ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category	: Small-Sized Project/Programme
Country/ies	: Indonesia
Title of Project/Programme	: **Enhancing the Adaptation Capability of Coastal Community in Facing the Impacts of Climate Change in *Negeri* (Village) Asilulu, Ureng and Lima of Leihitu District Maluku Tengah Regency Maluku Province**
Type of Implementing Entity	: National Implementing Entity
Implementing Entity	: Kemitraan (Partnershipfor Governance Reform)
Executing Entity/ies	: **Harmony Alam Indonesia (HAI) Foundation**
Amount of Financing Requested	: **$ 801.259 U.S Dollars**

Project / Programme Background and Context:

Maluku Province is an archipelagic province comprising 1,412 islands with a total coast line of 11 thousand kilometers, and total area of 712,480 km2, where 92.4% of it is seas and only 7.6% is land. The total population of Maluku Province in 2016 reached 1,715,548 people with gender ratio of 101.77 which means that for every 100 females, there are 102 males. The majority of Maluku communities (80%) live in coastal areas and for generations they are depending on the fishery and marine sector, especially capture fishery. One of the prime commodities in the capture fishery sector in Maluku is tuna. In the Long-term Development Plan (RPJP) of Maluku Province of 2005 – 2025, the Government of Maluku Province focuses the sustainability-based regional development on the functions of archipelagic ecosystem[1].

According to Bappeda Maluku (2011), despite the enormous potential as an archipelagic province, Maluku has a very high level of vulnerability to climate change including vulnerability in relation to the aspects of[2]: (1) agriculture and foodstuff, (2) marine and fishery, (3) drinking water availability, as well as (4) social, economic, cultural and government administration aspects.

Vulnerability in the agricultural aspect (sources of food). In Maluku, most of the agricultural areas depend heavily on rainfall, and also indicate great dependency on the pattern of seasons (rainy season). Climate change affects the planting pattern, increases flooding in coastal areas, causes salinization and erosion due to the increase of sea surface and in addition, human activities may result in contamination and reduce the size of productive agricultural land, which in turn would pose a threat on food security at the household and local levels.

[1] Road Map of Climate Change Mitigation and Adaptation and Sustainable Development in Maluku Province (road map MAPI), Directorate General of Climate Change Control Ministry of Environment and Forestry and Government of Maluku Province, 2017, p. 26.

[2]Subair, dissertation titled Adaptation to Climate Change and the Resilience of Fishing Village Communities: a Case Study in the North Coast Areas of Ambon Island, Maluku, Postgraduate School, Bogor Institute of Agriculture, 2013, pp. 154 - 157.

Vulnerability in the marine and fishery sectors in relation to the impacts of climate change, is in the form of increasing temperature and sea water level leading to changes in the coastal circulation pattern that affects the supply of nutrients, coastal erosion, sea acidity, and coral bleaching. Such condition clearly affects the ecological process that is directly related to the growing capability of coral and the spawning cycle of various coral fish and other invertebrates. All fishery businesses greatly depend on coastal ecosystem. Uncertain weather and more intense frequency of cyclones have disrupted the fish capture operation system and have made it less productive. This condition would lead to the decreasing supply of fish and loss of income for traditional fishermen and fishery industries.

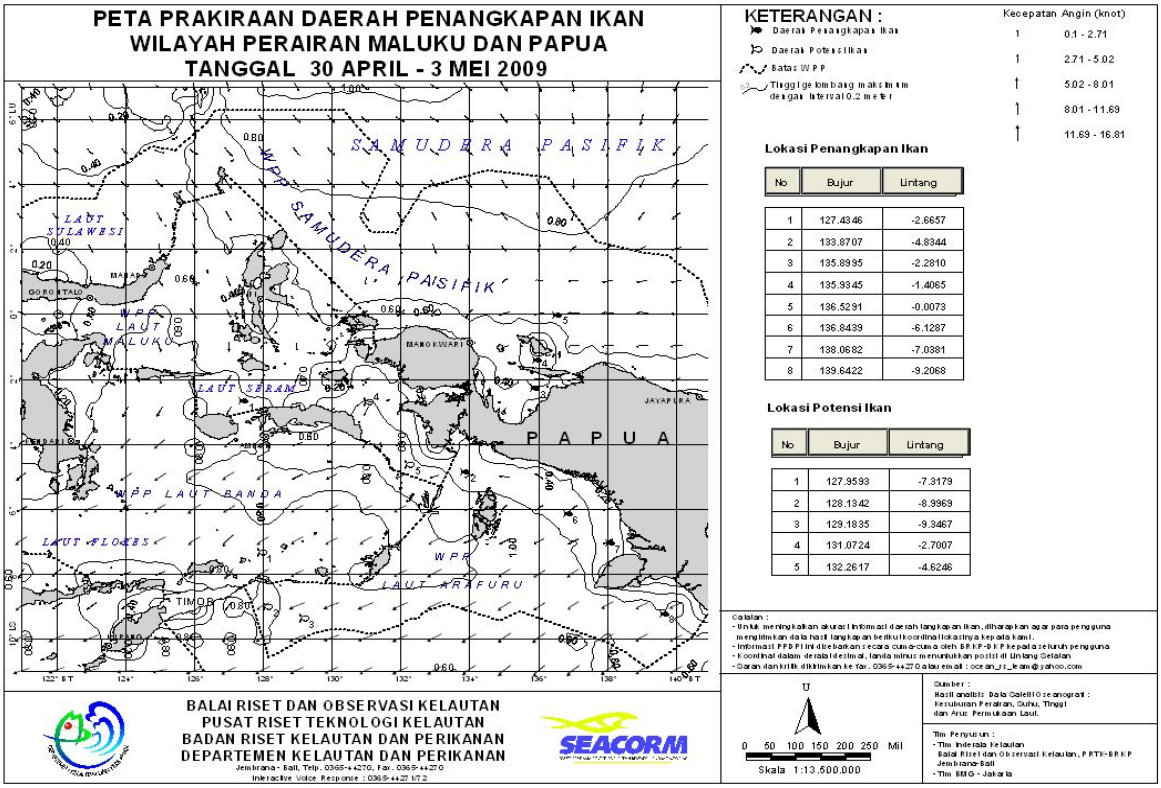

Figure 1. Map of fishermen's fishing ground in Maluku (Source:http://www.bpol.litbang.kkp.go.id)

Vulnerability in the aspect of drinking water availability includes 5 types of water, namely; (1) rain water, (2) ground water, (3) surface water, (4) desalinization water, and (5) imported water (bottled water). In Maluku islands, not all sources of water are accessible and easily available in most of the islands. As the result, most of the communities are very vulnerable to the natural variability of rain or to the changes in the pattern of tropical cyclone.

Vulnerability in the social, economic, cultural and government administration aspects. The Regional Development Planning Agency of Maluku has identified several factors in these aspects as challenges to the adaptation efforts, among others: (1) Varied perceptions on climate change and competing priorities of the government and individuals; (2) relatively weak institutional framework of the government; (3) weak social and economic condition of the communities; (4) availability pf capacity and good government in the region.

This project is aimed at assisting coastal communities in Maluku Tengah Regency to improve their resilience and reduce their vulnerability in the social, economic and ecological aspects from the threats

of climate change impacts. Specifically, this project would assist several *Negeri* (villages) in Maluku Tengah, namely Asilulu, Ureng, and Lima, which are administratively located in Leihitu Sub-district.

Table 1. Demographic Data of *Negeri* Asilulu, *Negeri* Ureng, and *Negeri* Lima[3]

Monograph Data	Asilulu	Ureng	Lima
Number of Population	5,857 people	4,723 people	5,198 people
- Number of Family Heads	1,187 Family Heads	1,094 Family Heads	927 Family Heads
- Males	2,941	2,389	2,675
- Females	2,916	2,334	2,523
Main Livelihood	Fishermen & Fishery Labor	Farmers & Fishermen	Farmers & Fishermen
- Number of Fisherman Fleets	128 Units	119 Units	30 Units
- Agricultural Commodities	Tubers, corn, and vegetables		
- Forestry Commodities	Sago, durian, *lansat*		
- Plantation Commodities	Coffee, Walnuts, cloves, nutmeg, and coconuts		
Social Facilities			
- Medical Facilities	2 Units	3 Units	2 Units
- Educational Facilities	7 Units	7 Units	5 Units
- Religious Facilities	6 Units	5 Units	6 Units
Geography			
- Regional Area of *Negeri*	± 19 KM^2	± 16 KM^2	± 19 KM^2
- Length of Coastline	± 20.49 KM	± 19.33 KM	± 6.97 KM

The selection of those three villages as the project location is supported by the results of a research on vulnerability made by Subair (2013) stating that climate change has significant impacts on villages on the north coast of Ambon island, specifically impacts in the social, economic and ecological context[4].

1. Socio-Economic Context

Several socio-economic impacts of climate change on fishermen according to the results of the research by Subair (2013) include the increase of sea water level reaching settlement areas, the intensity of storm and high waves posing dangers to navigation, unpredictable changes in fish harvesting seasons, unpredictable shifts of fish seasons, confusion due to the fact that west monsoon and east monsoon are no longer in accordance with the monsoon calendar used as reference. Socio-economic impacts caused by the aforementioned condition include, among others: (1) vulnerability of settlements to damage caused by being hit by waves and strong storm wind; (2) decreasing fish catch due to the changes in fishing seasons and relocation of fishing ground.

2. Ecological Context

Ecological impact in the form of damage to road infrastructure and breakwater walls frequently occurred along the coastal areas from Ambon city to Asilulu village. Asphalt paving had disappeared from the road surface and puddles of sea occurred on several spots on the road, while many parts of

[3] BPS of Maluku Tengah Regency, *Kecamatan Leihitu Dalam Angka 2018*.

[4] Subair, dissertation titled Adaptation to Climate Change and the Resilience of Fishing Village Communities: a Case Study in the North Coast Areas of Ambon Island, Maluku, Postgraduate School, Bogor Institute of Agriculture, 2013, pp. 144 - 146.

breakwater walls had gone and some parts were frequently inundated by sea water. Another impact affecting the communities, which was deemed as a disaster, was frequent occurrence of strong wind along with high waves, as frequently occurred in 2010. When storms came, clean water supply was automatically disrupted. Fishermen in those three villages had to use sea water for bathing, washing and defecating purposes. Damage to coastal ecosystem has led to the loss of certain resources which could no longer be used by fishermen.

Figure 2. The impact of tidal waves and abrasion in the form of damage to road infrastructure and breakwater walls due to tidal waves

Figure 3. Fishermen built stilt structure for docking their boats due to the increase of sea water level

Another ecological impact recorded is the loss of coastal plants, including large trees that had been washed out by the sea. In addition, Fishermen who are affected by the increase of sea water level also realize that currently sea water has reached the backyards of some of their houses and is inundating the beach that is used to be used as the pace for mooring (drying) their boats.

Table 2. Relationship between the impacts of climate change and socioeconomic issues of the community in the 3 *Negeri*.

Impacts on Environmental Change	Indicators of the Impacts on Change	Arising Socioeconomic Issues
Rise of sea level	Rise in sea level is greatly perceived especially in Petuanan Batu Lubang Asilulu.	Seawater passing through embankments threatens community settlements especially those located next to the coast.
Increase in the incidence of extreme weather on the sea	Wave pattern perceived to be different from the previously recognized wave characteristics.	Fishermen's fishing boats and facilities do not yet have the capacity to face a storm or great wave (under 10GT), although they can no longer be classified as traditional equipment. During the East Monsoon, going to sea poses high risks causing fishermen prefer not to go to sea and look for a side job to make ends meet.
Shifting fishing season	During the dry season, captured fish tend to be lesser. Fishing season is sometimes earlier or later than the prediction.	Uncertainty of fishing season influences fishermen's catches because the change in tuna circulation and migration patterns is difficult to predict. In addition, tuna is one of seasonal fish which can only be captured in a certain period, instead of a fish which may be captured along the year.
Disturbed season and wind patterns	At the moment, the east and west monsoons are unpredictable. The East Monsoon should have occurred in April-August, while the West Monsoon should have been in September-January.	The commonly used seasonal calendar is no longer relevant to the conditions on the sea. *Tanoar* (a local term which means to do all things by referring to the moon). The difficulty in predicting this fishing season incurs losses for fishermen, because the incurred production cost is higher than the catch.
Shifting fishing grounds	Unpredictable fish circulation and migration patterns.	It subsequently causes obstacles among traditional fishermen who still merely rely on local knowledge and empirical experience in fishing. It becomes difficult for fishermen to determine fishing grounds and oftentimes, they must sail all day long only to find a new fishing ground. It affects the increase in fuel consumption and risk of captured fish decay
Degraded Coastal Ecology	Damages to the main coastal ecosystem, namely coral reef and seaweed bed (typical plant of shallow sea). It is more difficult to fish near the shores.	Fishermen must go to deep sea to fish coral reef or pelagic fish.

