ADAPTATION FUND

PROJECT/PROGRAMME PROPOSAL TO THE ADAPTATION FUND

EMBRACING THE SUN

Redefining Public Space as a Solution for the Effects of
Global Climate Change in Indonesia's Urban Areas

PART I: PROJECT/PROGRAM INFORMATION

Project/Program Category	:	SMALL-SIZED PROJECT/PROGRAMME
Country/ies	:	INDONESIA
Title of Project/Programme	:	EMBRACING THE SUN: Redefining Public Space as a Solution for the Effects of Global Climate Change in Indonesia's Urban Areas
Type of Implementing Entity	:	NATIONAL IMPLEMENTING ENTITY
Implementing Entity	:	Kermitraan
Executing Entity/ies	:	1. Resilience Research Institute, the University of 17 Agustus 1945 Surabaya, Indonesia 2. School of Design Office, Creative Industries Faculty, Queensland University of Technology
Amount of Financing Requested	:	$ 824,835 (in U.S Dollars Equivalent)

1. PROJECT/PROGRAMME BACKGROUND AND CONTEXT

This project aims to explore flood adaptation infrastructures as a new typology of public space to face climate adaptation, so enhance awareness of Indonesian and laid a concrete resilient groundwork in the face of the climate crisis[1] recognizes the strategic role of public space in supporting communities located in urban environments. Recent research addresses issues of vulnerability in public spaces and explores resilience strategies that reduce the[2,3] through water sensitive design, which is adopted to minimize[4]. All the measures described are reactive by nature; aiming to cope with the effects of climate change.

This project adopts a different approach to face climate change, focusing on public space as an infrastructure that is ideal for facing the challenged of climate change, as well as a key urban element and as means for community engagement and education on climate change. Through this project we will formulate a new concept and typology of public space as an integrated infrastructural support for local communities faced with the multi-layered complexities and challenges induced by climate change, i.e., flood preparedness and other relevant hydro-meteorological disasters. The project will support communities in absorbing and adapting to the impact of annual flooding and support communities in pre- and post-disaster.

The new typology of the “climate adaptive” public space is going to be tested through the development of one multipurpose public space in Samarinda, Indonesia, as a pilot city. The city of Samarinda has provided critical input and indicated possible locations for the intervention. The design process relies on the engagement and involvement of local communities, as well as local governments, and will provide structures and systems to deal with critical environmental issues that are relevant to Indonesia as well as a global context. The new public space will integrate and improve the current urban environments in where it is located and simultaneously envisioned as an ecological-social “anchor” to support the local communities the social dimension of public space will be augmented with environmental features to help communities cope with the effects of climate change and contribute to reduce the ecological footprint. The overarching axiology of the proposed project is to pursue concrete adaptation actions based on 3 (three) strategic goals, (1) resilience; (2) response; and, (3) recovery. Through these actions a broad systems-level adaptation strategy will be achieved by thinking global and acting local (glocal). The project will address the social impact of floods on urban communities, it will provide an infrastructure with the main purpose of aiding communities during flood events. This infrastructure main scope will be functioning as a safe shelter during flood events; in order to achieve this scope, the new public

1 Can be found in: http://habitat3.org/the-new-urban-agenda/
2 Maria Matos, S. (2018). Urban Floods and Climate Change Adaptation: The Potential of Public Space Design When Accommodating Natural Processes. Water, 10(2), 180. doi: 10.3390/w10020180
3 Williams, K., Gupta, R., Hopkins, D., Gregg, M., Payne, C., Joynt, J. L. R., Bates-Brkljac, N. (2013). Retrofitting England' suburbs to adapt to climate change. Building Research & Information, 41(5), 517-531. doi: 10.1080/09613218.2013.808893
4 Shane, G. (2003). The Emergence of 'Landscape Urbanism'. Harvard Design Magazine.

space will engage also with other several hazards connected to climate change in general, and flooding in particular. The project will deliver one pilot public space. It is anticipated that knowledge generated from this project will be replicable to other cities in Indonesia and internationally. The knowledge can be adapted and tailored to other communities with similar environmental changes due to climate change.

1.1. Indonesia and climate change

Indonesia is the largest archipelagic country in the world with more than 17,500 islands and 80,000 kilometers of coastline[5] and is highly vulnerable to the effects of climate change. Indonesia is also the fourth most populous country in the world and has extremely rich ecosystems and high levels of biodiversity. Rising sea levels, increasing mean temperatures, changing rainfall patterns and the increased frequency and magnitude of extreme weather events are some of the main climate change impacts the country faces[6]. According to a global risk analysis conducted by the World Bank, Indonesia ranks 12th out of 35 countries, facing high mortality risks from multiple hazard types[7]. Increasing disaster risk caused by floods, droughts, storms, and forest fires are being exacerbated by climate variability and presents a growing strain on public expenditures. For instance, the 2007 Jakarta floods amounted to more than US$ 900 million due to resulting damages8.

Climate change adaptation activity in Indonesia over the past six years has been marked by increasingly widespread awareness-building campaigns about climate change and its impacts, including vulnerability assessment activities in several provinces, regional and city areas. In this way, these programs provide additional benefits in capacity strengthening and climate change adaptation.

According to a leading Indonesian environmental researcher, there are three things that have enabled the effective mainstreaming of climate change adaptation across several cities in Indonesia. First, regional leaders give attention to the issue of climate change. Second, the presence of conservation and environmental activists, who work together to support local governments so that their activities maintain existing sustainability benchmarks and local government commitments. Third, climate change adaptation is now a mainstreamed concern due to the increasing severity and frequency of climate induced disasters. There is growing awareness that climate change is exacerbating such events, well as the loss of hydrological functions including depletion of natural springs which communities relied upon.

According the fifth Assessment Report by the Intergovernmental Panel on Climate Change (IPCC) released in 2013, the south region of Indonesia will experience a decline in rainfall and, conversely, the north will experience increased rainfall. The threat of drought due to El Niño effects will be a driving factor for wildfires, which have so far destroyed millions of hectares of forest land in Indonesia. Climate change also poses a major threat specific to Indonesia's unique geographical conditions. Namely, rising sea levels threaten to submerge entire islands across the archipelago. This outcome is predicted as a certainty unless both climate change adaptation and mitigation strategies are urgently implemented.

A report published by the Ministry of Public Works and Ministry of Environment (2007) states that the impact of climate change for Indonesia, namely rising sea level, poses threats to several industries such as offshore oil and gas platforms, transportation, fisheries, agriculture, and ecotourism as well as coastal communities. The report also states that sea-level rise of about 1 meter is estimated to flood approximately 405,000 Ha of coastal land, including small islands. Another aspect of climate-related impacts in Indonesia relates to crop failure due to drought. The Department of Agriculture monitored drought conditions on rice crops over ten years from 1993-

5 Ministry of Environment, 2007. National Action Plan Addressing Climate Change.
6 National Action plan for Climate Change Adaptation (RAN-API). Synthesis Report, (2013).
7 World Bank. Indonesia: Climate Risk and Adaptation Country Profile, (2011). Found online at: http://sdwebx.worldbank.org/climateportal/countryprofile/doc/GFDRRCountryProfiles/wb_gfdrr_climate_change_country_profile_for_IDN.pdf
8 Ibid.

2002. Results indicated that the average amount of agricultural land affected by drought was 220,380 Ha with land deemed “crop-failed” to reach 43,434 Ha. In the El Niño Southern Oscillation (ENSO) years, the volume of water in reservoirs dropped significantly, far below normal levels; this was observed mainly during the dry season, which occurs from June - September resulted in lower electricity generation.

I. Economic Context

Various studies conducted by the IPCC and other research institutions located both nationally and internationally show that vulnerability levels in developing and underdeveloped economies are high and that these economies are likely to have low adaptation capacity. Indonesia cannot escape its responsibility in reducing activities that cause global warming. As part of a global community, attention needs to be given to the urgent threat of climate change. Regarding carbon emissions, as the leading cause of global warming, Indonesia is rated as a significant contributor, ranked as the fifth largest emitter of greenhouse gases[9], while at the same time being highly vulnerable to the impacts of climate change. Agriculture, plantations and fisheries are the main industries that draw upon Indonesia’s power generation economy, while also acting as pillars to support national food security. Other critical areas that have been identified as vulnerable to the impacts of climate change include the energy sector, forestry industries, coastal management, water resources, infrastructure, and health. Microeconomic disruption to livelihoods is another important consideration, where localized threats also exist because of climate change impacts. Extensive research enables relatively accurate predictions to be made when it comes to the impacts of climate change. As such, there is enormous potential to enact influential macro-economic measures to minimize disruption and increase national security.

Serious efforts must be made to ensure the Indonesian people not only survive but thrive in the face of climate change and its impacts. The most vulnerable populations are those where communities depend on predictable climatic patterns. It is essential that the most vulnerable communities are identified, both in urban and rural areas, especially where people lack agency in relocating or adapting to issues such as erosion, abrasion, rising sea levels, flooding and landslides during high intensity rain. Indonesian communities also face threats of wildfire, drought and lack of access to clean water during long dry seasons. In extreme cases, annual growth of the economy of the country or a region is lost due to disaster events or climate variability. It is critical that we reduce embedded vulnerabilities in Indonesian communities and build resilience through development that pays attention to environmental management. Such development must account for ecological impacts, offsetting losses through strategies that build resilience across multiple domains.

II. Socio-Economic Context

Indonesia is the largest economy in Southeast Asia[10]. Furthermore, the country´s economy has recently grown due to faster export turnarounds, strengthened investment and increased consumption[11]. Despite levels of poverty and inequality having decreased in rural and urban areas, almost 10% of Indonesia’s population (approximately 25.9 million people) lives below the World Health Organization (WHO) “poverty line”, and approximately 20.78% remain vulnerable to falling into poverty[12]. The ADB estimates that costs related to the impacts of climate change will constitute between 2.5 and 7% of Indonesia’s Gross Domestic Product (GDP) by 2100[13]. It is the country’s poorest communities and vulnerable groups – such as women, children, the elderly and those with disabilities – who are expected to bear the greatest burdens of the impacts of climate change.

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9 World Resources Institute. Retrieved from: https://www.wri.org/our-work/project/forests-and-landscapes-indonesia/climate-change-indonesia

10 OECD Economic Survey: Indonesia, (2018), p. 9. Online at: http://www.oecd.org/eco/surveys/Indonesia-2018-OECD-economic-survey-overview.pdf

11 Asian Development Outlook, (2018), p. 255. Online at: https://www.adb.org/sites/default/files/publication/411666/ado2018.pdf

12 World Bank. Indonesia: Climate Risk and Adaptation Country Profile, (2011).

13 Ibid.

Indonesia´s biodiversity is extremely rich, accounting for 15.5% of the world's flora and 10% of fauna[14]. Biodiverse ecosystems are essential in supporting livelihoods and industry, as well as driving economic growth. Biodiversity ensures resilience of natural systems and is the backbone of Indonesia's ability to bounce back in the case of disasters. Climate change has been recognized as one of the main threats to biodiversity[15] and ecosystem services[16]. Furthermore, studies show that global climate change will have a negative effect on the agricultural sector[17]. In 2017, agriculture, forestry and fishing accounted for approximately 13% of Indonesia's total GDP[18] providing the main source of employment in rural areas[19]. This will not only result in a negative impact on rural incomes but will also affect food prices and food security (IFPRI).

III. Climate Change Projection

Indonesia experiences a tropical climate with two major seasons – the rainy monsoon season from November to April (with regional variations), and the hot dry season. Average annual temperatures range from 23-32°C[20] (27.7°C in 2007 and 27.9°C in 2008). Observed climatic changes indicate a mean annual temperature increase of about 0.3°C. This is projected to continue increasing by 0.2 - 0.3°C per decade. Indonesia's average rainfall levels are 1.7-3.1 cm in the lowlands and up to 6.1cm in mountainous regions (per year). Precipitation changes, being less uniform, project an increase in annual rainfall across most of the country. At the same time, precipitation in the southern regions is projected to decline by up to 15%. The risks faced across the country exist at opposite ends of a spectrum. Where some regions are anticipating decreased rainfall, and therefore possible drought, other regions face flood risk from a predicted increase in rainfall.

Table 1. Amount of Precipitation and Number of Rainy Days by Month in Samarinda Municipality, 2018 [21]

Month *(Bulan)*	**Precipitation** *(Curah Hujan)* (mm^3)	**Rainy Days** *(Hari Hujan)*
1	2	3
January *(Januari)*	215,9	18
February *(Februari)*	97,7	18
March *(Maret)*	154,1	17
April *(April)*	180,2	20
May *(May)*	296,3	21
June *(Juni)*	197,0	15
July *(Juli)*	136,9	12
August *(Agustus)*	47,9	10
September *(September)*	127,4	9
October *(October)*	151,9	20
November *(November)*	126,7	20
December *(December)*	169,5	16
2017 Arverage *(Rata-Rata)*	**158,5**	**16**

There is currently a 30-day delay projected delay in the annual monsoon season, which raises the chances of up to a 10% increase in rainfall later in the crop year (April-June). Additionally,

[14] The Fifth Annual Report of Indonesia to the Convention on Biological Diversity, 2014. Online at: https://www.cbd.int/doc/world/id/id-nr-05-en.pdf
[15] Ibid.
[16] WWF, (2007). Climate Change in Indonesia. Implications for Humans and Nature. Found online at: http://awsassets.panda.org/downloads/inodesian_climate_change_impacts_report_14nov07.pdf
[17] IFPRI, (2011). The Impact of Global Climate Change on the Indonesian Economy. Online at: http://ebrary.ifpri.org/utils/getfile/collection/p15738coll2/id/126762/filename/126973.pdf
[18] The World Bank, (2017). Online at: https://data.worldbank.org/indicator/NV.AGR.TOTL.ZS?locations=ID
[19] ADB, (2015). Summary of Indonesia´s Agriculture, Natural Resources, and Environment Sector Assessment
[20] University of Indonesia, (2007).
[21] Meteorology, Climatology, and Geophysics Board, Samarinda

this can cause up to a 75% decrease in rainfall later in the dry season (July-September)[22]. Furthermore, extreme weather events are expected to increase, leading to additional stressors, particularly in coastal areas[23].

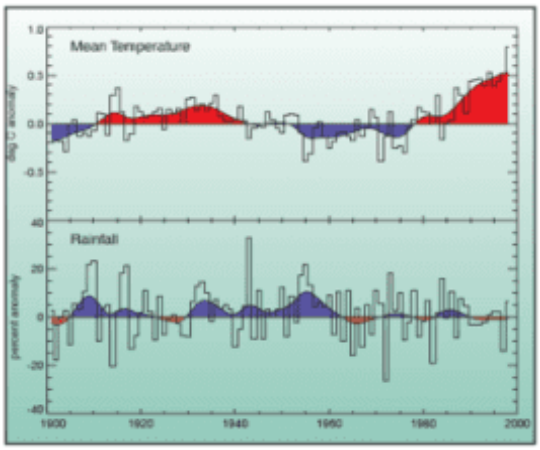


Figure 1. Changes in annual mean temperature, 1901-1998 (top) and annual rainfall, 1901-1998 (bottom), across Indonesia[24]

IV. Expected Impacts of Climate Change

In recent years, hazards such as floods, landslides and droughts, have caused substantial loss of life, economic loss and damage to infrastructure in Indonesia. Between 2001 and 2007, 4000 disasters impacted the country, of these, 37% were floods, 24% drought, 11% were landslides and 9% were windstorms[25]. It is anticipated that changes in precipitation, seasonal shifts and timing of rainfall will lead to unpredictable and uncertain water availability, which will in turn influence agriculture and food security. Exacerbated droughts and flooding have the potential to cause widespread crop failure and water shortages, triggering a cascade of impacts – such as health emergencies, social instability, conflict, and population displacement – stemming from food and water insecurity.

Sea-level rise is expected to drastically impact many regions in the country. With anticipated global sea-level rise of about 2mm per year, which is projected to increase to about 5 mm per year over the next century[26], significant loss of coastline and islands are expected[27]. Between 140 and 220 million people live within 100 km of the coast[28] and, of these, 115 to 160 million rely on marine sources for their livelihoods[29]. Valuable ecosystems such as coastal mangroves are threatened by projected increases in sea-level rise, among other aspects of climate change. Warming sea-surface temperatures, which are expected to lead to the loss of coral reefs and to cause changes in oceanic circulation patterns and salinity, will result in a reduction in fish in tropical oceans. Projected climate models indicate that this large-scale change in fish habitat will impact on one of Indonesia's primary industries; a main food supply source, which will lead to economic losses.

Another aspect that requires consideration is the possible adverse effect of climate change on human health, both directly and indirectly. Direct effects relate to projected increases in temperature, changes in precipitation, sea-level rise, and extreme weather events leading loss of life. Indirect impacts on human health because of climate change include an increase in the

22 WWF, (2007). Climate Change in Indonesia. Implications for Humans and Nature
23 Indonesia Climate Change Sectoral Roadmap ICCSR. Synthesis Report, (2009). Found online at: https://adaptation-undp.org/sites/default/files/downloads/indonesia_climate_change_sectoral_roadmap_iccsr.pdf
24 WWF, (2007). Climate Change in Indonesia. Implications for Humans and Nature
25 The World Bank, (2017).
26 Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change.
27 The World Bank, (2017).
28 Ibid.
29 Ibid.

spread of diseases such as malaria, dengue fever, diarrhea, cholera, and vector-borne diseases. This increased health risk is also exacerbated by weather variations caused during the ENSO. The World Health Organization (WHO) states that the spread of malaria is triggered by the occurrence of rainfall above normal levels and is further impacted by unstable weather patterns. The combination of the negative effects on human health, with limited public health capacity, will greatly impact Indonesia´s population, particularly poor and vulnerable group.[30]

Part 1 Technical Summary: Indonesia and Climate Change	
a)	**Indonesia is especially vulnerable to the impacts of climate change, notably, rising sea levels, increasing in mean temperatures, changes in rainfall patterns and the increased frequency and magnitude of extreme weather events.**
b)	**Indonesia is ranked 5th in the world for carbon emissions, highlighting the urgent need for mainstreaming sustainable development and climate change mitigation.**
c)	**Unless action is taken, Indonesia faces widespread biodiversity loss, economic losses, increased magnitude and frequency of both flood and drought events, and negative social and public health impacts.**

1.2. Urban development in Indonesia

The New Urban Agenda (NUA)[31] approved in Quito in 2016, and subscribed to by Indonesia, as well as the Sustainable Development Goals (SDGs)[32] provide directions for sustainable development over the next 20 years. The Wuhan declaration[33] issued in 2018 promotes the needs of development focused on placemaking. These important documents advocate for people-centered development and recognize the important role that natural landscapes and public spaces serve in supporting contemporary urban lives. Indonesia is undergoing urban development at an unprecedented scale and pace, often adopting paradigms typical of western countries that do not appropriately reflect the local culture, society, environment and landscape. Currently, over 50% of Indonesians live in urban areas and up to two-thirds of the population are expected to live in cities by 2035[34] (Figure2).

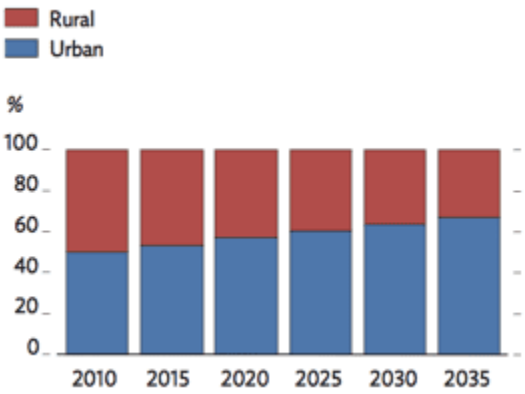


Figure 2. Population projections[35]

30 Ibid.
31 Can be found in: http://habitat3.org/the-new-urban-agenda/
32 Can be found: https://www.un.org/sustainabledevelopment/sustainable-development-goals/
33 Can be found in: https://www.placemakingweek.org/wuhan
34 Asian Development Outlook, (2018).
35 Badan Pusat Statistik, 2013. Indonesia Population Projection. Retrieved from: Asian Development Outlook, (2018), p. 259.

