

Safekeeping-Surviving-Sustaining towards Resilience:

3S Approach to Build Coastal City Resilience to Climate Change
Impacts and Natural Disasters in Pekalongan City
Central Java Province



PROJECT INCEPTION REPORT

Jan – July 2021

Glossary

3S-Project	Safekeeping-Surviving-Sustaining-Project
AF	Adaptation Fund
Bappeda	Regional Development Planning Agency (Badan Perencanaan Pembangunan Daerah)
BBWS	Major River Basin Development Agency (Balai Besar Wilayah Sungai)
CCA	Climate Change Adaptation
CN	Concept Note
IPB University	Previously Bogor Institute of Agriculture (Institut Pertanian Bogor)
ITB	Bandung Institute of Technology (Institut Teknologi Bandung)
<i>Kelurahan</i>	Administrative division of a city within a sub-district
<i>Lurah</i>	Head of <i>Kelurahan</i> , appointed by the Government.
NDA	National Designated Authority
NDA-GCF	National Designated Authority - Green Climate Fund
NGO	Non-governmental Organisation
PIM	Mangrove Information Centre (Pusat Informasi Mangrove)
PUSDATARU	Public Works, Water Resources and Spatial Planning (Pekerjaan Umum, Sumber Daya Air dan Tata Ruang)
RAD-API	Local Adaptation Plan (Rencana Aksi Daerah - Adaptasi Perubahan Iklim)
SLR	Sea Level Rise
UNDIP	Diponegoro University of Semarang (Universitas Diponegoro)

Table of Contents

Glossary.....	2
Executive Summary.....	4
1. Overview	6
2. Implementation Design.....	7
2.1. Safekeeping.....	7
2.2. Surviving.....	8
2.3. Sustaining.....	8
3. Inception Phase.....	9
3.1. Communication and coordination	9
3.2. Visit to Pekalongan City	10
3.3. Serial meetings with the group of experts and oceanographers.....	11
4. Project Kick-off.....	13
4.1. Kick-off meeting.....	13
4.1.1. Introduction to 3S-Project	14
4.1.2. Current development of Pekalongan City.....	16
4.1.3. Provincial intervention.....	17
4.1.4. Expected results.....	18
4.1.5. Feedback, inputs and comments	18
4.2. Technical Meeting.....	19
4.2.1. Objective	19
4.2.2. Expected outcomes.....	20
4.3. Field trip to Pekalongan City	20
4.3.1. Joint site visits	21
4.3.2. Expert Discussion	21
5. Challenges and Opportunities.....	22

Executive Summary

The City of Pekalongan, one of [UNESCO Creative Cities](#), in Central Java Province, Indonesia is severely affected by climate change impact through sea level rise. Increasing frequency of tidal floods has caused permanent inundation in some parts of the city's coastal areas and the situation is exacerbated through changing rainfall patterns in the upstream that often cause river flooding.

Frequent flooding and partially permanent inundation did not only undermine coastal and public infrastructure, and damage private properties, but also affect the socio-economic condition of Pekalongan City's coastal community. Loss of farmlands and destroyed aquaculture led to increased poverty. Women and children are among the most affected groups.

To help the Municipal Government of Pekalongan City overcome the problem caused by the climate change impact, Kemitraan a project on **Safekeeping-Surviving-Sustaining towards Resilience: 3S Approach to Build Coastal City Resilience to Climate Change Impacts and Natural Disasters in Pekalongan City, Central Java Province** that was approved on 29 October 2020 and is currently entering its implementation phase.

As outlined in the title, the implementation arrangement of this project consist of 3 (three) components that increases protection of the coastline of Pekalongan City (safekeeping), strengthens the adaptive capacity of the city's government and community towards climate change impact (surviving) and improves social-economic condition of the affected coastal community of Pekalongan City (sustaining).

The project kick-off was conducted on 15 July 2021 consisting of introduction session to the project and intended intervention related to the 3S-approach and technical session focusing on the coastal protection that currently sparks concerns to various stakeholders of Pekalongan City, especially the Municipal Government based on the widening impact of sea level rise along the city's coastline. Subsequently, a participatory workshop has been performed on 12 and 13 August to synchronise and synergise provincial and municipal government plan and the intervention plan of 3S-Project, especially related to the coastal protection system.

New findings, science based study and recommendation for coastal protection have been presented from a team of experts who have conducted pilot project in Demak and Semarang cities, and currently performing research and study on the coastal abrasion in Pekalongan City. Provincial plans and action taken for the protection of Pekalongan City coastline have also been presented by the Provincial Public Works (PUSDATARU) and Major River Basin Development Agency (BBWS). All the information has been digested, thought over and discussed further and set as reference for the adjustment of project work plan. Indeed, with the new findings and plans exposed during the presentation, site visits and face-to-face discussion are still necessary to complete the mosaic of intervention master plan for an integrated coastal protection action that accommodates all socio-economic aspects targeted within the project implementation arrangements. The intervention master plan has to be in harmony with the current coastal development plan and flood control system intended to be applied in Pekalongan City. Referring to the increased interest to support Pekalongan City adapting to climate change impact, the city might be loaded with various climate and development projects in the next couple of years. Hence, any development in this direction needs to be observed continuously.

In regards to the current pandemic situation, site visits and face-to-face workshop needs to be planned thoroughly and executed in the right moment. Along with this plan, involvement of experts needs to be timely synchronised, so that the workshop can be effective and resulting the necessary consensus to start development of the proper work plan.

After communicating intensively with the Bappeda of Pekalongan City and the team of experts, date for the workshop was determined with joint site visits in 12 and 13 August 2021. Kemitraan decided to send a small team consisting of 2 key and 2 support staff to conduct join site visits and workshops under strict health protocol.

The 2-days visit associated with expert discussion was performed involving the team of experts from 3 renown universities from Semarang, Bogor and Bandung who led the research and pilot project in coastal protection in Demak and Semarang. The result of the visit will be used as reference for the development of the detailed 3S-Project implementation work plan and timeline.

1. Overview

The north coast of Java Island is one of the most important coastal area in Indonesia that has been repeatedly affected by the impacts of climate change. The sea level in this region is rising between 6-10 mm/year. Although the projected sea level rise (SLR) in this region is not the highest in Indonesia, the high population density and rapid urban development have placed the north coast of Java as an area that is highly vulnerable to disasters and the impacts of climate change. Being the main and busiest corridor for human movement and logistics in Java, this region is faced with various topographical problems, namely river flooding (floods that occur during the wet season), tidal flooding (rising sea levels), and subsidence of soil structure.

Pekalongan City is one of the cities on the north coast of Central Java Province that experiences tidal flooding almost every year. This has happened in the last five years, namely 2012, 2014, 2015, 2016 and 2017. Data from the Bappeda (Regional Development Planning Agency) of Pekalongan City shows that the condition of the soil layer on the coast of Pekalongan has reached minus 30-50 cm below sea level. As a result, the possibility of flooding will often occur. The effect of land subsidence is also the highest factor compared to sea level rise on changes in the area of tidal flood inundation.

The project **Safekeeping-Surviving-Sustaining towards Resilience: 3S Approach to Build Coastal City Resilience to Climate Change Impacts and Natural Disasters in Pekalongan City, Central Java Province**, hereinafter referred to as **3S-Project**, has been initiated based on the version of concept note (CN) developed earlier on *Building Coastal City Resilience to Climate Change Impacts and Natural Disasters in Pekalongan City, Central Java Province* submitted in 2017.

The improvement of the CN submitted later on and approved by Adaptation Fund (AF) in October 2020 lies in the implementation approach that is divided into three components: Safekeeping, to increase protection to the coastal area of Pekalongan City; Surviving, to increase the capacity of Pekalongan City's government and community to adapt to climate change impact; and Sustaining, to provide the affected community with the opportunities to extend and to sustain their social-economic existence through livelihood improvement and development that partially linked to the effort to improve coastal protection of Pekalongan City.

Within the course of the development of the concept note and proposal, which last from 2016 until the approval in October 2020, a number of adjustments has been undertaken in consultation with the Municipal Government of Pekalongan City through its Basppeda in coordination with sectoral offices, such as Office of Environment, Office of Tourism, Office of Public Housing and Settlement Area and Office of Public Works, as well as to the Advisory Board of the Mayor to keep the content and the targeted outcomes in line with the Municipal Government planning for Pekalongan City. Data and information included in the full proposal have been updated accordingly and respectively, still further changes and/or adjustment cannot be disclosed based on the dynamic condition of the impact and the time gap between the submission and the approval of the full proposal.