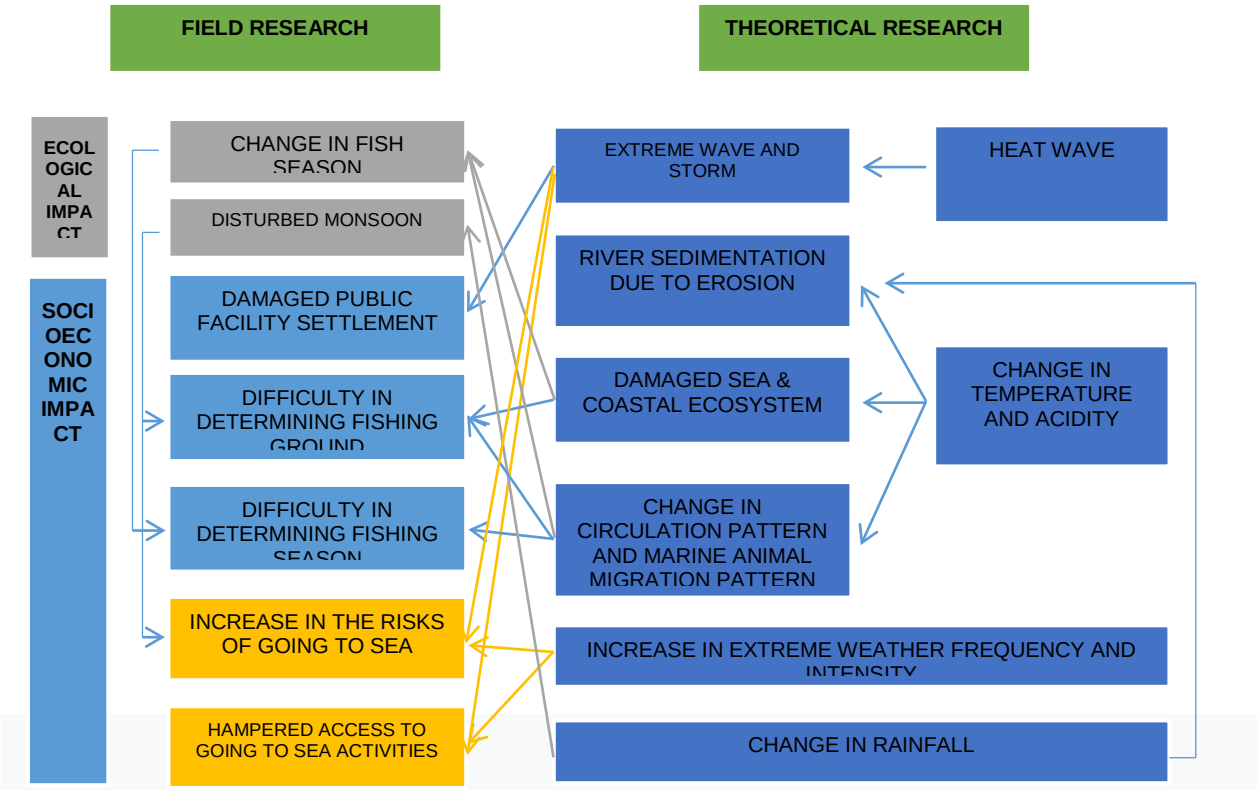

Figure 4. Interrelationships between changes in socio-economic and ecological contexts

Remarks

→ : Influential relationship

To address the aforementioned problems, this project will be focused on strengthening the capacity of communities in 3 villages in order to improve resilience and reduce vulnerability, the strategy of which is by combining traditional knowledge and local wisdom related to climate change adaptation which have already been put into practice. Based on the results of the research by Subair (2013), fishing communities' adaptation to climate change may take the following forms:

Table 3. Forms of Fishermen's Adaptation to the Impacts of Climate Change in the 3 *Negeri*.

Impacts of Climate Change	Forms of Adaptation
Change in fish season and fishing ground	Catching up with season by referring to information from wholesalers combined with traditional seasonal calendar
	Going to sea in groups led by wholesalers
Extreme weather and risks of going to sea	Double job pattern of Farmer-Fisherman for those who have agricultural land or by trading.
	Switch to catching demersal fish of low commercial value in a relatively safer fishing ground (shallow waters).
Wavy sea and strong wind	Fishermen develop a fishing technique by using kites which is fit for fishing in a wavy sea condition along with strong wind.
	Changing boats and developing a technology based on *semang* (traditional boat).
Tidal wave and increase in sea level	Making *talut* along village roads and seashore bordering with settlement.

	Making wooden *para-para* (ship fender) so that it is not washed away by tidal wave because the coast in which ships are moored is submerged.

A. Problem to be addressed

The proposed project is aimed at addressing the challenges posed by the changes in the season and wind patterns leading to the shift in fishing seasons and fishing ground due to the changes in the circulation pattern an sea animal migration patterns as the impacts of the climate change, tidal waves and the increase of sea water level as well as the increase of sea water temperature causing damage to submarine ecosystems and abrasion. Traditional calendar of seasons used thus far by fishermen is no longer relevant to the condition in the middle of the sea. Fishermen suffer losses due to the difficulties in predicting fishing seasons, because the costs for catching fish are larger than the income. It is difficult for fishermen to determine their fishing grounds and oftentimes they have to sail all day long to find new fishing grounds which leads to the increase consumption of fuel and the risk of fish catch getting rot. Extreme weather and strong wind increase the risks to go to the sea for traditional fishermen in the project location. Meanwhile, fish sources in shallow waters are depleting due to the damage to coral reef. There are even more vulnerabilities for communities living in coastal areas posed by tidal waves. Those challenges increase the vulnerabilities of fishermen and communities living in the project target locations. The increase of those vulnerabilities are caused by: 1) the communities' dependency on their source of livelihood as fishermen with decreasing availability of fish in the sea, 2) the lack of alternative sources of livelihood, 3) Decreasing income due to less intensity of going to the sea, 4) Lack of adequate knowledge and information on adaptation and resilience to the impacts of climate change.

Accordingly, the main objective of the proposed project is focused on the efforts to address the changes in the circulation pattern and fish migration pattern through the mapping of new fishing grounds in order to increase the fishermen' catch, the restoration of coastal ecosystems, preparation of alternative livelihood for the communities, the construction of supporting facilities for addressing the problems of increasingly high tidal waves on coastal areas as well as supporting facilities to increase the sale value of the fishermen catch. The mapping of new fishing grounds will be conducted with a series of activities to be started with a study on the changes in fishing seasons which is to be integrated to the traditional know-how of fishermen in the project locations. Such fishing ground map will make it easier for fishermen in detecting the locations of such fishing grounds which will lead to the decrease in operational costs and to increase the potential catch. The revival of shallow water ecosystem through the restoration of coral reef in the project location is a basic intervention which will improve the condition of shallow water ecosystem which will provide homes for pelagic fish and to extend the fishing grounds in shallow waters so that fishermen can still catch fish for commercial and consumption purposes. The development of alternative economy in coastal areas to open the possible involvement of women's Group assisting for improving the families' economic condition. Improvement of several sea walls in locations affected by coastal flooding and tidal waves would minimize threats to people residing around the coastal areas being the project locations.

B. Project/Programme Objective

1) To make fishing ground map which is integrated with the traditional knowledge of the local fishermen; 2) To repair the shallow water ecosystem for the resilience of the fishermen and alternative source of fish catch; 3) To develop alternative economic sources in the coastal areas which are resilient to the climate by improving fishery and marine technology; 4) To design and develop supporting

facilities to anticipate coastal flooding and tidal waves, as well as supporting facilities for improving the sale values of the fishermen' catch.

C. Project Component and Financing

The proposed project will be focused on the efforts to cope with the changes in the circulation pattern and fish migration pattern by mapping new fishing grounds in order to improve the fishermen' catch, to restore coastal ecosystem, to prepare alternative livelihood for the communities, develop supporting facilities to address the increasingly high tidal waves in coastal areas and supporting facilities for improving the sale value of the fishermen' catch. In order to achieve such objectives, there are four components of the project to be implemented, namely: 1) the mapping of fishing grounds which is integrated with traditional knowledge of the local fishermen; 2) the restoration of shallow sea ecosystem for the fishermen' resilience and alternative fishing grounds; 3) the development of alternative economic sources in the coastal areas which are resilient to the climate by improving the fishery and marine technology; 4) the development of supporting facilities to anticipate the impacts of coastal flooding and tidal waves, as well as supporting facilities to improve the sale value of the fishermen' catch. The successful implementation of the aforementioned project components would enhance the people's resilience in coping with the impacts of climate change and improve the level of their economic condition in order to alleviate poverty in the three villages being the project location. The project will be implemented in three years by applying the four integrated components of the project as set out in Table 4.

Table 4. Four Project Component

No	Project Components	Expected Concrete Outputs	Expected Outcomes	Cost (USD)
1	Mapping of fishing grounds which is integrated with the traditional knowledge of the local fishermen	1.1. The existence of a map of the spread of new fishing grounds based on the circulation pattern and fish migration patter as well as fishing season calendar 1.2. Approximately 150 fishermen (50 fishermen in each village) have new knowledge which is more relevant to the climate change and the establishment of fishermen' groups which are able to cooperate with government offices, private parties, and non-governmental organizations in order to be able to access technology, group guidance and capitalization	Improvement of the fishermen' catch by planning the type of equipment and place for catching or netting fish as well as provision of assistance in improving the traditional fish catching rules). Enhancement of the capacity and knowledge of fishermen' groups by adopting the climate change adaptation strategies.	105,296.43
2	Restoration of shallow sea ecosystem for the fishermen' resilience and as alternative fishing ground	2.1. Restoration of ± 12 hectares of coral reefs in Asilulu and Lima villages in order to expand new fishing grounds near the beach 2.2. Approximately 90 people (30 people in each village) have the knowledge on how to do transplantation, maintenance, care, dan monitoring on coral reefs To	Expanding the fishermen' fishing ground in waters by the beach Increasing the number of fish living spaces in shallow sea Enhancing shallow sea fishing grounds Improving the active roles of coastal communities in restoring, maintaining, and protecting coral reefs	86,060.71
3	Development of alternative economy in the coastal areas which are resilient to climate by improving the fishery and marine technology	3.1. Aquaculture farming by constructing 9 floating fish ponds for shallow water fish cultivation (3 ponds for each village) each of which is to be managed by the groups (1 group = 20 heads of	Development of alternative economy as new sources of livelihood and improvement of the people's economic condition	147,989.29

		family) 3.2. Nine floating fish net ponds for the cultivation of sea weed (3 floating fish ponds for each village) each of which will be managed by the groups (1 group = 20 heads of family) 3.3. 100 women in the 3 villages have the skills for processing the products of the fish and sea weed cultivation	Improvement of women' participation in the processing of the sea weed cultivation products Increase of the economic value of the sea weed cultivation products as an alternative economy other than fishing	
4	Development of supporting facilities to anticipate the impacts of coastal flooding and tidal waves, as well as supporting facilities to improve the sale value of the fishermen' catch	4.1. The provision of 1 Cold Storage with a capacity of with a capacity of 160 kg in each village 4.2. Reconstruction of sea walls (*talut*) of ± 1 km in Asilulu, Ureng and Lima villages	Improvement of the sale value of fresh fish catch of the fishermen' groups to be sold to trades of directly sold to consumers Reduction of disaster risks such as village roads by the sea and save condition of the people's houses located by the seas, due to tidal waves	119,571.43
5	**Other Operating Project Cost**			105,328.57
6	**Total Project Cost**			564,246.43
7	**Administrative Cost**			183,557.14
8	**Institution Adsministrative Costs (9.5%)**			53,603.41
9	**Total Fund Request**			**801,406.98**

PART II: PROJECT / PROGRAMME JUSTIFICATION

A. Project Component

Describe the project/program components, particularly those focusing on concrete project adaptation activities, and how these activities contribute to climate resilience. For each program case, show/illustrate how the combination of each project will contribute to improving overall resilience.

Project Component 1: Making a map of fishing ground area integrated with the traditional knowledge of local fishermen

There is at least one updated map and calendar that integrates the source of fisherman's traditional knowledge with the technology of modern knowledge that can serve as a reference for fishermen in three Negeri. In extreme weather such as high intensity of storms, the unpredictable pattern of fish migration[5] in which lately they tend to be found further in the deep of the sea, causing fishermen to require more amount and more complex resources in order to keep producing. In such conditions, the utilization of the marine area as the resources of capture fisheries not only requires the ability of fishermen and the fleet used for fishing. More than that, it is necessary to consider the many factors that determine the right times to go fishing and which waters to explore. The map of the *fishing ground* area and the updated season predictions will greatly help fishermen. As a result, the circulation pattern and fish migration are mapped and the fishing season calendar is updated. Hence, the immediate effects are cost efficiency for the people who catch fish and increase amount of captured fish.

Output 1.1: A map of the new *fishing ground* distribution points based on the circulation pattern and fish migration pattern and fish season calendar

Through a technology and modern knowledge approach on migration patterns and fish seasons integrated with traditional knowledge, this output will result in a map of *fishing ground* distribution points and an updated fish season calendar that will greatly help fishermen. The map and season calendar to be created are joint (participatory) studies with a number of analysis parameters, such as analysis of the season pattern, the average percentage calculation method based on *Times Series Analysis*[6]. The project implementation is broken down in the following phases:

1.1.1. *Study on the circulation pattern and fish migration and fish season calendar in the project site*

The implementation of this activity will start with a *Focus Group Discussion* (FGD). with a number of *stakeholders* and community components to obtain preliminary data concerning the initial constraints and potentials related to changes in circulation patterns and fish migration on the seasonal calendar which has been used by fishing communities as a reference, information on possible changes in circulation patterns and migration of tuna in the sea, and information on locations of existing *fishing grounds*. The activity involved community figures who take hold of *Tanoar* (the guideline for determining the season and location of fish by month), involving academic experts, the government (Ministry of Maritime Affairs and Fisheries), local NGOs, and at least 10 representative fishermen from all villages. The implementation of this activity will involve fishery and marine experts.