Rapid urbanization in combination with other issues such as a lack of adequate planning, service provision and financing pose serious challenges. Many urban centers in Indonesia are experiencing social and environmental challenges due to the application of development paradigms ill-suited to the local landscape, society and culture. Cities, traditionally structured through a recognizable pattern of public spaces and with a clear representation of local culture, morph in congested environments, facing serious environmental issues due to climate change and uncontrolled commercial development. Water management, waste management, sewerage systems, food security, pest control, energy production, affordable living, shelter in case of extreme weather events, provision of affordable and safe housing, and sense of community are all emerging issues in Indonesian cities. These issues are intensified by unpredictable weather, extreme temperatures and recurrent flood events. Per the Asian Development Outlook 2018[36], only 1 in 3 urban households have access to clean water, and 1 in 100 water sources are directly connected to a sewerage system. The problem of this already deficient access to water infrastructure is further exacerbated by the impacts of natural hazards –in particular, floods and landslides – posing high risks to public health[37].

While major urban centers like Jakarta, Surabaya, and Yogyakarta have access to resources to face these challenges, second and third tier cities often rely only on the resourcefulness of their communities to face current climate and environmental challenges. As in many other emerging economies, Indonesia has often adopted a development paradigm that is typical of western temperate cities, often resulting in negative outcomes for established urban centers and communities. Car-based infrastructure, high-rise development and limited investment in public transport and public space challenge, not only the environmental sustainability of Indonesian cities, but also their social and economic viability. The traditional urban pattern of Kampong – a self-sufficient urban village – is today challenged by commercial development that leaves little to no space for public space and traditional community living. Some Kampong, as well as several communities in Jakarta and Surabaya, have demonstrated creativity and innovation in adapting to contemporary challenges. These communities have implemented programs that include urban agriculture, street beautification, waste recycling and community engagement. All these programs adapt existing in-between spaces within the city's urban form, contributing to the vibrancy of a Kampong. Despite the observed successes of such local communities and programs, there is currently a lack of structural capacity in cities to drive the necessary changes in mindset to move away from inappropriate westernized approaches to development. These paradigm changes could enable more traditional modes of development that are supportive of localized long-term sustainability, climatic conditions and resilience strategies for urban centers in Indonesia.

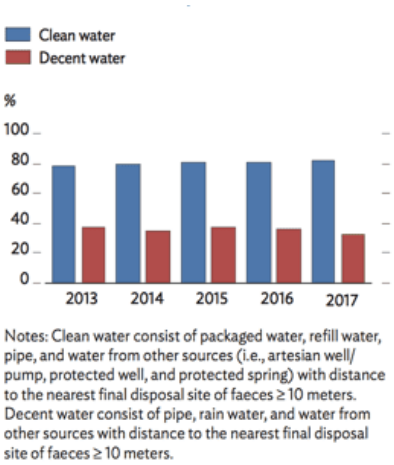


Figure 3. Access to clean water and decent water (urban households)[38]

[36] Asian Development Outlook, (2018).
[37] Ibid.
[38] Badan Pusat Statistik, 2013. Indonesia Population Projection. Retrieved from: Asian Development Outlook, (2018), p. 259.

1.3. National Policy and Strategy for "Adaptation" Activities in the Context of Climate Change in Indonesia

Limitations of funding, technology and human resources make Indonesia especially vulnerable to climate change. The level of policy intervention must be approached through the real needs of the country, region and islands. Therefore, the analysis and response of the impact of ecosystem, socio-economic and cultural changes (including exploring and using local wisdom and knowledge) is a priority that is essential in creating a prosperous future for Indonesia.

Proactive measures have already been initiated through climate change research and exploration of opportunities for adaptation and mitigation of its impacts in several regions of Indonesia. This is done at the level of framework for developing policy strategies and implementing climate change adaptation activities in Indonesia. These activities are being carried out by ministries, institutions, non-governmental organizations and universities and regional governments, both funded by the state budget and through the support of donor organizations/institutions or other foreign government assistance.

In 2009, the National Development Planning Agency (Bappenas) published the Indonesia Climate Change Sectoral Roadmap (ICCSR). One of the thematic issues included detailed directions for responding to, and anticipating the threat of climate change. The report emphasized the strategic importance of sectors, such as coastal and fisheries, agriculture and health within the framework of national policy preparedness. The ICCSR document is expected to influence the National Medium-Term Development Plan (RPJMN) for 2009 - 2014. In 2010, Bappenas issued a 2010 Development Work Plan (RKP) that set the priority focus on increasing climate change adaptation capacity and mitigating disasters. Currently there are 5 main sectors with climate change adaptation policies and strategies, namely; the agricultural sector, coastal sector, marine, fisheries and small islands, health sector, public works sector and disaster sector through the National Disaster Management Agency (BNPB).

There are two examples of policies within several policies from the Ministry of Agriculture, which have been issued in response to climate change, or considered to be related to adaptation efforts. One of these includes The National Law No. 41 Year 2009 concerning Sustainable Food Agricultural Land Protection and Ministerial Regulation No. 39/Permentan/OT.140/6/2010, which outlines Guidelines for Licensing of Food Crop Cultivation Businesses. The action program of these policies seeks to develop water harvesting technology and efficiency of water use, such as drip irrigation, mulch and the development of land and plant management technologies to improve crop adaptability[39].

In the coastal and marine sectors, 20 policies were issued in the context of climate change adaptation (DNPI, 2012) which were then translated into action programs. For the national level, there are provisions regarding the management of coastal areas and small islands (National Law No. 27 Year 2007), National Law No. 31 Year 2004 concerning Fisheries, National Law No. 27 Year 2007 concerning Extension System and National Law on Fisheries No. 31 Year 2004.

In the health sector, the Ministry of Health has issued Ministerial Regulation No. 1018/MENKES /PER/V/2011 concerning the Strategy for Adapting the Health Sector to the Impact of Climate Change. This is followed by the issuance of action programs which include socialization and advocacy for climate change impacts vulnerable populations and regions of climate change, improvement of climate change response systems, increased community empowerment in climate change adaptation per local conditions and other action programs (DNPI, 2012).

Meanwhile, the public works sector is divided into 4 sub-sectors, (1) Water Resources; (2) Cipta Karya (Human Settlement); (3) Bina Marga (Roads and Bridges); and, (4) Spatial Planning. Water resourcing focuses on water balance including needs and availability, adequate water resources

[39] Sector Action Plan Document in Response to Climate Change Adaptation (2012).

infrastructure, provision of alternative water sources, complete data and research, and water conservation. In the Cipta Karya (Human Settlement) sub-sector there are 3 strategic goals, (1) contribution of infrastructure services to economic growth; (2) contribution of infrastructure services to improving community welfare; and, (3) contribution of infrastructure to improve environmental quality. Some of the activities are assigned to the Roads and Bridges sub-sector, including roadside tree planting, drainage construction through the extension of run-off time, relocation of roads to areas that are less likely to be impacted by sea level rise and building levees or dykes in coastal areas.

Finally, Indonesia is seeing climate change adaptation activities in the sub-field of Spatial Planning. Here, adaptation efforts are carried out through the mainstreaming of climate change issues across the national spatial planning system. Thus, it can guarantee that spatial planning is undertaken with climate change projections are taken into account, ensuring that spatial planning does not increase vulnerabilities in a region or locality to the effects of climate change. Instead, the objective is to increase regional resilience to the impacts of climate change in the future (DNPI, 2012).

The implementation of various laws and regulations across the four sub-sectors have become policies and action plans for climate change adaptation in the public works sector. For example, National Law No. 7/2004 concerning Management of Water Resources forms the basis for action programs such as improved management of natural resource infrastructure to support water supply and food security. There are 6 implementation provisions made at the level of Government Regulations and Ministerial Regulations, each of which has its action program. The policy and action program of the Spatial Planning sub-sector is National Law No. 26/2007 concerning Spatial Planning which is then formulated into action programs such as, (1) providing access and processing of data and information related to climate change to spatial planning; (2); (3) space utilization; (4) space control; (5) institutional capacity building; and, (6) spatial planning and supervision (DNPI, 2012).

Concrete activities in Indonesia that translate the attention and commitment of climate change issues, especially in developing adaptation strategies, must be placed as a top priority. Awareness of the impacts that have already been felt must be in the efforts of stakeholders, as well as those that are predicted in the future. This is especially important in sectors and departments that are directly affected by climate change. At a policy level, the goal is to strengthen the role of the development sector to achieve targets and objectives through coordination between sectors. This adaptation effort requires strong collaboration especially between development sectors.

At present there remains a great deal of work to be done in adapting to the impacts of climate change. Responsibility lies with governance and environmental management of sectors that are a strategic priority when it comes to resilience-building. This includes, (1) protection of the Indonesian economy; (2) a focus on coastal areas under pressure due to various factors such as population growth; (3) exploitation of natural habitats for resources, including destruction and illegal deforestation; and, (4) reducing pollution caused by industry and housing activities. Addressing these issues will contribute toward resilience for Indonesian communities in the face of threats and impacts of climate change.

Part 2 Technical Summary: Urban Development in Indonesia	
a)	**Indonesia is undergoing an unprecedented scale and pace of urban development.**

b)	**Urban development in Indonesia frequently adopts western approaches that are often inappropriate to the local culture and climate. There are lost opportunities to adopt locally-responsive strategies, which are more sustainable.**

2. BRINGING IT ALL TOGETHER: FORGING NEW WAYS FORWARD FOR CLIMATE-RESPONSIVE URBAN PUBLIC SPACE

The challenges of Indonesia today and in the future regarding climate change adaptation must focus on local preparedness through the establishment of clear strategies, information and measurable outcomes. This is achievable only if the tasks and functions of each sector are understood through a spirit of collaboration between different government sectors, agencies, and local communities. This project proposes a new typology of public space for the Indonesian context – focused on people-centered development –addressing climate change through a coordinated and integrated approach. This new type of public space will strategically address flood adaptation, contextually addressing other current issues experienced by local Indonesian communities. Current strategies and policies aim to reduce the effect of climate change, minimize impact of development on local environments and prepare communities for future extreme weather events as well as environmental hazards[40]. Redefining settlements patterns in Indonesian cities through an integrated and interconnected network of multiple public spaces will improve living conditions and wellbeing for local communities, while proactively tackling urgent issue of climate change. The aim of this to generate positive momentum that improves environments and ecosystems alongside sustainable urban development.

Table 2 summarizes the main hazards and risks faced by Indonesians as a result of climate change. These data will inform the strategic priorities and vision developed through this project and the design of a new typology of public space.

Table 2. Summary of main hazards and risks connected to climate change in Indonesia

Climate-Related Hazards and Risks		Level of Risk
	***Flood and Drought[41]*** *Extreme events including droughts and floods are projected to increase in southern regions of Indonesia due to rainfall patterns. Droughts during El Niño events are expected to have more serious impacts on the south than temporary rainfall increases. Shorter and more intense rainy seasons will probably lead to more intense floods.*	Severe
	***Access to Clean Water[42]*** *Water availability could be impacted by climate change in Indonesia in several ways:* • *Decrease in freshwater availability in coastal zones due to saltwater intrusion* • *Decrease in inland water availability and saltwater intrusion in the rivers due to river flow reductions* • *Limited water availability due to a decrease in rainfall during the dry season.*	Severe

[40] Santos Nouri, A., & Costa, J. P. (2017). Placemaking and climate change adaptation: new qualitative and quantitative considerations for the "Place Diagram". Journal of Urbanism: International Research on Placemaking and Urban Sustainability, 10(3), 356-382. doi: 10.1080/17549175.2017.1295096

[41] Ministry of Foreign Affairs of the Netherlands (2018). Climate Change Profile Indonesia. Retrieved from: https://reliefweb.int/sites/reliefweb.int/files/resources/Indonesia2.pdf

[42] Ibid.

	***Access to Reliable Energy Sources*** *The power sector in Indonesia is vulnerable to many effects of projected climate change, such as increasingly intense weather events, higher air and water temperatures, changes in rainfall and river discharge patterns, and sea level rise[43]. The power grid is overextended and potentially vulnerable to the impacts of extreme weather events and sea-level rise[44].*	High
	***Community Vulnerability and Safety*** *Community vulnerability to climate change, including climate variability and extremes, is related to social vulnerability as a pre-existing condition[45]. Despite existing progress, poverty is still significant[46]. Almost 10% of its population (approximately 25.9 million people) lives below poverty line and approximately 20.78% remains vulnerable of falling into poverty[47]*	High
	***Food Security[48]*** *Food security could be affected by climate change in Indonesia in a number of ways:* • *Limited crop productivity due to rising temperatures* • *Increase in crop failure risks due to reduced durations and unpredictable starts of the rainy season and decreasing rainfall predictability* • *Decrease in food production due to increasingly severe floods across the country* • *Decrease in food production in southern regions (including Java, Bali and Nusa Tenggara) due to an increasing frequency and intensity of droughts* • *Decrease in production of specific crops due to projected decrease in number of cold nights during the planting season* • *Increase in crop pests and diseases as a result of increased temperatures* • *Challenges related to preservation of crops and seeds due to erratic and intense rainfall* • *Decrease in availability of fish for consumption due to rising sea water temperatures and levels*	High
	***Waste Contamination*** *Waste contamination is a pressing environmental issue in the country. It is associated with a lack of public awareness and investment in adequate waste management systems. Open burning of waste and solid waste disposal are amongst the major sources of GHG related to the waste sector[49] and are still common practices in the country.*	Severe

2.1. Focus of the Proposal

[43] Asian Development Bank (2015). Indonesia Country Water Assessment. Manila.
[44] Asian Development Bank (2015). Summary of Indonesia's Energy Sector Assessment https://www.adb.org/sites/default/files/publication/178039/ino-paper-09-2015.pdf
[45] Cutter and Emrich (2006). Social vulnerability to climate change variability hazards: a review of the literature. Final Report to Oxfam America.
[46] Asian Development Bank (2018). Indonesia Member fact sheet. Retrieved from: https://www.adb.org/sites/default/files/publication/27769/ino-2018.pdf
[47] World Bank. Indonesia: Climate Risk and Adaptation Country Profile, (2011).
[48] Ministry of Foreign Affairs of the Netherlands (2018). Climate Change Profile Indonesia. Retrieved from: https://reliefweb.int/sites/reliefweb.int/files/resources/Indonesia_2.pdf
[49] https://www.bappenas.go.id/files/8913/5022/6069/climate-change-roadmap-waste-sector__20110218181950__0.pdf

The aim of this project/program is to develop a new typology of public space that promotes building solutions and techniques that improve the environment, harvest resources and contribute positively to the overall ecological balance of area following the bioregionalism approach. In doing so, the objective of this new proposed typology is to strengthen climate change adaptation and resilience know-how within Indonesian communities using the built-environment as an approach. The project vision is to establish public space that support communities in coping and adapting to the climate change. The project addresses multiple environmental challenges relevant to climate adaptation; preliminary research has outlined a hierarchical links on these challenges whereby flood preparedness has been identified has the most strategic issue to be tackled in the pilot city. In order to support local communities during flood events, other conditions connected with climate adaptation will be addressed within the overall strategy as necessary conditions to adapt to increasing extreme flood events.

Table 2 outlines the hierarchy of interventions and illustrates how these public spaces must necessarily focus on, (1) flood and drought; (2) access to clean water; (3) access to reliable energy sources; (4) community vulnerability and safety; and, (5) waste management. It is anticipated that the new public space will reduce the impacts of climate change through **flood adaptation**. Contextually, the project will also promote energy production, sustainable water harvesting, and waste management. To achieve this, the project will focus on one pilot city with interventions and a series of low-cost high-impact design tactics - based on the template of the new typology - are planned. In this way, a new community-level climate resilient system will be developed to deal with climate change and its challenges. The selected city is Samarinda, capital of the East Kalimantan province; its position in the broader Indonesian context is shown in figure 4.

Samarinda is the capital city of the Indonesian province of East Kalimantan on the island of Borneo/Kalimantan. The city lies on the banks of the Mahakam River with a land area of 718 km2. It is the most populous city on the entire Borneo/Kalimantan Island, with an estimated population of 872,691, up from 726,223 at the 2010 Census. Although it is the capital of East Kalimantan, some central government institutions such as the Police, Indonesian Army District VI of Tanjung Pura, and Pelabuhan Indonesia (Port Transportation) are also located in the city. The city also has a bridge connecting its river banks, Mahakam Bridge, with the city center on one side and the Samarinda Seberang locality on the other.

Samarinda City is divided into ten districts known as kecamatan; the city's population in 2019 was 872,768, with approximately 52%male and 48%female. The average annual growth rate was 0.018% between 2018-2019. The majority of the people of Samarinda are of Native Indonesian and Chinese descent. There are also Americans, Canadians, Japanese and Koreans working in Samarinda. Life expectancy in Samarinda is 73.6 years as of 2014.

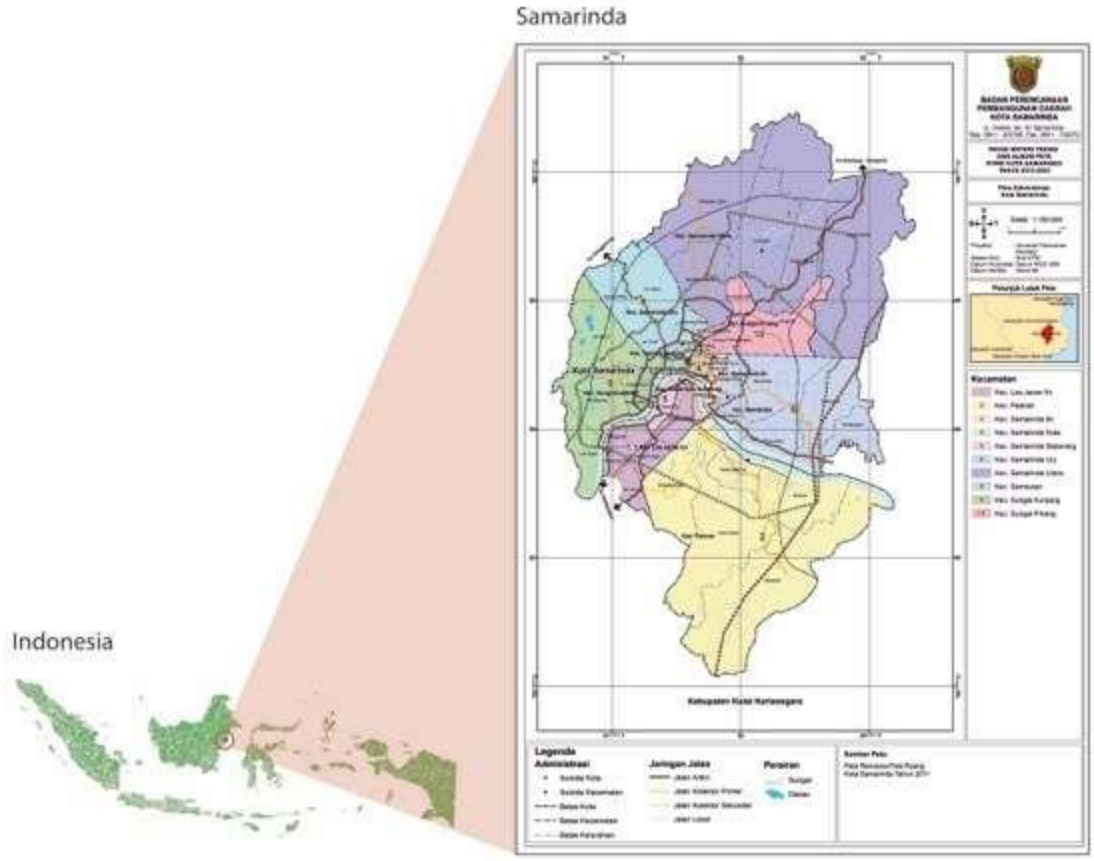


Figure 4. Administration Boundaries of Samarinda City

The city of Samarinda has a wet tropical climate, with rain year-round. Air temperatures range between 20-34°C with an average rainfall per year of 1980 mm, while the average humidity is 85%. The coldest months occur in January and February, while the hottest months occur in April and October.