Compared to the first submitted version, the approved version has gone through several essential adjustments that affected the implementation approach based on updated data and comprehensive discussion, as well as consent given by the local authority and stakeholders. Major adjustments refers to firstly, the construction of a polder undertaken by the Provincial Government of Central Java through its Major River Basin Development Agency (BBWS) Pemali-Juana and the Public Works to minimise SLR

impact to the city; secondly, the restriction to expand the existing marine fish farming as livelihood alternative; thirdly, the Municipal Government request to extend the coastal parapet in the foreshore of kelurahan Degayu in the eastern part of the city adjacent to the border to Batang Regency; and lastly, the request from the Mayor's Advisory Board and the Municipal Office of Environment to support with a waste processing facility. This will not only help curb the escalation of flood and the spreading of water born disease, but to stimulate circular economy throughout Pekalongan City as well. All these changes and adjustment have been adopted in the intervention plan and integrated in the approved proposal.

In addition to the above, further assessment and consultation with the community and the Municipal Government revealed the urgent needs for proper water and sanitation facility as well as for the improvement of community's food security, concerning that large areas of farmlands in the coastal area are inundated. As a result, farmers either have lost their source of income or have to switch to other jobs. Unfortunately, lack of experience, skills and, most certainly, capital only brought most of them to other hard manual labour jobs to fulfil their daily life. Women are especially affected by the climate change impact in the coastal area of Pekalongan City, since, besides maintaining their household, they still have to help generate additional income just for their family to survive.

The 3S-Project, thus, offers comprehensive approach to minimize further social-economic damage to the community of coastal Pekalongan City resulting from the climate change impact and to help protect, improve community's resilience towards the climate change impact as well as revitalize the coastal ecosystem of the city while providing additional economic benefit for the affected community.

2. Implementation Design

The 3S-approach: Safekeeping-Surviving-Sustaining is a model developed based on the social-economic and environmental condition of the coastal area of Pekalongan City that severely affected by the climate change impact. This approach, despite its segmentation in three components, is interlinked to each other, since social-economic interaction, especially at coastal areas, can only be properly established with the support of appropriately functioning environmental ecosystem and development policy that integrate climate change adaptation measures. The impact of climate change in Pekalongan City has evidently damaged the social-economic and environmental aspect of the city. The resulted environmental damaged has proven to have destroyed people's source of livelihood leading to poverty, unemployment and therefore also to lost opportunities.

Based on the above, the implementation design of the 3S-Project needs to be carefully thought and developed to, on one hand, provides solution to the existing problems caused by the climate change impact, and on the other hand effectively addresses the social, economic and environmental aspects in a respective targeted approach. The linkages of the proposed approach have therefore been carefully assessed in terms of optimizing the goal of building solidified community's resilience of Pekalongan City, while taking into account the needs of vulnerable groups.

2.1. Safekeeping

The idea of this approach is to initiate and install coastal protection, which is a combination of semi-hard construction and ecosystem based solution. Including in this approach is the development and/or enforcement of coastal sediment to support the growing of mangrove that will be planted along the coast line of Pekalongan City.

The initial design of the sediment trap is to install geo-tubes in the coastline of Pekalongan City. In some part, the geo-tube has proven to form new coastal sediment that than provided platform for mangrove to grow. In other part of the coastal area, the assessment has indeed found evidence of damage geo-tube and even some that are already drawn under water without having properly formed new coastal sedimentation. Unfortunately, existing monitoring data and information did not conclude the reason for the damage and the subsidence of the existing geo-tube.

In area where farming and aquaculture is the major existing livelihood and source of income, protection from sea level rise is urgently required to sustain the economic benefit of these activities. Part of Pekalongan City, in the area of *kelurahan* Bandengan, sea level rise has resulted in inundation of aquaculture ponds and farming lands. It is only a question of time for other areas on the coast of Pekalongan City to experience the same impact as in *kelurahan* Bandengan, if no immediate solution provided to improve the coastal protection. The Safekeeping-approach aims therefore to strengthen the capacity of the coastal line to provide protection not only to the community living behind, but in particular to the surrounding coastal ecosystem and built infrastructure from the rising sea level.

2.2. Surviving

With regard to the current situation and condition of Pekalongan City, and the climate change impact that occurred in the past decade with devastating results, a set of new strategy needs to be develop for the Municipal Government and the community of Pekalongan City to survive further impact of climate change in the future. This set of strategy includes the capacity building of both the affected community and the Municipal Government in terms of mainstreaming adaptation action into the city's development plan.

Besides enhancing understanding in the political process of policy development that integrates aspects of climate change adaptation, building awareness of the community is essential in order to increase its adaptive capacity to climate change impact. Measures undertaken to protect the coastline, for example, of Pekalongan City would probably not sustain without community's sense of belonging. Fostering the knowledge about climate change impact and adaptation is therefore necessary, both at Municipal Government level and at community level. Here, it is important that policy makers hand in hand with the sectoral government offices understand the topographical problems, especially of the city's coastline areas and the issues related to community's vulnerability and resilience in order to be able to design and develop an inclusive policy making process, within which climate change adaptation is mainstreamed.

Nevertheless, without strong support from the Provincial and the Central Government, implementation of local policies will face challenges. Therefore, vertical coordination needs to be maintained during the course of the project to synchronize and harmonize the local climate policy with the long-term national and provincial development goals.

All in all, the Surviving-approach of 3S-Project prepares Pekalongan City to adapt with the impact of climate change in the future and increase its socio-economic and environmental resilience supported through a sound policy on climate change.

2.3. Sustaining

Sustaining the city resilience, once it is achieved, is another approach necessary to help the Pekalongan City's community to maintain the continuation of its social economic existence within a well-functioning climate change adaptive environment.

First of all, this approach will provide the necessary condition and prerequisites for the targeted sustainability through provisions of alternative livelihoods in substitution to the lost ones combined with training and skill building of affected community. Subsequently, the Sustaining-approach will deliver the important message to the community of Pekalongan City that climate change adaptation actions conjointly provides room for opportunities related to income generation and stimulates economic innovations. In connection with improving side-income opportunity of the community, the idea of strengthening circular economy is hence integrated in 3S-Project. Community based ecotourism and urban farming opportunity have been specifically explored related respectively to the mangrove development and food security. The latter came into discussion especially because the climate change impact has affected huge areas of coastal farmland. Market access and supply chain for potential commodities has been assessed during the preparation of the proposal and will be monitored along the project course in order to align potential products with the market demand.

Environmental health became one of the main concerns of the Municipal Government, due to the frequent flood that often visited Pekalongan City from both the sea and the upstream. Inundation could therefore stay for days. During Kemitraan's last visit in March 2021, Pekalongan City has just suffered from a flood that inundated part of the city including the coastal areas for almost a month. Damaged household's sanitation added to the existing problems of the community living in the coastline caused by partially permanent inundation of settlement areas. Clogged drainage in certain part of the coastal area has made the situation even worse. As a result, waterborne disease has been identified and urgent solution needs to be applied. Circular economy was selected as an option to improve the situation through improved waste management. In addition, collective sanitation facilities need to be immediately arranged for the affected community.

The Sustaining-approach, thus, supports the community of Pekalongan City to adapt to climate change impact through improvement of basic facility and environmental health condition, rehabilitation and substitution of livelihood opportunities that aims to improve the quality of life of the affected people.

3. Inception Phase

The inception phase of 3S-Project started on 23 January 2021 and ended with the project kick-off held on 15 July 2021. The pandemic situation during this period poses challenges in conducting immediate coordination with the Municipal Government of Pekalongan City. Plans for activities during the inception phase are as follows:

1. Maintain communication and coordination with the Municipal Government of Pekalongan City throughout the inception phase,
2. Site visit to collect update on the development and to conduct site visit,
3. Serial meetings with the group of experts and oceanographers,
4. Project Kick-off

3.1. Communication and coordination

In regards to the pandemic, online coordination and communication have been intensified due to the COVID-19 protocol that limited possibility to travel and restraints crowd gathering.

Short after Kemitraan received the formal approval of the proposal, immediate coordination has been conducted to briefly deliver the report on the approval of the proposal to and discuss the plan for project kick-off with the Municipal Government of Pekalongan City. The meeting was intended to inform that the project is entering its inception phase, meaning the start of the preparation for project implementation. Possibility for Kemitraan small team to conduct field visit to Pekalongan City under strict pandemic protocol was thoroughly discussed. Moreover, It is important for the Municipal Government of Pekalongan City to check for any potential activity overlap and/or incongruousness with the dynamic policy due to escalating climate change impact in Pekalongan City.

In February 2021, the local Development Agency (Bappeda) of Pekalongan City, which is the main counterpart of Kemitraan in the development of the project, informed about another big flood occurring in Pekalongan City. 10 *kelurahan* have been affected by the flood, 8 of which are the targeted areas of 3S-Project. With a flood level reaching up to 60 cm, some of the affected areas were inundated almost for 1 month. This current flood has been the result of heavy rain combined with high coastal tide that prevented flood water flowing to the sea. The Bappeda has also admitted that the newly constructed dyke enclosing the polder facing the inner side of the city has indeed contributed to the prolonged inundation. Based on this event, the Bappeda has consulted Kemitraan and flood experts to seek immediate solution to the problem.