1.1.2. *Reviewing the location and mapping the fishing ground*

Reviewing the currently effective *fishing ground* locations is carried out by experts along with fishermen and fishermen figures, and analyzing the existing potentials. At least 6 locations

[5] Migration is a part of fish life cycle during which they find the habitat with suitable conditions for their survival.

[6] Spiegel, MR 1961.*Theory and Problems of Statistics*.Schaum Publ.Co., New York.Page359

are sampled, and the relationship between upwelling location and potential fishing ground for tuna is then investigated. This study employs descriptive analysis method by comparing characteristics of upwelling location, bioecology and tuna fisheries. To review fish season, the percentage of captures is calculated using *The Average Percentage Methods* which is based on *Times Series Analysis* and the result will be the basis of the new fish season calendar.

1.1.3. Workshop for establishing the season calendar and map of the new fishing ground area

The data resulted from the study are clarified with the *stakeholders* which include fishermen, fishermen groups, community figures from each Negeri, academics, and regional governments. The workshop will produce a new fishing season calendar and a map of the *fishing ground* area.

Output 1.2: About 150 fishermen (50 fishermen from each Negeri) posses the capacity and capability to adapt to the new *fishing ground* area and seasonal calendar.

The mapped circulation pattern and fish migration in the *fishing ground* zone and the updated the fishing season calendar raise the need to update the rules for traditional fishing (Sasi Laut) which the fishing community at the project site has used as a guideline. In addition, there is a potential for adjustment of fishing gear and fishing time in the new *fishing ground* area. Therefore, it is necessary that the fishermen in the project site have the capability to adapt in order to answer these challenges through the following activities:

1.2.1. Strengthening institutional groups of fishermen in three Negeri

It can be done by either strengthening the existing institutions in these three Negeri or by establishing new institutions. Strengthening institutions begins with a meeting to establish a mutual understanding regarding the updates made on the traditional fishing rules (sais laut), and arranging the adaptation strategies to address potential emergence of challenges and obstacles in the application of fishing rules to be carried out in the new *fishing ground* area, formulating DAD allocations to support fisherman adaptation activities, as well as mapping stakeholders who can support the activities of fishermen groups in the project site. This activity will involve 150 people from the traditional fishing groups (50 fishermen from each Negeri) and the government of the Negeri.

1.2.2. Mentoring fishermen groups in the three Negeri

Mentoring aims to help fishermen groups improve their capacity and solidity in understanding and implementing climate change adaptation strategies, help to access fisheries technology, group consultation, access to capital, and to build a network with *stakeholders* - including government - for the institution sustainability post-project.

Project Component 2: Improvement of shallow marine ecosystems for fisherman resilience and alternative fishing locations

This project will focus on restoring a number of *coral reefs* that have already begun to get damaged due to rising sea water temperatures and flash floods caused by the Wai Ela dam break in 2013.Climate conditions cause coral reefs to break down and, as a result, the population of pelagic fish living in the shallow water decline drastically, while at the same time, the increasing risks of fishing due to strong winds and high waves discourage fishermen to go fishing. In some villages, fishermen who have economic alternatives such as trading, farming and gardening can still make a living in these conditions, but the people with no alternative livelihoods face difficult challenges to support their family.

Coral reefs play a main role as habitat (home), *nursery ground*, *spawning ground*, and also as *feeding ground* for numerous types of marine biota that make coral reefs its habitat. Coral reef restoration is a basic intervention that will restore shallow water conditions in the hope that it will become a home for pelagic fish, so that fishermen can fish them for commercial purpose or consumption. The results generated from the components of this project will lead to improving people's livelihoods and resilience to climate change, economic improvement, food security, and the recovery of coastal ecosystems.

To ensure sustainable management and maintenance of restored reefs, each component has capacity building activities to enable the community to obtain the necessary knowledge and skills when and after the project takes place. Local government authorities with expertise in various fields will be involved in this project as an intervention to lead and contribute and integrate existing innovations into regional government development strategies. For sustainability, a coral reefs alliance will be established and serve as volunteers who will maintain and preserve shallow water ecosystems, by involving youth groups in each Negeri, and also allowing future development for coral reef ecotourism under certain management so that it can generate funds for post-project maintenance .

Output 2.1. About 90 young people (30 people from each Negeri) knows how to do transplantation, maintenance, care and monitoring of coral reefs

The success of the activities to restore shallow marine ecosystems will be largely determined by the active role of the local people in the project site. An enabling condition that must be created is to understand the impacts of coral reef damage and the benefits that can be obtained if the restoration/rehabilitation of coral reefs is successful. In addition, it requires knowledge and capacity to perform coral reef transplantation techniques, coral reef maintenance and preservation, and regular monitoring. To create the enabling conditions, following are the stages of activities to be carried out:

2.1.1 *Training for youth groups on cultivation/transplantation, maintenance and preservation of coral reefs*

This activity will target youth groups in Negeri Lima, Negeri Asilulu, and Ureng, targeting 30 young people from each Negeri. This activity does not only puts emphasis on improving the knowledge and technical capacity regarding coral transplantation methods, but also raising the awareness of youth groups about the benefits of coral reefs in terms of social, economic and ecological aspects. Therefore, this activity will also be a momentum to establish youth groups to save coral reefs in each Negeri. At least, there should be one group in each Negeri that will be actively involved in coral reef restoration from transplantation to monitoring.

2.1.2. Training on sustainable coral reef monitoring and organizational strengthening of the three youth groups to save coral reefs in the three Negeri

The training aims to prepare a community that will sustainably maintain the cultivated coral reefs with a target of at least 90% of coral reefs growing well. Mentoring aims to ensure the proper monitoring of transplanted coral reefs, as well as to improve the ability of youth groups to synergize with the government and build networks with related *stakeholders* to map other improvable potentials such as coral reef ecotourism concept and so on. These groups are expected to synergize with fishermen groups within the project site to be able to enforce DAD to support the maintenance and development of coral reefs which are potential source of income for the people as well as the development of coral reef nursery points and areas in other post-project sites.

Output 2.2. Restoration of ± 12 ha coral reefs in Negeri Asilulu and Negeri Lima to expand the new *fishing ground* area near the coast

The implementation of this project will apply the latest technology adaptation, namely the rehabilitation of wave-resistant coral reefs, by increasing the effectiveness of the cultivation system and grafting/transplantation techniques with a success rate of 90-100%.If the target of ± 12 ha in Asilulu and Lima villages is achieved, the use of this grafting technique will at least reduce up to 97% of the wave energy and

break the waves up to 86%[7].Therefore, it can solve the problem concerning minimum *fishing ground* location, especially in areas near the coast and it can also reduce waves that hit wave barriers and the impacts of abrasion. This activity will involve the active role of youth groups in each Negeri starting from the planning, implementation, maintenance and monitoring of coral reef restoration. To achieve this output, the activities that will be carried out are:

2.2.1. *Survey and selection of locations for coral transplantation*

The selection of locations is determined by the results of field surveys in shallow sea waters with a large amount of damage. The survey will monitor the extent of damage and also control the recruitment of coral reefs in the area. The determination and review of locations will take into account physical, chemical and biological factors. Algae and coral diseases are factors that will be considered. Locations that contain at least macro algae will be prioritized for restoration/rehabilitation. This activity will be carried out in a participatory manner with local residents, volunteers, local NGOs, and experts in the field of coral reef restoration and rehabilitation. The activities include mapping the potentials, capture points, and weather with a target area of ± 12 ha mapped in the area of Negeri Lima and Negeri Asilulu.

2.2.2. Seedling and Nursery of Transplantation Seeds

The seeds are prepared by trained youth groups. Propagation will be carried out with a grafting/transplant method. Transplanted seeds that have been cut into small sizes of 7 cm/seedlings are then raised in *nursery ground* or place to keep the substrate containing live coral pieces to grow into coral buds. The minimum target is 1,875 nursery points with tables sized 3 x 3 M^2 and spacing of 5 x 5 M^2 covering ± 12 ha in the Asiliulu and Negeri Lima area.

2.2.3. Monitoring, Maintenance and preservation of coral reefs

These activities aim to ensure that the transplanted coral reefs grow well and none of them are carried away. To ensure that coral reefs are growing well, monitoring and intensive care through cleaning up diseases and algae attached to coral reefs will be carried out periodically. This activity will fully involve the formed youth coral reef groups.

Project Component 3: Alternative economic development in coastal areas that are climate resilient by improving technology in the fishery and marine fields

The majority of the people in the project site has been living in coastal areas for generations and around 80% of their communities work as fishermen and depends on the fisheries and marine sectors especially capture fisheries. Meanwhile, the potential of other coastal resources has not been widely explored. Some of the contributing factors are the lack of knowledge regarding the potential for coastal resource development, the lack of technology and capital to support these activities. As a result, there is not much that the community can do against changes in seasonal and wind patterns that cause a shift in the fish season and *fishing ground* due to changes in circulation patterns and animal migration patterns in the sea as a result of climate change. Meanwhile, the potential for fish availability in shallow water area is not maximized because of damage to coral reef ecosystems. Community direct dependence on marine ecosystems affects their social resilience and ability to deal with shocks, especially in terms of food security and economic vulnerability.

The components of this project will address the economic vulnerability issues of the three Negeri against climate change. Alternative livelihood models that will be developed are based on fisheries and non-fisheries. The success of this project is expected to encourage the government of the Negeri and local governments to adopt and develop alternative livelihood models that will be developed in this project. Alternative economic development will target groups of women in the project site who are not employed and economically dependent on the fish captures obtained by their husbands as household heads.

Output 3.1. Aquaculture farming with the installation of 9 floating net cages for Cultivating Shallow Water Fish (3 cages for each never) which for every floating net cage, it is managed by a group (1 group = 20 households)

Aquaculture farming or what is commonly known as Water Culture is a form of raising and breeding water animals or plants that uses water as its primary component. There are some types of water cultivation; one of them is fish culture. This project will develop shallow water fish culture using

[7] DANIEL D. PELASULA Pusat Penelitian Laut Dalam – LIPI , *REHABILITASI TERUMBU KARANG TELUK AMBON SEBAGAI UPAYA UNTUK MEREDUKSI EMISI CARBON CO2,* http://ditjenppi.menlhk.go.id/reddplus/images/resources/workshop_kapasitas/paparan_Daniel_D_Pelasula

floating net cages in the attempts of developing an alternative economy for 3 never community. Every never will install 3 floating net cages, so there will be 9 floating net cages in 3 never.

This project is designed to be implemented in Negeri Asilulu, Negeri Ureng, Negeri Lima. Every never has a minimum of 3 floating net cages which will directly managed by the community group. This group will have an active role in developing the fish culture in each of these never. To achieve these outputs, activities planned to be carried out are:

3.1.1. *Conducting fish culture training for groups in every Negeri*

This activity aims to prepare the groups that have been formed in each never for handling a fish culture. Every group consists of 20 households; hence one never will have a minimum 60 households ready to manage the floating net cages. The objective of this training is for every group to have proper knowledge on how to cultivate fish in floating net cages, such as selecting and designating locations for this cages, making the floating net cages design and construction, deciding the layout, knowing what facilities are required for fish culturing, selecting types of fish to culture, and managing as well as marketing them.

3.1.2. *Surveying location for floating net cage*

The groups for this fish culture which have received trainings will conduct a survey to select and designate the locations for the floating net cages together with experts. In this activity, factors to take into account are natural disturbances (storms and water surges), whether predators inhabit the area, contamination, convenience, hydrographical conditions, the potencies of fish that will be culture, and potential conflicts among users. The survey result can help with the development of the area into floating net cages location for the groups to help improve the economy of people in 3 never.

3.1.3. *Design making of floating net cages construction and facilities provision for the fish culture*

This activity may serve as a follow-up activity of the survey conducted together. The groups will decide the design of the floating net cage they will be using for the fish culturing as required and based on the survey result. It is possible that every group may choose different design depending on the location of the survey and types of the fish they wish to culture. However, facilities that they are required to have are basically the same, such as the nets, they are going to need the smallest net size of 2 x 2 x 2 m to 9 x 9 x 9 m which are easily available in the market. Most important also is raft culture that is used to hook the nets, these rafts are commonly made from bamboo, timber, iron, and fiber which have been growingly made and used these days in modern fish culture. The next step is the fish seeds used that are going to be cultivated, usually the seeds can be acquired by purchasing ones or developing their own seeds which is possible with enough knowledge. The types of fish purposedly for this cultivation shall have enough economic value to culture. The supply of fish feeds will accommodate as well the types of fish being cultivated. Supporting facilities that need to be prepared are a guard-house and other assistive equipments.

3.1.4. *Managing the floating net cages*

Every group is required to divide job to each of their members to collectively manage these floating cages. And it is very likely that every group will have their own unique job division following the needs arise within the group. The purpose of this job division is to give members of the group some responsibility to help improve the economy of the people in 3 Negeri. Maintaining floating net cages involves activities from cultivating the fish, harvesting, to marketing the results of these floating net cages.

Output 3.2. Nine floating rafts used to cultivate seaweeds (3 rafts for each never) which for every raft, it is managed by a group (1 group = 20 households).

