



**ADAPTATION FUND**

**REQUEST FOR PROJECT/PROGRAMME  
FUNDING FROM THE ADAPTATION FUND**

The annexed form should be completed and transmitted to the Adaptation Fund Board Secretariat by email or fax.

Please type in the responses using the template provided. The instructions attached to the form provide guidance to filling out the template.

Please note that a project/programme must be fully prepared (i.e., fully appraised for feasibility) when the request is submitted. The final project/programme document resulting from the appraisal process should be attached to this request for funding.

Complete documentation should be sent to:

The Adaptation Fund Board Secretariat  
1818 H Street NW  
MSN P4-400  
Washington, D.C., 20433  
U.S.A  
Fax: +1 (202) 522-3240/5  
Email: [afbsec@adaptation-fund.org](mailto:afbsec@adaptation-fund.org)



## ADAPTATION FUND

# PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

## PART I: PROJECT/PROGRAMME INFORMATION

Project/Programme Category: ***Small Sized Project Concept***

Country/ies: ***Indonesia, East Indonesia***

Title of Project/Programme: ***'Development of Sustainable Seaweed and Fishery Management for Enhance Community Prosperity & Climate Change Adaptation of Coastal and Small Island at West Nusa Tenggara Province'***

Type of Implementing Entity: ***NGO's and University***

Implementing Entity: ***Kemitraan (The Partnerships for Governance Reform)***

Executing Entity/ies: ***CIDES Indonesia Foundation.***

Amount of Financing Requested: ***985,200,-*** (in U.S Dollars Equivalent)

### **Project / Programme Background and Context:**

*Provide brief information on the problem the proposed project/programme is aiming to solve. Outline the economic social, development and environmental context in which the project would operate.*

The most decisive stabilization of the effect of increasing the earth's temperature and ocean acidification is by optimizing the role of seaweed as one of the plants that can produce oxygen. Seaweed also make the process of photosynthesis to absorb carbon dioxide which leads to the increased production of oxygen (Kasim, 2014). Macro-algae can be expected to shift their distribution landward in response of sea level rise provided that the newly submerged shore areas are suitable for the primary settlement of spores or seeding. Such improvements, greatly affects the community structure changes and the spread of organisms in the sea. These problems can be slowed by increasing the oxygen content in the atmosphere produced by seaweeds.

Base on IPCC study (2014) benefits of seaweed aquaculture for climate change adaptation. The IPCC defines climate change adaptation as the process of adjustment to actual or expected climate and its effects. We address the use of seaweed aquaculture for climate change adaptation in terms of its capacity to avoid harms to human systems (e.g. coastal protection, ensure food security) and vulnerable ecosystems (e.g. provide refugee from ocean acidification and ocean deoxygenation).

By creating coastal habitats, seaweed aquaculture can potentially contribute some of the ecosystem functions that natural kelp forests and macro-algae beds support (Smale et al. 2013). Some of these functions contribute, as mentioned above, to mitigate climate change while another set of functions have climate change adaptation benefits (Duarte et al., 2013). The canopies of farmed seaweeds, like those of wild seaweeds, dampen wave energy and, hence, serve as live coastal protection structures buffering against coastal erosion (Løvås and Tørum, 2001).

Rising atmospheric concentrations of carbon dioxide (CO<sub>2</sub>) caused the oceans to absorb more of the gas and become more acidic. This rising acidity gives significant impacts on coastal and marine ecosystems, such as limit the growth of carbonate-dependent organisms, including corals and shellfish. When CO<sub>2</sub> is dissolved in water, it becomes carbonate acid, which increases acidity. Since the beginning of the industrial revolution, ocean acidity has increased by 30% due to this process. Recently, scientists in China found that seaweed can remove CO<sub>2</sub> from the ocean and keep its acidity level down. Fast-growing seaweed takes in CO<sub>2</sub> through photosynthesis as it grows and is removed from the ocean at harvest. Therefore, it removes the acidifying CO<sub>2</sub> from the water. Indeed, the seaweed farms are not only reversing the local acidification threat, but also providing a safe and nurturing environment for shelled organisms.

Seaweed can absorb the carbon dioxide (CO<sub>2</sub>). The total carbon dioxide uptake by seaweeds is about 173 mill tons per year. The coastal habitats seem to be more efficient in carbon uptake than the rain forests (Krause-Jensen & Duarte, 2016). Seaweed growth rate is around 30 to 60 times faster than land-based plants. This rapid turnover rate makes it ideal for mass scale production. Seaweed generally produce a lot of biomass and are potential as blue carbon stocks. Researchers have estimated that if 9% of the world's ocean surface are used for seaweed farming, we would be removing 53 billion tonnes of CO<sub>2</sub> from the atmosphere. Seaweed farming can also produce safe sites for breeding fish as well as reversing ocean acidification. Seaweed can be used as food, medicine and fuels. It will also offer refuges for marine species under threat from increasing acidification.

It is reported that seaweed farming could produce 12 gigatonnes per year of bio-methane, while storing 19 gigatonnes of CO<sub>2</sub> per year directly from bio-gas production, plus up to 34 gigatonnes per year from carbon capture of the bio-methane combustion exhaust gas. All of this could come from seaweed farming which has an area equal around 9 per cent of the world's ocean surface. Moreover it will increase in sustainable fish production and provide 200 kilograms per capita per year of fish for a population of 10 billion.

Marine aquaculture is a one such alternative income generating that is increasingly popular following a number of successful introductions in certain region such as Nusa pennida a small island east of Bali. One example is the development of seaweed farming, which has been promoted over the last 10-years but other types of marine aquaculture also have potential as alternative livelihoods. These include the culture of prawns, fish, bivalves, crabs and sea cucumbers.

It has been recognized that the coastal communities are general among the poorest in Indonesia also in West Nusa Tenggara province. That is because the price of their product (fish, seaweed and others) are very low in price especially during the harvest season and as the consequences there is considerable poverty and indebtedness. In addition, due their location and their low level of skills and educations, coastal community do not have enough alternative livelihoods, others than traditional marine and coastal activities which destroy the environment such as coral mining, dynamite fishing, poisoning and mangrove cutting.

West Nusa Tenggara province is located in the geographical position (8°LS-10°LS and 115°-120°BT). Broad area of 20153.15 square kilometers with a population until the year 2010 as many as 4,500,212 people. Some of the natural resources is the main plantation commodities such as coffee. West Nusa Tenggara is a tourism city. Based on calculations using the vulnerability FINGERPRINT then at West Nusa Tenggara including areas that are not prone category. The following figure is the percentage of vulnerabilities West Nusa Tenggara.



Figure 1. Map of West Nusa Tenggara Province

Table 1. The distribution of vulnerability level in West Nusa Tenggara Province

No	Districts	Level of Vulnerability					Total
		1	2	3	4	5	
1	Bima	19	106	50	-	2	177
2	Dompu	11	49	19	-	-	79
3	Kota Bima	2	17	19	-	-	38
4	Kota Mataram	22	-	27	1	-	50
5	Lombok Barat	6	40	75	-	2	123
6	Lombok Tengah	21	89	29	-	-	139
7	Lombok Timur	6	104	92	1	12	215
8	Lombok Utara	-	22	11	-	-	33
9	Sumbawa	8	120	36	-	2	166
10	Sumbawa Barat	7	53	3	-	1	64
	Total	102	600	361	2	19	1084

### Project / Programme Objectives:

List the main objectives of the project/programme.

Aim of the program

- a) To give the coastal community to develop their potential income generating by natural resource base through participating business activity in seaweed & fishery processing which also can best effort for mitigate and adaptation for climate change in coastal area.
- b) To give the coastal community a chance to secure the alternative income without ignoring their household cores while they improve the environment quality for fishery and seaweed cultivation.
- c) To create the conducive situation in which entrepreneurial spirit, skills and knowledge so that society as the whole can get benefit from it.
- d) To develop the sustainable management of seaweed and fishery cultivation and introducing of value added and clean technology of production to reduce the environment degradation cause the exploration in their conservative nature.
- e) To monitor and evaluate the CO<sub>2</sub> absorption and acidification coastal area.