3.2. Visit to Pekalongan City

By the end of February 2021, following Central Government's plan to relax COVID-19 restriction, plan to visit conduct site visit was immediately discussed and consulted to the Bappeda of Pekalongan City. The agenda for the visit was among others to conduct courtesy call to the new elected Mayor of Pekalongan City and to discuss on project kick-off, as well as to undertake site visit to the targeted areas.

The visit was realized on the 19 and 20 March involving a small team led directly by the Executive Director of Kemitraan, Mr. Laode M. Syarif. Besides fulfilling the above agenda, the visit was targeted to gain insights on the impact of the February flood on the affected areas.

The meeting with the Mayor and related representatives of municipal offices was held on 19 February 2021. Introduction of the project has been presented to the Mayor of Pekalongan City, being the new Head of the Municipal Government, followed with discussion with the Bappeda and the rest of sectoral offices. Two important points have been addressed by the Secretary of Bappeda:

1. Related to **Output 1.1.2** of the 3S-Project proposal: the construction of parapet at Degayu foreshore in the east part of Pekalongan City is covered by the Provincial Government through the BBWS Pemali – Juana as part of the revitalization of coastal protection and provincial development plan,
2. Related to **Output 1.1.3** of the 3S-Project proposal: Concerns about the installation of 1,400m geo-tube on the coastline of *kelurahan* Kandang Panjang of Pekalongan City, since most of the existing geo-tube are currently disappearing under the sea level before having able to build coastal sedimentation on the installation sites. The Bappeda of Pekalongan City was in terms of exploring alternatives to geo-tube through consultation with a number of experts, incl. oceanographers.

During the discussion related to the above development, the Bappeda of Pekalongan City as the focal point for the city's development plan mentioned that for the 1st point yet no alternative option of parapet construction could be considered for substitution.

As for the 2nd point above, the Head of the Bappeda informed that there is currently communication with a group of experts that just finalized studies for coastal protection in the neighbouring Semarang and Demak cities, also within Central Java province.

Site visit was performed right after the meeting and the day after to observe the development of the city's coastal area and its condition after the previous flood. The 2nd day was concluded with the visit to the waste management facilities at each of the *kelurahan*, some of which were affected by the flood, before returning to Jakarta.

3.3. Serial meetings with the group of experts and oceanographers

As mentioned under the previous point 3.2., the Bappeda was in discussion with a team of experts and oceanographers related to coastal protection and recommended Kemitraan to meet with the group. As follow-up, a preliminary meeting has been arranged to explore and gain overview from the team of experts on the current condition of the coastal area of Pekalongan City.

The discussion during the preliminary meeting revealed that the team of expert started involvement in Pekalongan City based on the request of the Bappeda of the city related to the team's success in developing pilot coastal protection in the neighbouring Semarang and Demak City. The team led by the oceanographer/coastal engineer Prof. Dr. Denny Nugroho Sugianto, S.T. M.Si from Semarang's Diponegoro University (UNDIP) has succeeded in developing hybrid solution to protect part of the coastal area of Demak and Semarang, which combines groyne construction and mangrove plantation. Although both targeted areas have slightly different coastal characteristics, the construction appear to be applicable to both based on the current result of the pilot. The Bappeda of Pekalongan City has therefore addressed their interest for the team of experts to apply the idea at the city's affected coastal area. The rehabilitation of Pekalongan City's Mangrove Information Centre (PIM), which currently suffers under strong coastal abrasion resulting in the degradation of the existing mangrove onsite, has been discussed as the first location for the implementation. In regards to the implementation of 3S-Project in Pekalongan City, the Bappeda considers this as an option for coastal protection for the city.

Based on the result of the preliminary meeting, series of meeting were planned with the involvement of the new recruited Project Team Leader and Project Officer to discussed in more detail on the pilot study of Semarang and Demak cities and to build recommendation for tangible options for the coastal protection in Pekalongan City.

The planned series of meeting took place in early July to, as described above, have collect detailed data and information on the pilot project in Semarang and Demak, as well as the detailed construction and the applied engineering design. The implementation of the project followed in two stage:

1. Groyne construction for sediment trap

In the case of Semarang and Demak, coastal protection is conduction through the construction of groynes that additionally trap sediments. Depending on the coastal characteristic, new sediment will be built either behind or in front of the groynes.

2. Mangrove planting

Once the sediment is built and reach certain stability, mangrove can be planted and further grow naturally. During the installation of the construction for sediment trap, mangrove saplings can already be prepared in the nursery to be planted when the sediment is ready.

The construction of the groyne and planting of mangrove involved local community, hence it does not only provide income opportunity, but can also foster community ownership. Although the groynes are meant to be a temporary construction that will be destroyed after several years through constant exposure to the wave, in the case of Demak and Semarang the construction holds longer than expected. Referring to the concerns made by the Bappeda of Pekalongan City about the durability and effectiveness of geo-tube, groyne construction offers alternative to trap sediment and provide coastal protection necessary for mangrove to grow. Following images show the construction in Semarang and Demak.



Picture 1. Groyne construction in Semarang

In terms of coastal protection against tidal flood, the Central Government receives support from The Netherlands as well. A Representative of Dutch – Indonesian Cooperation in Water Sector asked for a meeting in Jakarta to explore Kemitraan's plan to protect the coastline of Pekalongan City. Assistance is provided by the Dutch Government to the Indonesian Ministry of Public Works and Public Housing. The Representative concerned has also been in contact with the team of expert from UNDIP regarding their pilot project. The purpose of the meeting was to coordinate and to explore options for the protection of the northern coastline of Java Islands, from Jakarta to Central Java. The meeting concluded with the request of the Representative to observe the development of the project implementation.

4. Project Kick-off

Preparation for the project kick-off was carried out immediately after the Project Team Leader and Project Officer are recruited. Meetings with the Bappeda of Pekalongan City has been conducted to fine tune the plan and to make sure that all key stakeholders are invited to the kick-off. In respond to the pandemic situation, a hybrid event (online and offline) was arranged, in which the Mayor and representatives of the Municipal Government and limited numbers of key stakeholders were gathered in one of the meeting hall in the Municipal Government Office compound in Pekalongan City under strict health protocol. Others, including the project officials, were joining and connected online to the meeting hall.

As agreed in the preparation meeting with the Bappeda, the kick-off was arranged in two sessions. The first was to generally explain to the stakeholders on the implementation plan. The second focused more on the technical aspects of the implementation to be discussed with the Bappeda and related sectoral Offices. In the second parts, team of experts and team of oceanographers were invited to explain their findings on the condition and future threat of the coast of Pekalongan City, and to lead discussion on possible options for the protection of the coastline.

4.1. Kick-off meeting

The objective of the kick-off meeting was to introduce and to socialise the project and to describe the implementation plan, as well as model of intervention, to all key stakeholders of Pekalongan City. Further, media coverage on the project kick-off has been disseminated to the community of wider Pekalongan. General discussion and overview of the project implementation and intervention plans are parts of the agenda of this meeting. As agreed upon with the Municipal Government, the meeting was scheduled for 2 pm WIB (West Indonesia Time) on 15 July 2021.

Attending the kick-off meeting from Pekalongan City are the Mayor, the Municipal Secretary, Head of the Local Parliament, Deputies and Head of related Municipal Offices, among others:

1. The Office of Public Works and Spatial Planning,
2. Office for Public Housing and Settlement Areas, Environmental Office,
3. Culture and Tourism Office,
4. Office of Marine and Fishery,
5. Health Office, and
6. Office of Education.

Community representative from the targeted and the Head of 8 *kelurahan* were partially joining online. Kemitraan's Executive Director and Project Team, as well as AF-Designated Authority and representative from the Province of Central Java were also joining online.

The meeting started with an opening speech by the Executive Director of Kemitraan continued with the Head of the Local Parliament of Pekalongan City, who stated that this project needs to be synergised with the development plan of Pekalongan City in terms of overcoming climate change impact. The Climate Change Adaptation Director of the Ministry of Environment and Forestry stated subsequently that the funds pledged by AF and Kemitraan for the adaptation action in Pekalongan City can support better development planning that integrates climate change aspects and achieve the expected results. The opening ceremony was closed with a speech by the Mayor of Pekalongan City who addressed his

appreciation to AF and Kemitraan’s effort to support his city dealing with climate change impact. The Mayor closed his remarks by finally declaring the official start of the 3S-Project.