In Indonesia, there are 3 methods used for seaweed cultivation, they are *Bottom Method*, *Off-bottom Method*, and *Floating Method*. To achieve the above output, method selected is the floating method. Floating method is an engineered form of the off-bottom method. The advantage of using this method is its workability to be applied in deeper water condition but still safe from big water surges, and seaweeds will receive better intensity of sunlight with constant water movement that helps the renewal of nutrition contained in sea water, this will ultimately facilitate better nutrition absorption in seaweeds that contribute to faster growth.

Seaweed cultivation will managed in group with 20 members per group. The plan is for every never to have 3 floating rafts for seaweed cultivation where every raft is to be managed by 1 group. With this, every group will be responsible for this floating raft for seaweed cultivation until the time this project completes. Expectation is put that this seaweed could help improve the economy of the people in 3 never by actively involving women community. To achieve these outputs, activities planned to be carried out are:

3.2.1. *Seaweed cultivation training*

This activity aims to prepare the groups that have been formed in each never for handling seaweed cultivation. Every group consists of 20 members. This training is to be given to each group, so they will have enough knowledge about cultivating seaweeds. Since there are factors to take into account when cultivating seaweeds, such as accurate location selection, seeds picking or selection, seeds provision, appropriate seedling method, maintaining seaweed cultivation and harvesting method, and also proper post-harvest handling to be able to increase the economic value of the seaweed.

3.2.2. Surveying *location for seaweed cultivation*

Surveying the location is conducted together by the groups and the experts where appropriate location for cultivating the seaweeds is determined. The basis for selecting this location shall be done in regard to water condition, depth of the water, bottom water, natural supply of seaweeds, and water quality.

3.3.3. *Cultivating seaweeds*

Method used for cultivating seaweeds in this activity is the floating raft. This method is divided into *floating-monocline method* and *floating net method*. In principle, these 2 methods use raft that could be made from bamboo, timber, iron, or fiber as a floating device where ropes or nets used can be hooked. The raft is rectangle in sizes that accommodate the condition reflected in the survey result. The ropes used to tie seaweeds to the raft are nylon type.

After floating raft, the next preparation is the seaweed seeds. Selecting seaweed seeds is key because good seaweed seeds will produce good results. The seaweed seeds then is cut up to small pieces, after that they are tied to the floating raft with 14 cm gap from one to another. Afterwards, raft is being pulled to designated location. What needs to pay attention too is the maintaining of the seaweeds by monitoring them once every 2-3 days. Harvesting seaweeds can be done if seaweeds reach certain weight, of which case, it may take around 1.5 - 4 months.

Output 3.3. 100 women in 3 Negeri have the skill required to process the result of fish culture and seaweed cultivation

To increase economic value of the seaweed harvest result, seaweed processing then is necessary to do. The processing of the entire seaweed harvesting will be done by the women group. Every never will have at least one group that does the processing of seaweed result with better sale value. Processed seaweeds could become the new economic icon for 3 never, in addition to its sea fish. To achieve these outputs, activities planned to be carried out are:

3.3.1. *Initial seaweed processing training*

The women groups that have been formed will receive seaweed processing training, so they will be able to increase the economic value of the seaweed harvest result. It is expected that every women group can produce different processed seaweed products depending on the group's ability, respectively. In this training, access will also be opened that will connect the women groups with their processed seaweed products to the market.

3.3.2. *Purchasing and advance training on supporting tools used in seaweed processing*

To support smooth seaweed processing, these women groups will receive supporting tools they can use in processing the seaweeds. The purpose of these supporting tools is to maintain the quality of the processed seaweed products where from this higher economic value can be obtained. The women groups will be given training on how to use these supporting tools and their method of maintenance.

Project Component 4: The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishers catch.

The supporting facilities development project is part of adaption for endurance against the prevailing climate change. One obstacle that most fishers face as the result of this climate change is difficulty in locating catching areas in deep waters, this makes fishers need longer time in the sea. While the longer they spend time in the sea, the higher risk it is for the fish being less fresh, and when upon returning to the land these fish are not directly taken by fish sellers, fishers should have a *Cold Storage* to temporarily store them until the time the fish sellers or collectors take them. With proper *Cold Storage*, it will increase the economic value of fish catch.

Restoring a number of embankment areas impacted by the coastal flooding and tidal wave will minimize the risks the people living in the coastal area where the project is located may face. For this purpose, the restoration of a number of embankment areas which could no longer hold the rising of sea water level or big waves and have been damaged from seriously violent wave blows.

Output 4.1. *Cold Storage* of 160 kg capacity is available in every Negeri

Provision of a minimum of 1 *cold storage* of 160 Kg capacity in 2 Negeri, and this project will involve numerous supports coming from other parties, including the government, to afford the fulfillment of fisher groups' needs in 3 Negeri. The result, the freshness of the fish the fishers catch is preserved and with that maintaining as well the sale value to sellers or collectors.

Output 4.2. Restoring breakwater structure that stretches (*talut*) ± 1 km long across Negeri Asilulu, Negeri Ureng, and Negeri Lima

This project focuses on restoring the function and physical condition of ± 1 KM embankment/breakwater structure in 3 Negeri, with targeted outcome of reducing potential risks

from the occurrence of tidal waves in 3 never, and impact of saving ± 800 lives in 3 Negeri who are potentially facing threats from the occurrence of tidal waves. In addition, it helps as well protect the ± 1.6 KM village road that lies along the seafront.

4.2.1. Surveying damaged areas around the embankment

Survey is collectively done by the community and relevant stakeholders to locate areas in the embankment that will be given restoration priority. The survey is done with stakeholders to obtain the necessary support from the government, particularly the Public Works Services. It is expected that the Public Works Services will help with the preparation process of the development or at least willing to have a share in the area development.

4.2.2. Embankmen restoration

The restoring of embankment in 3 Negeri involves the community of the never itself in order to improve the wellbeing of its people. Aside than that, supports from other various stakeholders are also needed considering that there is some possibility that this embankment restoration may expand more than ± 1 KM. If the survey result reflects more than the target outlined by this project, hence other *stakeholders* may continue the development.

Contribution to Climate Resilience

The proposed project is expected to improve living resilience of the local fishers and community in three Negeri by ensuring full and complete involvement of these fishers and community in increasing their economic income. The making of *fishing ground* area map will contribute tremendously to the fishers, since it means they do not have to spend longer time in the sea, nor do they go to far places only to find perfect catching areas, and ultimately, it will help ensure maximum fish catch. And to increase the sale value of the fish caught, they will need to keep their fish fresh by storing them in a proper *cold storage*. To expand the catching area, coral reefs restoration will make significant contribution to making the new living ecosystem for the shallow water fish. For this coral reefs restoration, the youth are involved in its implementation. Other form of economic development is done with the floating net cages and seaweed cultivation which serves as an alternative economic activity other than fishing. The floating net cages and seaweed cultivation are performed along the coastal areas, which is still in close proximity to the community settlement, in that it can still involve the women in the maintenance and processing of the harvests. From alternative economic development, a significant economic increase will show in addition to the result obtained from fishing. On the other aspect, embankment restoration will benefit the local fishers and community since it will protect the area where they live from high tidal waves.

Throughout the implementation of this adaptation activity, some programs are carried out, such as capacity building for the fishers and community, technology and information knowledge development, infrastructure improvement, sea ecosystem improvement, increasing access to relevant *stakeholders* and organizational governance development.

B. Economic, Social, and Environmental Benefits

Project's economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Strategy to avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

Provinces across Maluku Island are extremely vulnerable to climate change, including their maritime and fishery aspects. Therefore, this proposal aims to address the life vulnerability of fishermen and communities in the 3 Negeri. The 3 Negeri were selected as project sites based on the results of a study that indicates climate change has a considerable impact on the Negeri across on the north coast of Ambon Island, especially the impact in the social, economic and ecological contexts, according to

Subair (2013). This project can address the life vulnerability of communities across Negeri Asilulu, Negeri Ureng, and Negeri Lima against extreme climate change in Maluku waters in the last few years. The main communities who benefit from the adaptation of this project are fishermen groups, youth/fishermen groups, women groups, and other communities. The aforementioned communities will actively participate in delivering the project success. Mapping of *fishing ground* zone and the update to the seasonal calendar, which are implemented through collaboration between the use of technology and fishermen's traditional knowledge, will lead to increased fishing catch. The development of alternative economy will create new source of livelihood and income for the community, especially for women who have not had any participatory role in improving the household economy. The women of the community will be actively involved in the development of alternative economy, due to the fact that women and children are extremely vulnerable against the impacts of climate change.

The restoration of coral reef ecosystems will not only recover damaged marine ecosystems, but also provide a habitat for shallow marine fish which can serve as a new fishing ground as well as can expand the area of *fishing grounds*. The active role of youth groups in coral reef restoration not only ensures the success of the restoration efforts. In concert with various *stakeholders,* the success of coral reef restoration will create opportunities for developing ecotourism potentials that will reinforce the rise of new sources of livelihood and reduce unemployment in the three Negeri. The establishment of supporting facilities, such as breakwater, will reinforce the sustainability of the three Negeri.

Therefore, it is expected that this project can address the vulnerabilities of the community across the three Negeri. The activities to implement through this project will be beneficial socially, economically, and environmentally. The social benefits for the community include improved knowledge and skills, which in turn provide more room for social participation of all community groups along with their ability to survive and adapt to the impacts of climate change. The community will also receive economic benefits through the expansion of *fishing ground*, as well as the development of alternative economy based on fisheries and non-fisheries as an effort to improve resilience and adaptability to climate change. This activity will be accompanied with the construction of supporting facilities in the development of alternative economy. In addition, this project also offers environmental/ecological benefits for the community through the restoration of shallow waters' ecological ecosystem. The following table summarizes the social, economic and environmental benefits of several project output components.

Table 5. Contribution of Project Components to Social, Economic and Environmental Benefits.

Project component	Social Benefits	Economic Benefits	Environmental Benefits
	Short to Long Term	Short to Long Term	Short to Long Term
The mapping of fishing ground area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups	• Integration of traditional knowledge and modern technology to update fishing rules at the fishing community level • New insights regarding the pattern of migration and circulation of marine animals • There is a room for participation and collaboration among stakeholders across the three Negeri in facing the challenges against climate change that have caused difficulties for coastal fishing due to changes in the pattern of circulation and migration of fish.	• *New Fishing Ground* based on the pattern of circulation and migration of fish makes it easier for fishermen to find fish at the sea and to cut the operational cost while fishing • Increased income from fishing catch	• Potential fishing grounds will be well-maintained and managed in a sustainable manner through updated fishing rules, and they will also be maintained and utilized properly and in a controlled manner. • Existing resources are managed in a *sustainable* manner
Improvement of shallow marine ecosystems for Fisherman resilience and alternative fishing locations	• More *fishing ground* locations in shallow seas. • Capacity building and new insights on the benefits of coral reef restoration/rehabilitation • There is a room for participation and empowerment for youth groups to save coral reefs in concert with other stakeholders	• Expanding fishing grounds • Increasing fishing catch by fishermen • Providing a new source of income for fishermen • Potentials for ecotourism development	• A form of adaptation for preserving shallow marine ecosystem resilience. • Coral reefs become a shelter, feeding ground, and spawning ground for marine biotas • The availability of fish, shrimp and other biotas • Better-maintained beaches and coasts

Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields	• The community of the Three Negeri becomes less dependent on the sea as a source of decent livelihood • The community feels increasingly challenged to continually make development and innovations to build a more advanced society. • There is a room for participation and empowerment for women groups to save coral reefs in concert with other stakeholders • Capacity building and new insights on	• Improving household economy with the rise of new business innovations derived from marine products. • Increasing the community income from fish and seaweed • Improving public knowledge on how to process fishing catch and marine products • Opening opportunities for the community to improve their economy and income from various jointly-developed businesses	• The potentials of existing marine resources will be maintained and utilized properly and in controlled manner. • Existing resources are managed in a *sustainable* manner
The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch	• Facilitating fishermen in undertaking their fishing activities • Protecting communities from the impacts of high waves and the risk of high tide • Houses and other public facilities are protected against abrasion and erosion.	• Fishing catch is kept fresh • The economic value of fishing catch is more stable	• Reducing the impact of abrasion and erosion on roads and public facilities • Increasing the maintenance and provision of ecosystem services. • Achieving the condition in which the environment and the community are more ready to face climate change

C. Cost-Efectiveness

Based on the results of the study on the National Action Plan for Adaptation to Climate Change, overall Maluku Province is considered the most vulnerable region against the risk of coastal flooding, high waves and extreme weather.[8] The only way to address the impact of climate change is preparing anticipatory measures and increasing readiness to deal with the situations and impacts of climate change. Moreover, coastal areas are most vulnerable against such impacts and, therefore, the surrounding communities must be involved in climate change adaptation activities as they will be directly affected.

This project will prioritize programs that are urgently needed by the community in the project sites aimed at economic development, social capital, and environmental resilience, as well as address overall vulnerability against the impacts of climate change. The project activities address capture fisheries sector, maritime affairs, alternative economic development, and social resilience as interventions in dealing with climate change. Funding from this project will be effectively used with a budgeted structure of 20% to 30% for the development of soft skills and 70% to 80% for the physical development across the three Negeri. To increase the direct benefits of the program budget for the community, we strive to implement a labor-intensive development system with local communities in the three Negeri. Developmental materials obtained from local potentials will be prioritized for empowerment and the workers from the local communities will be prioritized for recruitment. In this project, government participation and support will prioritize the promotion of program sustainability, by integrating the project with village development programs.