## Project/Programme Components and Financing:

Table 2. Project or program component and finance

<i>Criteria</i>	<i>Amount</i>	<i>Percentage</i>
<i>Honorarium management/Admin/Report etc.</i>	<i>79,200</i>	<i>8,0</i>
<i>Grouping/Coordination/Field/Manual book etc</i>	<i>78,000</i>	<i>7.9</i>
<i>Training of Trainer, Groups Training</i>	<i>73,000</i>	<i>7.5</i>
<i>Seed fund for farmer/fishery/polyculture</i>	<i>685,000</i>	<i>69.5</i>
<i>Post harvest handling</i>	<i>70,000</i>	<i>7,1</i>
<i>Total</i>	<i>985,200</i>	<i>100</i>

*Fill in the table presenting the relationships among project components, activities, expected concrete outputs, and the corresponding budgets. If necessary, please refer to the attached instructions for a detailed description of each term.*

*For the case of a programme, individual components are likely to refer to specific subsets of stakeholders, regions and/or sectors that can be addressed through a set of well defined interventions / projects.*

Table 3. *project components, activities, expected concrete outputs, and the corresponding budgets.*

Project/Programme Components	Expected Concrete Outputs	Expected Outcomes	Amount (US\$)
1. Field Coordination/ 2. Grouping	Trained, skilled participant or groups of farmer/fishermen for seaweed & fishery cultivation	1,000 participants farmer/fishermen divided into 100 groups each group consist 4 to15 members	78,000
2.Training Phase (Training of Trainer, Group Training etc)	Manual book/ Training module, ParticipantTrainer	40 Trainer of seaweed and fishery management	12,000
	Manual book/ Training module, Training Participant	Manual book/Training module on Sustainable seaweed & fishery cultivation and post harvest processing, 200 persons trained/skilled.	61,000
Sub total			151,000
3.Production/ Cultivation	75 hectare <i>Gracillaria</i> sp., <i>Eucheuma</i> sp.	75 hectare per-periods or 1,200 hectare in 2 years	
a.Long line system	60 ha x US \$ 9,000		540,000
b.Floating line system	10 ha x US \$ 9,000		90,000
c.Polyculture system	5 ha x US \$ 11,000		55,000
Sub total			685,000
4.Harvesting Handling	Minimum 1-1,5 tons per-hectare/periods	Minimum 1,600 tons of dry seaweed for 2 years	50,000
5. Post harvest training	Value Added Product		20,000
6. Project/Programme Execution cost			781,000
7. Total Project/Programme Cost			906,000
8. Project/Programme Cycle Management Fee charged by the Implementing Entity (if applicable)			79,200
<b>Amount of Financing Requested</b>			<b>985,200</b>

### Projected Calendar:

Indicate the dates of the following milestones for the proposed project/programme

Table 4. Milestones for the proposed project

Milestones	Expected Dates
Start of Project/Programme Implementation	October,1 2018
Mid-term Review (if planned)	April, 1 2019, April, 1 2020
Project/Programme Closing	November, 30 2020
Terminal Evaluation	May, 30 2020

## PART II: PROJECT / PROGRAMME JUSTIFICATION

- A. Describe the project/programme components, particularly focusing on the concrete adaptation activities of the project, and how these activities contribute to climate resilience. For the case of a programme, show how the combination of individual projects will contribute to the overall increase in resilience.

*Base of Kasim (2014) Seaweed (natural or cultivated) has a very important role in reducing global warming. Seaweed as biotic components can stabilize atmospheric degradation, and increased production of oxygen to reduce global warming. In addition to producing oxygen, seaweed also can stabilize global warming sea water, as well as reduce the potential for acidification as well as to supply oxygen to the atmosphere. When an earth that is triggered by an increase in carbon dioxide content in the atmosphere, it will affect the increase in sea water temperature. Such improvements, greatly affects the community structure changes and the spread of organisms in the sea.*

*These problems can be slowed by increasing the oxygen content in the atmosphere produced by seaweeds. The most decisive stabilization of the effect of increasing the earth's temperature and ocean acidification is by optimizing the role of seaweed as one of the plants that can produce oxygen. Seaweed also make the process of photosynthesis to absorb carbon dioxide which leads to the increased production of oxygen and reduction of the coastal water acidification.*

*Benefits of seaweed aquaculture for climate change adaptation The IPCC defines climate change adaptation as the process of adjustment to actual or expected climate and its effects (IPCC 2014). In human systems, adaptation seeks to moderate or avoid harm or exploit beneficial opportunities whereas in natural systems it refers to human intervention to facilitate its adjustment to expected climate and its effects (IPCC 2014). In this context, we address the use of seaweed aquaculture for climate change adaptation in terms of its capacity to avoid harms to human systems (e.g. coastal protection, ensure food security) and vulnerable ecosystems (e.g. provide refugia from ocean acidification and ocean deoxygenation).*

*By creating coastal habitats, seaweed aquaculture can potentially contribute some of the ecosystem functions that natural kelp forests and macro-algae beds support (Smale et al., Provisional 2013). Some of these functions contribute, as mentioned above, to mitigate climate change while another set of functions have climate change adaptation benefits (Duarte et al., 2013). For example, the canopies of farmed seaweeds, like those of wild seaweeds, dampen wave energy and, hence, serve as live coastal protection structures buffering against coastal erosion (Løvås and Tørum, 2001; Mork, 1996).*

*The islands in the eastern part of the Indonesian archipelago are some areas with The highest poverty and food insecurity in the State Indonesia. community livelihoods mostly located in rural areas and depend on ecosystem services provided by terrestrial and marine habitats, and are very sensitive to the climate change. Currently there are no approaches are available to assess the vulnerability of livelihoods on islands to climate change or other factors driving change as growth resident, or to design adaptation strategies 'no regrets' that brings benefits on a variety of future scenarios.*

*The government has established the principle of sustainable development used in the 2015-2019 RPJMN that is economically feasible, socially acceptable, environmentally sustainable. To implement these principles require the prerequisites are improved governance. One of*

*very important to improve governance is in the field of nature and natural resources Living environment. Sustainable development is constructed based on the basis of synergy ecological, economic base, and the social bases of development in all sectors.*

*Indonesia is an archipelago lying areas Low spacious, Indonesia is vulnerable to the negative impacts of changes climate. Indonesia has experienced extreme climate events such as floods and drought, and are likely to experience long-term effects of the increase in sea levels. With the population of Indonesia, the natural disasters caused climate change will affect more humans and daily living, so it would be difficult to rise to reduce poverty. Most of the poor tend to live in areas at high risk of prone to rising sea levels.*

*The Indonesian government considered the concept of integrated between mitigation and adaptation to climate change as an attempt to build resilience and safeguards against flooding, availability of water and energy resources, and has undertake significant efforts in developing and implementing the Action Plan National Adaptation to Climate Change (RAN-API), which consists of a framework for adaptation initiatives that have been mainstreamed into the Development Plan National.*

*With the understanding that build resilience requires a process long, the cost of adaptation to climate change Indonesia will continue to grow. Therefore, the goal is to maintain the adaptation Indonesia a strong local economy, to ensure food security, as well as to protect the livelihood and welfare of the people by building durability for the affected communities as well as the resilience of the sector such as ecosystem resilience, economic and livelihood systems. Action adaptation will be directed to community development in order increase the capacity of resilience in addressing the impact of climate change.*

*The degree of vulnerability to climate change is determined by the indicators that affect the exposure, sensitivity and adaptive capacity system. These three factors are changed according to time in line with implementation of development activities and adaptation efforts. Level exposure and sensitivity levels can be reflected by biophysical and environmental and social-economic conditions. To support efforts to reduce the risks and impacts of climate change The Directorate General of Climate Change through the Directorate Develop climate change adaptation and Data Information System Index Vulnerability to Climate Change that present data and information vulnerability climate change unit in villages across Indonesia. Currently FINGERPRINT utilize social-economic data, demographics, geography, and the environment PODES infrastructure. The goal is to present the information the vulnerability to climate change to support policy development by central and local governments in adaptation planning efforts and reduce risks and impacts of climate change.*





Figure 2. The administration area of West Nusa Tenggara Province

- B. Describe how the project/programme provide economic, social and environmental benefits, with particular reference to the most vulnerable communities, and vulnerable groups within communities, including gender considerations. Describe how the project/programme will avoid or mitigate negative impacts, in compliance with the Environmental and Social Policy of the Adaptation Fund.