The name Samarinda originates from the description of the way in which the Bugis houses were constructed. At that time houses were customarily built on a raft and generally had the same height. This provided important social symbolism of equality between residents; no person's house, and thus no person, was higher as or lower than another. They named the settlement 'Samarenda', meaning 'equal in height'. After hundreds of years of use the pronunciation of the name changed slightly and the city became known as Samarinda.

The economy of Samarinda is driven by the large amount of logging and oil extraction companies based there. There are many abandoned coal mines in Samarinda. Previously, coal mining was very popular in Samarinda, however the Indonesian government revoked many mining licenses due to the use of illegal chemicals and machinery. Due to all these economical activities in Samarinda, it is one of the richest cities in East Kalimantan. Samarinda is connected to the Trans-Kalimantan Highway Southern Route, with the Samarinda-Balikpapan Expressway now under construction and expected to be operational by the end of 2018. The city is served by Aji Pangeran Tumenggung Pranoto International Airport, one of Kaltim's busiest airports in terms of passenger and cargo movements. It is the primary hub of Kaltim Airlines. The prominent coal loading port of Tanjung Bara (TBCT) lies about 160 kilometres to the north of Samarinda.

At the beginning of 2020, Samarinda received several national awards in the City Category of the Performance Division of the Regional Administration (LPPD) award: (1) E-Government Management; (2) Public Information Openness; (3) Trade Sector; (4) Labor Sector; (5) Social Welfare Division; (6) One Stop Integrated Services Sector; (7) Division of Population

Administration; (8) City Category Civil Registration; (9) Regional Financial Management; and, (10) Science and Technology Development and Innovation.

I. The Mahakam Rivers

Samarinda city has many rivers. There are 27 natural rivers that flow within the city of Samarinda and are spread across several districts and sub-districts. The main river is Mahakam River, which flows 980 km from the district of Long Apari in the highlands of Borneo to its mouth at the Makassar Strait. The city of Samarinda – the provincial capital of East Kalimantan – lies along the river, 48 km from the river mouth. The delta Mahakam River consist of specific micro climates, which are influenced by high and low tides. The Mahakam River is the largest river in East Kalimantan, Indonesia, with a catchment area of approximately 77,100 km2. The catchment lies between 2˚N to 1˚S latitude and 113˚E to 118˚E longitude and originates in Cemaru from where it flows south-eastwards, meeting the River Kedang Pahu at the city of Muara Pahu. From there, the river flows eastward through the Mahakam lakes region, which is a flat tropical lowland area surrounded by peat land. Thirty shallow lakes are situated in this area, which are connected to the Mahakam through small channels. Downstream of the connection with the Semayang and Melintang lakes, the Mahakam meets three other main tributaries – the rivers Belayan, Kedang Kepala, and Kedang Rantau– and flows south-eastwards through the Mahakam delta distributaries, to the Makassar Strait.

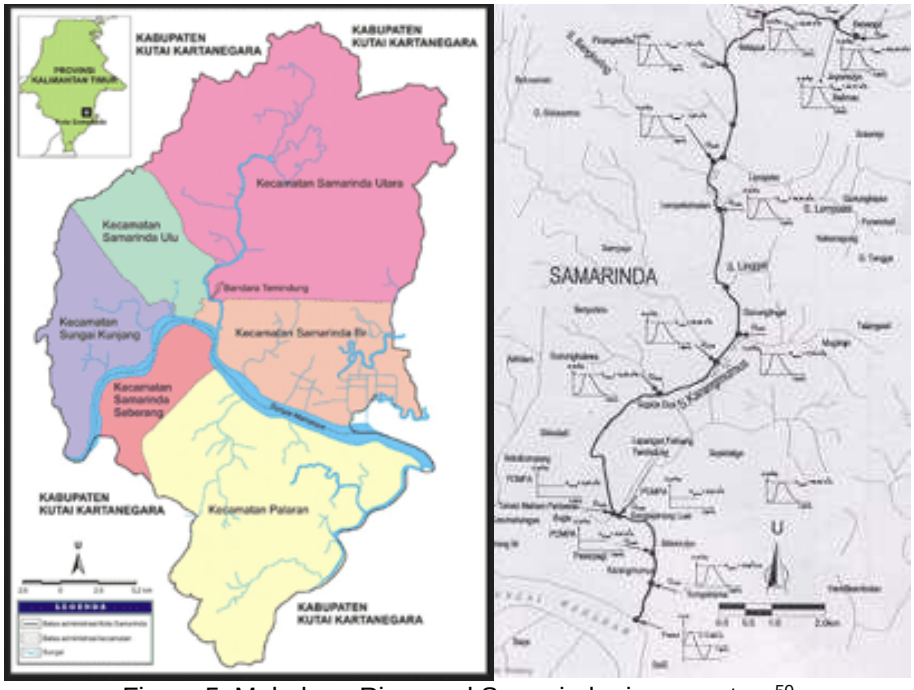


Figure 5. Mahakam River and Samarinda rivers system[50]

There are about 76 lakes spread in the Mahakam river basin and about 30 are located in the middle Mahakam area, including the three main lakes (Lake Jempang 15,000 Ha; Lake Semayang 13,000 Ha; Lake Melintang 11,000 Ha). The lake levels fluctuate seasonally from 0.5 m – 1 m during the dry season to 7 m during rainy season. The Mahakam lakes and surrounding wetlands act as water storage, as well as a trap of sediment contained in the water flowing into the lakes, which are now known to become shallower. This condition is presumably the result of an imbalance between sediment input and slow subsidence. Fishing is the primary source of livelihood in the Mahakam lakes area, with most of the men around the lakes involved in the fishing industry. The middle Mahakam lake area is an area of intensive fishing activity with a productivity of 25,000 to 35,000 metric tons of fish sourced per year since 1970.

[50] Source: http://kehidupan-disamarinda.blogspot.com/2008/12/peta-butut-hulu-hilir-sungai.html

The Mahakam delta is a mixed fluvial-tidal dominated delta. The delta covers about 1800 km2, consisting of mangrove areas near the shore, Nypa swamps in the central areas, and lowland forest near the apex, corresponding to the first bifurcation. However, recent fishery development in this area has converted a vast area of mangrove into shrimp ponds, known as *tambak*. The delta has three main distributaries directed northeast, southeast and south. The area between these distributaries consists of a series of tidal channels that are generally unconnected to the main distributaries. The distributary channels are narrow and linear, with depths ranging from 8 to 15 m and distributary channel bifurcations appearing every 10 to 15 km. This lower Mahakam area is the second most productive hydrocarbon basin of Indonesia, which contains around 3 billion barrels of oil and 30 Tcf of gas reserves. Field geological investigations in this area were started in 1888, and in 1897 exploration drilling discovered oil at a shallow depth of 46 m on the Louise structure. Oil production started in 1898 followed by expansion of exploration to the entire Mahakam.

Mahakam and its floodplain are an ecologically important region. A total of 147 indigenous freshwater fish species had been identified in Mahakam. The Mahakam hosts the freshwater Irrawaddy dolphin *Orcaellabrevirostris*, called *Pesut* by local people. The dolphin is a critically endangered species, which is included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix I. The Mahakam river basin is also an important breeding and resting place for 298 bird species, among which, 70 are protected and 5 are endemic species. These include the Borneo dusky manikin *Lonchurafuscans*, Borneo whistler *Pachycephalahypoxantha*, Bornean peacock-pheasant *Polyplectronschleiermacheri*, Bornean blue-flycatcher *Cyornissuperbus* and Bornean bristlehead *Pityriasisgymnocephala*.

II. Flood

Floods in Samarinda occur almost every year and are always recurring, especially in the rainy season. Duration, height and extent of inundation happens to vary greatly. The duration of the flood that occurred ranged from 3-10 hours to the water height between 0.3-1.5 m, while the largest inundation area is in the Lempake area, with a pool area of ± 200 ha. Samarinda itself included in the Karang Mumus Sub-watershed where this sub-watershed is also part of the Mahakam watershed, in length the main river namely Karang Mumus River is ± 17 km long. Watershed Karang Mumus itself has an area of ± 36 thousand ha, about 50.9% of the area Samarinda. The critical land area in the Karang Mumus Sub-watershed is ± 28.3 ha or around 63.8% of the total Sub-watershed area. The average rainfall that occurs in this sub-watershed region it reaches> 150 mm/year. Besides that, Karang Mumus Watershed classified as a flat area (flat), thereby causing the flow velocity on this river is relatively low. Of the various conditions in the Karang Mumus Sub-watershed area, flooding is natural disasters most often occur in this sub-watershed. Because of this sub-watershed is a large part of Samarinda, which automatically floods happen will have an impact on the city of Samarinda itself.

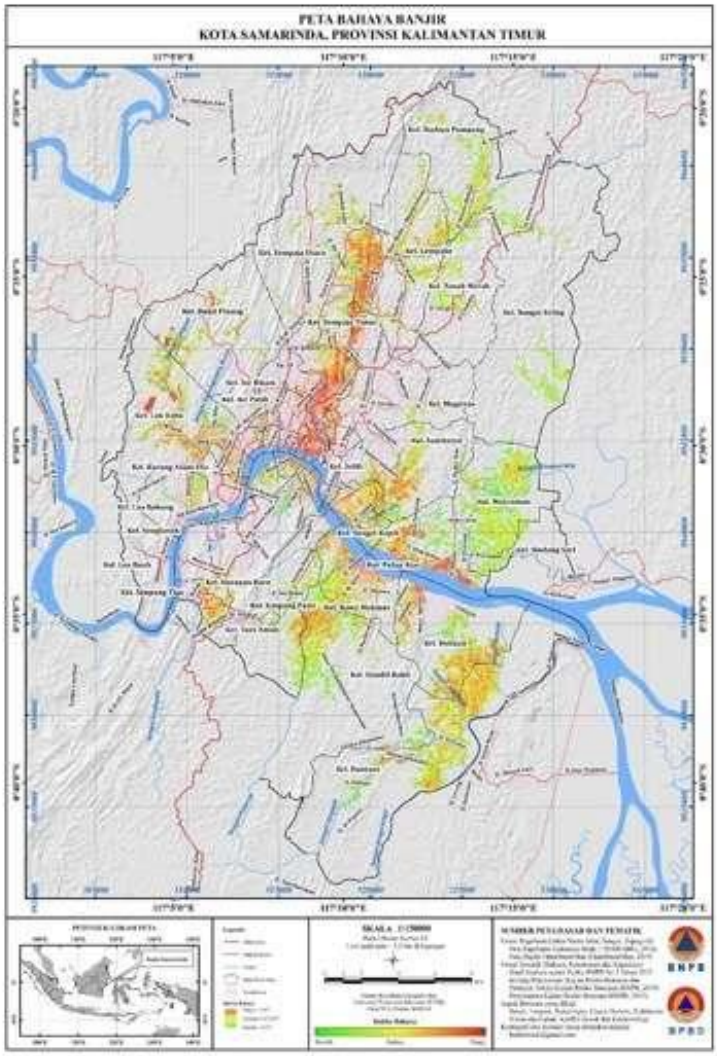


Figure 6. Samarinda Flood Risk Map (Source: BPBD City of Samarinda)

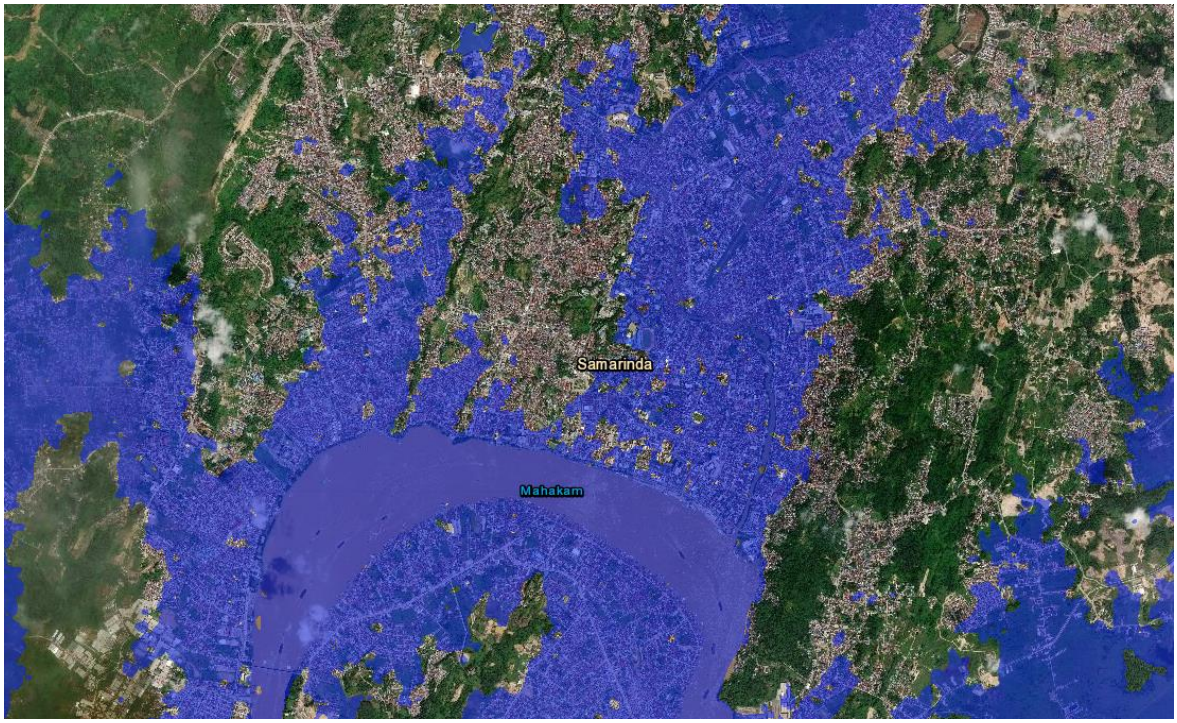


Figure 7. Samarinda Flood Projection

Table 3. Flood Prone Areas in Samarinda

No.	Sub District/Street Name	Inundation Height (m)	Inundation Area (Ha)	Duration (Hour)
1	Sempaja Selatan	0.4 – 0.6	20	4
2	Sempaja Utara	0.5 – 1.5	50	8
3	Lampake	0.4 – 0.6	200	8
4	Gunung Lingai	0.4 – 0.6	50	8
5	Sungai Pinang Dalam	0.4 – 0.6	30	5
6	Sungai Siring	0.4 – 1.0	50	10
7	Lempake (Simpang 3)	0.3 – 0.6	3	3
8	Temindung Permai	0.3 – 0.6	5	6
9	Bandara Temnidung (Jl. Gatot Subroto)	0.3 – 0.8	5	6
10	Simpang Pinang Dalam	0.5 - 0.8	15	8
11	Simpang 4 Jl. Agus Salim	0.3 – 0.5	1	4
12	Sidomulyo	0.3 – 0.5	1	4
13	Sidodamai	0.3 – 0.5	1	4
14	Jl. Mulawarman	0.3 – 0.6	0.2	4
15	Simpang 4 Jl. Pang. 5 Batur	0.3 – 0.5	0.2	4
16	Jl. Awang Long	0.3 – 0.5	0.5	3
17	Rapak Dalam	0.4 – 0.7	40	6
18	Tani Aman	0.4 – 0.8	30	6
19	Sungai Kaledang	0.3 – 0.6	3	5
20	Loa Bakung	0.3 – 0.6	10	6
21	Karang Asam Ilir	0.3 – 0.5	0.5	5

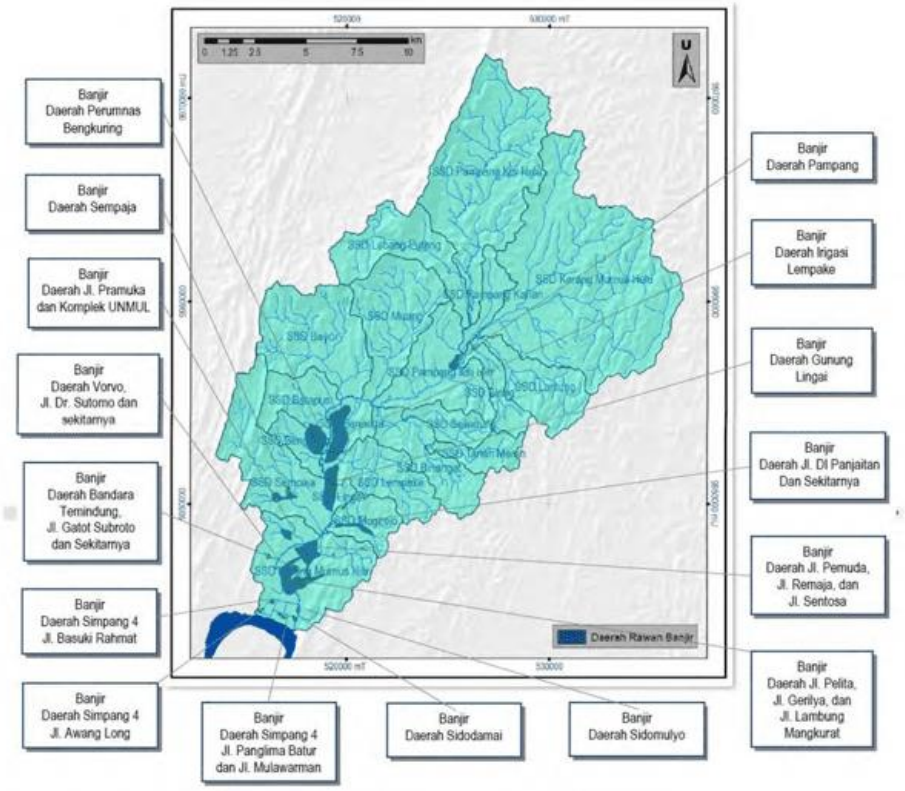


Figure 8. Map of Potential Flood Inundation Areas in the Karang Mumus Sub-watershed, Samarinda

Table 4. Maximum Average Rainfall at SSD Karang Mumus Hulu

SSD Karang Mumus Hulu									
No	Date	Average Rainfall						Thiessen Average Score	Maximum Rainfall
		Rain Station Sei Siring		Rain Station Pampang		Rain Station Tanah Merah			
		R1	C1	R2	C2	R3	C3		
River Area : 69.53 Km2									
1	7-May-04	0	0,995	74	0,005	91	0	0,39	
2	3-Dec-04	96	0,995	0	0,005	0	0	95,49	95,49
3	12-Apr-04	0	0,995	0	0,005	112	0	0	
4	7-Jul-05	36,7	0,995	77	0,005	31,5	0	36,91	
5	28-Jan-05	81	0,995	0	0,005	14	0	80,57	80,57
6	3-Oct-05	28	0,995	68	0,005	118,9	0	28,21	
7	4-Nov-06	14	0,995	75	0,005	14	0	14,32	
8	25-Mar-06	99,5	0,995	74	0,005	15	0	99,36	99,36
9	24-Mar-06	0	0,995	0	0,005	71,1	0	0	
10	6-Nov-07	10	0,995	78,5	0,005	57	0	10,36	
11	10-Nov-07	86,7	0,995	79	0,005	61	0	86,66	86,66
12	11-May-07	86	0,995	0	0,005	100,1	0	85,55	
13	10-Oct-08	47,5	0,995	85	0,005	0	0	47,69	
14	22-Apr-08	86	0,995	33,5	0,005	0,9	0	85,72	85,72
15	4-Jun-08	0,8	0,995	3	0,005	63,9	0	0,81	
16	28-Nov-09	52,6	0,995	80	0,005	11,8	0	52,74	
17	16-Apr-09	91	0,995	0	0,005	48,5	0	90,52	90,52
18	24-Oct-09	20,6	0,995	52	0,005	53,9	0	20,76	
19	28-Oct-10	59,6	0,995	81,8	0,005	7	0	59,71	
20	17-Dec-10	82,3	0,995	0	0,005	0	0	81,86	81,86
21	31-Mar-10	12	0,995	0	0,005	90,3	0	11,94	
22	24-Apr-11	6,3	0,995	96,4	0,005	2,5	0	6,77	
23	5-Jan-11	93,4	0,995	0	0,005	14,7	0	92,91	92,91
24	31-Mar-11	0	0,995	0	0,005	90,3	0	0	
25	10-Jun-12	0,2	0,995	77,2	0,005	8	0	0,6	
26	24-Oct-12	53,6	0,995	10	0,005	1	0	53,37	53,37
27	6-Jul-12	15,1	0,995	11,1	0,005	67,5	0	15,08	
28	3-May-13	0	0,995	96,1	0,005	0,5	0	0,5	
29	18-May-13	128,5	0,995	0	0,005	2,5	0	127,82	127,82
30	19-Sep-13	0	0,995	0	0,005	115,7	0	0	
Source: Sukmara, Riyan Benny (2014), Master Thesis "Flood Control Analysis of Karang Mumus River, Samarinda"									

