farmer's income is increased to USD 1350 Total beneficiary income is USD 42,152,000		
4. Regional knowledge platform for South-South Cooperation	Limited awareness of best practices among farmers and stakeholders	Awareness of best practices among farmers and stakeholders increased by 40%	500,000	
	Few collaborative projects	A 25% increase in Malaysia-Philippines collaborative projects.		

**E. Project consistency with national or sub-national sustainable development strategies**

72. The project aligns well with national and sub-national sustainable development strategies, climate action plans, and food security policies in both Malaysia and the Philippines. Given the significance of rice farming in Malaysia and the Philippines, this project will be able to directly support national objectives related to climate adaptation, poverty reduction, and agricultural resilience. In Malaysia, the project aligns well with the Malaysia National Adaptation Plan (MyNAP) (2023–2026)<sup>40</sup>, which highlights agriculture and food security as priority areas for climate resilience. The project's focus on climate-smart agriculture, improved water-management practices and efficient use of existing irrigation systems, and early warning systems will contribute to Malaysia's broader national strategy of enhancing agricultural sustainability in view of climate change. Moreover, Malaysia's Climate Change Adaptation Framework for Water Sectors (2021) recognizes the urgent need for innovations in agricultural water management, which the project will support through improved water-accounting approaches and allocation decision tools for rice farmers.

73. For the Philippines, the project aligns appropriately with the Philippines Rice Industry Roadmap 2030<sup>41</sup>, which aims to enhance rice productivity, reduce post-harvest losses, and improve climate adaptation strategies in the rice sector. The project's efforts to introduce climate-resilient rice varieties, improve irrigation efficiency, and strengthen early warning systems would contribute to these national goals. Further, the Philippines is ranked 10th in the Global Climate Risk Index as the country most affected by extreme weather events in the last 30 years including rising temperatures, and shifting rainfall patterns, all of which poses a significant threat to rice production<sup>42</sup>. The project will also directly support the Philippine

<sup>40</sup> <https://napglobalnetwork.org/2025/01/malaysia-sets-course-enhance-resilience-formulation-inclusive-nap/>  
<sup>41</sup> <https://www.philrice.gov.ph/wp-content/uploads/2018/09/The-Philippine-Rice-Industry-Roadmap-2030.pdf>  
<sup>42</sup> <https://www.germanwatch.org/sites/default/files/2025-02/Climate%20Risk%20Index%202025.pdf>

Development Plan (PDP) (2023-2028)<sup>43</sup> that prioritizes climate resilience in agriculture and disaster risk reduction strategies which can be well achieved by integrating impact-based forecasting and warning (IbFW), anticipatory action mechanisms, and climate-smart extension services. The project will ensure that institutional and technological capacity needed to safeguard the country's food security is strengthened.

74. The Nationally Determined Contributions and National Adaptation Plans for Malaysia and the Philippines are presented in Table 7.

*Table 7: Nationally Determined Contributions and National Adaptation Plans*

Country	NDC Target	NDC Policy and planning framework
Malaysia	<p>A 45% reduction in economy-wide carbon intensity against GDP by 2030 compared to 2005 levels. The Long-term goal is to achieve net-zero greenhouse gas emissions by 2050.</p> <p>Sectoral contributions are: i) transition to renewable energy sources, ii) Promotion of public transport and electric vehicles, iii) improved waste management practices, and iv) enhancing forest cover and sustainable land use. Adaptation measures emphasise climate-resilient infrastructure and disaster risk reduction.</p> <p>Engagement in global climate initiatives and partnerships is encouraged.</p>	<p>The National Climate Change Policy 2.0 (2024) guides the transition to a low-carbon economy and encompasses various climate initiatives.</p> <p>The National Climate Change Adaptation Plan outlines strategies for enhancing resilience to climate impacts, with a focus on ensuring sustainable water management, enhancing agricultural resilience, addressing health impacts related to climate change, and protecting ecosystems and natural resources.</p> <p>Malaysia's 11<sup>th</sup>, 12<sup>th</sup> and coming 13<sup>th</sup> Malaysia Plans incorporate climate change strategies.</p> <p>The Energy Efficiency and Conservation Act and the Renewable Energy Act aim to reduce emissions.</p> <p>The forest policy aims at sustainable forest resources, including a target of 50% forest cover.</p> <p>The National Green Technology Policy promotes green technology.</p>
The Philippines	<p>A 75% reduction and avoidance of emissions by 2030, with 2.71% being unconditional and 72.29% conditional. The commitments include agriculture, waste, industry, transport, and energy sectors. An update is in progress with a target of September 2025.</p> <p>Sectoral contributions are: i) transition to renewable energy and energy efficiency, ii) sustainable transport systems, iii) climate-smart agricultural practices, and iv) enhanced waste management strategies.</p> <p>A monitoring and reporting framework is established.</p> <p>Local communities and stakeholders will be involved in implementation.</p>	<p>The Climate Change Act of 2009, which created the Climate Change Commission and specified development of the National Climate Change Action Plan for 2011-2028 (NCCAP) guides climate actions.</p> <p>The Philippine Development Plan integrates climate change considerations into national development planning.</p> <p>The Local Government Code empowers local government units (LGUs) to implement climate actions.</p> <p>The Philippine Energy Plan outlines the country's energy transition towards renewable sources.</p> <p>The National Disaster Risk Reduction and Management Plan focuses DRR on climate change impacts.</p> <p>The impacts of climate change on women are recognised in the NCCAP, and by The Philippine Commission on Women.</p>
	<b>Adaptation planning</b>	
Malaysia	<p>The National Adaptation Plan is under development with GCF funding. It is expected to be completed in 2026. The Plan will address resource and environmental management and infrastructure development, as well as DRR.</p> <p>The Solid Waste Management and Public Cleansing Act 2007 aims to improve waste management practices by waste segregation, diversion from landfill, and extended producer responsibility.</p>	

<sup>43</sup> <https://pdp.neda.gov.ph/wp-content/uploads/2023/01/PDP-2023-2028.pdf>

Country	NDC Target	NDC Policy and planning framework
The Philippines	The National Adaptation Plan will build climate resilience by outlining strategic actions to minimize climate risks and integrate adaptation into national and local development planning. It aims to improve water security, increase agricultural resilience and food security, and protect and restore ecosystems. Training and resources for local governments and communities are planned to increase capacity.	The Ecological Solid Waste Management Act of 2000 targets 35% recycling by 2025 through community-based programs, waste-to-energy projects, and plastic waste reduction.

75. The project is aligned with relevant regional and global policy frameworks that support climate resilience, sustainable agriculture, and partnerships for adaptation. At the regional level, it is consistent with ASEAN priorities on climate-smart agriculture and food security, including the ASEAN Climate Resilience Network, the Action Plan for Sustainable Agriculture in ASEAN, and the ASEAN Guidelines on Promoting Climate-Smart Agriculture Practices. At the global level, the project contributes to the objectives of the Sustainable Development Goals, particularly SDGs 2, 13, and 17, and is aligned with the principles of the Paris Agreement.

**F. Alignment with National Technical Standards and the Adaptation Fund’s Environmental and Social Policy**

76. The project will fully align with relevant national technical standards and regulatory frameworks governing environmental protection, agricultural sustainability, and climate adaptation in both countries. As the project focuses on climate-smart agriculture, improved water-management practices, and the use of digital and decision-support tools, it will comply with Malaysia’s and the Philippines’ environmental and agricultural regulations, as well as international best practices. In Malaysia, the project will be guided by the Environmental Quality Act (1974), ensuring that any project interventions are consistent with national environmental safeguards. Similarly, in the Philippines, implementation will align with the Environmental Impact Statement (EIS) System under Presidential Decree No. 1586, ensuring appropriate consideration of environmental risk management and mitigation.

77. The project will also comply with national agricultural standards and food security regulations to ensure that climate-resilient farming practices, water-management approaches, and digital agriculture solutions meet approved safety and quality benchmarks. In Malaysia, this includes alignment with the National Agro-Food Policy (NAP) 2021–2030, which promotes sustainable agricultural production, efficient water use, and ecosystem-based adaptation. In the Philippines, the project aligns with the Philippine Rice Industry Roadmap 2030, which sets technical guidelines for climate-resilient rice farming, seed certification, and sustainable land use. The introduction of drought- and flood-tolerant rice varieties, biofertilizers, and precision agriculture tools will be guided by national agricultural research institutions to ensure technical quality and environmental soundness.

78. While the project does not include construction or upgrading of physical infrastructure, it will ensure compliance with relevant technical standards when supporting improvements in the use, operation, and management of existing irrigation and water-allocation systems, and when deploying digital forecasting, monitoring, and early warning tools. In Malaysia, this will involve collaboration with the Department of Irrigation and Drainage (DID) and adherence to applicable technical guidelines. In the Philippines, coordination with the National Irrigation Administration (NIA) will ensure alignment with established operational protocols. The project’s impact-based forecasting and early warning systems (EWS) will comply with World Meteorological Organization (WMO) guidance for Multi-Hazard Early Warning Systems to ensure accurate, timely, and actionable information.