4.1.1. Introduction to 3S-Project

In this first session, Kemitraan presented the introduction to the 3S-Project and explained the implementation arrangement to the attendants as described below:

Project Components	Expected Outputs	Expected Outcomes
1. Enhancing protection along the coastal line of Pekalongan City	1.1.1. 6 kilometres of Mangrove Ecosystem established	1.2. Increased coastal community resilience in Pekalongan City
	1.1.2. 300 m parapet at Slamaran Foreshore in <i>kelurahan</i> Degayu constructed	
	1.1.3. Coastal embankment (geo-tube/sand trap) at Kandang Panjang established	
2. Enhancing coastal community capacity in developing and implementing Local Climate Change Adaptation Action Plan (RAD API), climate change information system, Climate Smart Initiative	2.1.1. Pekalongan City Climate Working Group reactivated	2.1. Enhanced capacity of local actors in identifying, initiating, strengthening, and escalating community-based actions to address climate risk and natural disaster; including capacity in integrating the actions to <i>kelurahan</i> development plan
	2.1.2. Climate working group established and functioning in each of the 8 target <i>kelurahan</i>	
	2.1.3. Enhancing coastal community capacity in developing <i>kelurahan</i> 's information system and implementing the ensuing climate change adaptation actions	
	2.1.4. Engaging youth groups and building their capacity to become Agents of Change in climate change adaptation actions of Pekalongan City	
	2.2.1. RAD API developed based on Pekalongan City Climate Risk Assessment and Climate Coastal Impact	2.2. Enhanced capacity of local government and other city stakeholders' in developing climate risk assessment and utilizing the results to develop local climate change adaptation action plan (RAD API)
	2.2.2. Strategy to integrate CCA into local government planning processes (annual work plan or mid-term development plan of city) is developed	
	2.3.1. Innovative and collaboration adaptation actions are implemented in collaboration with private sector, Government bodies and NGO	2.3. Enhanced resilience of coastal community through the implementation of Climate Smart Initiatives, including fostered sustainable utilization of

	(i.e. technology for main productive sectors, model on collaborative CCA programme across coastal upstream and downstream <i>kelurahan</i> , collaborative action to protect the affected coastal area); and also evaluated for future reference	natural resources, with implementation scheme that can be replicated and disseminated to broader audience
	2.4.1. Climate change training and knowledge sharing conducted	2.4. Established knowledge management network at municipality level
	2.4.2. Knowledge product, Advocacy materials (i.e. lessons learned, research paper, newsletter) published and shared	
	2.4.3. Local knowledge sharing network established	
3. Strengthening vertical coordination by enhancing provincial government's capacity in mainstreaming climate change adaptation and resilience into Central Java Province development plan which in turn could foster better climate-related policy on climate financing and bottom-up planning	3.1.1. Enhanced provincial capacity to develop RAD API	3.1. Enhanced provincial government's capacity in mainstreaming climate change adaptation and resilience into Central Java Province development plan
	3.1.2. Appropriate strategy to integrate CCA into Provincial government planning processes (annual work plan or mid-term development plan of city) is developed	
4. Strengthening vertical coordination and collaboration between national and local government in climate adaptation context and Enriching knowledge, toolkits and methodologies coastal resilience for	4.1.1. Knowledge product in the form Handbook on how to use SIDIK for risk assessment at coastal city is published and shared. This handbook is targeted to be used by local government, NGOs and civil society organizations	4.1. SIDIK as risk assessment tools for coastal area based on local experience enriched
	4.1.2. Strengthened vertical coordination and collaboration between national and local government in climate adaptation context	

the national government		
5. Improving community's resilience through initiation of alternative livelihood and improvement of sanitation facility	5.1.1. Aquafarming in mangrove ecosystem developed and implemented by community	5.1. Increased economic income and improved community's health in 8 target <i>kelurahan</i> of Pekalongan City
	5.1.2. Mangrove ecotourism improved and involving wider participation of affected coastal community of Pekalongan City	
	5.1.3. Improved cultural economy through application of ecological batik using mangrove based colouring product	
	5.1.4. Improved food security through the application of urban farming as alternative to conventional agriculture practices	
	5.1.5. Developed circular economy through initiation integrated waste management system and processing	
	5.1.6. Improved sanitation facility in 8 target <i>kelurahan</i> to mitigate risks of waterborne disease	

The highlighted output components 1.1.2. and 1.1.3 are the main subjects of discussion in the second session of the kick-off.

4.1.2. Current development of Pekalongan City

In exchange, the Head of Bappeda Pekalongan City, Ir. Anita Heru Kusumorini, M.Sc, informed through her presentation the current condition of the affected areas in the northern part of Pekalongan City. Anita used the opportunity to explained the expanding impact post February flood and showed pictures of the affected areas in her presentation (below).



Picture 2. Current condition of Pekalongan City post February Flood

The above Picture 2 shows the permanent inundation in *kelurahan* Bandengan (middle left picture) and expanding inundation adjacent to the landfill (TPA) in *kelurahan* Degayu (middle right picture). The upper right image shows the road flooded during high tide and wave crashing to the protecting parapet in the area of Pantaisari. The lower left and lower middle pictures describe respectively the increasing surface of Bremi River (*Kali Bremi*) and Loji River (*Kali Loji*). And lastly, the presentation highlighted the poor water supply condition in Pekalongan City despite of the abundant water from the rivers.

4.1.3. Provincial intervention

In connection with the updates explained by the Municipal Bappeda, the Provincial Major River Basin Development Agency (BBWS) followed by the Provincial Public Works presented the interventions that have been done and will be carried out in Pekalongan City.

For the coastal protection, construction of polder and pump facilities have been finalised in the western part of northern Pekalongan City. Based on the analysis of the Provincial BBWS, the polder has proven to be effective in preventing tidal flood, but it unfortunately contributes to the prolonged inundation during

river flooding in February. The polder somehow prevented the flood water to flow straight to the sea. Simultaneously occurring high tide has made the flooding situation even worse, which forced Pekalongan City to break down the construction in several spots to relief the inundation. Adjustment to the construction was in planning and will be undertaken soon to prevent such event reoccurring.

The representative of the Provincial Office of Public Works that also covers water Resource and Spatial Planning (PUSDATARU) provided overview through his presentation on the urban space utilisation directives focusing on the water resource management in Pekalongan City. In regards with the frequent river flooding of the city, this focus on water resource management became priority. The water resource management plan needs therefore to be synergised with the coastal management plan due to sea level rise.

Furthermore, the presentation of PUSDATARU outlined the cause of frequent river and tidal flooding that is listed as below:

1. Land use change, especially at riverbanks and coastal area,
2. Land subsidence,
3. Sea level rise,
4. Waste problem,
5. Erosion and sedimentation,
6. River docks (mostly fisher boats).

Based on the problems and causes explained in the presentation, the PUSDATARU emphasized the importance of drawing up an urban development plan that incorporates both flood control and coastal protection. In addition, PUSDATARU recommended to apply Penta Helix stakeholder engagement framework in the implementation of the development plan.

4.1.4. Expected results

The expected result of the meeting was to receive inputs, comments and recommendations from the attendants on any possible adjustment, modification or existing gaps to be addressed and integrated in the implementation design. All results from this meeting will be collected, analysed and used as reference for further discussion in the immersion workshop planned to be conducted as follow-up for the project kick-off.

Further, it is necessary to reveal as much information from the Provincial Government on the adaptive action planned for the next years in terms of protecting the coastline of Pekalongan City. This is important for the 3S-Project Team to have the overview on the planning in order to make necessary adjustment of the project implementation and intervention arrangements and design to avoid collision. With Pekalongan City became one of Central Government priorities, chances for urgent interventions on the city's coastline are high.

4.1.5. Feedback, inputs and comments

In principle, the Mayor and the Municipal Government of Pekalongan City welcome the initiative to protect the city's coastline from tidal floods, but again addressed the importance of synchronizing with the municipal development and other plans of the Central and Provincial Government related to the climate change adaptation. Both governments have developed urgent plan to tackle the climate change impact in Pekalongan City. Effective coordination and communication to the governments at all level need

therefore to be maintained to increase synergy and avoid overlap. Likewise, the same message has been addressed by the Head of Local Parliament, with additional emphasized on optimizing the social and economic benefits for the community.

During the subsequent discussions and Q&A session, community representatives raised issues on household waste. The frequent flooding occurred in Pekalongan City, both tidal floods or the ones caused by extreme rainfall, were exacerbated through clogged drainages as a result of lack of community awareness, and household waste management system that still needs strong improvement. The Bappeda of Pekalongan City has indeed admit the waste management problems and indicated for further detail discussion on the project component on waste management. Discussion with the Bappeda and the community representatives was developed in terms of integrating the existing local waste management facility at *kelurahan* level as parts of the supply chain for the integrated waste management facility, which establishment is indicated in the proposal for Pekalongan City (Output 5.1.5 of the proposal).