III. Pollution

Logging and mining activities have contributed to what has been termed an "alarming rate" of pollution of East Kalimantan's Mahakam River. Tests of water pollutants show that levels have increased sharply between 2009 and 2011. Despite the growing pollution, it is claimed that "the water is basically still safe for consumption." Unsafe concentrations of heavy metals have been observed in Mahakam fish. A 2015 study found lead concentrations in excess of 1000 times safe levels along with unsafe levels of copper, zinc, and cadmium[51]

Table 5. Data on principal element analysis on surface sediments in the Mahakam delta Water (Darlan, Yuli et al., 2009)

NO	SAMPLE	SiO_2 (%)	Al_2O_3 (%)	Fe_2O_3 (%)	CaO (%)	MgO (%)	Na_2O (%)	K_2O (%)	TiO_2 (%)	MnO (%)	P_2O_5 (%)	SO_3 (%)	H_2O (%)	HD (%)
1	BH-01	64.16	14.30	5.71	0.64	1.18	0.43	1.26	0.81	0.12	0.17	0.01	1.88	11.18
2	BH-03	59.09	15.23	6.25	0.46	1.81	1.29	1.42	0.76	0.06	0.14	0.10	1.94	12.91
3	BMH-03	52.60	17.01	6.69	1.35	2.60	2.85	1.89	0.78	0.08	0.22	0.10	2.34	13.55
4	MH-09A(GC)	79.80	7.04	3.56	0.52	0.78	1.29	0.63	0.39	0.05	0.12	0.08	1.01	5.81
5	MH-09B(GC)	56.60	16.63	6.96	0.29	1.74	1.29	1.58	0.83	0.08	0.20	0.03	2.74	14.13
6	MH.11(GC)	67.00	12.39	5.47	0.67	1.57	1.72	1.26	0.76	0.06	0.18	0.08	1.38	9.23
7	MH-12A(GC)	59.80	12.96	6.00	0.82	1.76	2.15	1.26	0.71	0.08	0.16	0.15	1.77	14.10
8	MH-15A(GC)	56.10	14.35	6.12	3.83	1.99	1.72	1.58	0.75	0.08	0.21	0.10	1.87	13.24
9	MH-17B(GS)	80.00	6.39	4.30	1.53	0.98	1.29	0.63	0.46	0.07	0.20	0.05	0.57	4.35
10	MH-02(GS)	79.50	6.37	4.84	1.00	0.70	0.86	0.79	0.55	0.06	0.20	0.08	1.04	4.85
11	MH-13(GS)	55.20	13.38	6.19	4.23	1.89	1.67	1.51	0.73	0.07	0.22	0.11	1.93	12.87
12	MH-10(GS)	57.20	16.43	6.75	0.39	1.65	1.31	1.49	0.68	0.07	0.19	0.09	2.54	11.21
13	MH-14(GS)	58.80	11.95	6.11	0.79	1.72	1.95	1.13	0.69	0.06	0.16	0.12	1.68	14.84
14	MH-16(GS)	53.10	16.90	6.72	1.25	2.59	2.71	1.79	0.71	0.07	0.20	0.09	2.23	11.64
15	MH-07	78.90	6.32	4.78	0.09	0.71	0.82	0.77	0.52	0.08	0.19	0.10	1.01	5.71

IV. Social Aspect

[51] Data on principal element analysis on surface sediments in the Mahakam Delta waters (Darlan, Yuli Et al., 2009)

The River Mahakam is an economic resource for fishermen and farmers, and as freshwater source, as a waterway since ancient time until today. It is in this river basin where the Kutai kingdom evolved. The Kutai history is divided into two periods, Kutai Martadipura (around year 350-400) and Kutai Kartanegara period (around year 1300). Kutai Martadipura, a Hindu kingdom founded by Mulawarman at Muara Kaman, is regarded as the oldest kingdom in Indonesia. Kutai Kartanegara was founded by settlers from Java at Kutai Lama near the mouth of Mahakam. In year 1565, Islam was extensively spread in Kartanegara by two Moslem preachers from Java, Tunggang Parangan and RiBandang.

The Dayaks are the indigenous people inhabiting Kalimantan beside the Kutais and the Banjars. Since the 1970s, transmigration of people to East Kalimantan was organized by the Indonesian government, especially in areas near River Mahakam. Transmigration aims to migrate people from overpopulated Java, Bali, and Madura islands to stimulate greater agricultural productivity in outer islands. By 1973, almost 26% of the land under cultivation in East Kalimantan was being worked by transmigrants.

Another social aspect that is also related to the issue of social vulnerability is the gender issues in Samarinda where certain optimization are needed including: (a) Gender Mainstreaming Working Group's role; (b) The role of women in development (c) reporting system for women and children abuse; (d) Implementation of activities towards a children friendly city; (e) Services in accordance with the Convention Children's rights; (f) information about children's forums at school, and community; (g) The role of social institutions as a forum community participation; (h) public awareness in preventing violence towards women and children. All those issues cause high poverty rates includes the high of (1) The number of poor families due to limited access in utilizing development resources; as well as (2) The lack of adequate facilities and infrastructure for performance and service improvement.

The table below lists some of the main issues being faced in Samarinda City. These include from social to environmental or development issues, that exacerbate the community´ vulnerability to climate change.

Table 6. Vulnerable Communities Issues in Samarinda City

Ethnicity	*The first ethnic group living in this area was the Banjar and Bugis Wajo. Furthermore, various kinds of ethnic groups began to arrive and settle in Samarinda City including: Paser, Javanese, Madurese, Sasak, Dayak, Chinese, and others.*
Vulnerable Communities Issues	• *Environmental problems that arise are floods, and poor waste management, thus making the quality of health worse.* • *Lack of infrastructure development mainly related to the construction and maintenance of roads and other facilities. This resulted in the difficulty of connecting between one city area and another. Throughout 2017, the highest temperature of Samarinda Municipality is 28.30°C with the highest humidity of 86%. When viewed from rainfall and rainy days, the Municipality of Samarinda has the highest rainfall and rainfall in April and June in 2017.* • *Protection and support for vulnerable populations: women, children, elderly, disabled. Gender Problem Identification in Samarinda is included optimalization needed for: (a) Gender Mainstreaming Working Group's role; (b) The role of women in development (c) reporting system for women and children abuse; (d) Implementation of activities towards a children friendly city; (e) Services in accordance with the Convention Children's rights; (f) information about children's forums at school, and community; (g) The role of social institutions as a forum community participation; (h) public awareness in preventing violence towards women and children.*
Vision and Mission	*Focus (2018-2023) on:* • *Realizing the quality of East Kalimantan's human resources that are independent, highly competitive and noble;*

	• *Realizing a reliable economic structure with broadest community participation;* • *Realizing equity and proportionality of basic services, for the community;* • *Realizing effective, efficient, participatory and law-based governance;* • *Realizing integrated and harmonious development with an economic and ecological based regional development approach.* *9 Priority Agenda Samarinda City:* *1. Optimizing flood control.* *2. Increasing the degree of public health.* *3. Development of education to produce human resources professional character and religious.* *4. Development and improvement of infrastructure, urban facilities and utilities supporting leading sectors and environmentally sound.* *5. Poverty alleviation based on community economic empowerment.* *6. Disaster prevention and management, collaboratively and effectively.* *7. Improvement of religious life, arts and culture; increasing the role and achievements of youth, and sports; and increasing the empowerment of women.* *8. Strengthening regional income and development expenditure in the region.* *9. Improving good governance.*

2.2. Climate Mitigation in Samarinda and East Kalimantan Province

In 2010, the East Kalimantan government committed to sustainable development by launching the Green East Kalimantan focused strategy on improving natural resource governance. To reach its goal, the provincial government engaged various local stakeholders in East Kalimantan and requested support at national and international levels. Governor Awang Faroek Ishak launched Green Growth Compact (GGC) in September 2016 as a tool to bring together initiatives from the public and private sectors, local and national governments, communities, NGOs and universities. During the annual meeting of the Governor's Task Force on Climate and Forests (GCF) 2017 in Balikpapan, an agreement was signed by several of the stakeholders containing seven pilot initiatives, namely: (1) implementing an emission reduction program carbon for the FCPF scheme; (2) strengthen social forestry efforts (targeting 660,782 Ha); (3) strengthen 21 KPHs; (4) strengthen management of Wehea-Kelay's Essential Ecosystem (KEE) for corridors Orangutan; (5) developing partnerships for the management of the Territory Delta Mahakam; (6) supports the development vision of Berau Regency (Berau Forest Carbon Program); and, (7) developing plantations sustainable in all districts. Since the launch of the East Kalimantan strategy Green, KLHK at the national level has supported it as a model sustainable development for Indonesia.

Within the framework of the Forest Carbon Partnership Facility (FCPF) Carbon Fund program, the East Kalimantan Environmental Service relied on several tools to assess the status of the local environment, for example it introduced a system for measuring, reporting and monitoring (MMR) greenhouse gas (GHG) emissions and the National Registration System (SRN). This program was endorsed by the Government of Indonesia to participate in the Forest Carbon Partnership Facility (FCPF) Carbon Fund program. Currently East Kalimantan is in the negotiation stage of the Emission Reduction Payment Agreement (ERPA), to be finalized in 2020. This program also engages other institutions, namely: Research and Development Center for Socio Economic Policy and Climate Change (P3SEKPI); Climate Change Regional Council; and WWF (World Wide Fund for Nature).

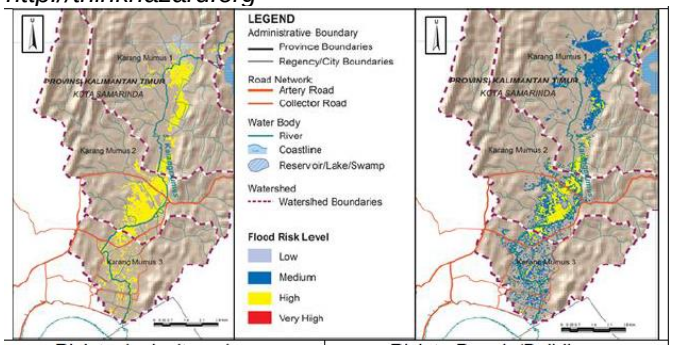
Climate Kampong Program

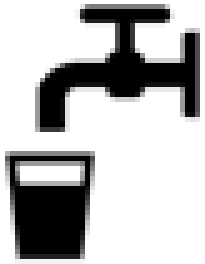
East Kalimantan Province has endorsed a green development model as the key to future sustainability in the region. Climate Change in East Kalimantan is not a figment of people's imagination. The Balikpapan Meteorology and Climatology Agency show that in the last 30 years there has been an increase in the average temperature of 0.043 °C per year in Samarinda, and

0.02 °C per year in Balikpapan. The Regional Council for Climate Change in East Kalimantan stresses how collaboration between stakeholders, government and citizens is a strategy to maximise efforts toward a Green Kalimantan. Currently, through the Green Development Agreement scheme, 11 pilot initiatives have been built, including emission reduction interventions through the Forest Carbon Partnership Facility (FCPF) scheme, covering an area of 660,782 hectares. Other interventions include the management of the Essential Ecosystem Area (KEE) for the orangutan corridor in the Wehea-Kelay Landscape, the development of the Delta Mahakam partnership, the Berau Forest Carbon Program (PKHB), the sustainable plantation development, land and garden fire control, SIGAP Program Prosperity and Climate Change Adaptation in the city of Balikpapan, and the Climate Kampong Program. Climate kampong program or PROKLIM is a national program by the Ministry of Environment and Forestry, aiming to increase the involvement of the community and other stakeholders in strengthening the capacity of adaptation to the effects of climate change and the effects of greenhouse gases. The purpose of the climate kampong is to encourage communities to adapt and take steps to address the impacts of climate change on their respective environments. Sindang Sari and Makroman Sub-districts at Sambutan district, Samarinda City, were selected to participate in the 2019 Climate Kampong Program. Sindang Sari Sub-district is a small example of Samarinda City's efforts to be pro-environment. The goal of this program is to facilitate citizens' engagement facing climate change and climate adaptation. The program has also a focus on educating new generations and preparing them for the future.

For the Samarinda City government, kampong development within the Clean and Healthy Green Program is very important as a practical and effective way to create an understanding of the importance of personal and environmental health for communities. Both selected kampongs in Samarinda City are expected to work towards creating a village that is in accordance with shared ideals. The climate kampong program actually aims to endorse how people try to protect their environment, adapt to climate change disasters and also to get ecological and economic benefits, in order to increase people's income and liveability.

Table 7 Local Action for overcomes the issue in Samarinda City

No	Hazard and Risk	Climate-Related Hazard and Risk for Samarinda City	Samarinda Local Action	Stakeholder
1.	**Flood and Drought**			
		• *Floods in Samarinda is happen annually. Length, height and spacious flood that have varied. The duration of the flooding that occurred ranged between 3 –10 hours with the water level between 0,3–1,5 m, while the area of inundation The contained Lempake area, with an area of inundation to ± 200 ha. (AchmadGhozali, Ariyaningsih, Riyan Benny Sukmarab, Belinda Ulfa Aulia, 2015, A Comparative Study of Climate Change Mitigation and Adaptation on Flood Management Between Ayutthaya City (Thailand) and Samarinda City (Indonesia), Procedia - Social and Behavioral Sciences 227 (2016) 424 – 429* • *Flood disasters, landslides have increasingly occurred in Samarinda, Kutai Kartanegara, East Kutai, and West Kutai, this is a negative impact of mining that is rapidly developing and uncontrolled* • *River flood hazard and urban flood hazard are classified as high based on modelled flood information currently available to the tool of http://thinkhazard.org*  The problem of flooding in the Samarinda City is complex and driven by *i. fluvial floods along the Karang Mumus River,* *ii. pluvial floods in the city, and* *iii. coastal floods due to the high-water levels in the Mahakam River.*	• *Flood prevention programs in Samarinda (Astuti, 2014; Sari, 2015): (1) The development of a retention pond as a water reservoir from rainfall runoff, (2) The development of drainage subsystems as the smooth management of the water discharge from residential unit toward the primary channel, (3) The development of floodgate on a tributary of the Mahakam River especially KarangMumus river and water pumps in flood area, (4) The City Rivers Normalization program for increasing water flows, (5) Development of Bendalis (a small water reservoir).* • *The city government is less involved in the social aspects of the flood control programs. Only the physical infrastructure development of flood control is optimized (Sodik, 2015).* • *Improve the comprehensive and preventive flood mitigation planning.* • *Repair the flood control infrastructure.* • *Improving the Quality of Riverbank Settlement.* • *Consolidating the sustainability of protected areas to support sustainable cities development.* • *Flood control systems development.*	*Samarinda Municipality*

	Flooding cause frequent inundation of buildings, temporary relocation of people and associated health hazards. The river is a significant source of community activities despite the river pollution.	• *Drainage network system development and improvement.*	
		Increase public and private green space	*Samarinda Citizen*
2.	**Access to Clean Water**		
	*The community does not understand the essence of the existence of swamps on the left and right sides of the river that flow through the city of Samarinda, even though this can be an alternative source of clean water. Samarinda has lost swamps in the size of thousands of hectares and will continue to grow due to the decline of swamps in the interests of settlements and opening trade areas. (source: "Tidak ada kebijakan dibuat untuk menghentikan okupasi atas rawa-rawa", https://www.niaga.asia/mengapa-air-menjadi-masalah-di-samarinda/). water scarcity is classified as very low or non-existent based on modelled flood information currently available to the tool of http://thinkhazard.org*	*Clean Water Services through Regional Water Companies.*	*Samarinda Municipality*
3.	**Access to Reliable Energy Resources**		
	*The number of households served by PLN connections has almost doubled in the period 2011-2015. However, there are still 70% of households that have not been served (BPS Samarinda, 2015)*	*Electricity Services by the State Electricity Company.*	*Samarinda Municipality*
4.	**Community Vulnerability and Safety**		
	• *From 2010-2018 there was no significant reduction in the percentage of poverty, namely from 5.21% in 2010 to 4.59% in 2018 (BPS Kota Samarinda, 2018).* • *East Kalimantan is faced with environmental problems due to uncontrolled mining exploitation. During the last 10 years, in addition to 32 fatalities, he said there were 632 excavated holes. Former mining excavations in East Kalimantan continue to take casualties in the past seven years. The number reached 32 people, 27 of whom were children.*	• *Demand lawfully issues related to the management of coal mining environment.* • *Monitor mining business activities* • *Protection and support for vulnerable populations: women, children, elderly, disabled*	*Samarinda Municipality*

	• *In the notes of the One Earth Forum, East Kalimantan is one of the deadliest provinces for its citizens. Because, since the Dutch colonial era, around 1894, this province, formerly called Borneo Land, has extracted itself. Through the dismantling of oil and natural gas and until this happens, natural wealth continues to be dredged. To this day, East Kalimantan is still relying on the economy for logging, coal extraction, and the opening of oil palm plantations. After North Kalimantan was expanded, the area of East Kalimantan became 12.7 million hectares. Of that number, 46 percent or equivalent to 5.2 million hectares are destined for mines. Meanwhile, the plantation area is only 3.37 million hectares. No more than 4.27 million hectares are living spaces that must be shared for houses of worship, hospitals and schools, roads and markets, as well as playgrounds and settlements for a population of 3.4 million. This all creates a living space that is of poor quality (https://www.mongabay.co.id/2017/03/27/masyarakat-kalimantan-timur-menderita-akibat-lingkungan-yang-rusak/)* • *Protection and support for vulnerable populations: women, children, elderly, disabled.*		
5.	**Food Security**		
	*As of July 2019, at least there have been numerous forest fires which have burn an area more than 60 Ha (https://merdeka.com/peristiwa.html.) Indigenous people in that lived in East Kalimantan have continued to lose their main livelihoods since the presence of coal and mineral mining, the oil and gas industry, and palm oil plantations. The vast area of land needed investment has led to narrow areas of management of indigenous people (https://money.kompas.com). As a result of uncontrolled mining, the agricultural sector in East Kalimantan was hit. Rice fields must be shifted because of being forced by mining sites.*	• *Until now, Samarinda City is only able to fulfill 18 percent of Samarinda's food needs. The remaining 82 percent must be brought in from outside East Kalimantan by the city government.* • *Synchronizing and sharpening the role of extension agents in the field plus increasing the capacity of education counseling in the field of agriculture.*	*Samarinda Municipality*
		• *Diversification of food and utilization of land owned by the community.* • *Coaching through the use of home yards to help fulfil household food needs*	*Samarinda Citizen*