Table 8: National technical standards, regulations and project compliance measures (Malaysia & Philippines)

Standard	Malaysia - Key Regulations/Policies	Philippines - Key Regulations	Project Compliance Measures
<b>Environmental Impact Assessment (EIA) and Spatial / Land-Use Planning</b>	<ul style="list-style-type: none"> <li>• <i>Environmental Quality Act 1974 (am. 2009)</i> • <i>EIA (Preparation, Submission &amp; Review) Guidelines 2009 (re-issued 2022)</i> • <i>Town and Country Planning Act 1976</i> • <i>National Physical Plan 2030 (2019)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Environmental Impact Statement (EIS) System, PD 1586 (1978; am. 1990, 1999, 2008)</i> • <i>Executive Order 79 EIA System (1991; am. 2003, 2015)</i> • <i>DENR Administrative Orders on EIA procedures</i></li> </ul>	<p>The project will ensure that all activities comply with national and local EIA and spatial planning requirements. Environmental and social screening will be carried out during full project formulation and prior to implementation to identify potential impacts and determine whether any assessments or permits are required. Where applicable, required documentation and approvals will be prepared in coordination with the competent authorities and stakeholder consultations will be conducted in line with national procedures. Project activities will be implemented only in locations consistent with approved land use and special plans.</p>
<b>Water Use, Irrigation and Quality Regulations</b>	<ul style="list-style-type: none"> <li>• <i>National Water Resources Act 2013 (am. 2020)</i> • <i>Irrigation Act 1967 (re-enacted 2002)</i> • <i>Water Supply (Regulation) 1993 (am. 2015)</i> • <i>Water Services Industry Act 2006 (am. 2019)</i> • <i>State Water Management Orders (e.g., Kedah 2019)</i> • <i>Agricultural Water Management Guidelines (2021)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Water Code, PD 1067 (1976; am. 1995, 2002)</i> • <i>Irrigation Code (EO 165) (1995; am. 2003, 2012)</i> • <i>NWRB Water Permit System</i> • <i>Clean Water Act, RA 9275 (2004; am. 2019)</i></li> </ul>	<p>The project will ensure that all water-related activities comply with national water use, irrigation, and water quality regulations. Activities will focus on climate-smart water management practices, advisory services, and capacity building, and will not involve large-scale water abstraction or construction of new irrigation infrastructure. During full project formulation and prior to implementation, coordination will be undertaken with relevant water authorities to confirm that proposed practices and demonstrations are consistent with national guidelines and do not adversely affect water availability, water quality, or downstream users. .</p>
<b>Agricultural Inputs and Standards (Fertilizers, Pesticides, Seeds, Bio-inputs, IPM, Organic Agriculture)</b>	<ul style="list-style-type: none"> <li>• <i>Pesticides Act 1974</i> • <i>Agricultural Chemicals Act 1976 (am. 2005, 2018)</i> • <i>Fertiliser (Control) Regulations 2005 (am. 2020)</i> • <i>Seed Act 1976 (am. 2015)</i> • <i>Integrated Pest Management Guidelines (2020; upd. 2023)</i> • <i>National Agro-Input Quality Assurance Programme</i> • <i>National Agro-Food Policy 2023-2028</i> • <i>Strategic Plan for Sustainable Agriculture 2022-2027</i> • <i>Green Technology Financing Scheme (2020-2025)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Fertilizer and Pesticide Authority (FPA) regulations (2023)</i> • <i>Organic Agriculture Act, RA 10068 (2010; am. 2021)</i> • <i>DENR AO 2010-13 - IPM in Agriculture</i> • <i>DA Circular 2020-001 - IPM for Rice (2020; upd. 2023)</i> • <i>DA Circular 2019-018 - Seed Certification (2019)</i> • <i>Philippine Codex Alimentarius - MRLs (2018)</i> • <i>Clean</i></li> </ul>	<p>The project will apply only certified agricultural inputs and promote Integrated Pest Management in accordance with national standards. Farmer training will cover safe handling, storage, and application of inputs and biofertilizers. All demonstrations will follow national regulations for fertilizers, pesticides, and organic production.</p>

		<i>Air Act, RA 8749 (1999; am. 2008)</i>	
<b>Climate Change Adaptation, Disaster Risk Reduction and Sector Policies</b>	<ul style="list-style-type: none"> <li>• <i>National Policy on Climate Change (2009; re-affirmed 2022)</i></li> <li>• <i>National Adaptation Plan - Climate-Resilient Agriculture (2015; rev. 2021)</i></li> <li>• <i>Malaysia Climate Change Action Plan 2021–2030</i></li> <li>• <i>National Disaster Management Plan (2018; upd. 2022)</i></li> <li>• <i>State Climate Strategies (e.g., Kedah 2020)</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Climate Change Act, RA 9729 (2009)</i></li> <li>• <i>National Climate Change Action Plan (NCCAP) (2011-2028; upd. 2022)</i></li> <li>• <i>Executive Order 133 (2012; am. 2020)</i></li> <li>• <i>National Adaptation Plan - Agriculture &amp; Food Security (2015; rev. 2021)</i></li> <li>• <i>Philippine Development Plan 2023–2028 (2022)</i></li> <li>• <i>CSA Framework (2018; upd. 2023)</i></li> <li>• <i>Regional CC Action Plans 2017-2022</i></li> <li>• <i>DRRM Act, RA 10121 (2010; am. 2022)</i></li> </ul>	The project will align fully with national climate change and DRR policies and sector strategies.. Project design and implementation will be coordinated with relevant national and local institutions to ensure alignment with existing adaptation priorities, climate information systems, and reporting frameworks. Training, climate intelligence, and climate-smart agriculture activities will be implemented in a manner that complements existing government programmes and avoids duplication.
<b>Biodiversity Conservation, Forestry and Protected Areas</b>	<ul style="list-style-type: none"> <li>• <i>Wildlife Conservation Act 2010 (am. 2021)</i></li> <li>• <i>National Biodiversity Policy</i></li> <li>• <i>National Forestry Act 1992 (am. 2019)</i></li> <li>• <i>National Parks Act 1980 (am. 2018)</i></li> <li>• <i>Riverine and Wetland Conservation Regulations (1974 / 2020 / 2030)</i></li> <li>• <i>State Enactments (e.g., Kedah Wetland Ordinance 2017)</i></li> <li>• <i>Ramsar Convention implementation</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>RA 9147 – Wildlife Resources Conservation and Protection Act</i></li> <li>• <i>RA 7586 – NIPAS Act and RA 11038 - E-NIPAS (2018/2020)</i></li> <li>• <i>PD 705 - Philippine Forestry Code</i></li> <li>• <i>EO 79 (2015) - Wildlife Protection IRR</i></li> </ul>	The project will ensure that activities are implemented in accordance with national biodiversity, forestry, and protected area regulations. Project sites will be screened during full project formulation and prior to implementation to avoid protected areas, critical habitats, and other environmentally sensitive locations. Where relevant, mitigation measures such as reduced use of hazardous agrochemicals and promotion of biodiversity-friendly farming practices will be applied in line with national conservation policies.
<b>Land-Use Planning and Local Development Regulations</b>	<ul style="list-style-type: none"> <li>• <i>Town and Country Planning Act 1976</i></li> <li>• <i>National Physical Plan 2030 (2019)</i></li> <li>• <i>Local planning authority regulations</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Local Government Code, RA 7160 (1991)</i></li> <li>• <i>LGU zoning ordinances and Comprehensive Land-Use Plans (CLUPs)</i></li> </ul>	The project will ensure that all activities comply with applicable local land-use plans, zoning ordinances and development regulations. Project sites will be selected in coordination with relevant local authorities to confirm consistency with approved land-use and development plans. Where required, local approvals will be obtained prior to implementation, and project activities will be designed to avoid land-use conflicts and align with local development priorities.
<b>Occupational Health and Safety (OHS)</b>	<ul style="list-style-type: none"> <li>• <i>Occupational Safety and Health Act 1994</i></li> </ul>	<ul style="list-style-type: none"> <li>• <i>Occupational Safety and Health Standards (OSHS)</i></li> </ul>	The project will comply with national OHS requirements across all project activities. Appropriate safety measures will be applied during trainings, field demonstrations and any operation of small scale equipment, including the use of personal protective equipment, safety briefings and supervision. Project staff, partners and participants will

			follow applicable safety procedures to minimize health and accident risks.
<b>Data Protection and Privacy (digital tools, climate platforms)</b>	• <i>Personal Data Protection Act 2010</i>	• <i>Data Privacy Act 2012</i>	The project will handle all personal and farmer data in compliance with national data protection laws, ensuring informed consent, secure storage, and restricted access in digital platforms.

**79. Implementation strategies for compliance and safeguards:**

To ensure alignment with the national technical standards listed above and the Adaptation Fund ESP, the project will apply the following implementation strategies:

- Conduct an Environmental Impact Assessments that includes Biodiversity Impact Assessments covering wildlife, water quality, and habitat connectivity
- Develop a Water Use and Water Quality Management Plan
- Adopt Integrated Pest Management
- Stakeholder Engagement: Regular consultations with local communities, government agencies, and stakeholders in free, prior, and informed consent will ensure that all standards are understood and adhered to.
- Secure any necessary permits related to pilot activities or field demonstration plots, where applicable.
- Training and Capacity Building: Providing training for farmers and local authorities on compliance with these standards will enhance understanding and implementation.
- Monitoring and Reporting: Establishing a monitoring framework to regularly assess compliance with all applicable standards, including water use and water quality parameters, production quality, biodiversity indicators (e.g., presence of key bird species) with periodic reporting to relevant authorities.

80. In line with the ESP of the Adaptation Fund, the project will conduct a comprehensive environmental and social risk assessment during the implementation phase. Potential risks including land degradation, water resource conflicts, and unintended socio-economic impacts will be identified, monitored, and mitigated through participatory stakeholder engagement. The project will follow the IPCC AR6 framework to avoid maladaptation, ensuring that adaptation measures provide human, ecosystem, and mitigation co-benefits. Special attention will be given to gender and social inclusion side, ensuring that women, vulnerable communities, and smallholder farmers have equal access to resources, training, and decision-making opportunities. The project will also fully align with relevant international and national standards such as food safety standards in Malaysia and the Philippines.

**G. Duplication of project with other funding sources**

81. The proposed project is designed to complement existing climate adaptation initiatives in Malaysia and the Philippines and to avoid duplication with other funding sources. It is consistent with national adaptation priorities, including Malaysia’s National Adaptation Plan (MyNAP) and the Philippines’ national climate policy framework, which emphasize climate-resilient agriculture and food security. Potential overlap has been screened by comparing the proposed project’s target locations and beneficiaries and its main intervention packages against relevant Adaptation Fund, GCF, GEF, ASEAN and government-led programmes. Table 9 provides the resulting portfolio map and summarizes, project-by-project, the basis for complementarity (e.g. different locations, different target groups, or different intervention focus). In the next stage of project preparation and during implementation, additional stakeholder consultations will be carried out to validate the final selection of sites and activities, confirm any ongoing initiatives on the ground, and adjust workplans as needed so that activities complement (and do not replicate) existing support.