In connection with community livelihood, representative from the Central Java Provincial Bappeda suggested to consider restoring the iconic economic sector of Pekalongan City: *batik* industry, fishery and trade in connection with the development of livelihood. Being one of the most important centres of *batik* industry, suggestion was also made related to the application of more ecological colouring materials. Mangrove has been considered to be used to produce such colouring materials and some projects have run in other part of Indonesia, where this is applied.

All feedbacks, inputs and comments were collected for the project team to utilise for evaluation against the current goals and objectives of the current proposal.

4.2. Technical Meeting

The kick-off continued with technical meeting after 15-minutes break. This part of the kick-off event is intended for the sectoral Offices, both from the Municipal and Provincial Government to discuss on the technical intervention planned to be applied to protect the coastline of Pekalongan City.

4.2.1. Objective

This part of the kick-off event focuses on the technical matters of the implementation arrangement and intervention plan for the protection of Pekalongan City's coastal areas. The primary objective of this meeting was to collect insights and experience from the team of experts that have successfully applied the construction of groynes in Semarang and Demak that enable mangrove to grow healthy after years of

research. For the project team the meeting is important too, since the project aims to provide solution for coastal protection that favours environmental sustainability.

So, in this meeting, the team of experts are invited to give comprehensive presentation on the works and research done in Semarang and Demak, and to have a dialogue with the attending representative of Provincial and Municipal Government on following topics:

1. Adaptation Action Intervention Design based on Risk Analysis, presented by Perdinan, PhD. From IPB University of Bogor and Tech. Expert for NDA – GCF Indonesia,
2. Integrating Physical Coastal Protection and Mangrove Plantation to Mitigate Coastal Destruction, presented by Prof. Dr. Denny Nugroho Sugiarto, S.T. M.Si from UNDIP – Semarang,
3. Hydrodynamic and geospatial approach for rehabilitating Pekalongan City's Mangrove Information Centre, presented by Dr. Eng. Eka Oktariyanto Nugroho from Bandung Institute of Technology (ITB).

In addition to the above, a presentation on waste processing technology to promote zero-waste principle suitable for household waste management, market and public space was delivered. This presentation contains introduction of a new waste management technology invented by a group of engineers from ITB that offers expandable processing facility. The application of this technology requires segregation of waste, each of which will be processed to different products, except the recyclable materials that have economic value for recycling industry. The presentation was delivered by Zainal Abidin, M.Sc., Ph.D from ITB.

4.2.2. Expected outcomes

Firstly, the technical presentations were intended to give answers upon the concerns raised about the contemporary state of coastal abrasion that deteriorates efforts to protect the coastline. Secondly, it is to deliver a science based evidence, in which the combination of hard structure and nature based solution can provide coastal protection while improving the ecological condition of the affected areas.

Having very limited options for coastal protection apart from applying massive infrastructure such as sea wall or dyke, it is thus expected that the Municipal Government of Pekalongan City will contemplate the presented technology as alternative that can be applied to enforce the coastline while restoring the coastal environment.

4.3. Field trip to Pekalongan City

As follow-up to the kick-off event, series of preliminary activities have been prepared in terms of solidify decisions to be taken and options of intervention to be performed in providing protection to the coast of Pekalongan City.

After having long discussion and intensive communication with the Bappeda of Pekalongan City and the team of experts, it was decided that the next activity will include site visits and offline workshop and/or discussion to have the most updated data and information, and to identify risks related to the current condition of the coastal area of Pekalongan City.

In regards to the limitation due to pandemic which was set by the Central Government to be evaluated on 9 August 2021, a joint site visits have been planned tentatively for the 12 and 13 August 2021. To

minimize mobilisation, Kemitraan then sent a small team consisting of Team Leader, Project Officer and 2 support staff to Pekalongan City.

4.3.1. Joint site visits

Kemitraan's team arrived a day earlier and was joined by the team of experts coming from the three renowned university, UNDIP Semarang, ITB Bandung and IPB University of Bogor, on site. Joining the team are also the officials from Municipal and Central Java Provincial Government, as well as an observer from the Dutch – Indonesia Cooperation.

After an early briefing led by the Municipal Secretary, the trip head east to *Kelurahan* Degayu where the visit started with the PIM in the west as the final destination of the visit. Respective expert joining the visit explained on each site the correlation of causes and occurring impacts visible to all participants.

The trip was then followed subsequently by a session with the Heads of two sub-districts involved in the project, North Pekalongan and West Pekalongan, as well as with the 8 (eight) *Lurah* of all target *Kelurahan* included in the project proposal. The objective of this session is to build mutual understanding with the participants on the planned activities related to coastal protection and expected participative support from the targeted community of both sub-districts.

4.3.2. Expert Discussion

The 2nd day was filled with expert discussion with limited participants from the sectoral municipal and provincial offices. The discussion was held both online and offline in the meeting hall of Bappeda Pekalongan City, in which the expert provide presentation on aspects identified during the site visits.

The discussion started with the analytical exposure of the visits' results in connection with the hydrodynamic influence on the visited coast of Pekalongan City. Further, the visits to the foreshore has provided clear picture on the increasing energy of the tide seen during the visit. On the offshore next to the PIM area, the participant made the experience of seeing the wave crashing and overtopping the remaining geo-tube. This occurrence explained the cause of mangrove belt destruction used to exist behind the installed geo-tube. These part of the exposure was delivered by Dr. Eng. Eka Oktariyanto Nugroho from ITB Bandung and by Prof. Dr. Denny Nugroho Sugianto, S.T. M.Si from UNDIP Semarang.

Dr. Nyoto Santoso from IPB University delivered his insights on the cause of degraded mangrove and other coastal vegetation seen during the field trip. In his exposure, Dr. Nyoto explained the cause of degradation from agricultural perspective, such as impact of salinity to the roots of she-oak commonly found in Indonesian coasts and under which environmental condition mangrove can optimally grow. Dr. Nyoto also provided proper step to develop or rehabilitate mangrove in the example of the PIM. The mangrove centre was initiated in 2013 by the Municipal Government of Pekalongan City in collaboration with, among others, IPB.

The session continued with Q&A for the 3S-Project Team to dig deeper into possible solution that can be applied to overcome impacts of SLR and increasing protection of the coastline of Pekalongan City. Questions also addressed to the Bappeda of Pekalongan City related to the site that are suitable for the development of mangrove belt in conjunction with silvofishery.

In respond to the questions raised about the protection of the city's coastline, Prof. Denny Nugroho from UNDIP explained that an engineering designed needs to be developed based on scientific data collected in relation to the dynamic events causing deformation of the foreshore of Pekalongan City. Once the engineering design is completed, physical works can commence. Experience and lessons learned from Semarang and Demak in combination with existing data of BBWS Pemali-Juana and PUSDATARU will be very much of assistance to develop the engineering design, especially that the both city lies on the same coastal landscape as Pekalongan City with common characteristics.

As for the questions related to mangrove belt development and silvofishery, the Head of Bappeda of Pekalongan City, Ir. Anita Kusumorini, explained that data will be provided immediately and discussed together during the development of detailed intervention planning.

All information, suggestion and recommendation from this session will be used as reference and guidance for the development of detailed work plan and time schedule. To this end, a follow-up meeting will immediately be arranged and coordinated with the Bappeda to achieve mutual consent on the intervention model to apply for the coastal protection of Pekalongan City.

5. Challenges and Opportunities

The 3S-Project has been approved during the COVID-19 pandemic breakout on 29 October 2020 and started officially on 23 January 2021, right during the time of increasing cases of COVID-19 are reported, leading to limitation of activities throughout Indonesia. During this time, traveling and gathering were strictly reduced, offices were instructed to operate with a maximum of 25% occupation. Plans for meetings had to be rearranged and workshops, in most cases, postponed. In the case of Pekalongan City, online meetings with the main project counterpart, which is the Bappeda, could still be arranged, but organising an online workshop with the involvement of stakeholders and beneficiaries appeared to be more complex. Therefore, the preparation and arrangements was mostly done online with the key persons from the Bappeda.

The official start of 3S-Project in January 2021 happened during the leadership transition in Pekalongan City. The new elected Mayor was then inaugurated on 26 February 2021. So, by the time of Kemitraan's visit in March, the Mayor was only in office for less than one month. Changing leadership in the Government could also bring changes in policy and development course, hence the implementation plan needs to be continuously coordinated with the Mayor's office to maintain Municipal Government commitment towards 3S-Project. Indeed, with the Mayor just recently in office, the chance for 3S-Project to tangle with another political transition is minimal.

In the context of intervention, alteration in Municipal Government's plan to take over the parapet construction in Degayu foreshore (Output 1.1.2 of the project) was only informed during Kemitraan's visit in 19 March 2021, as well as the concerns about the durability and effectiveness of the geo-tube. These concerns were then supported with the result of study done by the team of oceanographers in the north coast of Central Java Province on the abrasion pattern onsite. With the project already coming to its stage of implementation, alternative for the parapet construction need to be identified and the new findings related to the geo-tube need to be carefully explore and studied. Therefore, the project kick-off was mostly focusing on the coastal protection and tidal flood control. The challenge is then to come to a

consolidated decision on the measures for coastal protection in a timely manner, so that the engineering design and subsequence implementation can be carried out on time.