Coral reef restoration in this project is deemed the top priority for rehabilitating underwater ecosystems, especially shallow marine waters, and will contribute to the capture fisheries sector and improve the economy of the community. There are considerations from costs of recovery and rediscovery of coral reef, which also offer economic benefits. The average cost for making breakwater is higher than the recovery of coral reefs, meaning that the coral reef restoration will better prevent the impacts of loss caused by waves.

Project Component 1 will provide be beneficial for the community of the three Negeri, particularly fishermen groups. With the availability of the catching season calendar and the new *fishing ground*, the pattern of circulation and migration of fish can be identified, thus reducing the risks of swelling operational fishing costs. Increasing the capacity and readiness of fishermen to adapt to climate change and reinforcing the fishermen institutions will also better guarantee the continuity of sustainable capture fisheries.

Project Component 2 offers economic benefits to the community with new fishing grounds, as a form of adaptation to ecosystems in shallow marine waters. The problem regarding food vulnerability will be addressed with the availability of food sources originating from the sea that are resilient against the impacts of climate change. As for the long-term benefits, already-productive coral reefs can be further utilized as ecotourism that can add economic value to the community.

Project component 3 will lead to the development of new innovations in terms of creating alternative livelihoods that are climate resilient by implementing a number of strategies to increase income and skills in managing marine products.

Project Component 4 will be beneficial for the community, particularly those who live on the coastal area and the seafront. Construction of breakwater or wave-breaking walls is the fastest alternative to reduce the impact of climate change. As it will directly reduce the impact of abrasion and road erosion. In addition, supporting the procurement of *cold storage* for fishermen will massively help maintain the quality of fishing catch and the value of fish in the market.

The challenges encountered in the field are (1) the lack of public awareness to safeguard the sea as a sustainable resource, (2) the lack of knowledge on the management and utilization of existing resources,

[8] National Action Plan, Ministry of National Development Planning/National Development Planning Agency (BAPPENAS), 2014, p. 25

(3) limitations on equipment and technology used by fishermen that affect the expected yield, (4) the community's ignorance on the impacts of climate change which will make it difficult in identifying problems occurring in the field.

Table 6. Summary of Project Costs and Benefits

Project Component	Project Cost USD	Concrete Benefits from Adaptation	Avoided loss	Alternative Interventions and Compromise
The mapping of *fishing ground* area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups	**105,296.43**	• Increasing the resilience of fishermen in dealing with extreme weather by identifying fishing season patterns and new *fishing ground* locations • Increasing fishing catch • Reducing the sailing risk emerging due to bad weather • Reducing fuel use • Cutting down the time required for searching *fishing ground* locations • Knowledge on the patterns of migration and circulation of fish in the sea • Fishermen group institutions that are established and capable of collaboration with relevant stakeholders will procure support for adapting against the impacts of changes in the pattern of migration and circulation of fish	• Extremely high fuel consumption which burdens fishermen • Income decline experienced by fishermen due to difficulties in finding fish • The economic downturn affecting other sectors • Fishing activities are abandoned	• Relying on the traditional seasonal calendar in determining the *fishing ground* locations. *Trade-off*: - Regional maps and traditional seasonal calendars are irrelevant and speculative - Seasons are becoming more and more unpredictable, making it difficult to study fishing season - Fishermen could not obtain the optimal fishing catch - High operational cost due to indeterminate fishing grounds • Fishing grounds are determined by fish wholesalers: *Trade-offs*: - Relying on the instructions from fish wholesalers - Fishing tools are not compatible with the condition in the fishing locations - Swelling debts to fish wholesalers - Sailing trip is done in group and led by a fish wholesaler • Fishermen are not organized through an established institution - Minimum support from the village/Negeri government and the Local Government - Budget allocation structure in DAD isn't adaptive to the climate change - Lack of supports in preparing the community for challenges emerging from fish migration and circulation.

Improvement of shallow marine ecosystems for Fisherman resilience and alternative fishing locations	**86,060.71**	• Increasing the number of fish habitats in shallow waters, which may be utilized alternative fishing areas, if and when sailing poses too high a risk • Coral reefs are well preserved and could serve as breeding location for marine biotas • Damaged coral reefs ecosystem is recovering • Potential and new alternative livelihoods with the development of ecotourism program • There is a room for participation and empowerment for youth groups to save coral reefs in concert with other stakeholders	• The damage of coral reefs ecosystem is worsening. • Diminishing habitat for various pelagic fish (fish that live in shallow waters) • Higher degree of vulnerability that the environment faces as coastal ecology are damaged.	• Fishermen's overreliance on fish sources in deep sea *Trade-offs*: - Risk of extreme climate and proneness to accident during sailing activity - Ever-increasing operational cost for sailing • The damage of coral reefs ecosystem is constantly aggravating *Trade-offs*: - Diminishing alternative sources for catching fish in shallow waters - Tidal waves will be stronger and more intense, which are capable of destroying the breakwater structure - Diminishing quantity of marine biotas and fish food sources - Inability to use the resources available in shallow sea waters - Decreasing support capacity in the coastal ecosystem • Declining awareness on the impacts, risks and benefits of coral reef ecosystem - Ever-increasing practice of dynamite fishing. - Growing number of unemployment among youth or productive age group
Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields	**147,989.29**	• Increasing sources of livelihood from maritime prospects • Increasing product diversification sourced of various marine and fishery commodities • Improvement in household	• Community dependency on capture fisheries • The potentials of natural resources are not well managed • The existing resources are not sustainably managed	• Higher dependency on sources of income from capture fisheries *Trade-offs*: - Income earned are far from sufficient to cover for the family economy needs - Suffering from debt with the fish wholesalers when sailing is not possible

		economy. • Improving public knowledge on how to process fishing catch and marine products as food sources and trade commodities • Reducing poverty rate • Increasing participation of women group in their family economy	(*Sustainability*)	- Higher rate of poverty and unemployment • No room for women group to participate in improving their family economy *Trade-offs*: - Plummeting family's standard of living - Overreliance on husbands' job as the only source of family income
The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch	**119,571.43**	• Increasing resilience to the risk of abrasion along the coastal areas • The village road and other facilities are protected from danger of waves • The dwelling of the local people are averted from disastrous high waves • Maintaining the economic value of fishing catch	• Frequent coastal flooding sweeping the settlement of the community along the coastal areas • The damages to or the loss of fishing boats following the occurrence of high tides • Village road access is destroyed	• The breakwater is severely damaged due to climate condition, coastal flooding, and tidal waves. *Trade-offs*: - The risk experienced people living in the coastal areas - Increasingly high disaster risks - Increased budget the government needs to allocate in addressing the impacts post-disasters • The limited *number* of cold storages *Trade-offs* - Fish freshness quality is not preserved - Decreasing sales value for fishing catch, which is not balance with the sailing operational cost - Steep increase in the local government budget allocation following the realization of cold storage procurement. -

D. Alignment with National and Sub-National Sustainable Development Strategies

This project will always be synergized with the National Action Plan for Climate Change Adaptation (RAN-API) which has been designated by the National Development Planning Board (Bappenas) as a part of Indonesian national development framework applicable to the *climate proof/resilient development* concept. Project to be implemented in the project site will be integrated with the climate change and sustainable development adaptation *roadmap* that the Government of Maluku Province has owned, and during program implementation collaboration with the Local Government will always be done, particularly with the Regional Development Planning Board, and the Maritime Affairs and Fisheries Office of Maluku Province and Central Maluku Regency. Coordination and support for this program plan can be found in letter of support of the Maritime Affairs and Fisheries Office of Maluku Province and Central Maluku Regency (enclosed).

As for the directions of this action plan are 1) Adaptation of the strategy, policy, management, technology, and behavior to reduce (negative) impacts of climate change to its minimum level, and when possible utilize and maximize its positive impacts. 2) Efforts to reduce impacts (consequences) of climate change, both directly and indirectly, continuously or discontinuously or permanently, as well as its impacts by degree9. To achieve this objective, this program will always be synergized with the climate change and sustainable development adaptation roadmap that the Government of Maluku Province has owned, and RAN-API which has been designated by the National Development Planning Board (Bappenas). In its implementation, the program will always collaborate with the Local Government, particularly with the Regional Development Planning Board, and the Maritime Affairs and Fisheries Office of Maluku Province and Central Maluku Regency. Coordination and support for this program plan can be found in letter of support of the Maritime Affairs and Fisheries Office of Maluku Province and Central Maluku Regency (enclosed), and support from three Negeri Government Administration in the project site (enclosed).

Ecological Resilience: In ecological resilience sector within the national action plan, Bappenas sets forth its targets, which are, 1) Reducing the size of damaged natural ecosystem in land and sea caused by extreme climate and climate change, 2) Increasing the quality and quantity of coral reefs, 3) Reducing degree of endangerment faced by key species as the result of climate change, 4) Enhancing the ecosystem resilience system. All of these targets are outlined as outputs in this project activities, there will be 12 ha coral reefs to be restored and, further, this project will form 3 care-for-coral reefs communities equipped with organizational knowledge and building. With the recovery of the coastal ecosystem, there is a high possibility for sustainability for the key species, in which case, also supports the livelihood of the fishers as well.

Economic Security and Food Security: the targets of the government in food security sector is to reduce food production loss due to extreme climate and climate change, to develop areas where new sources of food production are found in particular areas with low climate risks and minimum environmental impacts (low emission), and to develop food security system for farmers/fishers and community (micro) by promoting healthy and nutrition-balanced dietary pattern, and to achieve food diversification at the optimal level. Along with this project, various systems and technologies in capture fisheries, cultivation, and aquaculture management, seaweeds, and its derivative products are to be developed, which, aside from giving beneficial values, also provides economic values to foods. Better product diversification from the fishermen catch will strengthen their food security in any climate condition, and it also serves a true realization on adaptation to environment.

[9] Bappenas, *the National Action Plan for Climate Change Adaptation (RAN-API) the Ministry of National Development Planning/National Development Planning Board (BAPPENAS)*, 2014. p. 12

Infrastructure Resilience: For infrastructure resilience, the targets the government set in this national action plan are 1) to develop an infrastructure resilience concept which is adaptive to climate change, 2) to build facilities with adaptability to climate change, 3) to provide and adapt infrastructure that has direct impact to the health of the community with high accessibility level, particularly for the community group who are both vulnerable and invulnerable to climate change, 4) to manage the integration of infrastructure layout with spatial planning within the concept of sustainable development. In this project, the output also covers some objectives, some of them are the breakwater construction and additional supporting facility for the fishermen, such as the cold storage. The breakwater construction planned in this project is not relatively big. Nevertheless, this project prioritizes on areas that will be directly affected by bad climate in some villages, such as Batu Lubang. This project will certainly require the support of the government in various manners to ensure maximum achievement.

Fishery Sector: In fishery sector, the government mission is to have fishery resources that are resilient to risks of climate change and have the capability of continually adapt to and shall become the alternative livelihood for the community, the productivity and diversity of the water ecosystem, and the fishery sector in general. This project intervention is consistent with the government objective of introducing fish culture technology using aquaculture system, and increasing *sustainable* productivity of ecosystem diversity.

E. Compliance with National Technical Standards

National Standards

This project will follow the technical standards based on the direction and policy in the National Action Plan for Climate Change which has been designated by the National Development Planning Board (Bappenas), the climate change and sustainable development adaptation *roadmap* owned by the Government of Maluku Province, and the local and national policies, both existing and future policies. The implementation of this project will involve individuals who are knowledgeable and have expertise in their fields (*Experts*) to ensure the success of the activities being proposed. These experts will attend all activities from the beginning until the completion of the project.

Environmental and Social Policy of the Adaptation Fund

This project implementation is committed to all environmental and social policy and regulation of the Adaptation Fund. Before implementing the project's activities, a process of identifying environmental risks and social risks will be carried out. Every risk will be identified in the beginning to prevent and/or minimize potential issues that may arise during project implementation. In addition to it, throughout project implementation a plan will be mapped out to prevent and/or minimize potential issues that may arise. There will be a mechanism to manage the occurring risks. Project implementation will comply with the national and international laws.

This project will be implemented by involving all communities in three Negeri. Particularly for the fishermen community, as they will actively involve in improving their sailing knowledge. Additionally, full participation of the youth community is also promoted to ensure the success of restoring the submarine ecosystem, in which case, it will ultimately support other activities. For women community, the activity is aimed to develop an alternative economy program, which will be executed in three Negeri. Women community is most catered to in this project since they have the highest vulnerability level. All results achieved from this activity can later be experienced by all communities in three Negeri and they can finally adapt to any risks emerging from climate change.

F. Duplication of Project

Harmony Foundation has been working extensively to support climate change adaptation through the improvement on social governance of sustainable site-based forest management (Forest Management Unit) through forest tenurial reform, specifically to reinforce the capacity of communities surrounding/within forest areas in conflict resolution process. Institute Tifa

Damai Maluku, as the main partner for this program implementation, has worked extensively in empowerment of coastal communities across Maluku, particularly regarding issues on promoting tolerance, harmony and peace, including how to improve the economy of coastal communities in fishery and non-fishery sectors.