Table 9 List of programmes/projects with potential duplication or complementarity

Category	Project name	Description/ Main interventions	Timeline	Target population	Location(s)	Funding source/Lead/Support	Complementarity and Synergy (how duplication is avoided)
<b>Regional Initiatives</b>	ASEAN Climate Resilience Network (ASEAN-CRN)	Regional platform promoting climate-smart agriculture and policy harmonization among ASEAN members.	2014-ongoing	ASEAN policymakers and research institutes	Regional (ASEAN)	ASEAN-CRN (interim secretariat at Mekong Institute); supported by partners incl. GIZ/FAO	The proposed project will not duplicate ASEAN-CRN, which is a regional policy/knowledge coordination platform and does not finance or deliver site level adaptation investments in the target areas. The project will not undertake regional policy harmonization or create a parallel platform; it will focus on Malaysia- and Philippines-based rice CSA implementation. Where feasible the project may share implementation lessons and ensure outputs are consistent with relevant ASEAN-CRN materials. Duplication will be avoided through inception mapping and stakeholder consultations to align knowledge products and ensure they build on rather than replicate existing regional resources.
	ASEAN-CGIAR Innovate for Food and Nutrition Security Regional Program	Regional R4D/innovation program to develop and scale solutions for climate resilient, sustainable and inclusive agri-food systems across ASEAN (structured around multiple thematic intervention packages)	2023-ongoing	ASEAN agri-food system stakeholders	Regional (ASEAN)	ASEAN Secretariat and ASEAN Member States in partnership with CGIAR	ASEAN-CGIAR is a program focused on regional coordination, evidence generation and tool development, not site level delivery in the proposed target areas. The project will avoid duplication by not producing ASEAN-wide guidance, regional toolkits or generic CSA training materials that are already being developed under ASEAN CGIAR Intervention Packages. Any knowledge outputs from this project will be limited to site specific implementation lessons and results from Malaysia and the Philippines and will refer to existing regional resources where relevant.
<b>Malaysia</b>	Smart Sawah Berskala Besar (Smart SBB)	Introduces high-yield rice varieties, drone-based fertilization, and mechanization to boost yields.	2021-ongoing	Large-scale rice farmers	Perlis, Terengganu, Pahang	Government of Malaysia (Ministry of Agriculture & Food Security)	Smart SBB is an MoAFS-led programme that supports paddy intensification/modernization mainly through mechanization and other technology-based approaches for large scale cluster farming. This project works with smallholder rice farmers in

							Kedah, Pulau Pinang and Sarawak and focuses on CSA and climate-adaptation measures (biofertilizer's and resilience practices). Duplication is avoided because the project is targeting a different farmer group and is investing in Smart SBB-type mechanization or service packages.
	Strengthening capacities to increase resilience with the formulation of an inclusive National Adaptation Plan (MyNAP) for Malaysia	GCF readiness support to develop Malaysia's inclusive NAP and strengthen national adaptation planning processes across sectors	Approved 22 Aug 2024	National stakeholders involved in adaptation planning (government and related sector actors)	Malaysia (national)	GCF (Readiness); GIZ	MyNAP is national adaptation planning (policies, processes, priorities) not field delivery. This project is site level rice CSA implementation. Duplication is avoided because the project is not producing a second NAP/planning process instead, project design and lessons can feed into national adaptation planning where relevant (practical rice adaptation experience from the target states).
<b>Philippines</b>	Adapting Philippine Agriculture to Climate Change (APA)	Strengthens climate services, farmer training, and risk-informed decision-making for agriculture	2024-ongoing	1,250,000 direct beneficiaries (farming household members)	Cagayan, Isabela, Apayao, Ifugao, Kalinga, Camarines Norte, Camarines Sur, Bukidnon, North Cotabato	GCF, FAO	The GCF APA project already supports climate information services and broader climate-resilient agriculture in its target provinces (including North Cotabato and Bukidnon). This project complements this by keeping the climate services work rice specific and site level linked directly to CSA adoption support. Duplication is avoided because the project is not setting up a parallel CIS/EWS platform or duplicating province wide systems. Project's outputs are limited to rice farmer decision support in the project sites and are designed to build on existing institutional information where available.

	National Organic Agriculture Program (NOAP)	NOAP is a nationwide DA programme that promotes organic agriculture, including support for organic inputs/soil health management and organic systems/certification	2010/2011—ongoing	Smallholder farmers	Nationwide	Department of Agriculture (DA)	The proposed project complements NOAP by promoting biofertilizers/organic inputs as part of a rice-specific CSA and climate adaptation package through training and field demos in the target sites. Duplication is avoided because the proposed project does not implement NOAP's nationwide organic certification and regulatory functions. Support is limited to rice adaptation relevant practices within the project scope.
	Transforming Rice Farming through Low-Carbon Solutions (RSBH)	Pilots rice straw vaporization and low-carbon solutions in rice systems, including biogas-based options and related circular approaches.	2022-2025	Rice value chain actors	Philippines (incl. Laguna and Nueva Ecija)	Innovate UK, SEARCA	RSBH piloted rice straw management/valorization solutions, including a biogas hub approach, as a low-carbon option in rice systems. The proposed project complements this by supporting rice system climate adaptation (including biomass-use options) in its target sites. Duplication is avoided by not replicating the RSBH hub model or investments. RSBH will be used mainly as a lessons learned/technical reference while any biomass activities supported are limited to what is included in the proposed project.
	Harnessing the Water–Energy–Food Nexus to Adapt to Climate Change Impacts in Tawi-Tawi	Strengthens resilience of island and coastal communities through integrated water, energy, and food management, with community-based adaptation practices.	Approved in 2025	Coastal and farming communities	Tawi-Tawi Province	Adaptation Fund (AF)	The AF-funded Tawi-Tawi project supports island/coastal communities in Tawi-Tawi through an integrated water-energy-food nexus approach and community based adaptation. The proposed project may draw on relevant participatory planning and local resource management approaches from that experience where useful for rice systems. Duplication is avoided because the proposed project is implemented in different geographic areas and production systems (mainland rice) with no overlap in locations or target communities and it does not replicate the Tawi-Tawi project's island/coastal WEF-nexus investments.

## **H. Learning and knowledge management component to capture and disseminate lessons learned.**

82. The project incorporates a strong learning and knowledge management component to ensure that best practices, innovative adaptation strategies, and lessons learned are effectively captured, shared, and scaled up. A key mechanism is the establishment of a Regional Knowledge Platform for South-South Cooperation, which will enable exchange between Malaysia and the Philippines through joint learning, policy dialogue and collaboration on climate-resilient rice farming. The platform will help document and share best practices, lessons and results so that experiences from one country can inform and strengthen efforts in the other as well as contribute to broader regional learning. Lessons and training outcomes will be regularly uploaded and reviewed on the Platform to ensure that knowledge remains current and accessible to all stakeholders

83. To strengthen learning at the community level, the project will integrate Farmer's Climate Field Living Labs as centres for practical and continuous learning. These Living Labs will document real-world farmer experiences with climate-smart agriculture (CSA) technologies, water management techniques, and digital advisory tools, creating a repository of practical insights for scaling up successful practices. Knowledge will be shared through farmer exchanges, joint workshops, and national and regional meetings that bring together farmers, researchers and policymakers. These activities will also promote two-way learning between farmers and institutions, helping tailor policies to on-the-ground realities. The project also intends to develop training materials, manuals and digital resources to ensure lessons are accessible to a wide audience. To address potential barriers such as cost, connectivity, and capacity, the project will work through existing agricultural institutions and the Living Labs to provide both online and in-person access to knowledge and training. The detailed design of the knowledge management and monitoring system, including how lessons will be tracked and updated on the Regional Platform, will be developed at the full proposal stage in consultation with national partners and stakeholders.

## **I. Consultative process undertaken during project preparation**

84. The consultative process for the project preparation was designed to ensure broad stakeholder engagement at regional, national, and community levels, particularly emphasizing the inclusion of vulnerable groups such as female-led households, smallholder farmers and other indigenous communities. The consultation process was structured to capture diverse perspectives, validate project design, and ensure proper alignment with local needs and national adaptation priorities. At the national level, discussions focused on engaging appropriately with government agencies, agricultural research institutions, private sector representatives, and farming communities to gather stakeholder input on policy alignment, investment needs, and technical support for climate-smart agriculture. In Malaysia, key stakeholders include the Department of Agriculture, the Malaysian Bioeconomy Development Corporation, Malaysian Agricultural Research and Development Institute (MARDI), and the Ministry of Natural Resources, Environment and Climate Change (NRECC). In the Philippines, the consultations involve the Department of Agriculture (DA), the Philippine Rice Research Institute (PhilRice), the National Irrigation Administration (NIA), and relevant climate resilience programs under the Department of Environment and Natural Resources (DENR). These national-level agencies were identified, and discussions were carried out to validate the project's technical approach, assess potential environmental and social impacts, and strengthen institutional coordination for long-term sustainability.

85. As part of project preparation, a series of targeted consultations were conducted in both Malaysia and the Philippines with the aim to integrate local knowledge and climate-responsive adaptation strategies. The overall consultations were carried out in two series, (a) initial consultations and (b) validation workshops. During the initial consultations which was carried out in August 2024, stakeholders from Malaysia includes participants from the Bioeconomy Corporation, MUDA Agricultural Development Authority (MADA), Northern Corridor Economic Region, Universiti Teknologi MARA and the farming community. Similarly, the consultations in the Philippines held in January - February 2025, involved participants from Government both at the regional and provincial levels and also the farming communities. During the consultations, discussions focus around (a) awareness on climate change and its impacts on paddy cultivation (b) understanding their mitigation strategy (c) Malaysian government's role in providing subsidies or incentives.

Key point and their recommendations were identified during the discussions which were then used to further refine the project concept. The refined concept was then validated through validation workshops held in both Malaysia and the Philippines in February 2025 respectively and attended by different stakeholders where the views and consent were taken to advance the concept preparation for final submission.

86. In the Philippines, the validation workshop, held on February 19, 2025, brought together key agencies such as the Philippine Institute for Development Studies (PIDS), International Rice Research Institute (IRRI), Philippine Center for Postharvest Development and Mechanization (PhilMech), and the Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST-PCAARRD). Participants discussed critical issues, including soil quality degradation, increased pesticide tolerance in pests, and insufficient irrigation programs. Stakeholders emphasized the need for integrated pest management, farmer field schools, and improved irrigation planning. Specific recommendations included mainstreaming climate-resilient rice varieties, strengthening crop insurance mechanisms, and integrating farmers into the agricultural value chain. The workshop also highlighted gender considerations, with discussions on how women farmers can be better integrated into climate adaptation initiatives through training and financial support.