The northern coastal area of Central Java province suffers currently under the escalating climate change impact. Semarang, Demak and Pekalongan City are severely affected by the impact, but it just a question of time, when other areas will make the same experience through increasing sea level. All three affected cities applied adaptation measure separately. In regards to disaster mitigation and management, coordination between affected areas is relatively poor, although they are situated at one stretch of coastline with more or less similar characteristic. The impact of climate change could actually open an opportunity for an integrated coastal management involving the government of coastal districts and cities, so that integrated solution can be applied. This way, a landscape based adaptation measures can be developed that minimise negative environmental impact to the whole landscape. In the contrary, an individual approach at district or municipal level might be well tailored to adapt to domestic impact, but could result in negative environmental consequences to the neighbouring region(s).

6. Risk Management

Changes in the Pekalongan City development plan affects the project intervention component aimed to support coastal protection in the east part of the city, which is the construction of 300m parapet. In addition, concerns also raised related to the ineffectiveness of the installed geo-tube, which is also part of the intervention plan of 3S-Project.

As a result, alternative options for the parapet and geo-tube need to be further explored. The intervention design must be adjusted to the selected option to substitute the initial plan. An update of the key risks to successful implementation of 3S-Project is presented in a matrix below.

Type of Risk	Description of Risk	Risk category (H/M/L)	Risk Mitigation Strategy
Political	Changes in development policy and/or national regulation	Low	The north coastal area of Central Java and the coast of Jakarta has become priority for protection based on its vulnerability towards climate change impact, specifically SLR. The changes that this commitment is shifted is low, so support to Pekalongan City and its development plan will continue for the next 5 years. Nevertheless, vertical coordination needs to be strengthened and maintained along the course of the project.
Institutional	Weak commitment built by project implementers with central/provincial/local government due	Medium	This project has a specific work component of community strengthening for groups that

	to changes in government structure and lack of coordination and communication.		<p>have been strengthened by Partnership since 2017 at the city level.</p> <p>The change of government structure has been anticipated by strong communication with Municipal Secretary (Sekda) and Municipal Planning Agency (Bappeda) of Pekalongan City.</p> <p>To ensure project achievement will be achieved, the PMU will continue to build active coordination and communication with the provincial and central government.</p>
	Changes in project personnel can affect the availability of qualified staff	Low	In establishing working relationships with the PMU, the Consortium implements a recruitment system with output of work contracts during the project. With this mechanism, the personnel is attached with the project goal.
Financial	Delays in disbursement of funds, procurement and institutional efficiency (long approval process and others) that delay project implementation.	Medium	Building active communication with AF and fulfilling all forms of financial procedures in budget disbursement.
Social	Lack of community (direct beneficiaries) support to the project	Medium	<ul style="list-style-type: none"> • Building good relationships with local government (<i>kelurahan</i> level), community and the community leaders (direct beneficiaries) before the project starts • The formation of groups at the <i>kelurahan</i> level can gather all people/levels that are in target community • Utilization of activities in the form of training/workshops/group discussions to provide understanding of the project
	Communities are less aware of climate change and have lack of enthusiasm to respond to disasters. If beneficiaries are not fully aware of the impacts of climate change, it is difficult to gain their commitment in urban farming development and climate change adaptation	Low	This project will implement and introduce participatory methods to the communities so that they can be provided with understanding on the impacts of climate change. In addition, the mentoring process will be undertaken at the <i>kelurahan</i> level by utilizing field facilitators in each of the project target <i>kelurahan</i> .
	Conflict of community interest in selection of location	Medium	This project will build trust with stakeholders in the utilization of land to be used for urban farming, latrines and eco-tourism.
	Low technical knowledge of urban farming and eco-tourism	Low	This project will provide technical support to project beneficiaries in urban farming and eco-tourism.
Implementation	Changes in development plan of Pekalongan City affecting the course of the initial intervention plan	Medium	This project has been developed in tight coordination and communication with the Bappeda of Pekalongan City and Provincial Government. Identification of alternative solution will be conducted in a participatory process.
COVID-19	The unforeseen end of the pandemic and fluctuation of infectious cases lead to obstruction of the implementation on the field	Medium	Consistently applied health protocol and continuous observation of the pandemic development can minimize risk during the implementation. Nevertheless, awareness and alertness towards changing situation needs to be constantly maintained

Annex 1

Run-down Project Kick-off 15 July 2021

Time	Activity	Facilitator
13:00 – 13:30	Registration for offline attendants	Host and Co Host
13.30 – 14.10	<p>Opening and welcoming speech:</p> <ol style="list-style-type: none"> 1. Mr. Laode M Syarif, Executive Director - Kemitraan 2. Mr. Mohamad Azmi Basyir, ST, M.Sc, Head of Local Parliament of Pekalongan City 3. Ms. Sri Tantri Arundhati, Climate Change Adaptation Director, Ministry of Environment and Forestry 4. Mr. H. A. Afzan Arslan Djunaid, S.E, Mayor of Pekalongan City 	MC
14.10 – 14.30	<p>Presentation @ 10 min</p> <ol style="list-style-type: none"> 1. “Introduction to 3S-Project” by Mr. Abimanyu S. Aji, Grant Programme – Manager Kemitraan; 2. “Update on Climate Change Adaptation Action in Pekalongan City” by Ms. Anita Heru Kusumorini, Eng., M.Sc, Head of Bappeda – Pekalongan City; 3. “Support to Flood Control Activities in Pekalongan City” by Mr. M. Adek Rizaldi, ST., M.Tech, Head of BBWS Pemali – Juana, Central Java Province; 4. “Spatial Planning and Flood Control of Pekalongan City” by Mr. Eko Yuniarto, Eng, SP1, Head of PUSDATARU, Central Java Province. 	Moderator
14.30 – 15.00	Responds and Q&A	Moderator
15.00 – 15.10	<ol style="list-style-type: none"> 1. Conclusion 2. Closing 	Moderator