This project will directly provide economic benefits to the community, especially the poor who did not/do not own a business on seaweed farming is done directly by them. Executor of the project will act as a mentor in production, product quality and post-harvest seaweed also helps on networking market. Similarly, in the cultivation environment seaweed area will improve the quality of the local environment since it will increase the oxygen content and prevent acidification of the waters and become a source of nutrients to the local ecosystem. In terms of gender This project will empower many women because about 60% seaweed farmers are women. Marine aquaculture is a one such alternative income generating that is increasingly popular following a number of successful introductions in certain region such as Nusa pennida a small island east of Bali. One example is the development of seaweed farming, which has been promoted over the last 10-years but other types of marine aquaculture also have potential as alternative livelihoods. These include the culture of prawns, fish, bivalves, crabs and sea cucumbers.

The cultivation of seaweed is widely perceived as one of the most environmentally benign types of aquaculture activity, as it does not require additional feed or fertilizers. Consequently, it has been actively promoted by government initiatives, particularly in many developing countries where communities have reduced access to alternative livelihoods or are involved in more destructive fishing methods (e.g., dynamite fishing). The cultivated seaweed and the associated infrastructure provide multiple direct and indirect environmental benefits on both a range of spatial and temporal scales.

*It has been recognized that the coastal communities are general among the poorest in Indonesia. That is because the price of their product (fish, seaweed and others) are very low in price especially during the harvest season and as the consequences there is considerable poverty and indebtedness. In addition, due their location and their low level of skills and educations, coastal community do not have enough alternative livelihoods, others than*

*traditional marine and coastal activities which destroy the environment such as coral mining, dynamite fishing, poisoning and mangrove cutting. In the 'low income groups' this coastal and marine sector of main income. This sector is the labor based –instead of technology or capital based economic activity. The development of this non formal sector can have positive impact especially increasing social welfare of coastal and marine community.*

*In “low income groups” non-formal sector is the source of main income. This sector is labor-based -instead of technology or capital based economical activity. The development of non-formal sector can have positive impact especially in increasing social welfare. One particular characteristic of non-formal sector potential roles of women both as labor and as entrepreneur. For women who has family, this sector can be her choice for she can have roles both on her household chores and in this non-formal economic activity can have positive impact in sense that it can generate additional income.*

*The development of non-formal sector is very slow. This can related to many constraints among others to low quality of human resource education, scarcity of capital, technology and marketing. All these constraints can make the benefit of non-formal sector lower than is cost or all efforts done for it. The low benefit can be seen from how low are its output, product, income and quality.*

*In efforts to increase the benefit of non-formal sector which can improve social welfare, it is necessary that the constraints to its developments are handled or (re) solved. One way on how to do the latter is by improving human resource through encouraging and increasing women capability in high quality enterprising, improving their productivity and technological processing as well as improving their marketing capability.*

*In determining which sector to be develop it is necessary to refer to several criteria like: home based industry, simple technology, easy to produce, potential for developing further, labor force and raw materials available in abundance and has interrelation with other sectors so that capable of creating a network of enterprising community. In accordance with criteria set up, the processing of sea grass food is informal sector worth and potential to be developed. Several further reasons why this field of economic activity is chosen are as follow:*

- 1) Improving this sector can have wide interrelation in both upstream and downstream of economic activity. In upstream economic activity, this sector can induce to increase the productivity of raw material i.e. seaweed and fishery. While in downstream economic activity, this sector can create food processing industry both in supplying local market and export market.*
- 2) This sector has good potential to supply local and export market. Moreover, not many*
- 3) Seaweed food and fish product is food which contain of high nutrients as protein sources.*
- 4) Raw material in the form of seaweed is abundantly available due the increasing activity in growing and cultivation of seaweed.*
- 5) Seaweed food and fish processing is appropriate for community activity in their spare time while they are tending their house hold.*
- 6) The economic activity has no or minimum impact in polluting on its environment.*

*Other side, unexpected weather and more and more extreme climate events exacerbate income generation from the primary economic sector. The project will cover around 1,200 people who directly involve on seaweed cultivation in West Nusa Tenggara Province. The*

*multiplier effect of the project could more than double such as trading, post harvest production etc.*

- C. Describe or provide an analysis of the cost-effectiveness of the proposed project/programme.

*The project financial cost effective analysis is an approach to determine whether a project is feasible or not implemented. The approach used in this analysis consists of Project Cash Flow, Projects Loss/profit, Net Present Value, Internal Rate of Return (IRR) and Payback Period. Base on study by Indonesia Central Bank for seaweed small business projects with financing commercial bank can return of capital within one year of production.*

*Based on the projected profit / loss is calculated from the difference between sales revenue and total costs (production costs, depreciation, interest and taxes). The project is able to generate profits annually. Profit margin in year 1 at 33.13% and subsequent years 32.52% per year. Breakeven point can be achieved in the first year of production of 33.186 kg and subsequent years 31 566 kg. Net Present Value (NPV) is calculated based on the difference between the present value of receipts to be received from the sale of seaweed production is reduced by the present value on the cost to be incurred over the life of the project including the payment of taxes.*

- D. Describe how the project/programme is consistent with national or sub-national sustainable development strategies, including, where appropriate, national or sub-national development plans, poverty reduction strategies, national communications, or national adaptation programs of action, or other relevant instruments, where they exist.

*Base on Indonesian National Action Planning RAN-GRK i.e. Regulation of The President Republic of Indonesia Number 61 of 2011 on National Action Plan for Reduction of Green House Gas Emissions. The rehabilitation of the action plan of the coastal ecosystem (Mangroves, coastal vegetation, seagrass, coral reefs) in the coastal region Integrating adaptation and mitigation of climate change into planning regulatory, institutional capacity and management of fishing Development of seaweed cultivation in eastern Indonesia 2010-2020. This program coordinated by Ministry of Marine and Fishery Affairs cq. Directorate General of Coastal and Small Island.*

*Projections based on the assessment of the impact of the driving factors of the products and ecosystem services (PPE), which supports rural livelihoods and well-being community. Because of the diversity of products and ecosystem services as a dependency of society on Lombok and Sumbawa, the typology is needed to simplifies the analysis. In 2010 there were 105 rural sub-districts in the province. Overall, a total of 84 products and ecosystem services have been identified from 9 habitat (Figure below). Manufacture of PPE (eg relative volume produced or used) is estimated from BPS-National Statistics Agency and PODES secondary data and survey to the community if the data not available (Suadnya, 2010). Statistical analysis of the blend of PPE and level production, revealed seven types of typologies. The whole typology except typology 7 contained Lombok and Sumbawa.*