87. Similarly, in Malaysia, the validation workshop, held on February 25, 2025, engaged national agencies such as the Ministry of Agriculture & Food Security (KPKM), Malaysian Agricultural Research and Development Institute (MARDI), Ministry of Natural Resources and Environmental Sustainability (NRES), and the Muda Agricultural Development Authority (MADA). Discussions focused on site selection for project implementation, crop insurance mechanisms, and farmer acceptance of new rice varieties. Stakeholders emphasized the need to align the project with Malaysia's National Adaptation Plan (MyNAP) and ensure the inclusion of smallholder farmers in technology transfer initiatives. MARDI provided insights on drought- and flood-resistant rice varieties currently in development, suggesting that the project could support their scaling and adoption. Malaysia's National Climate Center also agreed to provide historical weather data and projections to strengthen the project's climate risk assessments.

88. Women's participation and perspectives formed an important part of the consultation process. The Terms of Reference for both the stakeholder consultations and validation workshops set a target of at least 40 percent participation by women, which in practice was often exceeded, with strong representation from women farmers, farmer leaders and female agricultural extension officers. Their participation ensured that discussions reflected different perspectives, roles and responsibilities within rice-farming households, including issues related to access to climate information and advisory services, livelihood diversification opportunities through value-added processing of agricultural byproducts and financial vulnerability resulting from climate related crop losses. The themes consistently raised during consultations align closely with the focus areas of the project's components 1-3. This alignment reinforces the relevance of the project design in supporting inclusive climate adaptation within rice producing communities. Follow-up consultations during the full proposal stage will explicitly integrate structured gender-differentiated needs assessments to ensure systematic documentation and reflection of women's priorities and capacities, in line with the Adaptation Fund Gender Policy, UNIDO's Policy on Gender Equality and the Empowerment of Women and the Environmental and Social Policy. This process will also directly inform and refine the gender analysis and gender-responsive elements of the full project proposal.

## **J. Justification for funding requested, focusing on the full cost of adaptation reasoning.**

89. The project requests Adaptation Fund financing of USD 13,651,000 to cover the full cost of adaptation for rice farming systems facing increasing climate variability and extreme weather in Malaysia and the Philippines. The requested funding supports adaptation-specific interventions that go beyond business-as-usual agricultural development by directly addressing climate-driven risks to food security, livelihoods and institutional capacity.

90. Component 1 (USD 5.0 million) supports adaptation investments to deploy climate-resilient rice varieties, climate-smart agricultural technologies and biomass-based income diversification measures to address climate-driven yield losses, flood risk and water stress. Component 2 (USD 3.5 million) finances climate intelligence, impact-based forecasting and early warning systems, and water allocation frameworks

required for anticipatory action and risk-informed decision-making. Component 3 (USD 2.5 million) supports institutional capacity-building, coordination and investment planning needed to enable sustained climate adaptation in the rice sector, including gender-responsive measures. Component 4 (USD 0.5 million) supports a regional knowledge platform to facilitate cooperation and scaling of effective adaptation practices across participating countries.

91. The requested Adaptation Fund resources reflect the full cost of adaptation, as the proposed interventions respond directly to climate risks and would not occur in the absence of targeted adaptation financing. Project execution costs and project cycle management fees are presented in the budget tables and are included within the total funding request.

## **K. Sustainability of the project outcomes**

92. The sustainability of the project has been carefully embedded into its design by ensuring strong institutional partnerships, long-term capacity building, and integration with national policies and adaptation plans in both Malaysia and the Philippines. A key element of sustainability will be the collaboration between research and development (R&D) institutions and government agencies, particularly PhilRice in the Philippines and MARDI in Malaysia. They will be the agencies who will co-host the Farmer's Climate Field Living Labs. These living labs will serve as knowledge hubs, allowing farmers to continuously test and adopt climate-smart agriculture (CSA) practices, precision farming tools, and resilient rice varieties beyond the project's implementation period. Therefore, by working closely with the Ministry of Agriculture & Food Security (KPKM) in Malaysia and the Department of Agriculture (DA) in the Philippines, the project will ensure that its strategies on climate-smart agriculture, improved water-management approaches, and climate intelligence are well integrated into national and sub-national adaptation frameworks, thereby ensuring institutional ownership and continuity.

93. To further enhance sustainability, the project will also incorporate capacity-building measures for farmer cooperatives, focusing on management, financial planning, and market integration. The training programs will help equip smallholder farmers, especially women-led farming groups, with the skills to access climate finance, optimize input use, and reinvest profits into sustainable agricultural practices. Moreover, the project will also leverage the lessons learned from GEF-funded regional initiatives and ensuring that best practices from other adaptation programs are mainstreamed into national policies and extension services. Establishing regional cooperation through the knowledge platform, both Malaysia and the Philippines will benefit from research exchanges, successful scaling up of adaptation models, and coordinated investments that will help the rice sector in achieving resilience beyond the project's duration.

94. To ensure long-term maintenance and sustainability, the project will work with relevant ministries and sub-national authorities to explore the integration of Farmer Climate Field Living Labs, early warning systems and decision-support tools into existing extension services and national agricultural programs. Where appropriate, these services may be supported through co-financing mechanisms, such as allocations from local government budgets or partnerships with private-sector actors. The project will also assess opportunities for sustainable financing mechanisms during the full proposal phase, including cost-sharing, revolving funds, or service-based models. The adaptation benefits most likely to be sustained include the adoption of improved rice varieties, strengthened water allocation frameworks, and farmer capacity in climate-smart practices. These can be scaled and replicated in other regions through national extension services and the regional platform under the BIMP-EAGA initiative, with best practices and training modules developed during the project made available to policymakers, cooperatives, and technical agencies. In Malaysia, it is expected that MARDI and the KPKM will continue operating the Farmer Climate Field Living Labs within their extension programs, while in the Philippines, PhilRice and the Department of Agriculture will maintain the related knowledge and climate advisory systems under the Climate Resilient Agriculture Program. These arrangements will be confirmed and formalized during the full proposal stage.

## **L. Overview of the environmental and social impacts and risks identified**

95. To ensure the project does not inadvertently cause any social or environmental harm, all activities under the project will be reviewed in line with the Adaptation Fund's Environmental and Social Policy, as well as UNIDO's Environmental and Social Safeguard Policies (ESSPP). The project will take proactive measures to avoid maladaptation, following the IPCC 6th Assessment Report framework in order to ensure that adaptation interventions are equitable, effective, and provide human, ecosystem, and mitigation co-benefits. Time and resources will also be allocated to identify potential maladaptation risks throughout project implementation stage, and necessary adjustments will be made to mitigate any unintended impacts. Similarly, the Climate Living Lab will play an important role in minimizing maladaptation risks and ensuring that newly introduced technologies and practices are sustainable and beneficial to all farmers, particularly the most vulnerable groups. The project will also develop a gender baseline and social inclusion strategy to prevent any kind of gender and social exclusion, therefore ensuring that women, youth, and marginalized communities are actively engaged in the decision-making process, training programs, and financial mechanisms. Such safeguard mechanisms will be sustainable, inclusive, and climate-resilient agricultural development together with empowering the most vulnerable communities in Malaysia and the Philippines.

96. The project has undergone preliminary environmental and social risk screening during the concept preparation phase, aligning with the 15 Adaptation Fund (AF) principles and UNIDO's Environmental and Social Safeguard Policies (ESSPP) to identify potential environmental and social risks and impacts. Based on the initial environmental and social screening, the project is classified as Category B due to the potential for limited, site-specific, and manageable environmental and social impacts. In accordance with AF and UNIDO requirements for Category B projects, a detailed environmental and social risk assessment will be undertaken during full proposal preparation to further refine and confirm identified risks and mitigation measures. An Environmental and Social Management Plan (ESMP) and a project-level Grievance Redress Mechanism (GRM) will be included in the full project proposal. The ESMP will define risk management and mitigation measures, monitoring indicators, institutional roles and responsibilities, reporting arrangements, and indicative budget allocations to ensure effective management and tracking of environmental and social risks throughout project implementation.

97. The consultative process too has identified key environmental and social risks that may be associated with the project and which will be further assessed and mitigated during project implementation. One of the primary concerns identified during the concept development phase is the lack of a comprehensive national policy on climate adaptation for the rice sector, which may slow down the process of adoption of climate-smart agriculture (CSA) practices and resilient farming policies. Delays in paddy and rice intervention strategies such as the introduction of climate-resilient rice varieties, improvements in the management and efficiency of existing irrigation systems, and optimization of water management frameworks could impact the project's ability to achieve long-term agricultural resilience.

98. On the environmental side, potential risks may include overuse of fertilizers and pesticides that could lead to soil degradation, water contamination, and biodiversity loss, if not properly addressed. To mitigate these risks, the project will have to promote integrated pest management (IPM), sustainable soil fertility practices, and eco-friendly inputs through the Farmer's Climate Field Living Labs. Another challenge identified is the disruptions in logistics related to extreme weather events, which could delay the distribution of climate-resilient inputs and implementation of early warning systems. The project will incorporate adaptation strategies which are flexible considering market uncertainties and environmental policy delays, therefore ensuring that interventions remain relevant and responsive to emerging climate risks. Furthermore, a gender baseline will be developed that will ensure inclusion of women farmers and vulnerable groups in decision-making as well as getting benefits from adaptation measures.