G. Knowledge Management

The new experiences and lessons learned from this project will be promoted based on the achievements of outputs 1.1, 1.2, 2.2., 3.1, 3.2. and 3.3. that are implemented in Negeri Asilulu, Negeri Ureng and Negeri Lima. The experience and lessons learned will be disseminated in concert with Institute Tifa Damai Maluku, through a collaboration with the Regional Government and the Climate Change Adaptation Forum and Maluku's Disaster Risk Reduction (APIK-PRB). The Learning process and Knowledge will be promoted as a model feasible to develop for other Negeri, particularly those across the coast of Central Maluku and Maluku in general. The learning and knowledge generated from this program will be presented in printed materials, visual and audio visual documentations. Promotion through printed documentation can summarize what activities to carry out for the success of the project so that the public can collectively learn from them. The dissemination can be done through social media and printed media. It is expected that the general public will learn through social media and printed media. Additionally, a documentary is to be made to accommodate the surrounding communities in the process of understanding and implementing what they learn. However, it does not rule out the possibility that the output of this project is applicable in other Negeri when supported by the government and other donors, if they wish to develop the project. Workshop activities will provide a room to share experiences with other communities in other Negeri. In addition, the workshops can also provide information for the government if they wish to support the community by issuing the appropriate policies.

H. Consultative Process

Consultation processes at the regional level will be carried out with key stakeholders, beginning with the preparation of program proposal in collaboration with the Institute Tifa Damai Maluku, Fisheries and Marine Service of Maluku Province, Fisheries and Marine Service of Central Maluku District, Government of Negeri Asilulu, Negeri Ureng and Negeri Lima, including establishing initial communication with the Climate Adaptation and Disaster Risk Reduction (APIK-PRB) Forum where the Institute Tifa Damai Maluku serves as Deputy Chairperson. During the implementation phase, gender consideration will become an important issue that is mainstreamed in every activity in the field.

In implementing the project, the consultation activities involve a number of stakeholders, in order to support the RAN-API's vision and mission as a national target. **Local communities** are involved in key projects, problem identification, participatory mapping of potential vulnerabilities, and determining locations for implementing AF project. **The Regional Government and the Government of the Three Negeri** will be involved in providing data regarding community vulnerability, the potential for development, and possibilities for synergies in certain projects, providing training materials and reinforcing community capacity related to projects, mobilizing and planning follow-up programs post AF project. **Academics, research and development institutions** will provide technical support during project implementation, starting from mapping potential *fishing ground* areas, studying seasonal patterns, fish circulation and migration, advocating priority points for coral reef restoration, fish farming with aquaculture methods, and seaweed farming. **Local non-governmental organizations** will provide support to the activities, such as the development of coral reef lover groups, seaweed farmers, and women's empowerment, as the technical implementer and community mentor.

I. Justification for Funding Requested

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Harmony Foundation and Institute Tifa Damai Maluku expect full funding from the Adaptation Fund project, because other funding sources for this program are not yet available.

Maluku Province consists of small islands which are extremely vulnerable to the issue of isolation arising from the increasingly worsening climatic conditions. Maluku people are dependent on sources of food/provisions originating from Sulawesi or Java. So, as the climate condition worsens, the vulnerability level of the community will also rise. With 90% of population working as fishermen, the community in the three Negeri is extremely vulnerable to climate change, unpredictable pattern of fish circulation and migration, extreme weather, rising sea levels, and damages to coastal ecosystems, all of which affecting the fishermen's livelihoods. Economic and social costs rise due to declining catches and increasing difficulty in finding fishing locations. The majority of population do not have alternative livelihoods due to lack of knowledge required for developing diversification of economic value products. Experiencing such impacts, the degradation of coastal ecosystem quality and declining fish commodities are the root cause to fishermen vulnerability. Therefore, this project is proposed for the following reasons.

Component 1. The mapping of fishing ground area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups (without funding)
The absence of fishing ground map and updated seasonal calendar will cause the decline of fishermen's main fishing catch, which is tuna. The government will spend a large amount of money to increase the productivity of fishermen or new fishing technology or ships with greater capacity will be required. In addition, it also contribute to the decline of the regional income, even though according to *Destructive Fishing Watch* (DFW) Maluku is the largest contributor to tuna exports. In the meantime, the government, in this case the DKP of Maluku Province, only focuses on the procurement of ships and the construction of *cold storage*, which is costly.

With funding for component 1, this project will help create a standard fishing ground map and a new fishing season calendar with the help of experts in the field of marine and climatology. This will be massively beneficial for fishermen and the government in achieving the target of developing capture fisheries in coastal areas. For the purpose of sustainability, this project can be developed in other regions. The existence of this project also helps ± 15,000 fishermen regain their confidence in their field of work, as well as their only livelihood.

Component 2 Improvement of shallow marine ecosystems for Fisherman resilience and alternative fishing locations (Without funding).
Underwater ecosystem damage can be perceived from the loss of numerous types of coastal fish and other marine biotas. This results in the vulnerability that pushes fishermen to go to the deep sea just to find fish for consumption. If this happens, the government must take part in helping to provide alternative food for coastal communities, especially the 3 Negeri. **With funding for component 2.** So far, Maluku government has only expanded the coral reef restoration area in the Ambon Bay region and this program has helped ± 30,000 families in the 3 Negeri gain better outcomes. New sources of livelihood will emerge along with a good ecosystem, which can support the community's economy. The target of achieving national and local government action plans is also accomplished by way of protecting and improving the structure, function and integrity of the ecosystem and its resources, as well as reducing the rate of coral reef degradation. In terms of social aspect, this project develops, maintains and improves the community support in an effort to manage coral reefs.[10]

Component 3 Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields (Without funding).
Without funding on this project, the government has to work harder and allocate an enormous budget for capacity building and employment, which becomes the only solution for improving the welfare of coastal

[10] Research Center for Deep Sea (LIPI), *Ambon Bay Coral Reef Degradation and Rehabilitation Efforts in*, www.deepsea.lipi.go.id accessed

communities. With diverse resource potentials ranging from the land and sea potentials, the government must map the potentials of each village according to community capabilities.

With the funding for component 2, this AF project will serve as a massive assistance to resolve socio-economic issues of the community across the 3 Negeri, because at least there would be 3 groups of aquaculture farmers, 3 groups of seaweed farmers whose members have been provided with skills in nursery, management, harvesting and monitoring sustainable program under the guidance of experts and supervised by the regional government.

Component 4 The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch (Without funding).

In 2014, almost all villages in Leihitu Sub-district were affected by tidal flood caused by rising sea levels, further aggravated by high waves causing water to flood into settlements. The government has restored breakwater in several villages, but the repairs were partial in nature and other causing factors, such as coral reefs and etc., were not addressed. The repaired breakwater only lasted temporarily and became damaged again in the long run. Despite requiring a large budget, the breakwater was ultimately repaired, considering that leaving the condition as it was would endanger coastal communities, especially those living at the seafront. Besides, the government was focused on expanding the capacity of *cold storage* to increase the economic value of fishermen's catch and the cost for *cold storage* is high enough even without endeavoring to reinforce other sectors.

With funding for component 4, AF project will greatly help the government and local communities in reinforcing endurance and resilience against the impacts of extreme environmental changes. The funds will be used to complement the shortcomings of the government’s endeavor, such as the most impactful damages on several villages, such as Batu Lubang, Negeri Asilulu Hitu, or Hila which are extremely vulnerable to coastal flooding. By aiming to reduce settlement vulnerability. The allocated funding for the procurement of *cold storage* also helps fishermen or groups of fishermen in need. Increasing fishermen's income by maintaining the quality of catches delivered to buyers/traders will reinforce fishermen as fish producers and will increase sustainable regional income.

J. Sustainability

The project interventions will bring improvements and improvements in the areas of ecology (environment), finance (financial) and well-being and social (society) that will ultimately strengthen the community in the landscape of project interventions aimed at to adapt to climate change and to be more attentive to future disasters, the risk of impact will be reduced.

To ensure the sustainability of this program, we will promote the learning and knowledge model generated from this program to be adopted in the regional climate change adaptation action plan, including promoting the necessary local and regional policies, so that similar programs receive financial support from the region. We will also encourage that climate change adaptation project is included in the Negeri or Village development plan that can be funded through the Village Allocation Fund (DAD) which is budgeted annually by the Central Government. We will also promote to other potential donors for further development of climate change adaptation models in other places or if further program support is needed at the same locations.

Social Sustainability: This project was designed to consistent with the social framework of the Adaptation Fund. Communities in three Negeri will be actively involved in the project. Starting from project preparation, project implementation, and up to the completion of the project, the whole process will involve the existing communities. Active participation of the community in implementing this project ensures the sustainability of the project that, upon the completion of Adaptation Fund funding, it can improve community resilience against climate change.

Institutional Sustainability: The project also establishes institutions at the community level according to support the continuity of the project. The formation of these institutions aims to gain new insights, facilitates communication between communities, and more importantly juxtaposes the accesses needed by the communities in developing their institutions. Accesses in question are to establish cooperation with government institutions, from village government to the central government, private parties, and non-governmental organizations. It is expected that the cooperation between institutions and related stakeholders will enable accesses to technology, group guidance, capital, and others. As the institution cooperates with the regional government, they can formulate a joint DAD for the welfare of the community. In addition to facilitating institutions to obtain the necessary access, the establishment of these institutions also aims to prepare the institutions to manage, maintain and preserve the facilities built during the project.

Financial Sustainability: One of the project components is the development of alternative economy through technology development in fisheries and marine sectors. Alternative economic development aims to respond to the issue society sustainability so that they do not depend solely on fishing catch or sea products. The full engagement of the communities across 3 Negeri in carrying out the project, especially in this output, will involve more women groups. This aims to facilitate women to not depend solely on their husbands' income, as it is highly dependent on fishing catch. In addition to increasing financial income, fishermen groups can use the new *fishing ground* map. That way, after the project is completed, they have better economic resilience in facing climate change.

Environmental sustainability: Through this project, the sustainability of the underwater ecosystem will be addressed with coral reef restoration activities as they are carried out by coral reefs youth communities. The restoration of underwater ecosystems will also affect other activities. For example, the presence of coral reefs close to the coast will expand the new *fishing grounds* in coastal water. Further, coral reef restoration will contribute to the success in making net floating cages, because coral reefs will provide new sources of food. Coral reefs can also reduce strong undercurrent due to increasingly high tides.

K. Environmental and Social Impact and Risk

List of Environmental and Social Principles	No further assessment requirements for compliance	Potential Impacts and Risks – further assessment and management needed for compliance
Compliance with the law	No	
Access and Equality	No	
Marginalized and susceptible groups	No	
Human Rights	No	
Gender Equality and Empowerment of Women	No	
Core Manpower Rights	No	
Indigenous Population	No	
Forced resettlement	No	

Protection of Natural Habitat	No	
Biodiversity Conservation	No	
Climate change	No	
Prevention of Pollution and Efficiency of Resources	No	
Public Health	No	
Cultural and Physical Heritage	No	
Field and Land Conservation	No	

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangements for Project Implementation

Description	Roles and Responsibilities
Harmony Alam Indonesia Foundation - 1 person in charge of the Program to Donors - 1 Program Manager - 1 Program Officer - 1 Program Advisor - 1 Financial Advisor	- Coordination and Narrative and Financial Reporting to the Partnership - Communication to gain support from the Government and Regional Government - Ensuring synergies between programs that run with the Maluku Climate Change Adaptation Roadmap and the National Action Plan for Adaptation to Climate Change - Evaluating and suggesting improvements regularly toward the program achievements every 3 months - Communicating and designating an Independent Evaluator annually - Providing guidance for improvement and adjustments if there are any activities that potentially violate compliance with gender, social and environmental adaptation fund policies
Institute Tifa Damai Maluku - 1 Program Officer - 2 Financial Management staff - 3 Village Facilitators	- Coordinating with the Harmony Foundation for program implementation in the field - Intensive communication with the Central Maluku District and Government - Making a 3-monthly activity plan - Carrying out technical activities of facilitation for program implementation in the field - Preparing activity and financial reports every 3 months and submitting them to Program Advisor and Financial Advisor.
Experts - 1 expert on Coastal, Fisheries and Marine Ecosystems - 1 expert on alternative economy - 1 expert on marine mapping	- Preparing reference materials and capacity building training for the community - Becoming a resource person in internal program management meetings and training for the community - Helping Design Coastal Ecosystem Restoration - Helping Design alternative economic development that is relevant to the community - Helping Design a participatory mapping plan for fishing ground areas and coastal ecosystems.

Fisheries and Marine Service of Maluku Province	- Providing program directive to ensure synergies between programs that run with the Maluku Climate Change Adaptation Roadmap and the National Action Plan for Adaptation to Climate Change - Becoming a source of information and data - Becoming a resource person in accordance to activity needs
Fisheries and Marine Service of Central Maluku	- Providing guidance for program implementation in the field - Becoming a source of information and data - Becoming a resource person in accordance to activity needs

B. Financial and Project Risk Management

Risk category	Level of risk	Risk Management
Dispute over fishing grounds in a new fishing ground area	Low	Discussing the renewal of traditional fishing rules in a participatory manner with all stakeholders
Political will of the government at the regional and District levels, and local government to accept and the support to the objectives of the project	Low	Active involvement of all stakeholders from the start of the project
Limitation in understanding and adopting new knowledge and innovations	Moderate	- Community capacity building in the project site - Formulation of plans and implementation of participatory activities
Price changes on materials used for project implementation	Low	Budget review
Delay in funding disbursement	Low	- Timely reporting - Assistance in preparing reports to implementing entities/partners

C. Environmental and Social Risk Management

Risk category	Level of risk	Risk Management
Access and equity	Low	- Capacity building - Participatory resource management

Marginalization and vulnerability	Low	The susceptibility and sensitivity of the impacts of activity implementation to all vulnerable community groups
Pollution prevention and resource efficiency	Low	Compliance with policies/regulations in the environmental sector
Rehabilitation of shallow marine aquatic ecosystems	Low	- The susceptibility and sensitivity of the impacts of activity implementation to all vulnerable community groups - Community capacity building in the project site - Formulation of plans and implementation of participatory activities

D. Monitoring and Evaluation

Monitoring and evaluation will be carried out periodically every three months by Program Advisors and Financial Advisors. The evaluation results will be used to provide guidance for improving the implementation of activities.