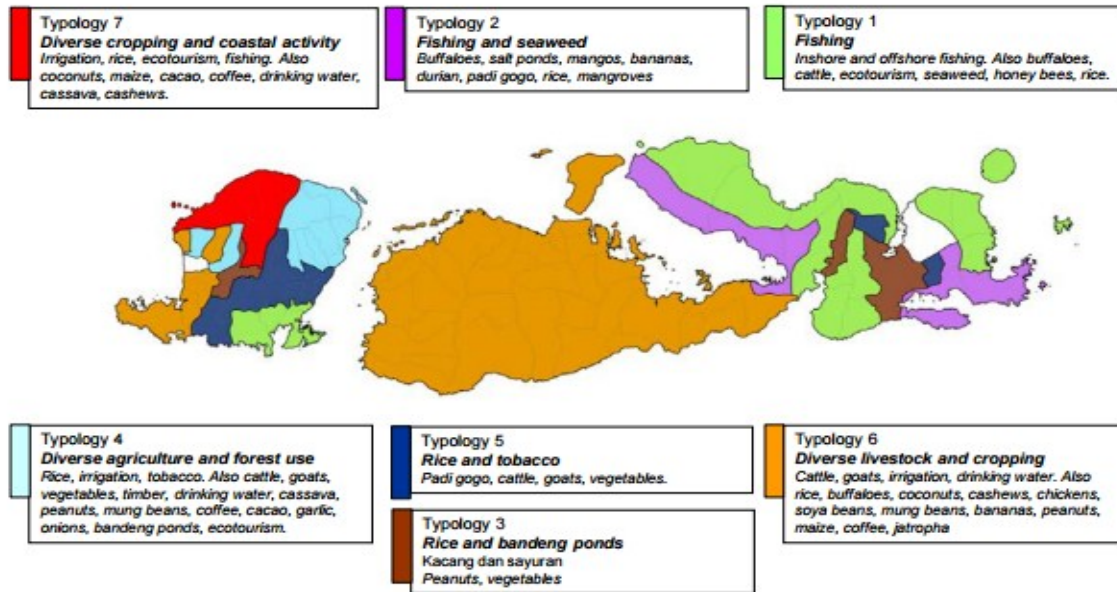


Figure 3. The distribution of habitat in West Nusa Tenggara Province (CSIRO, 2014)

- E. Describe how the project/programme meet relevant national technical standards, where applicable, such as standards for environmental assessment, building codes, etc., and comply with the Environmental and Social Policy of the Adaptation Fund.

*There is several National Standard related to Seaweed Cultivation and Fishery Management launch by Indonesian National Standard Agency. Such as :*

- ✓ *SNI 7579.2.2010.The Cultivation of Seaweed Eucheuma cottoni by the Long Line system.*
- ✓ *SNI 7902 2013 Cultivation of Seaweed Gracillaria verucosa by pond system.*
- ✓ *SNI 7902-2013 and SNI 7903.2013 The Seedling of Seaweed Gracillaria Verucosa and Seaweed nursery of Gracillaria verucosa by long line system in pond.*
- ✓ *SNI 7904 2013 The Seedling of seaweed Gracillaria verucosa pond system by spreading method.*
- ✓ *SNI 7917 Management of Fishery Infrastructure by PET Floating Net system and Fish rearing in open sea pond method.*
- ✓ *SNI for seaweed cultivation and product processing and SNI for Milkfish cultivation.*

- F. Describe if there is duplication of project/programme with other funding sources, if any.  
 No

- G. If applicable, describe the learning and knowledge management component to capture and disseminate lessons learned.

*The project will publish a book report, book training module, a module for seaweed cultivation system with long-line gear, cages and poly-culture and post-harvest technology seaweed as activities report and dissemination of lessons from seaweed cultivation in the province of Nusa Tenggara.*

*In the 2-year project the executor will organized Workshop: The Development of ‘Bio-Based Economy’ Sustainable Management of Biodiversity as Economic Future Solution Indonesia as a maritime continent and development of strategy to reduce CO<sub>2</sub> and acidification of the coastal area in collaboration with the Faculty of Biology, University of Gadjah Mada, University of Mataram and relevant stakeholders from within and outside the country. It is expected that this forum will be born in the formulation and improvement of cooperation in the field of management of sea grass and fishery as the welfare of the Indonesian people in the future and will formulate development of strategy to increase CO<sub>2</sub> absorption and to reduce the coastal water acidification.*

- H. Describe the consultative process, including the list of stakeholders consulted, undertaken during project preparation, with particular reference to vulnerable groups, including gender considerations, in compliance with the Environmental and Social Policy of the Adaptation Fund.

CIDES has initiated coastal community empowerment with seaweed commodities in cooperation with the research group Seaweeds BPP Teknologi while the initiative of Formation Seaweed Development Study Center in Nusa Tenggara that time, but this plan constrained on funding limitations.

During the project implementation the project executor (later call executor) has consultative stakeholder i.e., Ministry of Marine and Fishery Affairs (MMAF) local Office and Ministry of Cooperative and Small Scale Enter-prize local office for sustainability of the project, Ministry of Industry local office and Agency for Application and Assessment of technology especially for post harvest technology, the Ministry of Environment and Forestry (central and local office) for Aspects of Adaptation Study and Ministry of Industry and Trading for Marketing network and support the project.

Seeking the scheme for the vulnerable groups as the target of project the executor will consultative with the local government (Governor, Bupati/Head of District/Major, Sub district head and head of community or head of indigenous people). For the gender aspects we will consultative or coordinate with groups of official wife (PKK) especially cause the participants target of the project is more female gender than male and also the leader of the community (Indigenous people if any).

Table 5. The list of consultative stakeholder

Stakeholder	Status
Governor West Nusa Tenggara Administration	Support
Merine and fishery office of West Nusa Tenggara	Support
Office of Cooperative and UKM West Nusa Tenggara	Support
Offiice of Industry and Agriculture in West Nusa Tenggara	Support
Head of District (Bupati/Walikota)	Support
Head of PKK regency,sub-district, village	Support

- I. Provide justification for funding requested, focusing on the full cost of adaptation reasoning. *Base on call for proposal by Kemitraan Adaptation Fund for Propose the project for climate change adaptation to Kemitraan – Adaptation Fund and our previous discussion with the local government of West Nusa Tenggara Province for creating the project which combine on climate mitigation and adaptation also the coastal community development in West Nusa Tenggara. Also, there very difficult procedure for farmer and fishermen on credit request*



from commercial bank. They face some of fundamental constraints i.e. no and or limit asset for bank's guarantee and or non bankable criteria of entrepreneur by commercial bank. Under the Marine and Fisheries Agency reports Lombok is known that it is the fishermen and farmers did trouble NTB capital without collateral.

The Index of Vulnerability, NTB province is located in the geographical position (8°LS-10°LS and 115°-120°BT). Broad area of 20153.15 square kilometers with a population until the year 2010 as many as 4,500,212 people. Some of the natural resources is the main plantation commodities such as coffee. West Nusa Tenggara is a tourism city. Based on calculations using the vulnerability FINGERPRINT then at West Nusa Tenggara including areas that are not prone category. The following figure is the percentage of vulnerabilities West Nusa Tenggara.(see table above).