6.	Waste Contamination		
	• *Every day, Samarinda City produces 800 tons of garbage. These organic and non-organic wastes are collected from various points. If added up every month, the city produces 24 thousand tons of waste. On certain days the amount of garbage in the capital has increased dramatically. For example on weekends, school holidays, Eid al-Fitr, Christmas and New Year. At that moment, garbage increases 30 percent compared to the usual day (Source: http://bontang.prokal.co/read/news/18363-astaga-sehari-samarinda-dipenuhi-800-ton-sampah).* • *The number of Final Disposal Sites is only one that is qualified. Namely Bukit Pinang Final Disposal Site on JalanPangeranSuryanata, Samarinda Ulu. Even then the capacity is only up to 500 tons per day. In other words there are still 300 tons of waste volume that meets the capital city. The alternative is the Sambuta Final Disposal, which is district scale. However, because of the problem of land, the volume of garbage that can be accommodated is only enough for the surrounding residents. (Source: http://samarinda.prokal.co/read/news/11758-volume-sampah-meningkat-tajam.html).*	*Processing waste into recycled goods that are worth selling.*	*Education Institution*
		At certain times, where waste is very disturbing, the government invites Non-Governmental Organizations to clean up Waste together.	*Samarinda Municipality, NGO, Citizen*
		• *Form a junk cyber team that is tasked with spurring the community to maintain cleanliness.* • *The Government of Samarinda City has begun to formulate and issue policies related to the condition of solid waste in Samarinda such as the issuance of Perwali Number 1 Year 2019 concerning Reducing the Use of Plastic Waste.* • *Socialize the rules to the public to dispose of waste according to the place provided and the time determined according to Perda Number 2 Year 2011 namely, from 6 pm to 6 am local time.*	*Samarinda Municipality*
		Organic Waste Management.	*Samarinda Municipality and Citizen*

Part 3 Technical Summary: New Ways Forward for Climate-Responsive Urban Public Space	
a)	**The project vision is to create a new typology of public space, conceived as a series of public spaces that form an interconnected network within the pilot city of Samarinda.**
b)	**Key priorities for the project include solutions and education about (1) flood and drought; (2) access to clean water; (3) access to reliable energy sources; (4) community vulnerability and safety; (5) food security; and, (6) waste management.**
c)	**Each of the designed public spaces will encourage the local community to engage with the 6 key priorities. They will provide access to essential resources such as clean water, food and energy, provide educational opportunities to learn about sustainability and demonstrate how to reduce climate change impacts.**

PROJECT/PROGRAM OBJECTIVES

UNDERSTANDING OF THE TITLE:

> *EMBRACING THE SUN: Redefining Public Space as a Solution for the Effects of Global Climate Change in Indonesia's Urban Areas*

Indonesia is a tropical country consisting of 5 large islands surrounded by many small islands. As a tropical country, of course the sun is the main daily companion for people in Indonesia and is an icon of the climate. But lately, we have found and witnessed many changes in people's attitudes towards our natural climate. Mainly related to the effects of climate change. Climate change is something that cannot be avoided all over the world. Including in Indonesia. At present, people prefer to avoid and ignore climate issues which are unfriendly and disturb the comfort of daily lives.

> *Through this proposal, we want to raise awareness of the threats and the potential of our Indonesian environment and our tropical climate; we want to increase awareness of the impacts of Climate Change and the main strategy to achieve this is rethinking Public Space.*

The objective of this program is to prepare Indonesian communities to cope with the effect of climate change as well as reduce the causes of the current environmental crisis. The focus is on addressing flood adaptation and its social impact on urban communities. This is achieved through the development of a new typology of public space and its implementation within a pilot city, Samarinda city, and with the objective to address in the first instance the challenges of flood adaptation and preparedness; other challenges connected to climate change will have also to be addressed so to deliver an infrastructure that is self-sufficient during floods events, and an integral part of the urban social fabric outside flood-events. The program is based on an action research participatory methodology. The theoretical framework adopted is the *Positive Development* paradigm[52] which promotes building solutions and techniques that improve the quality of the environment, harvest resources sustainably and positive externalities to the ecological landscape in the vicinity. Positive development paradigm advocates interventions on the triple bottom line of economy, environment, and society, to improve the overall net performance of systems in different fields. Going beyond sustainable development, positive development advocates interventions that contribute a positive gain to the system and that instead of depleting resources, generate improvements on ecosystems, communities, and economic systems. In this paradigm, interventions instead of requesting continuous inputs to function, would produce outputs to support communities and better the overall environment[53]. The Positive Development paradigm is implemented in this project through a systemic approach[54] aimed to create a resilient ecosystem within the city of Samarinda. The systemic approach aims to establish a network of infrastructures that respond in a coordinated way to different challenges connected to climate change.

The systemic approach aims to address in first instance the main challenge of flood adaptation; the proposed public space will then also address other climate related challenges through the detailed design of the new infrastructure. The systemic approach allows to maximize the resources and possibility of an ecosystem, distributing the load of current challenges, maximizing the gains of the interventions, outreaching different communities within the selected pilot city[55]. The creation of public spaces based on the new proposed typology, will also foster dynamics aimed to connect, enhance, and integrate existing public spaces.

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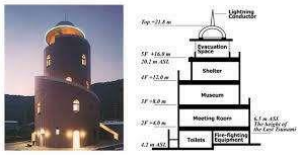
52 Birkeland, J. (2008). Positive development: from vicious circles to virtuous cycles through built environment design. London: Earthscan.
53 Ibid.
54 Maser, C. (2012). Decision-making for a sustainable environment: a systemic approach. Boca Raton: Taylor & Francis.
55 Ibid.

The long-term vision is to create a network of public spaces that will support a new ecosystem that will provide benefits to the entire city. Although the intervention will be spatially limited to one specific community, the creation of a network in the long term, including existing and proposed public spaces, green areas, water bodies, community and social infrastructure, will maximize the environmental and social benefits of the program. The network will be established through low-cost high-impact design solutions to be progressively implemented in the urban tissue. Design guidelines for bottom-up or middle-out interventions will be developed building on learnings from this project. To provide an idea of the overall approach to the creation of this new typology, some relevant case studies are summaries in table 6. These case studies address one specific issue, contextually creating a public space addressing also secondary social and environmental issues.

Table 8. Preliminary case studies for the development of a new typology of public space

Case Study	Location	Project
	*Nishiki, Japan*	*The Nishiki Tower is an example of how in Japan structures designed to provide a haven for communities during tsunamis has been envisioned to solve also other community needs, and act as an urban landmark.* *The concept of a man-made structure to provide shelter during a flood events, which also performs as a community center and social infrastructure is adopted as one of the main inspirations for the proposed intervention in Samarinda. Key features subsumed from the Nishiki Tower are:* • *Multipurpose structure* • *Facilities to support community during and outside flood events* • *Multi-level approach* *While the Nishiki Tower is conceived as a fully enclosed building, the intervention in Samarinda is proposed as an open public space.*
	*Venice, Italy*	*Venice has a strategy to deploy walkways across the city center quickly to face high tides and flash flooding. This system allows citizen to be able still navigate the city also in the case of extreme weather events.* *The idea of risen walkways to provide access to shelters is a component that can be implemented in Samarinda incorporating these walkways in the general landscaping of the city, so to provide continuous access to the main proposed shelter structure.*
	*Copenhagen, Denmark*	*Enghaveparken is a public park that is undergoing refurbishment so to accommodate the need of local communities as well as serve as a 24,000 cubic meter retention basin for water during major flooding events.* *The idea of a floodable landscape is adopted to envision portion of the ground-floor of the proposed structure in Samarinda.*

	*Zurich, Switzerland*	*MFO-Park in Zurich is an example of a vertical public space, where different platforms cater for different social activities. Ramps and stairs connect the different platforms providing a vibrant environment, especially for youngsters.* *The light structure and the integration of vegetation are elements that will be included in the design of the proposed intervention in Samarinda. Key features subsumed from the MFO-Park are:* • *Light structure organized on multiple levels, through walkways and platforms* • *Different levels/platforms to cater for different activities/social groups* • *Inclusion of vegetations on green facades* *The MFO-Park is taken as inspiration for the genral look, feel, and design of the proposed space. While the MFO-Park is designed a urban space just for leisure and with limited accessibility, the proposed infrastructure in Samarinda will include ramps, as in the Nishiki Tower to ensure an easy access to all levels. The propose dinfrastructure in Samarinda also will incorporate an edible landscape augmenting the proposed intervention with food production.*
	*Brisbane, Australia*	*Rainbank is an integrated system to collect rainwater in a 30h urban basin, treat the water through vegetation and store it for the use of the local area needs. The project relies on existing infrastructure and public spaces to collect and treat water, which is then stored underneath South Bank parkland, Brisbane main public space.* *The idea of using public spaces and landscape to harvest water is incorporated in the proposal for Samarinda. Water tanks will collect water harvested from the roof of the structure. The water tanks will be incorporated in the design of the structure.*
	*Sydney, Australia*	*Ballast Point Park in Sydney accommodates a structure built out of a recycled tank; this structure support micro wind turbines to produce clean energy for the local community* *Micro wind turbines are a simple, off-the-shelf-economic item that can be included in the design of the proposed structure in a cost-effective manner.*
	*Bangkok, Thailand*	*Urban farming is an activity that is taking place in several cities; Suanluang 1 community in Bangkok has taken this activity to a new level; public spaces in the urban village are used to grow food, which is then used to prepare traditional food. This is sold once a week in a unique Muslim market, the larger of its genre in*

		Thailand. This project has provided positive outcomes to residents in terms of quality of public space, access to food, and in terms of economic return through the markets. *Food production is suggested adopting an edible landscape in the development of a structure like the MFO-Park. Landscaping and green facades of the structure will be conceived as a productive landscape to support local communities.*
	*Bogotá, Colombia*	*Mayor of Bogotá, Enrique Peñalosa has invested in the creation of an integrated network of bikeways, public spaces, supported by a Bus Rapid Transit. These interventions have provided a reduced reliance on private transportation and increased accessibility to the urban core reducing its congestion.* *The systemic approach in the creation of a network is a long-term goal for the intervention in Samarinda.*
	*Tirana, Albania*	*Since 2000, Tirana has invested in rejuvenating its public space creating a series of colorful interventions. This cost-effective project engaged the community in rediscovering their city; public spaces were revitalized with a positive effect on street security and commercial activities.* *Iconic projects and the development of landmarks, especially with the engagement of communities, is seen as an effective tactic to involve local communities in taking ownership of the structure and support its maintenance.*

Within this theoretical framework, this program suggests a strategic role of a public spaces[56]. Public space is for definition communal space and a stage where private interests are generally negotiated for a greater common good. The disperse and interconnected nature of public spaces allow them to act as ecological corridors as well as social spaces[57]. Looking at public spaces as opportunities to connect different parts of a city, different ecosystems, different communities, can contribute to face in a networked way emerging challenges, to distribute access to resources, to integrate opportunities for positive development within the urban fabric and social life.

The case studies reviewed individually address one specific issue connected to climate change; they all suggest the idea of public space as an infrastructure that links societal, economic, and environmental dynamics. This project recognizes the interconnected nature of flood events, their impact on communities at multiple levels, limiting access to resources and services. Flooding disrupts supply chains challenging food security and community sustenance; flooding affects access to clean water and power; flooding threatens the physical environment and undermines the social structure. This program aims to deliver a public space that will provide a haven for communities during flood events; this haven will be designed to address the multilayered issue of floods. In the first instance, it will mitigate the effect of flooding within the selected community and provide access to resources to sustain the community during recovery. To maximize the public space's impact, it will function as a community hub outside the flood season, maximizing the local community's infrastructure.

[56] Wikantiyoso, R., &Suhartono, T. (2018). The role of CSR in the revitalization of urban open space for better sustainable urban development. International Review for Spatial Planning and Sustainable Development, 6(4), 5-20. doi:10.14246/irspsd.6.4_5

[57] Guaralda, M., &Kowalik, M. (2012). Negative space and positive environment: mapping opportunities for urban resilience: REAL CORP.

Imagine the following scenario, you live in Samarinda, and you find yourself in need of protecting yourself, your family, and your house from an incumbent flood. In the first instance, you seek haven in a purposely built structure, provided you shelter, and support you during the incumbent event. While you need access to clean water, food, and power in the structure, you need services and toilets. During the flood, you might need to face the rising water level to reach haven, and protected walkways would make this task easier and safer. After the flood, you need to clean up, store debris, manage waste, reinstate your access to distribution lines and resources (how to do this?). Our rationale is that the physical impact of floods on a community is just one aspect. There are several other factors to consider to foster community resilience and preparedness to embrace climate adaptation. The public space we envision addresses one issue, flood adaptation, proposing an integrated system that can cope with this situation's nuances. This project's strength and innovation are not limiting the intervention to the provision of simple shelter. The strength of this project is to bring together existing solutions and technologies into an integrated system to address one complex issue through multiple integrated actions. The improvement of integrated actions, through a systemic approach, will be able to support communities before, during, and after a flood event, supporting them to adapt to climate change. The different actions will be co-located and integrated within the same public space to maximize the intervention's impact and cost-effectiveness.

In the long-term, this program aims to have a positive impact on the enhancement of life quality and life expectancy of communities within Samarinda city in Indonesia. The development and construction of an integrated network of public spaces will function as infrastructure to increase community resilience and provide communities with basic access to resources. The network's first and main aim is to adapt and prepare to face disruptive flood events. One public space will be developed to pilot this approach; its design and structure will provide communities with a space that will support the community before, during, and after flood events. The new public space will act as a hub where communities will learn about the flood and access resources and materials to face flood (for example, sandbags) to prepare for a flood event. During a flood event, the public space will act as a haven where communities will find refuge in a multi-level structure. The lower section of the structure will be designed as a floodable landscape to harvest floodwaters and mitigate the impact on surrounding communities.

The infrastructure will also provide communities with access to food, clean water, and power to support them while they need to shelter in the haven. After the flood, the public space will act as a hub to support recovery, temporarily store debris, organize clean-ups, and community recovery. A system of risen walkways suggested connecting the haven to surrounding areas. Outside the flood events, these walkways will act as benches and platforms supporting the local social community. Overall, the proposed public spaces will increase community safety during flood events. The physical interventions will address current and emerging issues linked to climate change through passive systems, community engagement, and affordable, low-tech solutions. Outside flood events, the structure will host market functions at the lower level, children and youngsters' facilities at the mezzanine level, and also support urban farming facilities through its envelope. At the upper levels, solar panels and turbines will generate electricity to support the community while sheltering and provide a source of income outside the flood events, selling power to local businesses.

Food production is seen as an essential secondary component of this project, fostering economic activities and social engagement outside hazardous events. Local women will be a fundamental partner in the intervention; they will ensure the redefinition of public space in positive development. The aim is no longer merely to bring women's voices to the public sphere for the benefit of women and children but to further transform the existing power relations structure due to patriarchal culture that marginalizes vulnerable groups. The new public space will provide women with space to be economically active with food production and lead communities in adapting to climate change. The pilot project in Samarinda City will provide the template for interventions in other Indonesian cities by developing implementation guidelines. These

guidelines might also be implemented in other national contexts, taking into consideration local needs and conditions.

The nature of the physical intervention and the character of the methodology to design and deliver them will be a fundamental component in the long-term sustainability of the project. The use of passive technologies and design will ensure that the new public spaces will be maintained with minimal investment requirements. Through engagement with the local community during the design of public spaces, the co-creation approach aims to foster a sense of ownership within the interested communities, who will then be entrusted with the day-to-day maintenance and activation of the public space system. The new public space design will rely on the use of passive technologies and, where possible, off-the-shelf technologies. A contextual review will be developed as part of the program's first component to identify suitable solutions and technologies for Samarinda and the selected location. The selected solutions will then be discussed with community stakeholders and used as building blocks of the new public space. This approach will ensure the cost-effectiveness of the intervention; coupling existing technologies in the pilot project design will also address specific issues of flooding on the social milieu, as identified with the community.

Figure 9. Artist's indicative impressions of one type of public space

2.3. Integrated Approach to Public Space Design and Climate Change Adaptation

The proposed typology aims to create a haven organized on multiple levels. The space that will be socially inclusive, culturally appropriate, vibrant to support the local economy, and have physical attributes to positively impact the local environment while increasing climate resilience. The project will address the need to prepare and adapt local communities to flood hazards, it will focus on five key elements to achieve a successful public space typology: water, energy, materials, social, and green. Water management and harvesting, food production, processing and storage, waste management and biodiversity enhancement will be by-product of the interventions related to each of these elements. The resulting public space network will be realized with dispersed low-tech design intervention built-in the day-to-day practices of local government and citizens (some examples provided in figure 10). This approach aims to promote social inclusion and diversity by enhancing activities that target people from different genders, ages and ethnicities. High impact low-cost interventions across one public space site will foster

an integrated and Water Smart approach[58] to flood adaptation. The new public space typology will provide Samarinda with tangible adaptation strategies and tools including:

(1) Resilience
- Public community space for markets, gatherings, play and education including shade structures.
- Solar power generation for mobile phone charging and lighting at night, ensuring passive surveillance of space at night and safe access for all members of the community.
- Perpetual access to clean safe water.
- Waste management

(2) Response
- Emergency distribution point for community access to crisis provisions, electricity for phone charging, sandbags etc.
- Access to reliable water and energy sources during a flood emergency.
- Evacuation and shelter management point for displaced people.

(3) Recovery
- Ongoing community resilience building following a flood event.

Briefly, the project will deliver:

- A palette of technologies and technological solution to inform the design of the pilot project, developed through a co-design approach with the interested communities.
- One pilot public space in Samarinda
- Design guidelines consist of a palette of low-cost high-impact design tactics to be implemented in time within the urban environment, so as to enhance flood water management and establish a cohesive network of interventions to manage floods through adaptation of existing public spaces and development of new ones.

The selected public space, identified in consultation with Samarinda City Government, will act as multipurpose spaces within the specific framework of being in the first instance designed to support local communities to adapt to floods not just in terms of physical response, and mainly focusing on the social response to flooding. Detailed design of the proposed public space will be negotiated with local government and local communities multi-level infrastructure. The public space will be designed as a multi-level structure, taking as an example the Nishiki Tower and the MFO-Park. While structures designed to cope with tsunamis provide shelter for a limited time, due to the nature of the hazard, the structure we propose needs to accommodate community members over one-two days, so it is necessary that they provide a more sophisticated form of shelter. On the basis of preliminary research, their main feature should anyway be:

- The lower level of the public space has to act as a floodable landscape and work as a flood water retention basin during flood events. Flood water from surrounding areas has to flow to this space, where it can be safely managed.
- The community will therefore actively engage in the management of the public space and its preparation towards a flood event.
- Low-tech tactics in existing and proposed public spaces, including streetscapes, will facilitate the management and dispersion of flood waters.

[58] Tsakalides, P., Panousopoulou, A., Tsagkatakis, G., & Montestruque, L. (2018). Smart water grids : a cyber-physical systems approach. Boca Raton, FL: CRC Press/Taylor & Francis Group.