99. As part of the initial environmental and social screening, gender and social inclusion considerations were also reviewed to understand women's roles, participation and constraints in rice-based agricultural systems in Malaysia and the Philippines. Available national and sectoral data indicate that women play a substantial role in agriculture and rice production, but their contributions are often less visible in formal statistics and decision-making structures. In Malaysia, data from the Department of Statistics indicate that

25.3% of individual agricultural holders are women (255,690 out of 1,008,829 holders)<sup>44</sup>, confirming that women are actively engaged as farm operators and contributors to agricultural production. Rice-specific research further shows that gender roles in paddy farming are differentiated<sup>45</sup>: key production decisions such as land preparation, pesticide application and fertilizer spraying are more frequently made by male household heads, while women's decision-making is more prominent in tasks such as weeding, and many harvesting and marketing decisions are taken jointly by spouses. These studies also highlight persistent constraints faced by women paddy farmers, including limited participation in planning processes, weaker access to credit and finance, lower participation in training and extension services and reduced access to agricultural information and technologies relevant to rice production.

100. In the Philippines, Philippine Statistics Authority data indicate that women comprise around 25% of the agricultural workforce, although available evidence suggests that women's agricultural work is frequently under-reported, as it is often classified as unpaid family labour rather than formal employment<sup>46</sup>. Registry data on rice livelihoods further indicate that 35% of individuals registered in rice farming households are women, compared to 65% men. Sector analyses note that this figure may underestimate women's role as farmers, as land-based registration systems tend to register one household member (often a male landholder) as the "farmer" while women engaged in the same plots are recorded as farmworkers<sup>47</sup>. Rice sector studies in the Philippines also point to women's substantial involvement across rice production, processing, and post-harvest activities, alongside continued gender gaps in leadership roles within farmer organizations, participation in consultations, and access to services, training and climate-related information<sup>48,49,50</sup>. Taken together, these findings indicate that while women contribute significantly to rice production and rural livelihoods in both countries, they often face barriers related to recognition, participation in decision-making and access to productive resources and services relevant to climate adaptation. A gender analysis and Gender Action Plan (GAP) will therefore be developed during the full proposal stage to guide participatory approaches, training design and benefit-sharing mechanisms.

101. To ensure that project interventions do not result in maladaptive outcomes, the project will integrate maladaptation risk screening and management throughout its design and implementation phases. The approach will be guided by the IPCC Sixth Assessment Report (AR6) framework, emphasizing equitable, effective, and co-beneficial adaptation actions for people, ecosystems, and climate mitigation. Adequate time and resources will be allocated to assess potential maladaptive outcomes, and identified risks will be addressed in the final project design. The Climate Living Lab will play a central role in monitoring adaptation outcomes, documenting lessons, and ensuring continuous learning to prevent maladaptation.

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[http://www.statistics.gov.my/uploads/release-content/file\\_20250718101828.pdf](http://www.statistics.gov.my/uploads/release-content/file_20250718101828.pdf)

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48 Women in the Adoption of Rice-Based Farming Technologies in Region III, Philippines:

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49 Gender Mainstreaming in Philippine Rice Research and Development: <https://www.philrice.gov.ph/wp-content/uploads/2023/04/Gender-Mainstreaming-in-Philippine-Rice-Research-and-Development.pdf>

50 Gendered Differences in a Rice-Based Enterprise Program in the Philippines.:

<https://www.ukdr.uplb.edu.ph/cgi/viewcontent.cgi?article=1144&context=pas>

Table 10 Project compliance with Adaptation Fund environmental and social principles

The screening below reflects potential direct, indirect, transboundary, and cumulative impacts at concept note stage; any risks requiring further assessment will be confirmed and managed during full project formulation.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Compliance with the Law</i>		The project will be implemented in close collaboration with the national governments and relevant local government units in Malaysia and the Philippines, ensuring adherence to all national and local environmental, agricultural and land use regulations. The full proposal will include an in-depth review of relevant laws and policies to confirm full compliance with the Adaptation Fund Environmental and Social Policy. Direct risks relate to any permits, approvals, or procedures that apply at the site level; indirect risks include delays if requirements are confirmed late. No material transboundary risks are expected beyond cross-border knowledge exchange and any related data-sharing. Cumulative considerations relate to managing approvals and compliance across multiple sites and jurisdictions.
<i>Access and Equity</i>		There is a <b>moderate risk</b> that some farmers or community groups, particularly those in remote or less organized areas, may face challenges in accessing project services or resources. Direct risks relate to who can access trainings, demonstrations and advisories; indirect risks include barriers linked to connectivity, literacy, mobility, or local power dynamics. Transboundary risks are limited to ensuring balanced participation in regional exchanges. Cumulative risks could arise if support repeatedly reaches only the same groups over time. Further assessment will identify potential barriers and define measures to promote fair and inclusive participation.
<i>Marginalized and Vulnerable Groups</i>		There is a <b>moderate risk</b> that marginalized or vulnerable populations such as small-scale or landless farmers, elderly individuals, or women-headed households may not fully participate in or benefit from project activities. Direct risks relate to whether these groups participate and benefit; indirect risks include benefits concentrating among better-off groups if targeting is weak. No material transboundary risks are expected. Cumulative risks could arise if under participation persists across multiple sites and activity rounds. Further assessment will examine potential exclusion risks and propose actions to ensure meaningful engagement and equitable benefits.
<i>Human Rights</i>		There is a <b>low-to-moderate risk</b> that project interventions could indirectly affect access to land, water, or other resources. Direct risks are expected to be limited; indirect risks include concerns about fair access to resources or benefits and the need for a clear grievance channel. No material transboundary risks are expected. Cumulative risks could arise if concerns and grievances are not handled consistently across different locations and activities. Further assessment will confirm consistency with national human-rights commitments and ensure that project activities respect the rights of affected communities.
<i>Gender Equity and Women's Empowerment</i>		There is a <b>low-to-moderate risk</b> that women's participation could be limited. Direct risks relate to women's participation and access to benefits; indirect risks include time burdens, mobility constraints, and

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
		household dynamics. Transboundary risks are limited to ensuring women's participation in regional learning and exchanges where relevant. Cumulative risks could arise if barriers persist across repeated activities without corrective action. Further assessment through a gender analysis will identify specific barriers and inform a Gender Action Plan to promote equitable access and participation.
<i>Core Labour Rights</i>		There is a <b>moderate risk</b> related to occupational safety, fair employment terms and compliance with national and international labour standards. Direct risks relate to safety during field activities and demonstrations; indirect risks include inconsistent labour practices if service providers do not apply basic requirements. No material transboundary risks are expected. Cumulative risks could arise if labour and safety procedures are not applied consistently across multiple sites and repeated activities. Further assessment will include a review of labour practices and preparation of a Labour Management Procedure to ensure compliance.
<i>Indigenous Peoples</i>		There is a <b>moderate risk</b> that project sites may overlap with or be near areas used by Indigenous Peoples (e.g. Indigenous Cultural Communities in the Philippines or Orang Asli communities in Malaysia). Direct risks relate to potential impacts on access, participation, or culturally significant practices if activities are not designed appropriately; indirect risks include exclusion if engagement is not culturally appropriate or if benefits are not accessible. No material transboundary risks are expected. Cumulative risks could arise if culturally appropriate engagement, including FPIC where relevant, is not applied consistently across multiple sites Further assessment will confirm presence, identify potential concerns, and ensure culturally appropriate engagement consistent with FPIC requirements.
<i>Involuntary Resettlement</i>	X	No direct physical displacement is expected; indirect risks include any unintended restriction of access to land or resources linked to project activities. No transboundary risks are expected. Cumulative risks could arise if site checks and voluntary arrangements are not applied consistently across all locations.
<i>Protection of Natural Habitats</i>		Direct impacts may include localized disturbance if activities are sited near sensitive areas; indirect impacts may include unintended pressure on nearby habitats from changes in practices. No material transboundary impacts are expected. Cumulative impacts could arise if small, localized disturbances occur across multiple sites over time, particularly if screening and mitigation are not applied consistently. Further assessment will ensure that screening procedures exclude ecologically sensitive areas and that mitigation measures are in place.
<i>Conservation of Biological Diversity</i>		There is a <b>low risk</b> that certain agricultural practices could affect on-farm biodiversity. Direct risks may include changes in on-farm biodiversity linked to changes in farming practices; indirect risks may include unintended effects if pest management or input use is applied incorrectly. No material transboundary risks are expected. Cumulative risks could arise if similar practices are adopted across multiple sites over time, particularly without consistent guidance and monitoring. Further assessment will examine the potential effects on local ecosystems and recommend management measures where relevant.

Checklist of environmental and social principles	No further assessment required for compliance	Potential impacts and risks – further assessment and management required for compliance
<i>Climate Change</i>		There is a <b>low risk</b> that some project activities could marginally increase energy use or emissions. Direct risks relate to keeping energy use and emissions low where possible; indirect risks include the risk of maladaptation if practices are not tailored to local climate conditions. Transboundary risks are limited and mainly relate to knowledge exchange rather than physical impacts. Cumulative risks could arise if multiple sites adopt practices that increase resource use over time without efficiency measures. Further assessment will ensure that interventions remain consistent with national climate policies and contribute to long-term resilience.
<i>Pollution Prevention and Resource Efficiency</i>		There is a <b>low risk</b> of pollution or waste generation related to the use of agricultural inputs or construction materials used for demonstrations or small-scale activities. Direct risks include pollution from improper handling, storage or disposal of inputs and waste; indirect risks include increased input use without adequate safeguards. No material transboundary risks are expected. Cumulative risks could arise if small amounts of waste or pollution occur across multiple sites over time without consistent good practices. Further assessment will identify potential pollution sources and outline appropriate mitigation and management measures.
<i>Public Health</i>	X	The project is not expected to cause adverse public health impacts. No activities involving hazardous materials or practices with significant health risks are planned. Direct risks are expected to be low; indirect risks may include exposure if agricultural inputs are handled incorrectly or guidance is misunderstood during trainings and demonstrations. No transboundary risks are expected. Cumulative risks could arise if health and safety practices are not applied consistently across repeated activities.
<i>Physical and Cultural Heritage</i>	X	The risk of affecting cultural or archaeological sites is <b>low</b> , as activities will take place in existing agricultural areas; indirect risks include the small chance of encountering unknown cultural resources during any minor site works. No transboundary risks are expected. Cumulative risks could arise if similar minor activities take place across multiple locations without consistent site screening and a chance-find procedure where relevant.
<i>Lands and Soil Conservation</i>		There is a <b>low risk</b> of localized soil disturbance or erosion during implementation of field activities. Direct risks include soil disturbance or erosion during demonstrations or site works; indirect risks include soil compaction or degradation if promoted practices are applied incorrectly. No material transboundary risks are expected. Cumulative risks could arise if similar activities occur across multiple sites over time without consistent soil management practices. Further assessment will identify potential impacts on soil stability and outline management measures for sustainable land use.