Annex 2

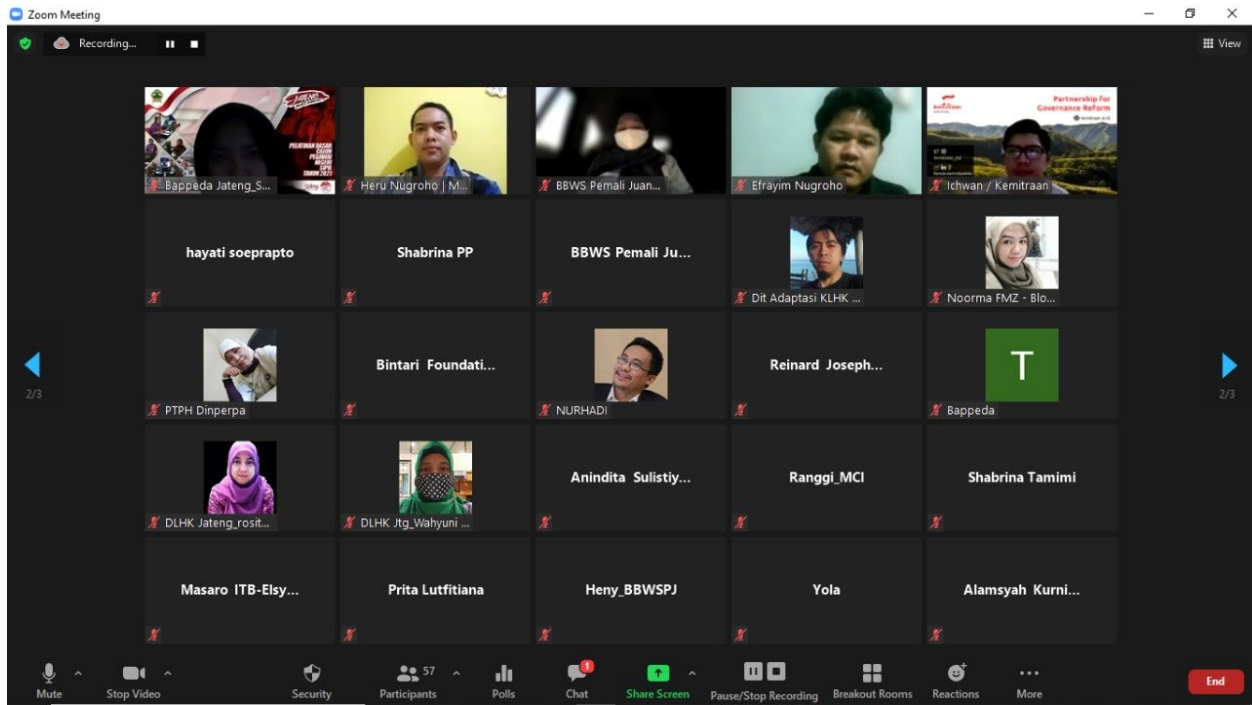
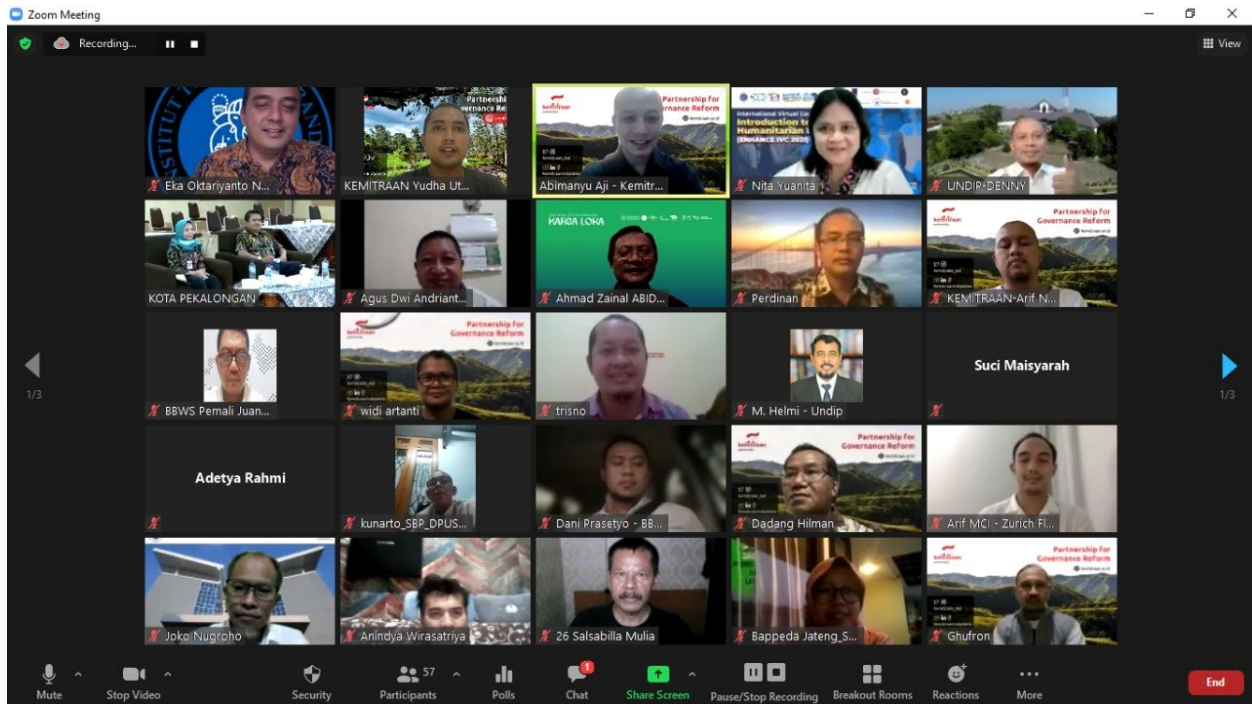
List of Online-Participants of Kick-Off Meeting

Name	Agency
Joko Nugroho	Bandung Institute of Technology
Dr. Eng. Eka Oktariyanto Nugroho, S.T., M.T.	Bandung Institute of Technology
Fauzi Septian Wijaya	Bandung Institute of Technology
Reinard Joseph Martin	Bandung Institute of Technology
Yola	Bandung Institute of Technology
Moh. Nurhadi	Bintari Foundation
Amalia Wulansari	Bintari Foundation
Shabrina Tamimi	Bintari Foundation
Henry AAM	Coordinating Ministry of Marine and Investment
H. Salahuddin, STP	Deputy Mayor of Pekalongan City
Joga Dharma Setiawan	Diponegoro University
Anindya Wirasatriya	Diponegoro University
Dr. Muhammad Helmi, S.Si., M. Si.	Diponegoro University
Sara Tri Novianda	Doodle Art Pekalongan
Azimaton Nafidzah	Great Pekalongan Student Association - Yogyakarta
Heru Nugroho	Great Pekalongan Student Association - Yogyakarta
Astridina, S.Sos., MM	IPB University
Representative of <i>Kelurahan Degayu</i>	<i>Kelurahan Degayu</i>
Lurah Padukuhan Kraton	<i>Kelurahan Padukuhan Kraton</i>
Rizky Febriansyah	<i>Kelurahan Panjang Wetan</i>
Agus Dwi Andrianto	<i>Kelurahan Panjang Wetan</i>
Efrayim Andi Nugroho	KOTAKU (City Without Slums)
Anindita Sulistiyono	KOTAKU (City Without Slums)
Atin Novelita	KOTAKU (City Without Slums)
Titik Nuraini	Loji River Care Community (KPPL)
Salsabilla	Loji River Care Community (KPPL)
H.A. Afzan Arslan Djunaid, S.E	Mayor of Pekalongan City
Arif Gandapurnama	Mercy Corps Indonesia
Koko Wijanarko	Ministry of Environment and Forestry, Directorate CC Adaptation
Sri Tantri Arundhati, M.Sc.	Ministry of Environment and Forestry, Directorate CC Adaptation
Prita Lutfitiana	Ministry of Public Works and Public Housing, DG Natural Resource
Rosalia Putri Ramadhani	Ministry of Public Works and Public Housing, DG Natural Resource
Ir. Anita Heru Kusumorini, M.Sc	Municipal Office for Regional Development Plan (Bappeda) - Pekalongan City
Slamet Miftakhudin	Municipal Office for Regional Development Plan (Bappeda) - Pekalongan City
Tri Puji Astuti	Municipal Office for Regional Development Plan (Bappeda) - Pekalongan City
Vita Marshinta Devi	Municipal Office for Regional Development Plan (Bappeda) - Pekalongan City
D. Resti Artanti	Municipal Office of Agriculture and Food - Pekalongan City
Teguh Prabowo Agung	Municipal Office of Environment - Pekalongan City
Andrianto	Municipal Office of Public Housing and Settlement - Pekalongan City
Nur Slamet B, S.Pi, M.Si	Municipal Office of Tourisme, Culture, Youth and Sport - Pekalongan City

Drs. Moh.Muslih, M.Pd, Ph.D	National Islamic Institute of Pekalongan City
Nurul Mutiara Risqi Amalia	Pekalongan Blogger Community
Noorma Fitriana M. Zain	Pekalongan Blogger Community
Hidayat Zulkarnaen	Pekalongan City Chambers of Commerce
Syachrul R	Pekalongan Drone Community
Ria Erlani	Provincial Office for Regional Development Plan (Bappeda)
Nathan Setyawan ST, M.Eng	Provincial Office for Regional Development Plan (Bappeda)
sugiarti	Provincial Office for Regional Development Plan (Bappeda)
Ninik Damiyati	Provincial Office of Environment and Forestry
Asianti Rosita Adhi	Provincial Office of Environment and Forestry
Wahyuni Fitria	Provincial Office of Environment and Forestry
Benovita Dwi Saraswati, S.Pi, MM	Provincial Office of Marine and Fishery
Dina Mayasari	Provincial Office of Marine and Fishery
Kunarto, ST. MT	Provincial Office of Public Works, Water Resource and Spatial Planning
Hendra Agustian	Provincial Office of Public Works, Water Resource and Spatial Planning
SR. Eko Yunianto	Provincial Office of Public Works, Water Resource and Spatial Planning
M. Ainul Atho'	Radar Pekalongan
Trisno Suhito S.Sos	Save Pekalongan Community
Amhar Azet	Scout, Branch Quarter Pekalongan City
Imam Nur Huda	Sekolah Sungai (River School) Pekalongan
Isnawati	Suara Merdeka
Dr.Pi. Ir. M. Bahrus Syakirin, M.Si.	University of Pekalongan
Hayati Soeprapto	University of Pekalongan
Kendah Harjaning Ati	West Pekalongan Sub-district

Annex 3

Documentation Project Kick-off



Zoom Meeting

Recording...