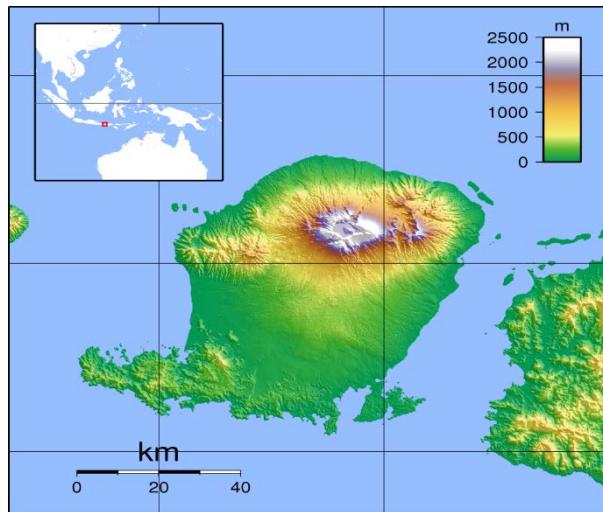


Figure 4. The detail of land elevation of Lombok island

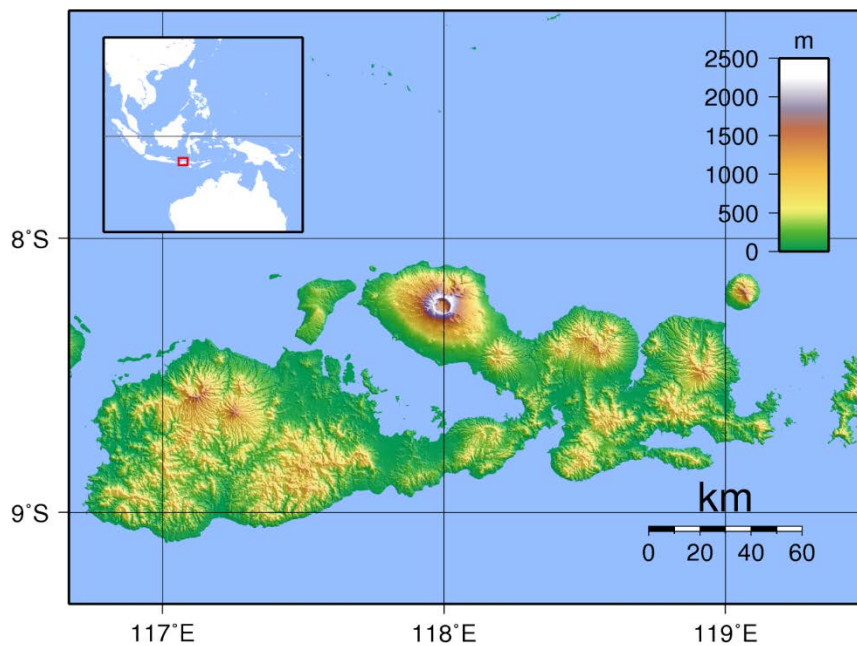


Figure 5. The detail of Land elevation of Sumbawa island

Table 6. The Potential Area for Seaweed/Polyculture Cultivation.

	Kecamatan/Sub-district	Potential (hectare)	Cultivated (hectare)
West Lombok	Pangantap	944	644
Central Lombok	Garupuk/Awang	475	214
East Lombok	Sarewe	2,460	2,000
	Brewe	800	600
West Sumbawa	Labuan Mapin	3,200	2,000
West Sumbawa	Kertasari	900	700
West Sumbawa	Terano	2,000	200
Dompu	Kuangko	800	200
Bima	Wawaroda	3,207	800

*Projections based on the assessment of the impact of the driving factors of the products and ecosystem services (PPE), which supports rural livelihoods and well-being community. Because of the diversity of products and ecosystem services as a dependency of society on Lombok and Sumbawa, the typology is needed to simplifies the analysis. In 2010 there were 105 rural sub-districts in the province. Overall, a total of 84 products and ecosystem services have been identified from 9 habitat (Figure below). Manufacture of PPE (eg. relative volume produced or used) is estimated from BPS-National Statistics Agency and PODES secondary data and survey to the community if the data not available (Suadnya, 2010). Statistical analysis of the blend of PPE and level production, revealed seven types of typologies. The whole typology except typology 7 contained Lombok and Sumbawa.*

- J.** Describe how the sustainability of the project/programme outcomes has been taken into account when designing the project/programme.

*The cultivation phase can be renew every maximum 4 months depend on the cycle of cultivation. Teorically, in one years one groups hopefully already get the Break Even Point (BEP) of their seaweed and fishery business and have own capital and revolving the seed fund to executor. So, the executor will start nurturing the new groups. Also, the post harvest processing of seaweed and fishery could become more value added product so directly will impact on rising of groups income. In this scheme the break even could be achieve in faster. So the project could grows in groups numbers or participants. All of the farmer/fishermen groups will coordinate by cooperative system which will develop by the project executor in cooperation with the local government. The 'seed fund' of the groups will apply by revolving system for Running of new groups in other area. All the activities of this project will reported regularly every 6 months during 2 year project complete which will cover the progress report, documentation and last but not least evaluation and improvement effort to achieve the goal of project.*

- K.** Provide an overview of the environmental and social impacts and risks identified as being relevant to the project/programme.

*The project will impact on accelerated the local economy which have been choose for project. Economic activity in the agribusiness seaweed cultivation is done profitable. income communities who cultivated seaweed more high when compared to people who do not do cultivation seaweed. Significantly this effect on increasing welfare owned by coastal communities. Previous study proved that analysis of indicators describe the level welfare families who have seaweed cultivation better than families which have not seaweed farming.*

Change livelihood pattern also occurred that society shifted from being just fishing extraction from nature become cultivated society farmers. For environment aspects, the project also will enrich the nutrient content of surrounding waters close to the project. The benefit of the high content of nutrient will enrich the ecosystem and fishery sector in the area.

Macro-algae cultivation can be expected to shift their distribution landward in response of sea level rise provided that the newly submerged shore areas are suitable for the primary settlement of spores or seeding. Seaweed in particular are frequently exposed at the red tide and have become adapted to ambient air temperature and rainfall. Such improvements, greatly affects the community structure changes and the spread of organisms in the sea. These problems can be slowed by increasing the oxygen content in the atmosphere produced by seaweeds.

Seaweed aquaculture can potentially contribute some of the ecosystem functions that natural kelp forests and macro-algae beds support (Smale et al., 2013). Some of these functions contribute, as mentioned above, to mitigate climate change while another set of functions have climate change adaptation benefits (Duarte et al., 2013). For example, the canopies of farmed seaweeds, like those of wild seaweeds, dampen wave energy and, hence, serve as live coastal protection structures buffering against coastal erosion (Løvås and Tørum, 2001). Base on the Governor advise the project will spread in Lombok and Sumbawa island as the mainland of West Nusa Tenggara Province.

Table 7. The table of potential area for sea weed cultivation in West Nusa Tenggara Province.

No	Disctrict	Kecamatan (Teluk)	Allocation area (hectare)
1	West Lombok	Pengantap	300
2	Central Lombok	Teluk Gerupuk	200
3	East Lombok	Teluk Sarewe	400
4	West Sumbawa	Kertasari	200
5	West Sumbawa	Terano	1.500
6	Dompu	Kuangko	500
7	Bima	Waworada	1.800

Table 8. Environmental and social principles

Checklist of environmental and social principles	No further assessment required for compliace	Potential impacts and risks - further assessment and management required for compliance
<i>Compliance with the Law</i>	√	
<i>Access and Equity</i>	√	
<i>Marginalized and Vulnerable Groups</i>	√	
<i>Human Rights</i>	√	
<i>Gender Equity and Women's Empowerment</i>	√	
<i>Core Labor Rights</i>	√	
<i>Indigenous Peoples</i>	√	
<i>Involuntary Resettlement</i>	√	
<i>Protection of Natural Habitats</i>	√	
<i>Conservation of Biological Diversity</i>	√	
<i>Climate Change</i>	√	
<i>Pollution Prevention and Resource Efficiency</i>	√	
<i>Public Health</i>	√	
<i>Physical and Cultural Heritage</i>	√	
<i>Lands and Soil Conservation</i>	√	



## PART III: IMPLEMENTATION ARRANGEMENTS

**A. Describe the arrangements for project/programme implementation.**

*The project is directly execute by executor coordinated by CIDES Indonesia in cooperation with Faculty of Biology, Universitas Gadjah Mada (UGM) also supporting by the local government administration, University of Mataram and local administration (indigenous people). The first step project is Training of the Technicians & Trainer Assume that 40 technician is required to support 1,200 farmers of seaweed and fishery during at least two years.*

*The technicians are the keys to success, and they need to be well trained. CIDES Indonesia in cooperation with BPPT, Faculty of Biology UGM and Center for Coastal and Marine Studies University Mataram will offer a training package course on theory and practice for prospective seaweed and fishery farming technicians. Train the best people available. Start the farms slowly, step-by-step, and with small groups of well-motivated and well-trained farmers. Establish clear 'rules of the game' from the start and don't persist with unmotivated farmers. Faculty of Biology UGM will also do activity to monitor and valuate the CO2 absorption and acidification of the coastal area.*

**B. Describe the measures for financial and project/programme risk management.**

Table 9. The measures for financial and project/program risk management

	Risk		Response Measure
Economy	Fluctuation in exchange rate (USD : IDR)	medium	The project manager will closely monitor the fluctuation in exchange rate and make decision accordingly
	Delays in the disbursement of funds, procurement and institutional inefficiencies (e.g. lengthy approval processes) result in delayed recruitment of project staff and hence project implementation.	low	Communication between project manager and everyone involved in this project for minimalizing misunderstanding between party
Project	Delays for infrastructure stabilization	low	Project manager will be manage the executor for tightly follow the time schedule
	Farmer Acceptance	low	Project team will introduce the project comprehensively and involve related key players

The executor will base on the minimum target achievement vs time and fund disbursement. The complete and details is show on disbursement of fund below.