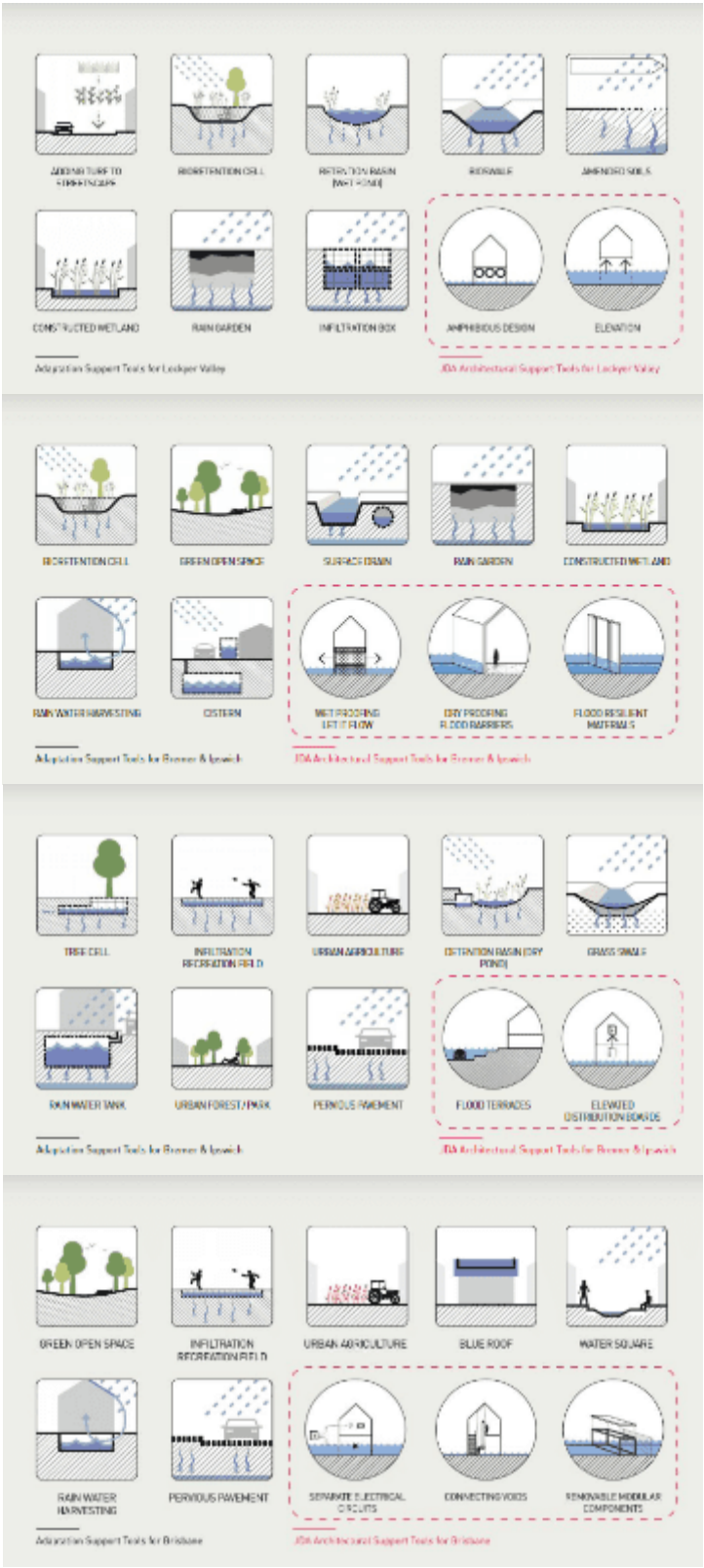


Figure 10. Design tactics for flood management and mitigations[59]

- Rainwater will be harvested through the shelter structure and stored in water tanks at the mezzanine level. Access to clean water will also be fundamental during the recovery phase of the flood as well as to support the day-to-day life of the community.

[59] James Davidson Architects (2019) The Water Futures Book. https://issuu.com/jamesdavidsonarchitect/docs/water_futures_book_-_digital_version

- While the ground level will be used for markets outside flood events, the mezzanine level will provide storage so that goods and equipment used for the markets can be safely preserved during floods.
- The public space will be fitted with ancillary items to support community members while they are sheltering, the recovery and also the day-to-day life of the local communities. Wind turbines and solar panels will facilitate the production of affordable electricity. Access to an off-grid power source will be strategic for the recovery phase after the flood. These items will be designed at the upper level of the haven. These ancillary items will be off-the-shelf components that will be integrated in the design of the haven.
- Landscaping of the public space will be realized as an edible landscape. The inclusion of greenery will have positive effects on the local microclimate and provide access to green areas for the local community, with benefits for their mental health.
- Benches and raised platforms beds will be used as walkways during flood events so to provide continuous access to the haven.
- The public space will also be fitted with components for composting and wet waste management. Areas will be dedicated to safe recycling of materials and these materials will also be implemented to improve and expand this public space.
- The space will provide areas to support social entrepreneurship, with a specific focus on women and minorities.

The technologies used for the hamlet are off-the-shelf, in the sense that they are common technologies that do not need customization, dedicated fabrication, or special parts. They are components that can be sourced from several providers and that requires just assemblage on site. These technologies are mass-produced, readily available, and constitute a cost-effective solution to enable the hamlet to be used as a shelter during floods. The design of the hamlet will consider how to easily incorporate these technologies; it will also adopt a modular approach so that future components could be added in the need should arise.

Figure 10 provides a preliminary artist impression of the proposed public space; its functions will be multiple:

- Safe shelter point during flood
- Retention basin for flood water
- Emergency distribution point
- Community hub

The design of the public space will be articulated so to have a floodable lower section to collect water, host markets and store sand outside flood events; The mezzanine will provide storage for marketeers and will allocate services, such as rainwater storage and toilets. The upper sections will provide shelter to residents and protection from rain and flood water; collection points for items to prepare for floods, for example sandbags or tarps, and to recover after the flood. A multi-functional building will also serve as evacuation center. Recovery will be supported providing access to fresh water and off-grid electricity, as well as to food produced on site. The structure of the haven, will be used to host food production (urban agriculture on the rooftop as well as on the facades.

The technology adopted for the ancillary item will support the hamlet in being a self-sufficient and sustainable system. They will minimize the hamlet's dependence on the power grid and town water; they will contribute to reducing emission through the green production of electricity and harvesting of rainwater. Their adaptation relevance is not only in terms of reduction of emissions and reliance on citywide systems; they also support the hamlet in functioning as an efficient structure to support Samarinda communities in adapting to climate change, in the specific to cope with flood events. While the main structure of the hamlet provides physical shelter, the ancillary items (wind turbines, solar panels, water tanks) will ensure that the hamlet can perform as a safe and welcoming space when in use. Their impact potential is enabling the hamlet to function as an efficient shelter during floods and as a vibrant inclusive public space outside flood events. The

display of green technologies, and the engagement of communities to deploy them within the hamlet, will also have the benefit of educating communities in the understanding and adoption of technologies that are readily available. In addition to the direct impact on the hamlet, the ancillary items will have an indirect impact on the broader community as an example of how to build a structure that can be self-reliant, off-grid, and sustainable.

One of the issues that was identified in the gender assessment is that female vendors often bring their young children with them, having to carry out their role as sellers and as caretakers. In order to provide suitable alternatives that can help alleviate the, several functions are proposed to be integrated in the design of the public space: a playground and a daycare center. The playground will be located on the floodable area and will be therefore be functional during times when there are no floods. The daycare will be located in the multi-functional center which will also act as evacuation center. Areas of the infrastructure will be designed so to accommodate the needs of children during and outside flood events.

The response to flooding events will support local communities to adapt to climate change integrating into the space a series of existing technologies and solutions, so to maximize the effects of the intervention and address multiple dimensions of the social impact of floods.

The approach to the design of the public space applies the concept of the recovery cycle illustrated in figure 11.

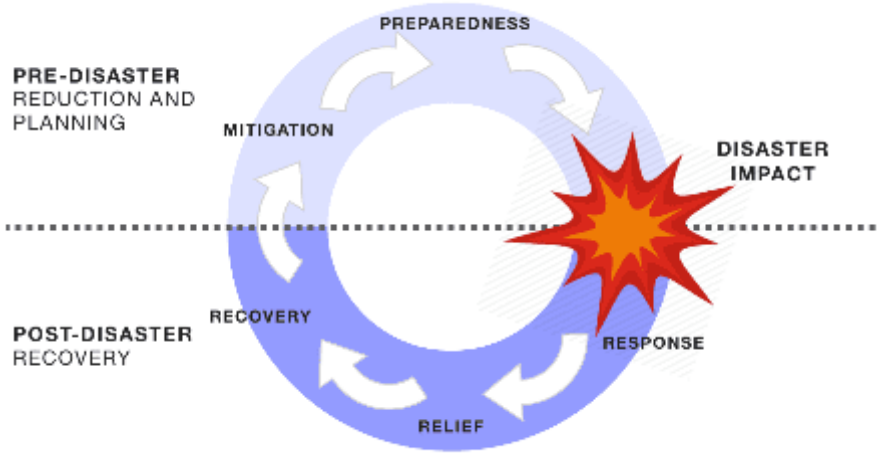


Figure 11. Recovery cycle

The goal of this project is to design and implement facilities to support flood adaptation and act also as vibrant high-quality public spaces that invite a wide range of users to stay and enjoy, ensuring equal access to project benefits to various groups such as women, the youth and indigenous groups. Urban design plays an important role in finding synergies between climate resilience strengthening options and strategies that build social cohesion. For example, the creation of water buffers and water collection spaces can be designed as sports areas that benefit a wide range of groups of different ages and genders. Furthermore, interventions that increase greenery and vegetation in the city will not only help alleviate heat stress, offering refreshing spaces where people can find shelter during extreme hot days, but it can also enhance biodiversity in the city. Creating a diverse type of spaces that allow for water infiltration, vegetated areas that combine humid and dry spaces, shady and sunny areas, creating a rich environment for a more diverse flora and fauna will benefit urban communities, increasing their health and well-being while building their adaptive capacity.

Local citizens will be engaged in the design and construction of the proposed public spaces as a way to educate them in low-tech tactics to manage floods. It is hoped that by learning simple tactics to design open spaces so to be flood resistant and flood smart, citizens will be able to

progressively improve the local urban landscape. Being engaged in the construction of the public spaces will enable participants to transfer into their broader community their learnings and to contribute to make their community more flood prepared through disperse, day-to-day interventions.

Participatory approaches, including community consultations will support community ownership of the project process and of the created spaces. A holistic approach to build climate resilience by making use of a range of physical urban elements such as water, green spaces, energy, sustainable materials and social dynamic will be employed. Consultative processes will be embedded in the project plan prior to nominating site/s and to ensure proposals are aligned with community and stakeholder priorities. At this stage, consultation has commenced with the local government of Samarinda and local stakeholders, who have provided the specific location for the intervention. Broader community consultation will be undertaken in the co-design phase of the program. Local community members will be engaged in providing ideas, sharing suggestions, and actively participate into the design of the space. This will be achieved through a series of workshop and collecting community data through situated installations, as well as public consultation.

Figure 12. Diagrammatic representation of the integrated approach to public space design and climate change adaptation

Figure 13. Urban elements and benefits

WATER SENSITIVE URBAN DESIGN

Water-sensitive urban design integrates the urban water cycle (i.e., stormwater, groundwater, water supply, waste water) into urban design. It sustainably manages water resources, enhances ecosystems and provides recreational opportunities for communities. Examples of water sensitive design options include: stormwater reuse solutions that can be employed for irrigation, vegetated swales (or drainage swale) that are designed to slow, filter and infiltrate water, rainwater harvesting to collect, store and use water for future needs, and rain gardens that provide localized stormwater and flood control.

Stormwater Reuse and Rainwater Harvesting

Vegetated Swales

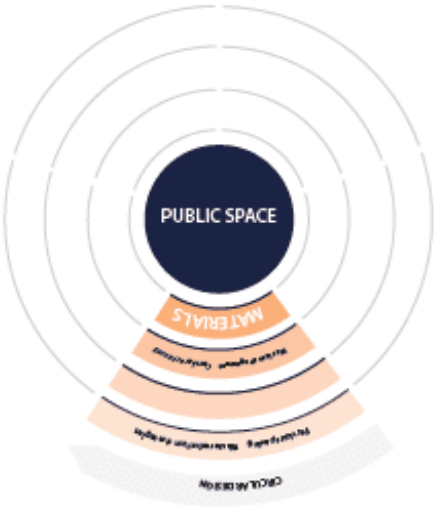
Rain Garden

ENERGY EFFICIENT URBAN DESIGN

Access to reliable and renewable energy sources is essential to support community growth and contrast the effect of climate change. Low tech solutions that produce and distribute energy to communities such as solar panels, whirlpool turbines, and wind turbines are some of the technologies that can be explored to produce electricity locally, in conjunction to batteries and other system to store power.

Energy Production

Material Reuse



CIRCULAR DESIGN

A sustainable approach towards materials for the construction of public space can bring many benefits in terms of waste management. This component will stretch the potential of this approach to identify techniques and tactics to create building materials from waste. Furthermore, choosing adequate materials will help build climate resilience to hazards such as floods. The use of pervious paving materials and green surfaces that allow for water infiltration will contribute to this.

Community-based recycling initiative

Social-network spaces for encounters

Community Safety

Wellbeing

Pervious Paving

Urban Farming

High Performance Vegetation

GENDER RESPONSIVE DESIGN

Sense of community will be enhanced through participatory processes. Communities will be requested to co-create the public spaces and engage in the design, development and construction phases. This will allow communities to have agency on their space and develop a sense of attachment to the new public space proposed. Gender-inclusive approaches will be integrated into the process. Appropriately designed public spaces will enhance social networks through the provision of spaces for encounter, will be designed to be safe and to promote health and well-being by providing a large variety of spaces activities such as sports, leisure, etc.

ECOSYSTEM-BASED URBAN DESIGN

Greenery and vegetation help alleviate heat stress, offering refreshing spaces where people can find shelter during extreme hot days. The use of high-performance vegetation with significant water uptake via transpiration can improve stormwater management. The integration of greenery through diversification strategies will enhance biodiversity. Furthermore, food production, processing and storage can be integrated into the public space through urban farming. This will help achieving food security and self-sustainability for the

communities involved. The aim of the program is also to provide community with common spaces where to process harvest together and store produce for community consumption.

Integration of Vegetation with Overall Design

Technology	Rationale
Vertical Wind Turbine 	Vertical wind turbines are an off-the-shelf component that can be installed in different conditions, such as on freestanding posts or on the top of buildings and structures. Wind turbines are a common technology used to power remote communities and isolated households. These items can be installed in series so to increase the power output. The advantage of wind turbines on top of tall structures is that they can capture a range of wind currents. They can provide power supply in a variety of weather conditions, both at daytime and night-time. They can integrate with solar panels so to provide a reliable power source for a community.
Solar PV Panel 	Solar panels are a reliable and efficient technology to support off-the-grid activities. In recent years, this technology has become cheaper and cheaper integrating power supply to several households. The system, once integrated with batteries, is reliable and can also generate a surplus that can be sold back into the power grid. Many off-the-shelf solutions are available on the international market, from small panels to support temporary shelters, to large scale industrial panels. In the case of the project for Samarinda, we aim to deploy mid-range domestic solar panels.
Water Tank 	Water tanks are economical systems that allow to harvest rainwater and use it for a variety of applications, for example for toilets or for irrigation. It is a sustainable alternative to town water when water is not intended for human consumption. Water tanks are fed by downpipes from buildings, can be installed in batteries and are a reliable solution where or when town water is not available.

2.4. Measuring Impact

In order to evaluate the actual impact of the intervention on the local environment and the local community, a framework based on three intertwined areas will the adopted, these being (1) Adaptation; (2) Innovation; and (3) Education.

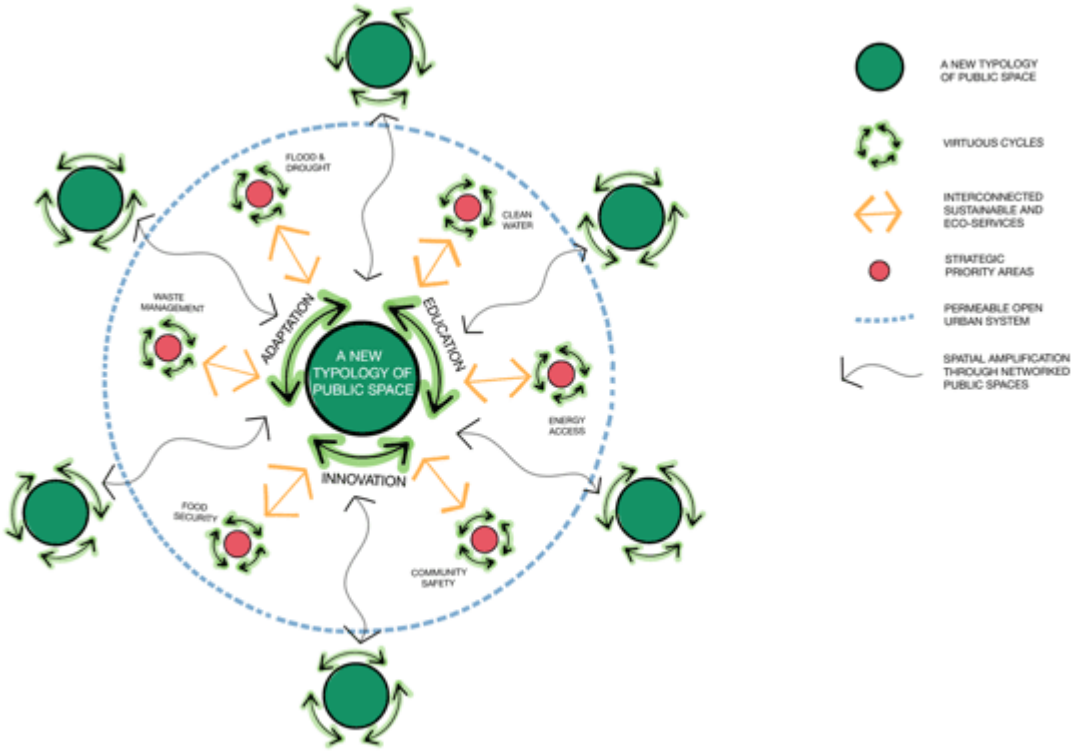


Figure 14 Conceptual diagram for the evaluation framework

In terms of **adaptation**, Flood and Drought are relevant issues for Samarinda; the project aims in the first instance to provide a safe shelter during flood events; it also aims to manage flood water as well as harvest and store rainwater. The integrated system of public places intends to act as a water management system during floods. The proposed public space will be floodable landscapes and include retention basins, so to contain water during floods and reduce the impact on surrounding communities. The proposed public spaces will include storage for sand, to be used to fill sandbags; citizens will be able to freely access this resource in preparation to flood events. Capacity and usage of the space will be one indicator of its performance; the number of people using the space as a refuge during hazardous events will be measured. The 5C-4R measurement framework (or similar freely available tool) will be used to measure flood resilience[60]. During flood events, the performance of the proposed public space will be monitored to assess the effectiveness in retaining stormwater and reducing overland flow. Access to Clean Water will be evaluated through the average quantity of water harvested and used for civic uses is used as an impact of the intervention in this field.

Whilst flood adaptation is the main line of action of this project, the proposed public spaces will be designed so to address also a number of secondary outcomes. The strategic role that ecosystems play is recognized in the literature[61]. While forestation is adopted in rural setting as a strategy for carbon sequestration, within urban environments public spaces can play a fundamental role to reduce CO2 emissions and provide opportunities to sink carbon. Thinking of public spaces as part of an integrated ecological system can provide concrete and measurable indicators for climate adaptation. The biomass of the vegetation integrated in the proposed new typology of public space can provide a quantitative measure of carbon reduction. A first indicator of the impact of the project therefore is the variation in the biomass of vegetation in the areas of intervention. Corollary from this indicator is the measurement of vegetation canopy; the project aims to increase the average shaded area in the location. A longitudinal record of temperature in selected points will also be used to measure the impact on the urban heat island.

60 https://floodresilience.net/frmc

61 Morecroft, M. D., Duffield, S., Harley, M., Pearce-Higgins, J. W., Stevens, N., Watts, O., & Whitaker, J. (2019). Measuring the success of climate change adaptation and mitigation in terrestrial ecosystems. Science, 366(6471), eaaw9256. doi: 10.1126/science.aaw9256

Wind turbines and solar panels are included in the concept design for the new typology of public space; the average power produced by the intervention will address Access to Reliable Energy Sources as well as contribute to reduce CO2 emissions providing a reliable alternative to fossil fuel combustion.