## PART III: IMPLEMENTATION ARRANGEMENTS

### A. Implementation Arrangements

102. The project will be implemented through a multi-stakeholder approach involving international organizations, national governments, research institutions, and local partners to ensure effective execution, coordination, and long-term sustainability.

103. The project will be implemented by the United Nations Industrial Development Organization (UNIDO), which will serve as the Implementing Entity. UNIDO will be responsible for several key aspects of the project, including overall project coordination and oversight to ensure alignment with the Adaptation Fund's objectives and national adaptation priorities. It will also manage financial aspects, ensuring transparency and accountability in the utilization of funds. As an implementing agency, it will provide technical support and capacity building, offering guidance on climate-smart agriculture (CSA), facilitating knowledge exchange, and strengthening institutional capacities. Moreover, UNIDO will oversee the monitoring, evaluation, and learning (MEL) processes to assess project progress, identify challenges, and incorporate adaptive management strategies.

104. The project will be executed by national entities in Malaysia and the Philippines, ensuring that interventions are locally driven and aligned with national policies.

105. **In Malaysia**, the Malaysian Bioeconomy Development Corporation (Bioeconomy Corporation) will lead the execution of Component 1 (Climate-Smart Agricultural Technologies and Practices) and Component 3 (Institutional Capacity Building for Adaptation Investments). Bioeconomy Corporation will collaborate closely with several key partners to ensure the success of these components. The Muda Agricultural Development Authority (MADA) will focus on implementing climate-smart agriculture (CSA) technologies and supporting climate-resilient rice farming in targeted regions. The Kemubu Agricultural Development Authority (KADA) and Integrated Agricultural Development Areas (IADA) will work on strengthening irrigation governance, improving water management, and enhancing farmer extension services. The Malaysian Agricultural Research and Development Institute (MARDI) will conduct studies on climate-resilient rice varieties, precision water management techniques, biofertilizers, and soil health management. It plans field verification and upscaling trials of drought- and flood-tolerant rice varieties in the period 2028–2030, which would allow alignment of field implementation activities under the proposed project. The Department of Agriculture (DOA) Malaysia will provide technical support and assist with policy integration for climate adaptation in rice production. Lastly, the Ministry of Natural Resources and Environmental Sustainability (NRES) will support environmental monitoring and the integration of adaptation measures into Malaysia's National Adaptation Plan (MyNAP 2023–2026).

106. **In the Philippines**, UNIDO will lead the execution of Component 1 and Component 3, in close collaboration with the department of Agriculture and collaborating closely with several key partners to ensure the successful implementation of these components. The Department of Agriculture Office (DA-CRAO) and the MINSANAO development Authority (MinDA) will be the main partners in the Philippines who will serve as the focal points in charge of gathering the relevant stakeholders for the project. The department of Agriculture has several offices that can be engaged to co-host the Farmer's Climate Field Living Labs, offering training on climate-smart agriculture (CSA) techniques and supporting the development of climate-resilient rice varieties. This will be determined during the course of project preparation. The International Rice Research Institute (IRRI) can be engaged to conduct trials on drought-resistant, flood-tolerant, and low-GHG-emission rice varieties, while also facilitating technology transfer. The National Irrigation Administration (NIA), as the lead government agency for irrigation, will provide technical guidance to support improvements in irrigation planning, water-allocation management, and the adoption of climate-smart water-management practices within existing systems. The Department of Science and Technology – PAGASA will be engaged to provide climate intelligence, impact-based forecasting, and early warning systems to support farmers. Lastly, the Department of Environment and Natural Resources (DENR) will be engaged to ensure that the project aligns with environmental regulations and integrates ecosystem-based adaptation strategies.

## **Regional Execution of Climate Intelligence and Knowledge Sharing**

107. The Asian Disaster Preparedness Center (ADPC) will be responsible for executing two key components of the project. For Component 2, "Strengthened Integrated Information & Climate Intelligence for Farmers and Institutions," ADPC will oversee the development of early warning systems, digital climate advisory services, and impact-based forecasting in collaboration with PAGASA in the Philippines and NAHRIM in Malaysia. Similarly, for Component 4, "Regional Knowledge Platform for South-South Cooperation," ADPC will establish a platform to facilitate regional collaboration, exchange best practices, and promote South-South learning on climate-resilient rice production.

108. As part of the project execution function (not under the fee for IE acting as part of the EE) UNIDO will lead the execution of the project mid-term and a final independent evaluation which will be conducted as per UNIDO and the AF requirements and standards. The independent project evaluation will support learning, continuous improvement and accountability, and provides factual information about results and practices. In addition, ADPC will be responsible for supporting the project with a gender specialist and an environment and social (E&S) safeguards, specialist in charge of respectively mainstreaming gender concerns and E&S requirements during the implementation phase as well as Environment and Social safeguards. UNIDO will also be responsible for project monitoring and day to day PMU management as required.

### **Governance and Oversight: Project Steering Committee (PSC)**

109. A Project Steering Committee (PSC) will be set up at the regional level to provide strategic oversight, risk adaptation, and performance monitoring throughout the project. The PSC will ensure that the project aligns with national policies and regional adaptation frameworks, facilitating coordination between Malaysia and the Philippines to avoid duplication of efforts. It will also address implementation challenges, ensuring effective resource allocation. The PSC will also support regional cooperation by engaging with the ASEAN and other South-South initiatives, fostering collaboration and sharing of knowledge and resources.

The PSC will include representatives from:

- UNIDO (Implementing Entity)
- ADPC (Regional Climate Resilience Lead)
- Bioeconomy Corporation (Malaysia - National Execution Lead)
- Department of Agriculture, Philippines (National Execution Lead)
- MARDI (Malaysia - Research & Climate-Resilient Rice Development)
- PhilRice & IRRI (Philippines - Farmer Training & CSA Research)
- PAGASA & NAHRIM (Climate Intelligence & Forecasting)
- Relevant Ministries (Agriculture, Environment, and Natural Resources from both countries)

### **Monitoring, Evaluation, and Learning (MEL) Framework**

110. To assess adaptation effectiveness and document lessons learned, a comprehensive monitoring and evaluation process will be implemented. This will include periodic progress reports from the executing entities, an annual project performance report from the implementing entity, and field evaluations coupled with farmer feedback mechanisms through the Farmer Climate Field Living Labs. Moreover, annual Project Steering Committee (PSC) review meetings will be held to assess challenges and refine strategies. The process will be further supported by regional knowledge-sharing workshops aimed at disseminating insights across ASEAN, promoting collaboration and the exchange of best practices.

111. The overall implementation process will ensure a multi-level governance approach, leveraging international expertise, national leadership, and local execution capacity. Through regional coordination, public-private partnerships, and institutional capacity building, the project will try to achieve a long-term climate resilience and food security for rice farming communities in Malaysia and the Philippines.

## B. Project Alignment with the Results Framework of the Adaptation Fund

Table 11 Project alignment with the Adaptation Fund Results Framework

Project Objective(s) <sup>1</sup>	Project Objective Indicator(s)	Adaptation Fund Outcome	Adaptation Fund Outcome Indicator	Grant Amount (USD)
<b>Objective 1:</b> Strengthen the resilience of rice production systems in Malaysia and the Philippines by reducing climate-induced yield losses from drought, flooding, temperature rise, and pest outbreaks through climate-resilient technologies and practices	% reduction in climate-induced yield variability  No. of farmers adopting climate-resilient rice practices	Outcome 4: Increased adaptive capacity within relevant development sector services and infrastructure assets	4.1 Responsiveness of development sector services to evolving needs from changing and variable climate	5,000,000
<b>Objective 2:</b> Enhance adaptive capacity of smallholder farmers, including women and marginalized groups, by improving access to climate-resilient extension services, climate information and inclusive capacity-building mechanisms	No. of farmers trained (sex-disaggregated)  % of targeted farmers applying climate-resilient practices	Outcome 1: Reduced exposure to climate-related hazards and threats	1. Relevant threat and hazard information generated and disseminated to stakeholders on a timely basis	2,550,000
		Outcome 3: Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	3.2 Percentage of targeted population applying appropriate adaptation responses	950,000
<b>Objective 3:</b> Strengthen institutional capacity, coordination, and planning frameworks to support effective implementation and long-term sustainability of climate adaptation measures in the rice sector including regional coordination and knowledge-sharing mechanisms to support sustainability and scaling	No. of institutions using climate information for planning  No. of staff trained (sex-disaggregated)	Outcome 2: Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	2.1 Capacity of staff to respond to, and mitigate impacts of, climate-related events from targeted institutions increased	3,000,000
<b>Total outcome level grant amount</b>				<b>11,500,000</b>


Project Outcome(s)	Project Outcome Indicator(s)	Adaptation Fund Output	Adaptation Fund Output Indicator	Grant Amount (USD)
<b>Outcome 1:</b> Climate-resilient rice production systems and agricultural services adopted in targeted areas	No. of hectares under climate-resilient rice practices  No. of farmers adopting climate-resilient rice varieties and CSA practices	Output 4: Vulnerable development sector services and infrastructure assets strengthened in response to climate change impacts, including variability	4.1.1. No. and type of development sector services modified to respond to new conditions resulting from climate variability and change (by sector and scale)	5,000,000
<b>Outcome 2:</b> Smallholder farmers and local institutions covered by and actively using climate information, advisories, risk-reduction systems and knowledge-sharing tools	% of farmers receiving and using climate advisories  No. of operational climate information and early warning tools	Output 1.2: Targeted population groups covered by adequate risk reduction systems	1.2.1. Percentage of target population covered by adequate risk-reduction systems	2,550,000
		Output 3.2: Strengthened capacity of national and subnational stakeholders and entities to capture and disseminate knowledge and learning	3.2.2 No. of tools and guidelines developed (thematic, sectoral, institutional) and shared with relevant stakeholders	950,000
<b>Outcome 3:</b> Institutional capacity strengthened to plan, coordinate and sustain climate adaptation in the rice sector including regional coordination, knowledge sharing platforms and South–South cooperation mechanisms	No. of institutions with increased adaptive capacity  No. of staff trained (sex-disaggregated)	Output 2.1: Strengthened capacity of national and sub-national centres and networks to respond rapidly to extreme weather events	2.1.1. No. of staff trained to respond to, and mitigate impacts of, climate-related events (by gender)	3,000,000
<b>Total output level grant amount</b>				<b>11,500,000</b>