Monitoring and Evaluation will be done by independent parties every year end or annually, unless decided otherwise by Partnership and Adaptation Fund. The result of evaluation will be used as a recommendation for improvement and formulation of annual work plan and, when required, adaptation will be made following direction of the newest local/central government policies (if applicable)

Table 7. Monitoring and Evaluation Budget

Inception Meeting	**Budget (USD**	**Time Frame**
Baseline Survey	20,893	Within 2 month of project starting
Midterm Review	7,543	18 months
Annual Meeting	51,921	Annual
Final Evaluation Report	1,643	36 months
Audit Report	6,429	Annual
Total	**88,429**	

E. Result Framework

Expected results	Indicators	Basic data	Targets	Verification Tools	Milestones
Complete Objectives: Improving the resilience of communities in 3 Negeri and strengthen their social resilience to the impacts of climate change					
Enhancing the preparedness and resilience of communities in three Negeri to adapt to the climate change	• Increasing the number of fishing catch to remain stable, despite weather condition in various fishing grounds. • A habitat for biotas and more species of shallow water fish reemerges through the restoration of coral reefs. • A number of population has better livelihoods by diversifying products from processed marine and fishery commodities. • Forming strong community organization in various project sectors. • Meeting the fishermen' needs for public facilities and activities		• Producing at least one fishing ground map and new fishing season calendar. • Having a minimum of 30% increase in income • Having a minimum of 12 ha coral reefs area restored • Having a minimum of 3 groups culturing shallow water fish using the aquaculture system • Having a minimum of 3 groups cultivating seaweed • Having a minimum of 1 km embankment restored • And having a minimum of 3 *cold storages*	- Reports of study and research result and One *fishing ground* map and fish season calendar - Project M&E report - Biannual and annual report - Activity documentation	During, post, and within project implementation
Component 1: The mapping of fishing ground area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups					
Expected results	**Indicators**	**Basic data**	**Targets**	**Verification Tools**	**Milestones**
New Fishing Ground based on the pattern of circulation and migration of fish makes it easier for	- The number of community members and fishermen possessing traditional knowledge and modern technology	Will be completed during the research	- One *fishing ground* map and fishing season calendar - 60 communities of 3 Negeri improve their understanding on the collaboration between	- Periodic project report - End year report - Data report from fishers group survey - Village data	During and within project implementation

fishermen to find fish at the sea and to cut the operational cost while fishing	- The number of fishermen with new Knowledge on the pattern of migration and circulation of sea animals - The percentage of increase in fishing catch		traditional and modern knowledge - Fishermen operational cost while fishing decreased by 20% - Fishing catch increased by 20%	- And E&M report	
Component 2: Improvement of shallow marine ecosystems for Fishermen resilience and alternative fishing locations					
Expected results	**Indicators**	**Basic data**	**Targets**	**Verification Tools**	**Milestones**
A habitat for marine biotas and more species of shallow water fish reemerges through the restoration of coral reefs	- The number of *fishing ground* spots in shallow sea. - the number of community members and fishermen possessing new capacity and knowledge on restoring/rehabilitating coral reefs - the number of coral reefs youth communities	Will be completed during the research	- 12 ha of coral reefs are recovered - 3 coral reefs youth communities are formed - Fishing catch increased by 20% - 1 restored location have the potentials for ecotourism development	- The report of study result - M&E report - End year report - Survey Data Report on coral reefs restoration groups	One year after project implementation
Component 3: Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields					
Expected results	**Indicators**	**Basic data**	**Targets**	**Verification Tools**	**Milestones**
There is a diversification in the form of new sources of livelihoods, which are climate-resilient	- New alternative livelihoods resulting from marine and fishery resources - Community's income increased from the result of aquaculture fish cultivation - Community's income increased from the result of seaweeds cultivation - The number of groups	Will be completed during the research	- There will be at least 2 types of new livelihood, such as floating net cage fish cultivation and seaweed harvest - There will be at least 9 groups of net cages fish cultivation - There are at least 20 communities who possess seaweeds cultivation knowledge - Community's income increased	- The report of project result - M&E report - End year report - Data Report on group progress	After project implementation completes

	managing the fish culture management using aquaculture system - The number of groups managing the seaweed cultivation management		by 20% from the result of aquaculture fish cultivation - Community's income increased by 20% from the result of seaweeds cultivation		
Component 4: The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch					
Expected results	**Indicators**	**Basic data**	**Targets**	**Verification Tools**	**Milestones**
Decreasing risk of climate change impact leading to the vulnerability of the settlement and lower fishermen productivity	- The restoration length of the breakwater area (wave-breaking walls) - The number of settlements averted from the danger of bad climate and coastal flooding - The number of storages available for storing the fishing catch	Will be completed during the research	- There will be at least ± 1 KM of breakwater/wave-breaking walls in the improved 3 Negeri - At least ± 800 lives in 3 negeri will be averted from the potential threats of tidal waves - At least, it helps protecting the ± 1,6 KM village road that lies along the seafront. - There will be at least 1 *Cold Storage* of 160 kg capacity in every Negeri	- The report of project result - M&E report - End year report	After project implementation completes

F. Alignment with Adaptation Fund Result Framework

Project Objective(s)	Project Objective Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
New Fishing Ground based on the pattern of circulation and migration of fish makes it easier for fishermen to find fish at the sea and to cut the operational cost while fishing	• One fishing ground map and fishing season calendar • 60 communities of 3 Negeri improve their understanding on the collaboration between traditional and modern knowledge • Fishermen operational cost while fishing decreased by 20% • Fishing catch increased by 20%	• The improvement of fishermen's knowledge on accurate fishing ground and fishing season • Some fishermen work with relevant stakeholders	• There is an increase in fishermen fishing catch through the implementation of the collaboration between fishermen's traditional technology and recently-acquired technology. • These fishermen groups acquire certain technology access, technical support or capital support from related stakeholder	105,296.43
A habitat for marine biotas and more species of shallow water fish reemerges through the restoration of coral reefs	• 12 ha of coral reefs are recovered • 3 youth groups are formed to save coral reefs • Fishing catch increased by 20% • 1 restored Location can be further developed into ecotourism	• An increase in the quantity of marine biota habitat • Coral reefs youth communities obtain specific knowledge on how to restore coral reefs	• *New fishing grounds* around the coastal areas are increasing	86,060.71
There is a diversification in the form of new sources of livelihoods, which are climate-resilient	• There will be at least 2 types of new livelihood, such as floating net cage fish cultivation and seaweed harvest • There will be at least 9 groups of net cages fish cultivation • There are at least 20	• Alternative economy development groups encompass the knowledge about the alternative economy development of each negeri • There are some women groups who process the result of alternative	• An increase in the economy income of the community • To develop alternative economy in each negeri • Each negeri has an authentic product • Women dependence on husbands' income significantly decreases	147,989.29

	communities who possess seaweeds cultivation knowledge • Community's income increased by 20% from the result of aquaculture fish cultivation • Community's income increased by 20% from the result of seaweeds cultivation	economy to increase the economy sale value		
Decreasing risk of climate change impact leading to the vulnerability of the settlement and lower fishermen productivity	• There will be at least ± 1 KM of breakwater/wave-breaking walls in the improved 3 Negeri • At least ± 800 lives in 3 negeri will be averted from the potential threats of tidal waves • At least, it helps protecting the ± 1,6 KM village road that lies along the seafront. • There will be at least 1 *Cold Storage* of 160 kg capacity in every Negeri	• There are several restoration points of the breakwater in every negeri • Cold storage should be positioned in the strategic location so that it can be accessed easily by the fishermen	• Breakwater restoration in 3 negeri is ± 1 KM long • Cold storage in the coastal areas in every negeri	119,571.43
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicators	Grant Amount(USD)
1.1. Increasing fishermen fishing catch by planning the type of tools and fishing location or net fishing location, as well as supporting the improvement of traditional capture fishing rule (sasi). 1.2. Increasing ability and knowledge possessed by fishermen group	• Cost efficiency experienced by the fishing society • Increasing fishing catch	• Capacity development of fishermen groups in mapping new *fishing ground* and creating fishing season calendar • Collaboration in developing groups' institution	• The fishermen can implement new *Fishing ground* map and fishing season map through the assistance of the latest technology • The increasing number of the fishermen fishing catch • Decreasing fishing expenses	105,296.43

organization by way of adopting the climate change adaptation strategy.			spent for sailing by fishermen • The fishermen groups are able to give some input in the arrangement of DAD or obtain easy access to capital or another helpful access	
2.1. Expanding fishermen's *fishing ground* zone in the area near the coast 2.2. Increasing new living ecosystem for the shallow water fish 2.3. Expanding the catching areas of the shallow water fish 2.4. Improving the active role of coastal community in restoring, maintaining, and keeping the existence of coral reefs	• There is an increase in the capture fish population • There is an increase in community's income	• More fish population in the coastal area	• *More new fishing ground*, especially in regions close to the coastal areas • More variety of fish available in regions close to the coastal areas • Wider area for growth for the restoration of coral reefs	86,060.71
3.1. The development of alternative economy as new source of livelihood and for increasing people economic income 3.2. Increased participation by women in processing the result of harvested seaweeds 3.3. Increased economic value from the result of harvested seaweeds as an economic alternative to fishery	• There are 2 models of alternative livelihoods which is successfully developed in group (including women group) • 2 new models of livelihood is adopted in the village economic development plant	• Increased capacity on the management of alternative economy developed • Seaweed harvest processing improves its sales value • Women's role in the development of alternative economy	• More variation of seaweed processed products • Each negeri has its own processed products • Women plays an active role in the development of alternative economy • More people are interested in the development of alternative economy • Can help improve family economy income • Women express a higher degree of resilience to climate change	147,989.29
4.1. Increased fresh fish sales value from the fishermen fishing catch	• There are 3 location for storing fresh fish in 3	• Surveying the location together for determining	•People working together in repairing the breakwater and	119,571.43

when sold to traders or directly to the consumers 4.2. Lower risks from disaster, such as seafront village road and more people's houses in the seafront are averted from the danger of tidal waves	negeri that help preserve the quality and the sales value of fish • There are several breakwater restoration points along the coastal areas of 3 negeri	the breakwater restoration points and cold storage building locations	building the cold storage •Cold storage can help improve fishermen economy •Regional government takes part in building breakwater	

G. Budget

Component Budget	Personnel	Consumable	Equipment	Transport Vehicle	Consultancy/ Trainer/Expert	Contractor and Service provider (Physical Development)	Maintenance Cost	Monev	Training	Total Cost
Component 1: The mapping of fishing ground area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups	29,460.71	29,135.71	5,757.14	22,403.57	15,978.57	-	-	1,060.71	1,500.00	105,296.43
Component 2: Improvement of shallow marine ecosystems for Fishermen resilience and alternative fishing locations	2,107.14	44,371.43	10,750.00	1,771.43	1,907.14	16,071.43	-	8,582.14	500.00	86,060.71
Component 3: Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields	16,835.71	8,771.43	91,928.57	7,689.29	7,135.71	7,857.14	3,214.29	1,485.71	3,071.43	147,989.29
Component 4: The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch	442.86	457.14	1,285.71	2,957.14	857.14	6,428.57	107,142.86	-	-	119,571.43
Project Execution costs, (vehicle, salaries, M&E, general secretariat services, Coordination fees, Stake holders Meetings,)	12,071.43	21,128.57	257.14	51,235.71	4,007.14	-	-	15,128.57	1,500.00	105,328.57
Total Project Operation Costs	60,917.86	103,864.29	109,978.57	86,057.14	29,885.71	30,357.14	110,357.14	26,257.14	6,571.43	564,246.43
Administrative Cost										183,557.14
Institution Administrative Costs (9.5%)	5,787.20	9,867.11	10,447.96	8,175.43	2,839.14	2,883.93	10,483.93	2,494.43	624.29	53,603.41
Total Fund Request										**801,406.98**

Personnel	:	Salary, salary local staff, honoraria, accommodation, perdiem travel, perdiem training
Consumable	:	Consumption, Meeting meals, Seed, meeting package
Equipment	:	stationary, generator, refrigerator, freezer, fishing net, module training
Transport Vehicle	:	Air ticket, Vehicle procurement, Rental Car, Airport transport, local transport, transport team, boat,
Consultancy	:	Consultant, expert, legal permit
Contractor/Physical Development	:	Building, storage, house guard,
Maintenance Cost	:	Maintenance cost, repair cost
MONEV Cost	:	Preparation cost, Socialized, Monitoring, audit, Communication
Training	:	training package, trainer, module training, facilitator,

H. Disbursement Schedule

Project Objective/Component	Time –bound milestones disbursement Schedule per objective - Costs in USD			
	Year 1	Year 2	Year 3	Total
The mapping of fishing ground area as integrated with the traditional knowledge of local fishermen and institutional reinforcement for the fishermen groups	105,296.43	-	-	105,296.43
Improvement of shallow marine ecosystems for Fisherman resilience and alternative fishing locations	86,060.71	-	-	86,060.71

Alternative economic development in coastal areas that are climate-resilient by improving technology in the fishery and marine fields	-	147,989.29	-	147,989.29
The development of supporting facilities to anticipate coastal flooding and tidal wave and supporting facilities to increase sale value of the fish the fishermen catch	-	59,785.71	59,785.71	119,571.43
Project Execution costs	31,598.57	31,598.57	42,131.43	105,328.57
Administrative Cost	61,185.71	61,185.71	61,185.71	183,557.14
Institution Administrative Costs (9.5%)	21,180.79	22,740.49	9,682.13	53,603.41
Total Fund Request	**305,322.22**	**323,299.78**	**172,784.99**	**801,406.98**

PART IV: ENDORSEMENT BY GOVERNMENT AND CERTIFICATION BY THE IMPLEMENTING ENTITY

A. Record of endorsement on behalf of the government[11]

Samsul Maarib, S.Pi, MAP Head of the Fisheries Service Office of Maluku Tengah Regency	Date : 15 December 2018
Imaran Soumena, SP Secretary of Negeri Lima	Date : 10 June 2019
Saleh Tuharea Secretary of Negeri Ureng	Date : 10 June 2019
Ali Mahulette Secretary of Negeri Asilulu	Date : 10 June 2019

6. 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.