View

BBWS Pemali Ju...				Bintari Foundati...
	Reinard Joseph...			
Anindita Sulistiy...	Ranggi_MCI	Shabrina Tamimi	Masaro ITB-Elsy...	Prita Lutfitiana
Heny_BBWSPJ	Yola	Alamsyah Kurni...	BBWSPJ	Rosalia Putri Ra...
	Azimaton Nafid...	Denia Syam_MCI		

Mute Stop Video Security Participants 57 Polls Chat 1 Share Screen Pause/Stop Recording Breakout Rooms Reactions More End

Annex 4

List of Kick-off Participats in the Meeting Hall at Pekalongan City

Nama Event : Kick Off Meeting Proyek Adaptation Fund Pekalongan
 Tanggal : 15-Jul
 Tempat / Lokasi : Pekalongan



No.	Nama	Lembaga	Jenis Kelamin (L/P)	No Telp/WP	Email	Tanda Tangan
1	Yos R	Kominfo	L	0812 2664343		
2	Nur Sari	BPUPA	L	08222080136		
3	Imudha	Pekalongan				
4	Bib Suprianto	DKP	L	08156620201		
5	Nurul Indrawati	Kominfo	P	085727905095		
6	Syany	FPEL	L			
7	ABD MUKTI	TPS 3r	L			
8	Lansaw	Pejabat Angkasa	L			
9	M. Rasyid Hidayat	Pokkominfo	L			
10	Wibawa	Umum				
11	Abu Rijanto	BART AR	L	082314102488		
12	Randi	umum	L			
13	Arijun	-	L			
14	Sukartono	Perwakilan Arijun	L	001536621326		
15	Tegeh. S	SATPA PP	L			
16	R. L. W.	Umum				
17	Sukidigata	umum	L			
18	Lumata	umum	L			
19	Suratno	umum	L			
20	M. Naray S.	Setoran	L	081272971070		
21	Jenka Aryan	Setoran	L			
22	Monica	umum	P			
23	Don Janti	Umum	P			
24	Rokhim	Umum	L			

25	SPIRITUM MGSIH	Solo					
26	Kafa	Uluw					
27	Sony	Probolinggo					
28	Sugut	Probolinggo					
29	Onik	Bahik TV	C	0852 9008888			
30	Singgih	Bahik TV	L	085 7420240	Singih-pinhara.com		
31	Agung HM	Bahik TV	L	08156902137	harimukti81@gmail.com		
32	Zulhufmi	Bahik TV	L	08252255700	zulhufmi.m@gmail.com		
33	Kadamsan	Bahik TV	C	087710130133			
34	Tiswanto	Bahik TV	L	0819 1655901			
35	Joing	Bahik TV	L		0815 4216595		
36	Isnari	Bahik TV	C	0850 6505700			
37	Ala	Bahik TV	L	0857 2060621			
38	Risto	Bahik TV	P	0858 4260737			
39	M. Mawson	Kaya	L				
40	Surya Murdani	Bappeda	L	08564135699	surya.murdani@fobinet.com		
41	Angga Sultani	Bappeda	L	08823921373	angga.sultani@gmail.com		
42	Ayu Cahyaning	Bappeda	P	085385777874	ayucahyaning101@gmail.com		
43	Hani Parta A	Bappeda	L	085636130902	hani parta@gmail.com		
44	Abdumul Fikri	Bappeda	L	085878555636			
45	John Rizki	Bappeda	L	081848192680			
46	Hermanan Adh	Bappeda					
47	Bangi	Bappeda	L				
48	Erni b	Bappeda		081020333241			
49	Marzuki	Bappeda	L				
50	M. Fachrudin	Per-Ban					

Annex 5

Join Field Visit, 12 August 2021

Waktu	Programme	Lokasi/PiC
08.00 – 09.00	Persiapan kunjungan lapangan	Bappeda Pekalongan City, Kemitraan
09.00 – 12.00	Visits to: <ol style="list-style-type: none"> 1. Degayu, 2. Slamaran Foreshore, 3. Pantai Sari Forshore. 	Bappeda Pekalongan City
12.00 – 13.00	Break	
13.0 – 14.30	Mangrove Information Centre	Nara Sumber : Bappeda Pekalongan City
14.30 – 16.30	Discussion at Bappeda Office with <ol style="list-style-type: none"> 1. Head of North Pekalongan Sub-district 2. Head of West Pekalongan Sub-district 3. Head of 8 <i>Kelurahan</i>: <ol style="list-style-type: none"> a. Padukuhan Kraton b. Bandengan c. Kandang Panjang d. Panjang Baru e. Panjang Wetan f. Krapyak g. Degayu h. Pasirkraton Kramat 	Bappeda Pekalongan City, Kemitraan
16.30	Closing	

Annex 6

Kick-off Workshop, 13 August 2021

Time	Activity	Facilitator
09.00 -09.30	Exposure of the join field visit results by Dr. Eng. Eka Oktariyanto Nugroho (expert from ITB Bandung) on the hydrodynamic – geospatial perspective	Moderator
09.30 – 10.00	Exposure of the join field visit results by Dr. Yudi Setiawan, S.P., M. Env. Sc (expert from IPB University), on the aspects of mapping, water quality, basic sediment substrate, bathymetry	Moderator
10.00 – 10.30	Exposure of the join field visit results by Dr. Nyoto Santoso (expert from IPB University), on the technique and methods of mangrove planting that suitable for the coastal condition of Pekalongan City	Moderator
10.30 – 11.00	Exposure of the join field visit results by Prof. Dr. Denny Nugroho Sugianto, ST. M.Si (Pakar UNDIP) on the advantage and disadvantage, and the economic aspect of coast protection construction	Moderator
11.00 – 11.30	Group discussion	Bappeda Pekalongan City, Kemitraan
11.30 – 13.30	Break	
13.30 – 14.00	Group discussion	Bappeda Pekalongan City, Kemitraan
14.00 – 15.30	Presentation of each group	Moderator
15.30– 16.00	Conclusion	Moderator
16.00	Closing	Moderator

Annex 7

List of Participants – Day 1, 12 August 2021 (briefing, site visits and subsequent discussion)



Event :
 Lokasi : Kota Pekalongan
 Tanggal/Waktu : 12 Agustus 2021

No	Nama	Organisasi	Telp/Hp	Email	Tanda Tangan
1	SRI RUMIUNGSIH	Perkot	08156563418	sri.rumiungsih@gmail.com	
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Event :
Lokasi :
Tanggal/Waktu :

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22	Komsyatur	Km. Diny Bm	081511990000	Komsyatur@gmail.com	



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Lokasi :
Tanggal/Waktu :

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26	Sri Hartati	Kel. Pabrik Klaton Kramil	088215654781	lucanti.ceres@gmail.com	
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Event :
Lokasi :
Tanggal/Waktu : 12 Agus 2021

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36	Rasa	Keg. Umur			
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38	Petru	Bappeda			
39	Wibowo	Umur			
40	Hertambang	Bappeda	085640822846	hertambangduni'a20@gmail.com	

Annex 8

List of Participants – Day 2, 13 August 2021 (expert discussion)

Nama	Gender	Lembaga
Ria Erlani	F	Bappeda of Central Java Province
Slamet Miftakhudin	M	Bappeda of Pekalongan City
Dimas Arga Yudha	M	Regional Disaster Management Agency of Pekalongan City
Faishal Widiaputra Nugraha, S.Kel	M	Provincial Office of Marine and Fishery
Sutanto Hadi, S.I.K.	M	Provincial Office of Marine and Fishery
Karunia Akbar	M	Provincial Office of Marine and Fishery
Wahyuni Fitria	F	Provincial Office of Environment and Forestry
Alamsyah Kurniawan	M	ITB
Nita Yuanita	F	ITB
Suci Maisyarah	F	Kemitraan
Ribka Pauline B	F	Kemitraan
Abimanyu Sasongko Aji	M	Kemitraan
Denny Nugroho Sugianto	M	UNDIP
Dr.Pi. Ir. M. Bahrus Syakirin, M.Si.	M	University of Pekalongan



Event : Pertemuan Pekar (Penanganan Dampak Perubahan iklim dan Bencana Alam Kelangka)
Lokasi : BAPPEDA PEKAJONGAN R. Amarta
Tanggal/Waktu : 13 Agus 2021

No	Nama	Organisasi	Telp/Hp	Email	Tanda Tangan
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Event : Pertemuan Pakar (Perangan Dampak Perubahan IKUM dan Bercausa Alam Kota Pekanbaru)
Lokasi : L. Amarta BAPPEDA
Tanggal/Waktu : 13 Agustus 2021

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20	Angga Sulhin	Bappeda			
21	Narinda Adh. D	UNPIP	085770140100	narinda.adh@gmail.com	
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Event :
Lokasi :
Tanggal/Waktu : 13 Agustus 2021

No	Nama	Organisasi	Telp/Hp	Email	Tanda Tangan
23	M. Sobirin	B. umum			
24	Mamik	B. umum			
25	Chyo	B. umum			
26	Petro	B. umum			
27	Pitri	B. umum			
28	husnul	B. umum			
29	Sipi	B. umum			
30					
31					
32					
33					

Annex 9

Documentation (site visit 12 August 2021)

Clockwise from top left:

Briefing with Municipal Secretary; explanation during site visit; inundation in Degayu, evidence of overtopping tide in Slamaran Beach, Degayu; remaining geo-tube on Degayu foreshore



Annex 10

Documentation: Expert Discussion