**PART IV: ENDORSEMENT BY GOVERNMENTS AND CERTIFICATION BY THE IMPLEMENTING ENTITY**

**A. Record of endorsement on behalf of the government<sup>51</sup>** *Provide the name and position of the government official and indicate date of endorsement for each country participating in the proposed project/programme. Add more lines as necessary. The endorsement letters should be attached as an annex to the project/programme proposal. Please attach the endorsement letters with this template; add as many participating governments if a regional project/programme:*

Mr. Datuk Nor Yahati Binti Awang Deputy Secretary General Environmental Sustainability Ministry of Natural Resources and Environmental Sustainability	Date: July 2 2025
Mr. Raphael P.M. Lotilla Secretary Finance, Information Systems and Climate Change Department of Environment and Natural Resources (DENR)	Date: June 26 2025

**B. Implementing Entity certification** *Provide the name and signature of the Implementing Entity Coordinator and the date of signature. Provide also the project/programme contact person's name, telephone number and email address*

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (such as Malaysia's Climate Change Adaptation Framework for Water Sectors, 2021 and the Philippines Rice Industry Road Map, 2018 by DoA) and subject to the approval by the Adaptation Fund Board, commit to implementing the project/programme in compliance with the Environmental and Social Policy of the Adaptation Fund and on the understanding that the Implementing Entity will be fully (legally and financially) responsible for the implementation of this project/programme.	
 Ms. Ganna Onysko Senior GEF, GCF, AF Coordinator Division of Funding Partner Relations Directorate of Global Partnerships and External Relations United Nations Industrial Development Organization - UNIDO Implementing Entity Coordinator	
Date: 10 February 2026	Tel. and email: +43 1 26026 3708 TO: <a href="mailto:g.onysko@unido.org">g.onysko@unido.org</a> CC: <a href="mailto:gef@unido.org">gef@unido.org</a> / <a href="mailto:glo@unido.org">glo@unido.org</a> / <a href="mailto:f.haidara@unido.org">f.haidara@unido.org</a>
Project Contact Person: Meryem SGHIR	
Tel. And Email: +43 1 26026 364743	
<a href="mailto:M.SGHIR@unido.org">M.SGHIR@unido.org</a>	

<sup>51</sup>. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.



NRES.700-7/1/3 (5) (S)

2 July 2025

The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [afbsec@adaptation-fund.org](mailto:afbsec@adaptation-fund.org)  
Fax: 202 522 3240/5

Dear Sir,

**ENDORSEMENT FOR THE CONCEPT PROPOSAL “STRENGTHENING CLIMATE RESILIENCE AND FOOD SECURITY THROUGH SOUTH-SOUTH COOPERATION IN ADAPTIVE RICE PRODUCTION IN MALAYSIA AND THE PHILIPPINES”**

With reference to the above matter.

2. In my capacity as designated authority for the Adaptation Fund in Malaysia, I confirm that the above regional project proposal is in accordance with the government's national priorities in implementing adaptation activities to reduce adverse impacts of, and risks posed by, climate change in Malaysia.
3. Accordingly, I am pleased to endorse the above project proposal with support from the Adaptation Fund. If approved, the project will be implemented by the United Nations Industrial Development Organization (UNIDO) and executed by Bioeconomy Corporation and the Asian Disaster Preparedness Center (ADPC). UNIDO will also act as partial executing entity, in line with the request and agreement of the Government of the Philippines.
4. The project design will address climate change threat to food security by enhancing adaptation capacity and creating an enabling environment for investments in agriculture sector. The project aims to complement further development of National Adaptation Plan, as well as to build resilience of rice farming communities.

Thank you.

Sincerely,

**(DATUK NOR YAHATI BINTI AWANG)**  
Designated Authority to the Adaptation Fund  
Deputy Secretary General (Environmental Sustainability)  
Ministry of Natural Resources and Environmental Sustainability  
Malaysia



ADAPTATION FUND

14 AUG 2025

The Adaptation Fund Board  
c/o Adaptation Fund Board Secretariat  
Email: [afbsec@adaptation-fund.org](mailto:afbsec@adaptation-fund.org)  
Fax: 202 522 3240/5

Subject: Justification on UNIDO's Execution Role for Components 1 and 3 in the Philippines under the proposed regional project entitled "Strengthening Climate Resilience and Food Security through South-South Cooperation in Adaptive Rice Production in Malaysia and the Philippines"

Dear Adaptation Fund Board Secretariat:

In my capacity as Designated Authority for the Adaptation Fund in the Philippines, I am writing to provide formal justification on the role of the United Nations Industrial Development Organization (UNIDO) as Executing Entity for Components 1 and 3 in the Philippines under the proposed regional project entitled "*Strengthening Climate Resilience and Food Security through South-South Cooperation in Adaptive Rice Production in Malaysia and the Philippines.*"

In particular, Component 1 involves the deployment of medium- and large-scale climate-smart agriculture (CSA) technologies through public-private partnerships, while Component 3 supports institutional capacity building for localized adaptation strategies and investments in agricultural marketing services. UNIDO's role will support the effective execution of these components by providing technical and operational capacity, in close collaboration with Philippine institutions.

This execution arrangement follows a request from the Philippines' Department of Agriculture - Climate Resilient Agriculture Office (DA-CRAO) and reflects a shared understanding of the need for strong technical support to achieve the project's ambitious objectives. UNIDO brings global expertise in climate-resilient agriculture and institutional capacity building and has a strong country presence through its field office in the Philippines, which enables close coordination with national and local stakeholders.

We also confirm that the Department of Agriculture and its relevant agencies will continue to play a central role in implementation, coordination, and oversight. The project remains fully country-driven and aligns with national development and adaptation priorities. UNIDO's execution role is designed to complement national efforts and contribute to long-term institutional strengthening.

We hope this explanation provides the necessary clarifications. Please do not hesitate to reach out should further information be needed.

Thank you.

Very truly yours,



**ATTY. ANALIZA REBUELTA-TEH**

Undersecretary

Finance, Information Systems and Climate Change  
and National Designated Authority-Adaptation Fund



**Revised PFG Submission Form<sup>1</sup> (additions in red)**

**Project Formulation Grant (PFG)**

**Submission Date:**

**Adaptation Fund Project ID:** AF00000354

**Country/ies:** Malaysia, The Philippines

**Title of Project/Programme:** Strengthening Climate Resilience and food security through South-South Cooperation in adaptive rice production in Malaysia and the Philippines

**Type of IE (NIE/RIE/MIE):** MIE

**Implementing Entity:** UNIDO

**Executing Entity/ies:** UNIDO

**A. Project Preparation Timeframe**

<b>Start date of PFG</b>	June 2026
<b>Completion date of PFG</b>	May 2027

**B. Proposed Project Preparation Activities (\$)**

<b>List of Proposed Project Preparation Activities</b>	<b>Output of the PFG Activities</b>	<b>US\$ Amount</b>	<b>Budget note<sup>2</sup></b>
<p>1. Preparation of the full-fledge project document and required annexes:</p> <p>1.1. To prepare a baseline report against the interventions proposed and indicators/targets aimed;</p> <p>1.2. To carry out detailed stakeholders' consultations at local and national level, specifically on selected project sites, with local communities and indigenous populations;</p>	<p>Output 1: Full Project Document Proposal</p> <ul style="list-style-type: none"> <li>- Baseline report</li> <li>- Stakeholders' consultation report</li> <li>- Environmental and Social Assessment, including preparation of an ESMP and a UNIDO Environmental and Social (E&amp;S) Screening Form</li> <li>- Gender analysis report and Gender</li> </ul>	<b>117,000</b>	<p>Stakeholder Consultations (incl. Local travel and Workshops): \$25,000</p> <p>Environmental &amp; Social Management Plan (ESMP): \$30,000</p> <p>International &amp; national experts – Gender and Baseline: \$30,000</p> <p>Project Proposal Formulation: \$12,000</p> <p>Subcontracting an entity for HACT assessment based on UNIDO Long-term agreement (LTA) : 2 X US\$ 5,000 = \$10,000</p>

<sup>1</sup> As presented in AFB/PPRC.33/40 Annex 1.

<sup>2</sup> The proposal should include a detailed budget with budget notes indicating the break-down of costs at the activity level. It should also include a budget on the Implementing Entity management fee use.