**C. Describe the measures for environmental and social risk management, in line with the Environmental and Social Policy of the Adaptation Fund.**

The measure of environment and social risk is handled by doing research before and after the project. Some of indicator which can use i.e. environment quality before and after the project (e.g.turbidity of water, dissolve oxygen etc, abundance of species etc).

Table 10. measure of environmental and social risk

	Risk		Response Measure
Economy	<i>Social jealousy between people who get cultivation training and who do not</i>	<i>Medium</i>	<i>The project was conducted in a sample area that invited community representatives from other regions. So that people in other areas can learn through these representatives</i>
	<i>Distribution of cultivation and its sales</i>	<i>Medium</i>	<i>Distribution and sales channels of cultivation shall be made through local government and project implementers</i>
	<i>The abundance of cultivation products</i>	<i>Low</i>	<i>Diversification and processing of raw products into semi-finished or finished products</i>
Environment	<i>Environmental impact for local areas</i>	<i>Medium</i>	<i>The environmental factor measured periodically. The environmental factor consists of pH, salinity, water turbidity, temperature, dissolved oxygen and species abundance</i>
	<i>The existence of endemic disease in the cultivation process</i>	<i>Low</i>	<i>Periodic monitoring of cultivation commodities against exposure to diseases</i>
	<i>The presence of pests that cause production to decline</i>	<i>Low</i>	<i>Periodic monitoring of pests that interfere with cultivation commodities</i>

**D. Describe the monitoring and evaluation arrangements and provide a budgeted M&E Plan.**

*The monitoring and evaluation will be base on the activity and amount of budget disbursement. The executor will report periodically every 6 months.*

*For monitoring and evaluation activities will described below :*

**Start up**

*For starting up will be held in the first month of the project started. The aim for this evaluation is to make sure every preparation was done accordingly.*

**Six-Month evaluation**

*Project will be evaluated every six-month including financial reports and working progress*

**End of Project**

*Evaluation for the end of project will take place three months prior to project termination*

**E. Include a results framework for the project proposal, including milestones, targets and indicators.**

Table 11. Framework for the project proposal

<b>Criteria</b>	<b>Milestone</b>	<b>Target</b>	<b>Indicator</b>
Grouping	Number of groups	100 groups farmer/fishermen	The existing/ sustainable group after the project
Training of Trainers	Number of Trainer	40 Trainers	Manual book, The certificated Trainer
Training groups	Number of participant	100 participants	Sustain /skilled participants
Cultivation phase	The wide area of cultivaton	80 hectares of seaweed cultivation	The sustain of cultivated area seaweed/fishey
Post harvest handling	Kind and amount product	Value added product of seaweed/fish	The vary of seaweed /fish product
Monitoring and evaluation of CO <sub>2</sub> capture	Level of CO <sub>2</sub> in Water and atmosphere and acidification of coastal	Along the targeted coastal area	Reduction of CO <sub>2</sub> and acidification level

and water acidification	water.		
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Through this project created at least could be created for seaweed cultivation in polyculture and longline systems (long line) 80 hectares of distribution throughout the West Nusa Tenggara province involving at least 1,200 direct labor. After operating for a year the cultivation and processing of seaweed and fishing can take place with further sustainable farmers, fishermen and seaweed, fish and dairy products producers will be contained in the form of cooperatives under the coordination of the University of Mataram which will be formed later.

100 groups from the villages learned how to process seaweed into chips and syrup, milkfish product etc. CIDES Indonesia, Faculty of Biology, UGM and related partners (University of Mataram Nusa Tenggara Barat Province) will provided teaching material regarding bleaching methods, syrup processing, chips, milkfish processing and business analysis of the seaweed product market. Additionally, CIDES Indonesia and partner provides processing equipment for each district.

Once ToT participants return to their villages they can transfer the knowledge to neighbours, so that they are able to produce seaweed chips themselves. Some of them already apply continuous production, although still on a small scale, and are even getting orders from outside the area.

Although the women are now knowledgeable on processing techniques, difficulties in business permit application, a lack of capital to invest in raw products and equipment and unstable electric power supply hamper the production of seaweed products. To overcome these obstacles, CIDES Indonesia has coordinated with the respective local government offices and followed up on raised issues. As an example, the health department will issue the Certificate of Domestic Industry Processing (S-PIRT) as the requirement for home industry chips production and the Cooperative and Industrial Trading office will provide assistance on the seaweed chips packaging for the active groups. The local government also promises to support the seaweed processing activity by providing market strategy such as exhibition to establish West Lombok as centrum of seaweed processing in West Nusa Tenggara.

**F. Demonstrate how the project/programme aligns with the Results Framework of the Adaptation Fund**

Table 12. Result framework of the Adaptation Fund

Project Objective(s) <sup>1</sup>	Project Objective Indicator	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Resilience/ adaptation In coastal area	Manage minimum 1,200 hectare of seaweed/fishery cultivation	Seaweed product business	Coastal and environment service	78,000
Income generating for vulnerable community	Multiflier effect on local economy minimum 3,600 people	Local economy growth	Family expennses	73,000
Monitoring and evaluation of CO <sub>2</sub> and acidification level	Increase of CO <sub>2</sub> capture and decrease of acidification			
Project Outcome(s)	Project Outcome Indicator(s)	Fund Output	Fund Output Indicator	Grant Amount (USD)
Group entreprise Skilledfarmer/ fishermen	Minimum 1,000 new seaweed/ fishery cultivator	Enhance of skill personel	Increasing of Daily income	685,000
Value added product	Diversification of seaweed/fishery product i.e.syrop, seaweed jelly, starch etc	Enhance of product price/quality	Increasing of product price/ quality	70,000
Awareness of community in CO <sub>2</sub> and acidification mitigation	Active community of CO <sub>2</sub> and acidification monitoring			

**G.** Include a detailed budget with budget notes, a budget on the Implementing Entity management fee use, and an explanation and a breakdown of the execution costs.

*Firstly, the project will be started by coordination and grouping the community members. Most of those who are grouped are women (approximately 80 %). The consideration to pick up women as the majority in the groups is because women have more time to support this project compared than their male spouses. There will be 100 groups each will consist of 10 -15 members.*

*The groups will be trained prior to the implementation of the program. The training will be specifically adjusted with their educational background/interest/skill/ability. Further training will be conducted by those who are considered capable for becoming the trainers. Some criteria will be adopted to recruit the trainers from the selected groups. Approximately, there will be 40 members who will be further trained to be the trainers in their own community to support the project.*

*The training sites will be conducted in Mataram and on site location. The predicted expenses for the above activities are \$ 73,000 (the expenses include training modules, allowance for each participant, allowance for trainers, accommodation, etc.).*

<sup>1</sup> The AF utilized OECD/DAC terminology for its results framework. Project proponents may use different terminology but the overall principle should still apply

After the training program is completed, the production phase will be directly applied in the field. All the materials of the training programs are expected to be effectively applied by all the members of trainees/trainers under the supervision the Faculty of Biology Universitas Gadjah Mada (UGM). In this case, the methods which will be applied are: long line, floating, and polyculture methods in 75 hectares of production area . The total amount for the above project is going to be \$ 685,000 (includes seed fund).