Community resilience will be fostered by engaging community groups and community members in every stage of the project. Impact on Community Vulnerability and Safety will be assessed, measuring daily use of the public space and their engagement in the activities afforded by the structure. Data will be collected through survey tools and "counters" to collect quantitative data on the number of people using the spaces. A longitudinal research study measuring attitudes and beliefs about climate change in the local community will also be implemented through a survey of the general population. Statistical data will also be used to evaluate a longitudinal impact on the citizens' livability (health improvements, energy consumption, infant mortality rates, water-borne disease, and hospital admissions).

Food production is a key component of the new typology of public space. Food will be produced in situ, and facilities such as communal kitchens will also guarantee that the public space can also be used to process food. Markets are also planned as one of the social activity for the pace. The quantity of food produced in situ will be monitored as well as citizens' use of the communal facility for social uses.

The proposed public space will act as a community hub where suitable waste is collected and recycled. The quantity of waste recycled in situ and the potential economic profit from this activity will also be monitored. As is common in several Indonesian Kampong, recycling can form the basis of a flourishing commercial activity where new artefacts are produced recycling and reusing waste.

In terms of **Innovation**, impact in this field is assessed measuring the ability of a system to produce a steady stream of opportunities. The replicability of the solutions adopted in the new typology of public space will be assessed through focus groups with residents and stakeholders. The project will also be proposed for independent scrutiny via academic publications and conference presentations. Community members participating in these construction and development of the new typology will be engaged in devising innovative solutions to achieve climate adaptation through low-tech approaches. Solutions developed during the process will provide participants with know-how that can be applied to start-ups or other medium scale enterprise. The new public space is intended to foster social entrepreneurship, so the economic system generated by the new space will be monitored and measured (number of start-ups, co-working opportunities, commercial activities). The engagement of some disadvantaged stakeholders such as women or those with a disability will also be an important indicator of the impact of the innovation component of the project. The Suanluang 1 community in Bangkok is an example of food markets organized and driven by women; the new public space will afford women agency to grow and cook food as well as to start other small commercial activities, taking advantage of the structure of the space.

In terms of **Education**, the planning, design and construction of the new typology is envisaged as an opportunity to train locals in a number of skills. The focus of the project will be on recycling and reusing materials with a low-tech approach to mimic the performance of the public space at a domestic scale. Participants in the project will learn about water harvesting, water sensitive planting, energy generation, and building techniques that can be transferred to domestic environments. The number of participants to the process will be monitored to assess how learnings from this experience have impacted daily lives and employability. Entry and exit surveys will also ensure measurement of the impact of the learning experience on participants. The new typology of public space is also designed to be a learning space; schools will be monitored and surveyed to assess how they engage with the space in terms of their formal and informal learning.

These are preliminary indicators to monitor the project and assess its impact; more specific indicators will be negotiated also with the local community so that they can be the main actors to manage, monitor and assess how the new typology responds to their needs, and the needs of climate adaptation. The program is intended to operate according to a dual benefit model, using materials and construction methods typical of public space. E.g. soft and hard landscaping and rudimentary shelter structures for ordinary use. Through considered design, these will function effectively during periods of flood, serving to both shield water flow from areas of the site while retaining water in other parts to protect surrounding areas.

In its current development state, the project directly addresses the following Sustainable development goals:

- **SDG3 Good Health and Wellbeing**
  3d: Strengthen the capacity of all countries, in particular developing countries, for early warning, risk reduction and management of national and global health risks
- **SDG5 Gender Equality**
  5.1 End all forms of discrimination against all women and girls everywhere.
  5.5 Ensure women's full and effective participation and equal opportunities for leadership at all levels of decision-making in political, economic, and public life
- **SDG 6 Clean Water and Sanitation**
  6.1 By 2030, achieve universal and equitable access to safe and affordable drinking water for all
  6b: Support and strengthen the participation of local communities in improving water and sanitation management
- **SDG 7 Affordable and Clean Energy**
  7.1 By 2030, ensure universal access to affordable, reliable and modern energy services
  7.2 By 2030, increase substantially the share of renewable energy in the global energy mix
- **SDG 9 Build Resilient Infrastructure**
  9.1 Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructure, to support economic development and human well-being, with a focus on affordable and equitable access for all
- **SDG 11 Sustainable Cities and Communities**
  11.5 By 2030, significantly reduce the number of deaths and the number of people affected and substantially decrease the direct economic losses relative to global gross domestic product caused by disasters, including water-related disasters, with a focus on protecting the poor and people in vulnerable situations
  11.7 By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities
  11.b By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels
- **SDG 13 Climate Action**
  13.1 Strengthen resilience and adaptive capacity to climate- related hazards and natural disasters in all countries
  13.2 Improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning

Technical Summary: Project Objectives	
a)	**The objective of this project is to prepare Indonesian communities to cope with the effect of climate change as well as mitigate the causes of the current environmental crisis.**
b)	**The project is informed by a Positive Development Paradigm of Global Climate Change and Sustainable Development which is including the growing understanding of innovation processes, developed to address technological change, but applicable to social innovation.**
c)	**The creation of public spaces will also foster community connection, enhance, and integrate existing public spaces. The vision is to create a network of public spaces that will support a new ecosystem that will provide benefits to the entire city.**
d)	**The project's impact will be measured according to the following outcomes:** • **Adaptation** • **Innovation** • **Education**

3. PROJECT/PROGRAMMES COMPONENTS AND FINANCING

In Indonesia, informal public space is unconsciously found in many places. From urban to rural areas, people have their terminology to describe communal space. Indonesian Government does not use the phrase "public space" but using terminology green open space, and sometimes we could find this with some thematic theme. Jakarta, use the name of RPTRA *(Ruang Publik Terpadu Ramah Anak)* or Integrated Child-Friendly Public Space and will be changed soon to *Taman Maju Bersama* because political decision more than became city policy to provide a place for the public. Another case is in the City of Bandung. A place that means to provide for people has become a very artificial environment. Many marketing twists provide thematic flavors, such as *Taman Jomblo* (Park for Single) and several other similar instances.

All of this triggers questions and challenges us to re-define public space. Can a new typology of public space enhance our places and communities? Space for the public often does not have any real meaning, resulting in empty public spaces, unsafe, underused, and overall, not felt like the community's hearth. Public spaces are often the product of bureaucracy and the compromise between private interests and public needs. Commercialization of public spaces and competition for urban spaces are complex fights and tensions in contemporary cities. In addition to these a risk-averse culture, the overall result is that "public space" became an expensive endeavor. It is not uncommon for a project to budget more than USD 20.000 to make feasibility studies, often neglecting people's participation and community engagement. This project also aims to use this new typology of public space as an example of a process to integrate the participatory process for future development in a flexible, innovative, and democratic way.

Lesson Learned from Surabaya:

"Cak Markeso" Cultural Centre in Kampong Ketandan, Surabaya, was inaugurated by the Mayor of Surabaya, Wednesday, 07/27/2016. This cultural center, which represents the public space for connecting people, was inaugurated with several delegates of The Third Session Preparatory Committee (Prepcom) 3 for Habitat III. The "Cak Markeso" Cultural Centre in the form of a Joglo (traditional Javanese structure) is located in the middle of the settlement. It becomes a venue for discussion about all things related to the environment in which it lives. Its construction results from cooperation between the United Cities Local Government of Asia Pacific (UCLG ASPAC), UN-Habitat, and the Surabaya City Government.

This development is an important thing for the Surabaya City Government in realizing Surabaya's development into a sustainable developing city. For Surabaya, public space is not just a green open space, but also it can be the form of buildings that people can gather and strengthen social interaction. With this public space's existence, the community's enthusiasm is maintained and still supports each other to improve the kampong.

Kampong Ketandan is one of the old kampongs at Surabaya. Modern buildings surround their location. In the heart of Surabaya City, this kampong lives for 24 hours because its citizens actively interact. Unlike the shopping area close at 10:00 p.m., the people guarded the city for 24 hours when the shops were closed. Therefore, it is crucial to maintain the Kampong Ketandan.

Component 1: this component focuses on the development of a new typology of public space. Current best practice case studies, literature, policies, technologies and tactics will be reviewed evaluating their feasibility for the Indonesian context, their accessibility, cost-effectiveness, and their overall potential impact in mitigating climate change hazards and causes. This component will be formalized with a series of guidelines, tactics, solutions and spatial relationships that will be then applied in the different communities involved in the program. The new typology of public space will be defined through review and evaluation of:

a. water sensitive urban design tactics
b. water treatment processes using natural landscape
c. rainwater harvesting, treatment and storage solutions
d. urban agriculture and edible landscape options
e. community based processes for food production, processing and storage
f. waste reduction strategies
g. recycling programs
h. production of building materials through waste recycling
i. off-grid solutions for energy production and storage
j. synergies and processes to support community resilience and economic viability
k. local social and cultural practices
l. community dynamics, needs and aspirations

Component 2: This component is organized in two different phases. Phase 1 will engage communities in Samarinda city to apply the findings of component 1 to the actual co-design of public spaces and the creation of an integrated system of public spaces. This will be achieved with an inclusive participatory design approach structured through a series of workshops and interactive debates. A first workshop will be delivered with selected stakeholders to profile the local communities, their character, and the best way to engage them. Strategic locations for the interventions will be discussed and negotiated with the local government; with the aim to identify key sites that could establish an integrated network, enhance existing public and green spaces, outreach and benefit different communities. Once the sites of the specific interventions are defined, the specific local communities will be consulted and invited to provide their input through formal and informal methods, such as surveys or idea walls. A second workshop will then be delivered to analyze data from the community engagement phase and gather a better understanding of the priorities, needs, and desires of the local communities; during this second workshops, participants will be also involved in designing a public space to respond to global

challenges as well as local issues. Phase 2 will progress the capacity building exercise and, after the construction of the project, deal with the maintenance of the new public space as well as its community activation, through the establishment of ongoing community groups, community initiatives, and projects to maintain the new areas.

Component 2 will build on the findings from Component 1 and results from co-design phase. Component 2 is the co-development and construction of actual public spaces in the selected communities. The construction site will engage professional builders who will share their knowledge with community members, so to use the construction also as an opportunity for skills development for community members. Inter-generational learning will also be promoted, with the participation of women, youth and the elderly. Component 2 will use 15% - 20% of the construction budget to be allocated for implementing technology such as wind turbine and solar pv panel.

Component 3: This component will develop training for community groups and government officials to divulgate finding of the project as well as publicize the methodology of intervention, its benefits, and capabilities. The training will rely on soft resources, such as videos or rich-media contents, hard resources, for example booklets, and face-to-face training.

Component 4: This component will regard the monitoring of the long-term sustainability of the project and the assessment of its impact on the local communities. Data will be collected before the commencement of the project, after completion of the intervention and two years after the completion of the intervention. Data collection will be collected addressing a number of quantitative and qualitative indicators[62] to monitor the actual impact of the new integrated system of public spaces on the relevant communities.

The Budget of the Project as seen below (see table 9):

Table 9 The Budget of the Project

Project/Programme Components		Expected Concrete Outputs	Expected Outcomes	Amount (US$)
1	Research and Development on city-wide adaptation to climate change through public spaces	1.1.1. Research conducted on climate-resilient public spaces, including best practices and lessons learned within the Asia-Pacific Region, and South-East cities in particular 1.1.2. Assessment tool and methodology for the evaluation of climate-resilient public spaces developed 1.1.3. Public space guidelines, incorporating new typologies that can be used as a best practice for replication	1.1. Increased urban resilience through the development of a new public space typology and guidelines that can inform planning processes at the city-level	**109,026**
2	Awareness raising and local resilience strengthening through the design	2.1.1. Community profiling developed for targeted locations in the City of Samarinda	2.1. Increased awareness and ownership of design processes	**459,682**

[62] Pancholi, Surabhi, Yigitcanlar, Tan, & Guaralda, Mirko (2018) Attributes of successful place-making in knowledge and innovation spaces: Evidence from Brisbane's Diamantina knowledge precinct. Journal of Urban Design.

	and implementation of a new public space typology	2.1.2. Targeted communities are engaged in design processes through a participatory approach (e.g. workshops, interactive debates, etc.), focused on climate-resilient public spaces 2.2.1. Climate-resilient public space is co-developed and built in the selected communities (across the four cities) based on previous findings 2.2.2. Community groups are established, based on existing governance structures (if present), to ensure adequate maintenance of the public spaces	2.2. Community-based infrastructure developed resulting in a strengthened adaptive capacity	
3	Capacity building, knowledge management and communication	Training for community groups to divulgate findings of the project and methodology of the intervention Training for government officials in key sectors (e.g. planning departments) on project findings, methodologies and approaches applied for replication Lessons learned and best practices on climate-resilient public spaces and community adaptive capacity building are captured and disseminated for regional replication	3.1. Increased capacity at the city- and community-levels on climate-resilient strategies and design options for public spaces 3.2. Knowledge sharing and increased awareness on project results among targeted audience (communities, governmental bodies, general public)	**81,000**
4	Monitoring and evaluation	Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the interventions	4.1 Increased understanding and awareness of the impact of the intervention 4.2 High-level internal meeting with Samarinda Government Municipalities	**38,288**
	Total Project Execution Cost (PEC) and M & E Cost			**72,221**
	Project/Programme Cycle Management Fee charged by the Implementing Entity			**64,618**
	Amount of Financing Requested			**824,835**

Table 10 Project Timeline

Milestone	Expected Dates	Expected Duration
Component 1: • Development of theoretical model for the new typology of public space	2021	4 months
Component 2: • Context analysis • Community engagement • Intervention design space activation and management	2021	1 month 2 months 3 months
Component 3: • Intervention construction • Training and findings divulgation	2021 2022	9 months 3 months
Component 4: • Monitoring of the impact of the interventions and their sustainability	2021 2022 2023	1 month 1 month 1 month

PART II: PROJECT/PROGRAMME JUSTIFICATION

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.

A. Project Components

This program adopts an action research participatory methodology; it alternates phases of actions to phases of evaluation and reflection. It is articulated in an initial research phase and in then coordinated projects to design, develop, build, and manage public spaces in a pilot city. The theoretical background of the project is grounded in the Positive Development paradigm[63] and on a systemic approach[64] The hypothesis of the Positive Development paradigm is that today we have enough knowledge and know-how to build buildings and structures that not only minimize the impact on the environment, but also could produce positive gain for local ecosystems. In the Positive Development paradigm, buildings incorporate different technical devices to treat water, clean air, produce food and broadly support an ecosystem. The systemic approach aims to consider the city as an integrated ecosystem, where interventions in a specific site can generate positive benefits for the entire system, through the creation of ecological and social corridors, networks of infrastructures and services.

This approach has already been implemented in the design of some public spaces and ecological corridors, where passive approaches, such as use of vegetation, have been successfully applied to manage rainwater, retain pollutants and contribute to stream and creek overall health[65]. Building on recent experiences of urban farming[66], this program aims to develop a new typology of public space that will provide a positive impact on community resilience, environment sustainability and economic development.

Public spaces have been recognized in the New Urban Agenda as strategic contexts where to address several of the recurrent issues of contemporary cities, including social and environmental issues. Public space requires communities to work together and an integrated approach to negotiate different aspects of public life. Expanding this concept, it is recognized that public spaces today can be rethought in a way to accommodate more soft landscapes, not for beautification effects, but for environmental protection[67]. The positive impact of urban greenery on environment is extensively discussed in literature[68]. In addition to environmental gains, greenery has been recognized having a positive effect also on mental health and community activities[69]. The incorporation of traditional wisdom in the design of public spaces, plants selections, color schemes, and material applications, can also contribute to strengthen a community sense of identity providing a contemporary interpretation to ancient knowledge.

The application of western paradigms to the design of contemporary cities has often produced an urban form characterized by segregation of function and subdivision of activities. In many contemporary cities we can record a strong contraposition between parks for recreation and hard landscapes for civic activities. Zooning and modernist design have broken traditional pattern of

63 Birkeland, J. (2008). Positive development : from vicious circles to virtuous cycles through built environment design. London: Earthscan.
64 Maser, C. (2012). Decision-making for a sustainable environment: a systemic approach. Boca Raton: Taylor & Francis.
65 Lawson, G. M., & Wang, P. (2009). Water sensitive urban design : landscape planning and design to improve water quality in Shijiazhaung and Yueyang.
66 Sekiyama, M., Terada, T., & Yokohari, M. (2017). Post-Disaster Food and Nutrition from Urban Agriculture: A Self-Sufficiency Analysis of Nerima Ward, Tokyo. International Journal of Environmental Research and Public Health, 14(7), 748. doi:10.3390/ijerph14070748
67 Kowalik, M., & Guaralda, M. (2011). Mapping resilience : A framework for changing cities: AST Management Pty Ltd.
68 Climate change adaptation in practice : from strategy development to implementation. (2013). Chichester, West Sussex, UK: John Wiley & Sons Inc.
69 Holt-Damant, K., Guaralda, M., Taylor Gomez, M., & Nicollet, C. (2013). Urban jungle: making cities healthy places for Australians with neurodiversity: AST Management Pty Ltd.

public spaces and imposed a car-based approach that has profoundly impacted lifestyle, resilience, and sustainability[70].

Components of the Program

More than dispersing in the urban fabric different functions and activities, this program will develop a new typology of public space to support communities 'positive development. In addition to social and cultural values, the new typology will provide an active strategy to cope with climate change. The proposed public spaces will also act as activity hubs and provide communities with a safe place during extreme weather events. Public spaces, being at the center of community life, should be designed as safe shelter in the case of extreme weather events, provide conditions to face natural hazards in a self-sufficient way, protecting the community and its main assets. The establishment of an integrated system of public spaces, will allow the creation of ecological corridors to improve biodiversity and environmental resilience. The systems will be enhanced by the new public spaces and completed by their strategic role within the broader urban ecology.

The implementation of the new typology of public space is also promoted as an opportunity to educate communities in more strategic approaches to urban development. Learning building techniques, environmentally sustainable and advanced tactics, and a sensitivity to ecological systems, can inform communities to transform their environments and promote better ways to self-construct dwellings and community facilities. Public space is promoted as a space for the community where to exchange, learn and interact for the common good.

Component 1
The first component of the program will be the theoretical development of this new typology, the parameters, characteristics and specification of this new type of space will be based on an analysis and review of case studies, researches, technologies, tactics, and solutions that have been or are suggested as potentially strategic to support *Positive Development*. The innovative component of this program sits in the potential of the new typology to be applied to different contexts and be implemented in other cities at least in the Asia-Pacific region.

Public spaces are at the center of communities. Indonesia today is experiencing a change of meaning in traditional public spaces and a general undersupply of community spaces. Top-down developments often focus on specific infrastructures, like sport facilities and playgrounds, and generally lack informal public spaces that can be appropriated by communities. Bottom-up projects often limit to retrofit existing spaces and beautify available spaces, which often do not have the characteristics to host proper community activity and needs.

The first phase of the program will analyze and evaluate the broader Indonesian context and formulate a new type in the form of a series of design guidelines, implementation processes, and spatial layouts to provide communities with a social communal space, as well as an integrated system to equip citizens to cope with climate change and environmental hazards.

From the environmental point of view, the new typology will have to deal with:

- Water management and harvesting. Access to clean drinkable water, stormwater management, sewerage organization, water storage and utilization are all emergent issues in a society experiencing more and more extreme weather events. Current solutions, tactics and technologies will be gathered and evaluated so to develop a model that would afford communities with an infrastructure to provide them with clean water; minimize pollutants released in the environment, harvest water for domestic and agricultural uses. In selecting technologies and tactics, preference will be given to passive technologies, to solutions relaying on integrated environments, were plants can be used in the management of natural resources. Several case studies developed in Europe and North America have successfully

[70] Guaralda, M. (2014). Form-based planning and liveable urban environments. Urban Morphology, 18(2), 157-162.

demonstrated how plants and planting can be used to manage urban water system, urban pollutants, and mitigate effect of climate change. This program will evaluate the principles of these case studies and develop a series of guidelines suitable for the Indonesian context, in terms of plants selections as well as cultural relevance of the solutions proposed.