<p>1.3. To conduct an environmental and social assessment leading to an Environmental and Social Management Plan (ESMP)</p> <p>1.4. To carry out an in-depth gender analysis and produce a Gender Action Plan (GAP) in order to effectively mainstream gender issues into the design and formulation of the project.</p> <p>1.5. To identify project or programme indicators and development of monitoring and evaluation plan.</p> <p>1.6. To prepare the full-fledge project proposal as per the requirements of the Adaptation Fund</p> <p>1.7. UNIDO direct support in facilitating local consultations, workshops to discuss the specific project and program ideas (including translation into local languages, preparation of background papers, etc.).</p> <p>1.8. HACT assessment for the executing entities</p> <p>1.9. To carry out a monitoring mission by the backstopping officer of UNIDO</p> <p>1.10. To organize pre-validation workshops at local level, specifically on selected project sites, with local communities and indigenous populations and validation workshops at</p>	<p>Action Plan developed</p> <ul style="list-style-type: none"> <li>- Project document is gender mainstreamed and costs for implementation estimated</li> <li>- Monitoring and evaluation plan</li> <li>- Report on local and regional stakeholder consultations</li> <li>- HACT assessments</li> <li>- Mission reports</li> <li>- Validation workshop reports</li> </ul>		<p>Travel for project monitoring: \$10,000</p>
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national level and regional level			
IE fee (support costs)	IE admin and technical support for project development, monitoring and supervision  Compliance assurance	13,000	Technical and admin support services.
<b>Total Project Formulation Grant</b>		<b>130,000</b>	

<b>Description of the required activity</b>	<b>Justification for the need and for the amount</b>
To conduct a baseline assessment	The baseline assessment will be conducted so that the data and information is provided to support the interventions proposed and indicators/targets aimed at. The methodology will be based on a participatory approach, collection primary data at the local, community level and secondary data.
To carry out detailed stakeholders' consultations at local and national level:	Stakeholder consultation serves as a fundamental mechanism for collecting information, perspectives, and feedback from individuals involved in a project. This activity will serve to ensure further alignment of an engagement plan with the needs, expectations, and concerns of all relevant stakeholders. The stakeholders' consultations will target specifically selected project sites, involving local communities and indigenous populations;
To conduct an Environmental and Social Management assessment :	This activity is an integral part of UNIDO Environmental and Social Safeguards Policy and Procedures, applicable to all UNIDO projects and programmes submitted to the AF. It requires that UNIDO projects and programmes undergo environmental and social risk (E&S) assessments which will help decide on the categorization of the project and identify environmental and social issues that should be addressed in its development and implementation. The ESM will provide guidance on how to mitigate the environmental and social risks during the project implementation phase. This activity will be conducted by a technical expert and will require local travel to the project sites.
To carry out an In-depth gender analysis in order to effectively mainstream gender issues into the design:	This activity will allow mainstreaming a gender perspective is the process of assessing the implications for women and men of any planned action, including legislation, policies or programmes, in all areas and at all levels. It is a strategy for making both women and men's concerns, experiences and aspirations an integral dimension of the design, implementation, monitoring and evaluation of policies and programmes in all political, economic and societal spheres so that they benefit equally, and inequality is not perpetuated. This activity will be

	conducted by a national gender expert and will require travel to the project sites and consultations with various groups of beneficiaries.
Harmonized Approach to Cash Transfers (HACT) assessment for the executing entity	This Micro assessment dictates policies and procedures for capacity assessment, cash transfer modality, audit, assurance and monitoring. It is a requirement in order to make sure that the executing entity has the capacity to deliver project activities. This activity will be delivered via a subcontract of an audit company under a Long-Term Agreement (LTA) with UNIDO.
To carry out a monitoring mission by the backstopping officer of UNIDO	This travel is earmarked for the project manager of UNIDO who needs to contribute in terms of technical backstopping, supporting the mobilization of the endorsement letter and the stakeholders' consultations with key institutions and providing orientation on the project design, scope and budgeting. The fee of the project manager is covered by the support costs
To prepare the full-fledge project proposal as per the requirements of the Adaptation Fund	This activity will gather the results of all the assessments conducted during the preparation of the full fledge project proposal, following the template of the Adaptation fund and the requirements of UNIDO. The full-fledge proposal will be presented to all key stakeholders for validation during national and regional workshops. The drafting and compiling of the project proposal will be conducted by a national adaptation expert, supported by an internal expert in programming. The validation workshop will be organized with eh support of the project support staff, with the participation of the national and international technical experts.
To organize a validation workshop	Given the wide scope of the target regions in both Malaysia and The Philippines, this activity will involve in person pre-validation workshops at the level of the target communities and indigenous populations in order to ensure their buy in of the proposed project interventions. This will be conducted during pre-validation workshops. Also validation workshops will be conducted virtually separately in Malaysia and The Philippines so that each country has an opportunity to focus on the proposed project intervention and provide validation. A final regional validation workshop will bring both countries together, presenting the final project document for the validation by both countries

### C. Implementing Entity

This request has been prepared in accordance with the Adaptation Fund Board's procedures and meets the Adaptation Fund's criteria for project identification and formulation

<b>Implementing Entity Coordinator, IE Name</b>	<p>Ms. Ganna Onysko</p> <p>Senior GEF, GCF, AF Coordinator</p> <p>Division of Funding Partner Relations</p> <p>Directorate of Global Partnerships and External Relations</p> <p>United Nations Industrial Development Organization - UNIDO</p>
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	Implementing Entity Coordinator	
<b>Signature</b>		<b>Date:</b>  6 January 2026
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**Annex 1 – Validation Workshop in Malaysia (Date: 25 February 2025)**

NO	NAME	DESIGNATION	ORGANISATION
1	Mr Yee Chen Hua	Senior Principal Assistant Secretary, Sustainable Agriculture Section, Policy and Strategic Planning Division (DPS)	Ministry of Agriculture & Food Security (KPKM)
2	Mr. Syukrie Mohd Nasir	Senior Principal Assistant Secretary, Macro Policy Section, Policy and Strategic Planning Division (DPS)	Ministry of Agriculture & Food Security (KPKM)
3	Mr. Muhamed Mat Yaakob	Deputy Secretary, Policy and Strategic Planning Division (DPS)	Ministry of Agriculture & Food Security (KPKM)
4	Mrs. Norfazira Salleh	Assistant Secretary (Climate Change Program Unit), Climate Change Policy Section	Ministry of Natural Resources and Environmental Sustainability (NRES)
5	Ms. Aimi Ayuni Mohamad Sapia	Executive Officer, MGTC (Adaptation Unit), Climate Change Policy Section	Ministry of Natural Resources and Environmental Sustainability (NRES)
6	Mrs. Lim Li Tian	Principal Assistant Secretary, Strategic Technology and S&T Applications Division	Ministry of Science, Technology & Innovation (MOSTI)
7	Mr. Mohd Fairuz Md Suptian	Deputy Director of the Climate Change Program	Malaysian Agricultural Research and Development Institute (MARDI)
8	Mr. Mohd Solihen Jamal	Deputy Director, Breeding Program, Rice & Paddy Research Center	Malaysian Agricultural Research and Development Institute (MARDI)
9	Mrs. Shaidatul Azdawiyah Abdul Talib	Environmental Sciences and Management, Environmental Assessment and Management Agrobiodiversity & Environment Research Center	Malaysian Agricultural Research and Development Institute (MARDI)
10	Mrs. Kogeethavani A/P Ramachandran	Senior Research Officer Plant Pest, Disease Management, and Control Rice & Paddy Research Center	Malaysian Agricultural Research and Development Institute (MARDI)
11	Mr. Sayed Ismail Nasiruddin	Deputy Permanent Secretary	Ministry of Food Industry, Commodity & Regional Development, Sarawak (M-FICORD)
12	Mr. Lim Wui Wui	Economic Affairs Officer, Policy & Planning Section	M-FICORD
13	Ms. Nancy Mongin	Principal Assistant Secretary, Paddy & Grains Section	M-FICORD
14	Ms. Putri Ainaa Afiqah Hossen	Agriculture Officer, Paddy and Grain Division	Department of Agriculture, Sarawak
15	Mr. Ismail Iberahim	IADA Pulau Pinang	IADA Pulau Pinang
16	Ms. Norjana Jamal	National Climate Center	Malaysian Meteorological Department
17	Mr. Mohd Shahrizal Mohd Noor	Economic Affairs Officer Planning & Information Technology Division	Muda Agricultural Development Authority (MADA)
18	Mrs. Sooksiri Chamsuk	Deputy Representative, Regional Hub	UNIDO
19	Dr. Senaka Basnayake	Director, Climate Resilience Department	ADPC
20	Mr. Niladri Gupta	Senior Water Resources Management Specialist	ADPC
21	Datin Aznita Naziz	Industry Development Division	Bioeconomy Corporation
22	Mrs. Shamini Poovendran	Industry Development Division	Bioeconomy Corporation
23	Mr. Cher Tan	Industry Development Division	Bioeconomy Corporation
24	Mrs. Norsuzana Abdul Rahman	Corporate Strategy	Bioeconomy Corporation
25	Ms. Mas Srikandy Mohammed Salleh	Corporate Strategy	Bioeconomy Corporation

**Annex 2 – Validation Workshop in the Philippines (Date: 19 February 2025)**

<b>S#</b>	<b>Organization/ Office</b>	<b>Representative</b>	<b>Title</b>
1	Philippine Institute for Development Studies (PIDS)	Dr. Sonny Domingo,	Senior Research Fellow Philippine Institute for Development Studies
2	International Rice Research Institute (IRRI)	Dr Jauhar Ali	Principal Scientist and the Hybrid Rice Breeding Lead at IRRI
3	Philippine Center for Postharvest Development and Mechanization (PhilMech)	Joshua Israel V. Sumague John Janelle Duria	
4	DOST - PAGASA	Ma. Elena V. Tan, MPA  Nestor R. Eugenio	Chief, Farm Weather Services Section PAGASA Weather Specialist II Farm Weather Services Section
5	Rice Productivity Advocacy Inc. (RICE BOARD)	Mr Recher Ondap	President
6	DENR - Climate Change Services?	Dir. Al Orolfo	Director, DENR
7	DENR - EMB - Climate Change Division	James Clierick Ola	
8	University of the Philippines Los Baños Foundation Inc. (UPLBFI)	Ms. Dorcas V. Trinidad	
9	Department of Science and Technology - Philippine Council for Agriculture, Aquatic and Natural Resources Research and Development (DOST - PCAARRD)	Ms. Gemmalyn M. Trespalacio,	S&T Fellow I at the SocioEconomics Research Division of DOST-PCAARRD
10	PhilRice Research Institute (PhilRice)	Leylani M. Juliano, Mary Rose O. Mabalay,	Chief Science Research Specialist Project Lead, Climate-Smart MapAgronomy, Soils, and Plant Physiology Division PHILIPPINE RICE RESEARCH INSTITUTE (PhilRice)
11	Department of Agriculture Regional Field Office 3	Rodelyn Manansala  Zayra Toledo	
12	Department of Agriculture Regional Field Office 6	Online	
13	Department of Agriculture Regional Field Office 10	Online	
14	Department of Agriculture Regional Field Office 12	Online	
15	DA AMIA	Saturnina Halos Maria Jannell Feliz Talavera Enzo Dela Cruz	
16	DA OURID	Dir. Emerson Yago Cyrille Reyes	
16	UNIDO	Dr Evelyn Taboada Jimmie Neil Kang	

**Annex 3 – Consultations in Malaysia and the Philippines**  
**Malaysia**



**The Philippines**