The other predicted expenses are management fee (\$ 79,200) which will be allocated to the project officers, local partners (e.g., local communities), and post-harvest handling, as well as product exhibition (e.g., marketing, certification, etc.). The total expenses predicted for this project is about \$ 985,200.

**H. Include a disbursement schedule with time-bound milestones.**

**Schedule of Budget Disbursement Year I**

Activity/Month	1	2	3	4	5	6	7	8	9	10	11	12
Preparation	√											
Site activity	√											
Grouping	√	√										
Training of Trainer		√	√	√								
Training for Group				√	√	√						
Practising					√	√	√					
Nursery						√	√	√	√	√	√	√
<b>Cultivation Phase</b>												
a.Long line							√			√		
b.Floating							√			√		
c.Polyculture							√			√		
Post harvest									√			√
Midterm Review						√						√

**Schedule of Budget Disbursement Year II**

Activity	13	14	15	16	17	18	19	20	21	22	23	24
Postharvest	√	√	√	√	√	√	√	√	√	√	√	√
Exhibition				√				√				
<b>Cultivation Phase</b>												
a.Long Line	√			√			√			√		
b.Floating	√			√			√			√		
c.Polyculture	√			√			√			√		
Post harvest			√			√			√			√
Mid Term Review						√						√
Reporting												√

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

### A. Record of endorsement on behalf of the government<sup>2</sup>


Provide the name and position of the government official and indicate date of endorsement. If this is a regional project/programme, list the endorsing officials all the participating countries. The endorsement letter(s) should be attached as an annex to the project/programme proposal. Please attach the endorsement letter(s) with this template; add as many participating governments if a regional project/programme:

TGH.DR.M.Zainul Majdi, MA Governor of West Nusa Tenggara	Date: April, 4 2017
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### B. Implementing Entity certification

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

I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (President Decree No. 16 year 2015; P.13/Menlhk/Setjen/OTL.0/1/2016; P.33/Menlhk/Setjen/Kum.1/3/2016; Indonesia Intended Nationally Determined Contribution/INDC; COP 21 Paris Agreement signed by Government of Indonesia; Book and Map of Information System of Vulnerability Index Data (SIDIK); Permen-KP No. 2 year 2013; Climate Change Adaptation National Action Plan) 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: August, 6, 2018	Tel. and email: +62-21-22780580; <a href="mailto:Monica.Tanuhandaru@kemitraan.or.id">Monica.Tanuhandaru@kemitraan.or.id</a>
Project Contact Person:	Dewi Rizki
Tel. And Email:	+62-21-22780580; <a href="mailto:Dewi.Rizki@kemitraan.or.id">Dewi.Rizki@kemitraan.or.id</a>

<sup>6</sup>. Each Party shall designate and communicate to the secretariat the authority that will endorse on behalf of the national government the projects and programmes proposed by the implementing entities.

## Appendix 1. Details of Budgeting.

	<b>Criteria</b>	<b>Price per-unit US \$</b>	<b>Unit</b>	<b>#unit</b>	<b>Amount</b>
<b>1</b>	<b>Management</b>				
a	Project staff 1	1,200	24 months	1 person	28,800
b	Staff 2	1,100	12 months	1 person	13,200
c	Staff 3	1,000	12 months	1 person	12,000
d	Staff	500	12 months	1 person	6,000
e	Local Staff	400	12 months	2 person	19,200
	<b>Sub-total</b>				<b>79,200</b>
<b>2</b>	<b>Field Coordination/Grouping</b>				
a	Grouping	3	10 location	100 persons	30,000
b	Transportation	1,000	12 months	2 package	24,000
c	Site secretariat	1,000	24 months	1 package	24,000
	<b>Sub-total</b>				<b>78,000</b>
<b>3</b>	<b>Training Phase</b>				
a	Module/Manual Book	10	750	4 package	30,000
b	Training of Trainer	300	20 pers	2 package	12,000
c	Group Training	2,000	10 location	1 package	20,000
d	Demoplot-practising	1,100	10	1 package	11,000
	<b>Subtotal</b>				<b>73,000</b>
<b>4</b>	<b>Implementation Phase</b>				
a	Long line system cultivation				
	a.Eucheuma cottoni	60 hectare	9,000		540,000
	b.Gracillaria sp				
b	Floating system cultivation				
	a.Gracillaria sp	10 hectare	9,000		90,000
	b.Eucheuma cottoni				
c	Polyculture system (IMTA,Integrated Multitropic Agriculture)				
	-Seaweed(Gracillaria sp)	5 hectare	11,000		55,000
	-Shrimp (Penaeus monodon)				
	-Milkfish (Chanos chanos)				
	<b>Sub total</b>				<b>685,000</b>
d	Post harvest handling				
	a.Starch processing	1,000	1 package	7 location	7,000
	b.Seaweed chips processing	1,000	1 package	7 location	7,000
	c.Seaweed syrop processing	1,000	1 package	7 location	7,000
	d.Seaweed (dodol) processing	1,000	1 package	7 location	7,000
	e.Milkfish processing	1,000	1 package	7 location	7,000
	f.Shrimp processing	1,000	1 package	7 location	7,000
	g.Product packaging	1,000	1 package	7 location	7,000
	h.Gum processing	1,000	1 package	7 Location	7,000
	I.Jelly processing	1,000	1 Package	7 Location	7,000
	j.Nori Processing	1,000	1 package	7 Location	7,000
	<b>Subtotal</b>				<b>70,000</b>

Total				985,200
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## Seaweed Adaptation of Climate Change

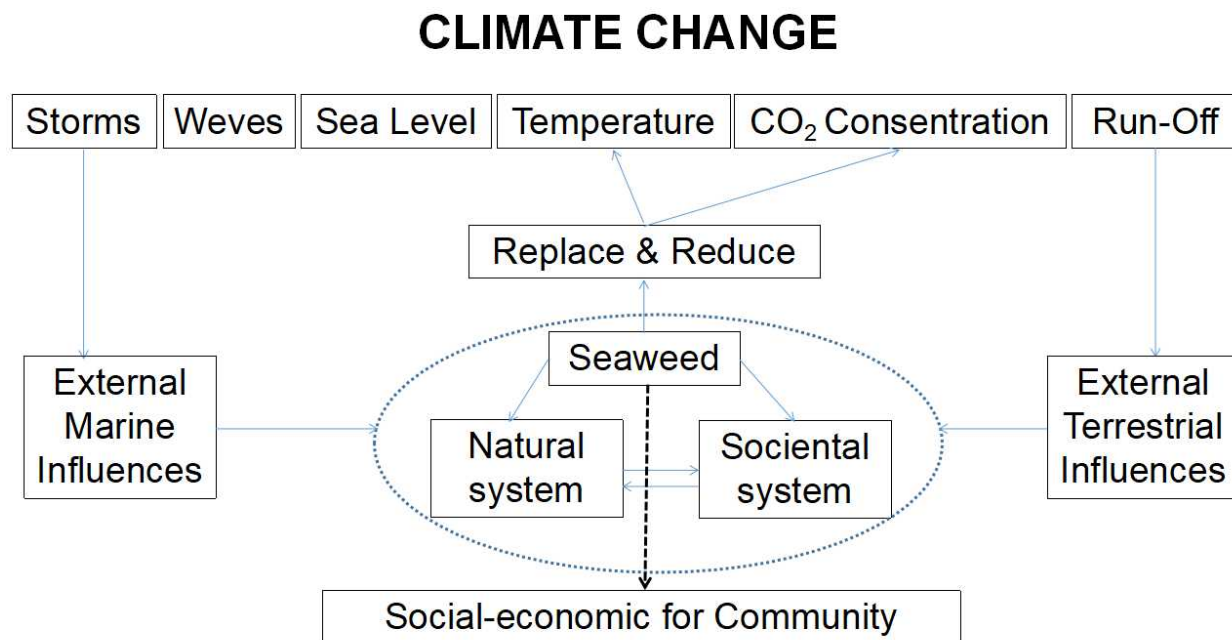


Figure 6. Seaweed adaptation of climate change

### Appendix 2. Sustainability of Project.

Indonesia still has a very high cultivation potential area (marine agriculture). Seaweed cultivation is grouped into 3 categories are: investment in the infrastructure of the cultivation, the operational cost of the cultivation which includes labor costs, seeds and leases of land, as well as reserves contingency. The proposed loan is working capital credit. Cultivators are deemed to have their own capital that is equal to the value of tools and equipment that they used to use in business cultivation before. The cultivation effort of the state (marine agriculture) is seaweed to become an important area of



investment, does not encourage the development of the world that continues to increase in every year with an average of 5-10% per year.