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
NEGERI ASSILULU
Jln Raya Assilulu KP. 97581

Nomort : 660.1/11/NA/VI/2019.-
Lampiran : -
Perihal : Surat Dukungan

Kepada Yth,
Direktur Yayasan Harmoni Alam Indonesia (HAI)
Di
Bogor

Dengan hormat,

Menndak lanjuti Surat **Yayasan Harmoni Alam Indonesia (HAI)** Nomor 09/HAI-Eks/VI/2019 tanggal 08 Juni 2019tentang permohonan Dukungan maka bersama ini kami sampaikan bahwa :

1. Setelah membaca dan meneliti Surat tersebut kami mendukung sepenuhnya Program Adapatasi Perubahan Iklim Bidang Pesisir Laut dan Pulau pulau Kecil d Kabupaten Maluku Tengah yang direncanakan oleh Yayasan Harmoni Alam Indonesia untuk di laksanakan d Negeri Assilulu, Kecamatan Leihitu Kabupaten Maluku Tengah.
2. Kegiatan Adaptasi Perubahan Iklim Bidang Pesisir dan Pulau Pulau Kecil dalam pelaksanaannya dapat berkoordinasi dengan Pemerintah Negeri serta melibatkan masyarakat sehingga hasil dari program tersebut dapat benar – benar berhasil dan dirasakan manfaatnya oleh masyarakat.

Demikian surat dukungan ini disampaikan dan atas kerjasamanya kami capkan terima kasih.-

Assilulu 10 Juni 2019

a.n. Pj. Kepala Pemerintah Negeri Assilulu
Sekretaris Negeri

ALI MAHULETTE

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
NEGERI NEGERI LIMA
Jln. Masjid Raya At-Taqwa Negeri Lima, KP. 97581

Negeri Lima, 10 Juni 2019

Nomor : 277/S.Duk/NL/VI/2019
Lampiran : -
Perihal : Surat Dukungan

Kepada Yth :
Direktur Yayasan Harmoni Alam
Indonesia (HAI)
Di-
Bogor

Menindaklanjuti Surat Yayasan Harmoni Alam Indonesia (HAI) Nomor : 08/HAI-Eks/VI/2019 Tanggal 08 Juni 2019 perihal Permohonan Surat Dukungan, maka bersama ini kami sampaikan *beberapa hal sebagai berikut :*

1. Pada prinsifnya Pemerintah Negeri Negeri Lima senantiasa mendukung setiap kegiatan yang dilaksanakan oleh siapapun dan atau oleh lembaga manapun yang bersifat memberikan manfaat dan maslahat bagi masyarakat dan lingkungan.
2. Program Adaptasi Perubahan Iklim Bidang Pesisir Laut dan Paulau-Pulau Kecil yang akan *dilaksanakan perlu melibatkan masyarakat sekaligus melatih kemampuan SDM terhadap aspek* social, ekonomi dan pengelolaan lingkungan hidup, serta senantiasa memperhatikan nilai kearifan-kearifan local yang hidup ditengah masyarakat
3. Dengan memperhatikan dan melaksanakan poin 2 di atas, maka pada prinsifnya kami slalu mendukung dan menyokong penuh setiap kegiatan yang telah direncanakan dan akan dilaksanakan *di Negeri Negeri Lima Kecamatan Leihitu Kabupaten Maluku Tengah.*

Demikian dukungan ini sampaikan atas perhatian dan kerjasamnya kami ucapkan terimakasih.

a.n. Kepala Pemerintah Negeri
SEKRETARIS NEGERI

PEMERINTAH NEGERI NEGERI LIMA

IMARAN SOUMENA, SP

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
NEGERI URENG
Jalan Air Putri KP. 97581

Ureng. 10 Juni 2019.

Nomor : 523/01/NU/VI/2019.
Lampiran : --------
Perihal : **Surat Dukungan**

Kepada Yth,
Direktur Yayasan Harmoni Alam Indonesia (HAI)
Di
Bogor .-

Menindaklanjuti Surat Yayasan Harmoni Alam Indonesia (HAI) Nomor : 10/HAI-Eks/VI/2019 tertanggal, 08 Juni 2019, Perihal Permohonan Surat Dukungan , maka bersama ini kami sampaikan beberapa hal sebagai berikut :

1. Kami Pemerintah Negeri Ureng selalu mendukung setiap program yang dilaksanakan dengan memperhatikan aspek kelestarian lingkungan yang berdampak langsung secara positif terhadap kelestarian sumberdaya hayati secara berkelanjutan.

2. Sedapat mungkin penyelenggaraan program dan kegiatan ini bertujuan untuk peningkatan sumberdaya manusia terutama dalam pengelolaaan lingkungan di wilayah pesisir dan laut, dengan senantiasa berkoordinasi dan bersinergi dengan kami selaku Pemerintah Negeri Ureng.

3. Program Adaptasi dan Perubahan Iklim yang akan dilaksanakan ini sedapat mungkin melibatkan masyarakat Negeri Ureng, sekaligus penguatan kapasitas masyarakat Negeri Ureng meliputi apsek social, ekonomi dan pengelolaan lingkungan hidup.

Dengan mempertimbangkan ke-tiga hal tersebut di atas (point 1-3) , maka pada prinsipnya kami, *Pemerintah Negeri Ureng selalu memberi dukungan pada setiap implementasi program dan kegiatan pengelolaan wilayah pesisir dan laut*, yang dilaksanakan oleh **Yayasan Harmoni Alam Indonesia (YAI) di Bogor** kerjasama dengan **Institut Tifa Damai Maluku** berbasis issu Adaptasi Perubahan Iklim di **Negeri Ureng, Kecamatan Leihitu, Kabupaten Maluku Tengah.**

Demikian surat ini disampaikan sebagai dukungan implementasi program tersebut dan atas perhatian serta kerjasamanya diucapkan terima kasih.

a.n. Kepala Pemerintah Negeri Ureng

PEMERINTAH NEGERI URENG

SALEH TUHAREA.
Sekretaris Negeri

B. Implementing Entity Certification

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 (……list here…..) 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.

Monica Tanuhandaru
Executive Director of Partnership for Governance Reform in Indonesia (Kemitraan)
Implementing Entity Coordinator

Date: 5 August 2019	Tel. and email: +62-21-7279 9566; Monica.Tanuhandaru@kemitraan.or.id

Project Contact Person: **Dewi Rizki**

Tel. and Email: +62-21-7279 9566; Dewi.Rizki@kemitraan.or.id

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
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Dengan hormat,

Menndak lanjuti Surat **Yayasan Harmoni Alam Indonesia (HAI)** Nomor 09/HAI-Eks/VI/2019 tanggal 08 Juni 2019tentang permohonan Dukungan maka bersama ini kami sampaikan bahwa :

1. Setelah membaca dan meneliti Surat tersebut kami mendukung sepenuhnya Program Adapatasi Perubahan Iklim Bidang Pesisir Laut dan Pulau pulau Kecil d Kabupaten Maluku Tengah yang direncanakan oleh Yayasan Harmoni Alam Indonesia untuk di laksanakan d Negeri Assilulu, Kecamatan Leihitu Kabupaten Maluku Tengah.
2. Kegiatan Adaptasi Perubahan Iklim Bidang Pesisir dan Pulau Pulau Kecil dalam pelaksanaannya dapat berkoordinasi dengan Pemerintah Negeri serta melibatkan masyarakat sehingga hasil dari program tersebut dapat benar – benar berhasil dan dirasakan manfaatnya oleh masyarakat.

Demikian surat dukungan ini disampaikan dan atas kerjasamanya kami capkan terima kasih.-

Assilulu 10 Juni 2019

a.n. Pj. Kepala Pemerintah Negeri Assilulu

Sekretaris Negeri

ALI MAHULETTE

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
NEGERI NEGERI LIMA
Jln. Masjid Raya At-Taqwa Negeri Lima, KP. 97581

Negeri Lima, 10 Juni 2019

Nomor : 277/S.Duk/NL/VI/2019
Lampiran : -
Perihal : Surat Dukungan

Kepada Yth :
Direktur Yayasan Harmoni Alam
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Menindaklanjuti Surat Yayasan Harmoni Alam Indonesia (HAI) Nomor : 08/HAI-Eks/VI/2019 Tanggal 08 Juni 2019 perihal Permohonan Surat Dukungan, maka bersama ini kami sampaikan *beberapa hal sebagai berikut :*

1. Pada prinsifnya Pemerintah Negeri Negeri Lima senantiasa mendukung setiap kegiatan yang dilaksanakan oleh siapapun dan atau oleh lembaga manapun yang bersifat memberikan manfaat dan maslahat bagi masyarakat dan lingkungan.
2. Program Adaptasi Perubahan Iklim Bidang Pesisir Laut dan Paulau-Pulau Kecil yang akan *dilaksanakan perlu melibatkan masyarakat sekaligus melatih kemampuan SDM terhadap aspek* social, ekonomi dan pengelolaan lingkungan hidup, serta senantiasa memperhatikan nilai kearifan-kearifan local yang hidup ditengah masyarakat
3. Dengan memperhatikan dan melaksanakan poin 2 di atas, maka pada prinsifnya kami slalu mendukung dan menyokong penuh setiap kegiatan yang telah direncanakan dan akan dilaksanakan di Negeri Negeri Lima Kecamatan Leihitu Kabupaten Maluku Tengah.

Demikian dukungan ini sampaikan atas perhatian dan kerjasamnya kami ucapkan terimakasih.

a.n. Kepala Pemerintah Negeri
SEKRETARIS NEGERI

PEMERINTAH NEGERI NEGERI LIMA

IMARAN SOUMENA, SP

PEMERINTAH KABUPATEN MALUKU TENGAH
KECAMATAN LEIHITU
NEGERI URENG
Jalan Air Putri KP. 97581

Ureng. 10 Juni 2019.

Nomor : 523/01/NU/VI/2019.
Lampiran : --------
Perihal : **Surat Dukungan**

Kepada Yth,
Direktur Yayasan Harmoni Alam Indonesia (HAI)
Di
Bogor .-

Menindaklanjuti Surat Yayasan Harmoni Alam Indonesia (HAI) Nomor : 10/HAI-Eks/VI/2019 tertanggal, 08 Juni 2019, Perihal Permohonan Surat Dukungan , maka bersama ini kami sampaikan beberapa hal sebagai berikut :

1. Kami Pemerintah Negeri Ureng selalu mendukung setiap program yang dilaksanakan dengan memperhatikan aspek kelestarian lingkungan yang berdampak langsung secara positif terhadap kelestarian sumberdaya hayati secara berkelanjutan.

2. Sedapat mungkin penyelenggaraan program dan kegiatan ini bertujuan untuk peningkatan sumberdaya manusia terutama dalam pengelolaaan lingkungan di wilayah pesisir dan laut, dengan senantiasa berkoordinasi dan bersinergi dengan kami selaku Pemerintah Negeri Ureng.

3. Program Adaptasi dan Perubahan Iklim yang akan dilaksanakan ini sedapat mungkin melibatkan masyarakat Negeri Ureng, sekaligus penguatan kapasitas masyarakat Negeri Ureng meliputi apsek social, ekonomi dan pengelolaan lingkungan hidup.

Dengan mempertimbangkan ke-tiga hal tersebut di atas (point 1-3) , maka pada prinsipnya kami, *Pemerintah Negeri Ureng selalu memberi dukungan pada setiap implementasi program dan kegiatan pengelolaan wilayah pesisir dan laut*, yang dilaksanakan oleh **Yayasan Harmoni Alam Indonesia (YAI) di Bogor** kerjasama dengan **Institut Tifa Damai Maluku** berbasis issu Adaptasi Perubahan Iklim di **Negeri Ureng, Kecamatan Leihitu, Kabupaten Maluku Tengah.**

Demikian surat ini disampaikan sebagai dukungan implementasi program tersebut dan atas perhatian serta kerjasamanya diucapkan terima kasih.

a.n. Kepala Pemerintah Negeri Ureng

PEMERINTAH NEGERI URENG

SALEH TUHAREA.
Sekretaris Negeri