Seaweed cultivation in this project will be conducted in approximately 75 hectares and harvest period (6 months). The method to be used is floating, long line and polyculture methods. Financing is done through funding of capital invested in the form of tools and knowledge. Cultivation infrastructure tools, payments with labor payments through crop turnover obtained. The required seedling is about 10 kg in one ha of area with 6 months maintenance, and 640 kg or 100 kg wet harvest after drying with the price of 45,000 IDR. However, in the calculation of economic value on the target of this study will produce heavy harvest products weighing 64,000 kg wet weight or 10,000 kg dry weight at a price of 45.000.000 IDR. When cultivation is done during the dry season, this is done to maintain the balance of air to remain stable.

Seaweed Growth Rate (SGR) calculates seaweed cultivation production. Good seaweed has an average growth of 1:5 or more (harvest weight of seaweed 5 times the initial weight). The formula for calculating SGR is as follows, (Anggadireja et al., 2006):  

$$\text{Seaweed Growth Rate (SGR)} = \{(\text{Harvest Weight}/\text{Start Weight})^{1/t} - 1\} \times 100\%$$
 Seaweed Growth Rate (SGR) 5% per day, then at harvest weight will reach weight = (1 + 5%)<sup>45 days</sup> = 5,841 x weight of the original (seed weight). However, SGR in various regions in Indonesia varies between 2.6% and 13.9% per day (Murdjani M, 2006). The quality of the seaweed product depends on the quality of seeds, methods or cultivation techniques according to location, harvest time (minimum 45 days), harvesting, drying and storage (Marchell Taher, 2006). Moisture quality standard 35%, KCL 28% maximum 2%, harvest age of at least 45 days after seeded (Neish, 2006). Seaweed in the production center is usually sold in dry form. From 5 kg of wet seaweed, after drying 2-3 days will shrink to 1 kg (marinade rate = 20%).

Table 13. Technical assumption and financial parameters of seaweed cultivation business per-period

	Unit	Unit of value
Amount of investment	Years	2
Period of cultivation (6 months)	Days	180
Harvest time	Days	45
Cultivation cycle (180/45)	Per-harvest	4
Amount of harvest	After weight	6
Wet weight until dry	Percentage	12.5%
Need of seeds (75 ha)	Kg	750
The price of dried seaweed in farmer	IDR/Kg	4500

(75 ha)		
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In this project, the fishermen will also be equipped with technical capability to process seaweed into more expensive valuable consumption products so that they earn more income than just selling in the form of dried seaweed.

Base on Central Bank analysis the BC ratios of seaweed cultivation is 1.82 its means the investment around USD 9,000 per hectare will gain USD 16,380 in 3 periods of cultivation or one year for dry of seaweed. The income will more if we proceed the seaweed in to value added product such as jelly, gum, gelatin, chips, syrop, dodol, nori etc. The target groups which will have beneficerries of this project is approximately 600 family which mean will effect into minimums of 1,800 persons if one family consist of three members. We projected after 2 years the project achieve the sustainable business and become self sustains community with their own business.



## Project Formulation Grant (PFG)

Submission Date: **August 6th, 2018**

Adaptation Fund Project ID:

Country: **Indonesia**

Title of Project/Programme: ***Development of Sustainable Seaweed and Fishery Management for Enhance Community Prosperity & Climate Change Adaptation of Coastal and Small Island at Nusa Tenggara Barat Province'***

Type of IE (NIE/MIE):

**NIE**

Implementing Entity:

**Kemitraan – The Partnership for Governance Reform**

Executing Entity:

**CIDES Foundation**

### A. Project Preparation Timeframe

Start date of PFG	<b>1 September 2018</b>
Completion date of PFG	<b>1 February 2018</b>


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

Describe the PFG activities and justifications:

List of Proposed Project Preparation Activities	Output of the PFG Activities	USD Amount
Data collection for baseline and analysis for each component	Collected data required to set up the basis for argument formulation and program justification in the proposal.	12,375
Travel and meetings required for data collection and consultation	Confirmation of assumptions and situation on the ground before program document finalized	3,375
Expert hiring for proposal writing	Assist Kemitraan in writing and use of collected baseline data to justify program and enhance the proposal.	10,875
Focus Group Discussion with Multistakeholders	To receive feedback and input on the Goal, Objective, Outcome, and Output of the proposal which to be submitted to AF, so as to ensure it is in line with the national programs and strategies of climate change adaptation.	3,375
<b>Total Project Formulation Grant</b>		<b>30000</b>

### C. Implementing Entity

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

Implementing Entity Coordinator, IE Name	Signature	Date (Month, day, year)	Project Contact Person	Telephone	Email Address
Monica Tanuhandaru		06 August 2018	Dewi Rizki	+6221-22780588	<a href="mailto:dewi.rizki@kemitraan.or.id">dewi.rizki@kemitraan.or.id</a>



REPUBLIK INDONESIA  
KEMENTERIAN LINGKUNGAN HIDUP DAN KEHUTANAN

Gedung Manggala Wanabakti, Jalan Gatot Subroto,  
Jakarta 10270, Kotak Pos 6505  
Telepon : 5730191, Faximile : 5738732

Jakarta, 8 August 2018

Ref : No. S.42/NFP/VIII/2018

Attach :

Subject: Letter of Endorsment

To:

The Adaptation Fund Board  
c/o The Adaptation Fund Board Secretariat  
Email: [secretariat@adaptationfund.org](mailto:secretariat@adaptationfund.org)  
Fax: +1 202 522 3405

Dear Adaptation Fund Board Secretariat,

We have received the following concept proposal for Adaptation Fund:

1. Development of Sustainable Seaweed and Fishery Management for Enhance Community Prosperity & Climate Change Adaptation of Coastal and Small Island at West Nusa Tenggara Province executed by CIDES Indonesia Foundation.
2. Build and Strengthen Resilience of Coastal Community against Climate Change Impacts by *Perempuan Inspirasi Perubahan Pesisir* (PINISI) or Women Inspiration for Coastal Change In Bulukumba District executed by Forum Lingkungan Mulawarman.
3. Developing Community Resilience to Adapt to Climate Change in Maratua executed by Yayasan JAVLEC Indonesia.
4. The adaptation measures to support sustainable livelihoods for local communities in mangrove ecosystem in the Mahakam Delta, East Kalimantan executed by Yayasan Mangrove Lestari (YML).

I am writing to you as in my capacity as the National Designated Authority for the Adaptation Fund in Indonesia. We see this proposal is in accordance with the National priorities in implementing adaptation program and activities to reduce adverse impact of, and risks, poses by Climate Change in the vulnerable regions in Indonesia.

With this consideration, we strongly recommend the above proposal to be granted support from the Adaptation Fund Board. The program will be implemented and executed by The Partnership for Governance Reform in Indonesia.

Yours Sincerely,

Dr. Nur Masripatin  
National Focal Point to the UNFCCC,  
Senior Advisor to the Minister of Environment and Forestry on  
Climate Change and International Conventions