This component of the program will provide a positive impact on the community resilience providing access to drinkable water. It will also provide a positive impact on the broader environment reducing the release of pollutants in streams and creeks. The use of vegetation will mitigate urban heat island and contribute to the local microclimate[71].

- Energy production. It is recognized how access to reliable and renewable energy sources is essential to support community growth and contrast the effect of climate change. This program will evaluate low tech solutions to produce and distribute energy to communities, potentially providing also communities with a source of income selling energy surplus to other areas. Solar panels, whirlpool turbines, and wind turbines are some of the technologies that will be explored to produce electricity locally, in conjunction to batteries and other system to store power.

  This component of the program will reduce communities' reliance on fossil fuels and reduce carbon emission in the environment. From the social point of view, it will provide communities with a reliable and cheap source of energy to support their viability and growth[72].

- Food production, processing and storage. The strategic use of vegetation to manage water systems will also be extended to cover food production. Several communities in Indonesia are already pursuing with success urban agriculture on a small scale. This component of the program aims to achieve food security and self-sustainability for the communities involved. Different technologies and solutions will be reviewed, such us community gardens, hydroponics, green walls and green roofs. The aim of the program is also to provide community with common spaces where to process harvest together and store produce for community consumption.

  This component of the program will address not only food security, will also address climate change in terms of mitigation of urban heat island. The extensive use of vegetation in the proposed new typology will allow to store carbon and reduce heat reflected by hard surfaces. Food production and processing will also allow to enhance spirit of community, preserve communities' traditional practice and provide a stream for local commercial growth[73].

- Waste management. Indonesia is successfully adopting the model Reduce-Reuse-Recycle. This component of the program will stretch the potential of this approach to identify techniques and tactics to create building materials from waste. Some projects have already successfully recycled paper and plastic for the production of bricks, then used in the construction of small buildings. This tactic will be evaluated in the context of the Indonesian society and the process commenced with the construction of the new propose public space, which is envisioned as built with mainly recycled materials[74].

  This component of the program addressed climate change in terms of reduction of pollutants in current ecosystems, encouraging reuse and recycle will also limit emissions and provide communities with a potential source of income linked to the production of building materials.

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71 Lee, S., & Yigitcanlar, T. (2010). Sustainable urban stormwater management: water sensitive urban design perceptions, drivers and barriers.

72 Sustainable future for human security: environment and resources. (2018). Gateway East, Singapore: Springer.

73 Suparwoko, B., &Taufani, B. (2017). Urban Farming Construction Model on the Vertical Building Envelope to Support the Green Buildings Development in Sleman, Indonesia. Procedia Engineering, 171, 258-264. doi:10.1016/j.proeng.2017.01.333

74 Municipal solid waste management in Asia and the Pacific Islands : challenges and strategic solutions. (2013). New York: Springer.

- Economic viability. The first phase of the program will identify synergies and tactics to support community growth and development. A first set of activities will be linked to the construction of the new public space. Community members will be involved in the actual construction so to learn new techniques and new skills that they can then use in their future life. A pillar of the project is the empowerment of the community, so skills development through the entire process will be fundaments. Participants will learn how to process waste to produce building materials, how to build structures, how to deal with urban food production and processing. A variety of skills will be offered to the community. This would allow participants options about their future life and the community different sources of income.

  This component of the program will address climate change through education and training. Participants will learn a set of skills aimed to achieve a sustainable positive development. Empowering communities with different kinds of knowledge will also allow them a better agency on their lifestyle and future development. Today many communities in Indonesia are focusing on tourism as the predominant source of income, this is anyway not realistic or viable, and so it is strategic that one of the outcomes of the project is providing communities with alternative options and economic models[75].

- Community resilience. Sense of community will be enhanced through the participatory process of the program. Communities will be requested to provide their input in the design, development and construction of the new public spaces. In the development of Phase 01 guidelines and models, community members will also be consulted so to include provision for cultural symbols and meanings, social practices and communities' aspirations.

  This component of the program stretches from phase 01 to phase 02. In phase 01, communities will be consulted to finalize the model of new public space, incorporating their aspirations, social practices and cultural values. In the second phase of the project, co-creation will allow communities to have agency on their space and develop a sense of attachment to the new public space proposed[76].

The first component will include activities UNTAG and QUT joint activities, as well as some specific components developed by QUT:

- High level kick-off round table for Urban Climate Adaptation | this seminar aims to launch the program and discuss adaptation to climate change with local stakeholders, experts, and politicians. This activity will be organized by UNTAG with QUT staff attending the event.
- Two Workshops with experts to inform the design phase of the project and gather data on best practice. This activity will be organized by UNTAG with QUT staff attending the event.
- Tool and Method Development | this activity includes desktop research, literature review, contextual review, review of relevant technologies, Research and Development (R & D), prototyping, and preliminary design of components to include in the design of the pilot public space. This activity will be developed by QUT with input from UNTAG.
- Methodology development | this activity covers the development of a methodology integrating mobile technologies and situated installation for community engagement (InstaBooth) to involve local communities in the design and construction of the new public space. The InstaBooth[77] is an approach to community engagement developed at QUT since 2012 and applied in a number of different contexts in Australia, USA,

[75] McFarlane, C., & Desai, R. (2015). Sites of entitlement: claim, negotiation and struggle in Mumbai. Environment & Urbanization, 27(2), 441-454. doi:10.1177/0956247815583635

[76] Wikantiyoso, R., and Suhartono, T. (2018). The role of CSR in the revitalization of urban open space for better sustainable urban development. International Review for Spatial Planning and Sustainable Development, 6(4), 5-20. doi:10.14246/irspsd.6.4_5

[77] Guaralda, M., Mayere, S., Caldwell, G., Donovan, J., & Rittenbruch, M. (2019) The InstaBooth: an interactive methodology for community involvement and place-making. Journal of Place Management and Development, 12(2), pp. 209-226.

China, Malaysia, and South America. This approach allows community members to engage in an asynchronous debate about emerging topics, provide feedback, share ideas, and develop original contents to inform planning, design and policy developments. This methodology has been successfully applied to a number of projects commissioned by the Queensland Government, community groups, as well as leading industry partners. The instaBooth is a mobile installation that allows participants to engage with a number of different components, to suit interests and attitudes of different community members. The InstaBooth is a key component in data collection and idea generation for the co-creation phase of the project. Prior to each project, the InstasBooth is customized and partially redesigned to suit the needs of the specific community. This activity will be developed by QUT with input from UNTAG.

Figure 15. InstaBooth deployment for Community Engagement projects at Pomona, Brisbane Central Station, RBWH

Component 2

As mentioned under sub-section Focus of the proposal, the second component of the program is organized in two stages and is based in Samarinda City. Locations of the specific locations for the intervention, one (1) new public space, is being discussed and negotiated with local government, stakeholders and communities.

Selected communities within Samarinda City will be identified to pilot the new typology of public space. The pilot will be structured as a co-creation process:

- The community will be engaged in mapping their neighborhood. Opportunities, challenges, conflicts, and possibilities will be recorded, through workshops and deployment of the InstaBooth;
- Public workshops will run to discuss ideas, locations and aspirations of the community. The guidelines developed in phase 01 will be discussed and scenarios for their implementation negotiated with the different stakeholders;
- The project for the physical new public space will be developed with the community support by a local professional who will ensure compliance to local legislation as well as provide creative input in the process;
- The community will be then engaged in the actual development of the project. In some cases, this case, the land acquisition and location will be necessary as well as changes in the urban form provided by the City Government of the neighborhood Samarinda based on the recommendation and assessment so that the project will have to be negotiated in line with the city development plan and strategy[78]. The new

[78] The City Government of Samarinda will give full support and granted access to government data relevant to this project and will be actively involved in the project development and implementation. Note of Meeting with Mayor of Samarinda H.E. Mr. Syaharie Ja'ang attended by Head

public space is meant to be a generator for the new physicality of the space as well as its identity, so as part of the development of the public space, plans for the future development of the neighborhood will be negotiated;

- The physical construction of the space will be done engaging professionals as well as members of the community. This approach is to ensure that community members can learn a set of skills during the process and aspire to future professional opportunities;
- Once the project has been completed, the community will take charge of running and managing the public space. Apart from events and festivals, stress will be put on everyday activities to make the space dynamic, livable and sustainable.

The second phase of the second component will take place during and after construction of the infrastructure. It aims to engage community members in the construction, activation and management of the new public space through a series of workshops and pop-up events.

The continuous engagement of community in each phase of the process will ensure a sense of ownership for the new public space. The importance of engaging the community in developing everyday activity in this new space will be strategic for the success of the program. The new typology of public space will have to be a space where to gather, work, play, and learn in a community setting. Participation methods are chosen because, in these phases, the community can involve in the planning and development process that is essential to the project implementation. This activity will trigger strong relationships with space and place.

This component will be coordinated by UNTAG; QUT will provide material, data and support to be used in the workshops. QUT personnel will also aid UNTAG staff in running the co-creation workshops.

The second component of the project is the actual construction of the infrastructure. The construction of the new public space will involve a survey of the current urban form and its potential reorganization. The local communities will be engaged in a discussion about their future social, environmental, physical, and economic outlook. The proposed process might involve land acquisition, relocation of some activities, new constructions and demolitions of existing buildings. Where necessary, the community will work together in building new dwellings, infrastructures and resources to benefit the entire community. Surpassing the fragmented and individualistic approach of traditional western zooning, the program suggests a community approach to the development of neighborhoods. With the aid of experts, communities will implement guidelines and tactics developed as a new typology of public space to gain control and agency on their own environment. Regaining the traditional approach to urban development as a coordination and collaboration between citizens and communities, this program will promote in the medium-long term changes to urban form to achieve a city that could better respond to the current challenges of climate change.

This component will be coordinated by UNTAG; QUT personnel will also aid UNTAG staff in running this component.

Component 3

The third component of the program will deal with divulgation of the experience and learnings. Training will be organized for designers, government officials and community leaders, so to create awareness about the new typology of public space proposed; its principles, its applicability to different contexts. In parallel, publications and event will be organized to publicize the program, its findings and educate the broader community.

of Environment Agency, Head of Communication and Informatics Agency, Head of Planning and Development Agency at Jakarta, January 23, 2020.

Sharing and divulgating the findings of the program and its achievement will allow other communities to gain agency on their urban form, to gain an awareness of the potential of public space in terms of building positive, sustainable, resilient communities and structure urban form in a more sustainable and responsive way.

UNTAG will lead this component with QUT input in the development of training and resources for government officials. QUT will lead the development of academic papers to publicize the project and its outcomes.

Component 4

The fourth component of the program will deal with the assessment and monitoring of the interventions. In order to evaluate the impact and effectiveness of the new public spaces developed as well as of the system of public spaces that they will generate, qualitative and quantitative data will be collected before the construction of the new public spaces; at completion of the construction, two year after completion of the construction. The method to collect data and assess the impact of the interventions will be based on the following place quality framework[79,80,81].

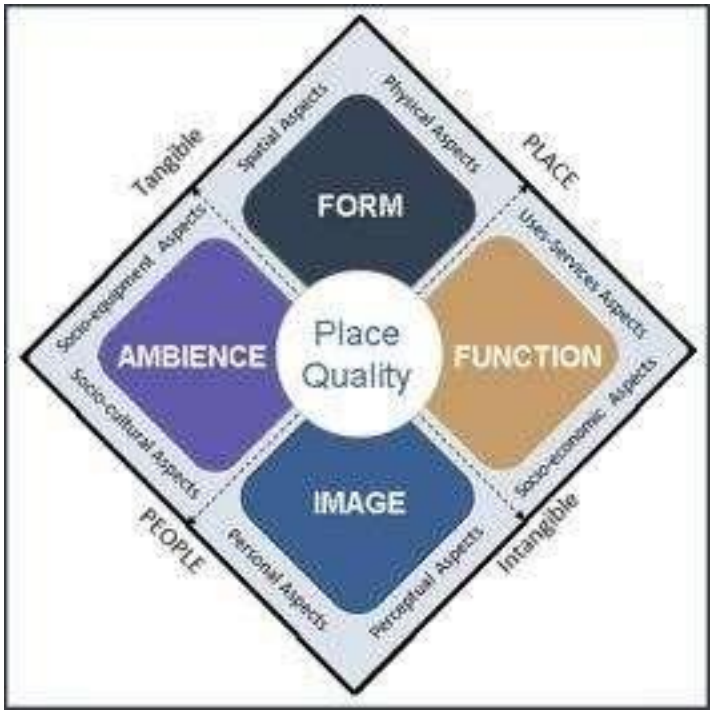


Figure 16. Place Quality Framework, based on Pancholi, Yigitcanlar, Guaralda (2018)

This framework considers tangible and intangible characteristics of place and it is articulated in a number of specific sub-indicators to specifically assess performance of public spaces in terms of their contribution to the overall urban form, economic sustainability, social dynamics, as well as experiential and cultural components. This framework will be used to monitor the impact of the intervention collecting statistical data, economic indicators, and assessing the performance of the public spaces in terms of community usage and perception, through surveys and site observations.

79 Yigitcanlar, Tan, Guaralda, Mirko, Taboada, Manuela B., & Pancholi, Surabhi (2018) Place making for knowledge generation and innovation: Planning and branding Brisbane's knowledge community precincts. In Yigitcanlar, Tan &Bulu, Melih (Eds.) Urban Knowledge and Innovation Spaces Insights, Inspirations and Inclinations from Global Practices. Routledge (Taylor &Fancis), New York, pp. 115-147.

80 Esmaeilpoorarabi, Niusha, Yigitcanlar, Tan, Guaralda, Mirko, & Kamruzzaman, Md. (2018) Does place quality matter for innovation districts? Determining the essential place characteristics from Brisbane's knowledge precincts. Land Use Policy, 79, pp. 734-747.

81 Pancholi, Surabhi, Yigitcanlar, Tan, & Guaralda, Mirko (2018) Attributes of successful placemaking in knowledge and innovation spaces: Evidence from Brisbane's Diamantina knowledge precinct. Journal of Urban Design.

This component will be supervised by UNTAG, while QUT will lead publications to publicize the project and its findings.

In summary, this project aims to address specific climate change dynamics typical of Indonesia and relevant also for other geographical areas with similar challenges. The proposed new typology of public space, developed so to generate an integrated system of public spaces and will contribute to prepare Indonesian people to face the hazards of climate change through different tactics, strategies, and processes.

Table 11. Summary of Mitigation Action in regard to main climate change hazards

Climate Change Impact	Adaptation Action
Flood or drought	Water sensitive urban design
Access to clean water	Rainwater harvesting and treatment
Access to reliable energy sources	Renewable energy production and distribution
Community vulnerability and safety	Community based interventions
Food security	Urban Farming
Waste contamination	Waste treatment and recycling

B. Economic, Social and Environmental Benefits

Describe how the project/programme provides 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.

The project will bring various economic, social, and environmental benefits to all stakeholders. **The most dominant (economic, social and environmental) impacts of the gains are the citizens of Samarinda that are currently impacted by the climate change.**

Building upon the concept of *Positive Development* paradigm[82], the project aims to create an innovative public space that could support resilience building in pilot area within Samarinda City, by reducing community's vulnerability to flood and the subsequent flood risks. The positive development paradigm promotes building solutions and techniques that improve the quality of the environment, harvest resources sustainably and positive externalities to the ecological landscape in the vicinity. All with the main intention to improve the overall net performance of systems in different fields. This perspective manifested in the project as a climate-resilient public space structure with mix-use functions to complement its primary role as flood shelter.

Features of the structure are developed based on 5 key elements that need to be provided by the public space, which are water, energy, materials, social and green. Using community resilience and flood management as the umbrella, these elements are then translated into physical features that include a detention pond and rainwater harvesting (RWH) to control surface runoff and to provide alternative non-potable water resource, urban farming as micro-scale food production, a waste management facility that promotes recycling to reduce illegal waste disposal, solar panel as an alternative off-grid power source, green infrastructure for microclimate control, a market space area to boost economic condition, and the most prominent feature will be community hub space that would enable social interaction while also serve the function as a shelter area.

Aside from their regular function to provide additional basic service supply for day-to-day public space operations; RWH, solar panels and urban farming will also allow the public space to be

[82] Birkeland, J. (2008). Positive development: from vicious circles to virtuous cycles through built environment design. London: Earthscan.

self-sufficient in the event there are disruptions to basic service provision from the local government. For instance, during a disaster emergency situation where water and electricity service is disrupted, communities that take shelter in the public space could still be served with off-grid clean water, food stocks and electricity. Hence combining on-grid and off-grid basic service networks within the public space would help in reducing the community's vulnerability to different kinds of hazards (not exclusively flood).

As a public space that targets the surrounding community as the main users as well as benefactors, it is important to create socially inclusive, culturally appropriate, and vibrant spaces that could positively impact the environment. Not just the physical environment, but also the social environment. This social context will be taken into account from the start of the project during the planning phase by employing a participatory planning process. The participatory process will also ensure that the structure is designed to incorporate features that respond to the community's needs and is user-friendly. To complement this participatory process, trainings will be done to equip community members with adequate skills to operate and maintain the public space and its features. This will be part of the project's sustainability assurance. And more importantly, trainings will be also conducted on emergency preparedness and evacuation systems related to the shelter, including how to operate the shelter during an emergency situation and who will be the primary actors at that time.

All project activities have also been analyzed for the significance of potential impacts that may occur due to project interventions. The results of the analysis are then developed into a strategy for managing the project intervention known as the Environmental Social Management Plan (ESMP), which is a management preventive step in the process of incorporating the program into a region.

Programs under this project have followed the national and international law which is a prerequisite for the assessment of "Environmental and Social Impact Risk Principles 1. Compliance with Law". At the national level, the project integrates with several law and regulation listed below:

a. Law Number 21/1999 on Ratification of ILO Convention No. 111 on Discrimination in Employment and Occupation
b. Law Number 13/2003 on Manpower
c. Law Number 12/2005 on Ratification of International Covenant on Civil and Political Rights into Law Number 12/2005
d. Law Number 11/2005 on Ratification of The International Covenant on Economic, Social, and Cultural Rights
e. Law No. 32 Year 2009 on Environmental Protection and Management
f. Government Regulation No. 41 year 1999 on Air Pollution Control.
g. Government Regulation No. 82 year 2001 on Water Quality Management and Water Pollution Control.
h. Government Regulation Number 27/2012 on Environmental Permit and Environmental Impact Assessment
i. Ministry of Public Works Regulation No. 10 Year 2008 on Types of Activities under Public Works Sector that Require UKL/UPL
j. Head of BNPB's Regulation No 13 Year 2010 on Search, Rescue and Evacuation Guidance
k. Ministry of Environment Regulation No. 16 Year 2012 on Guidance to Develop Environmental Document (AMDAL, UKL-UPL and SPPL)
l. Ministry of Environment Regulation No. 8 Year 2013 on Procedure for Assessment and Checking of Environmental Document, as well as Environmental Permit Issuance
m. Ministry of Environment and Forestry Regulation No. 33 Year 2016 on Guidance for the Development of Climate Change Adaptation Action
n. Ministry of Environment and Forestry Regulation No. 25 Year 2018 on Guidelines for determining Types of Business Plan and/or Activities that Require Environmental

Management and Monitoring Plan (UKL/UPL), and Statement Letter on Ability to Conduct Environmental Management (SPPL)

o. Ministry of Environment and Forestry Regulation No. 38 Year 2019 on Types of Business Plan and/or Activities that Require Environental Impact Assessment (AMDAL)
p. Ministry of Environmental Decree No. Kep-48/Menlh/11/1996 on Noise Level Standard.
q. Indonesia National Standard on Design Procedure for Septic Tank with Infiltration System and Latrine
r. Technical Guidance on TPS 3R (3R Waste Management Site) by the Ministry of Public Works and Public Housing

The applicable Local Regulations to the project are as follow:

a. Local Regulation of Samarinda City Number 4/2014 on Employment Arrangement
b. Samarinda City Mayor Regulation Number 32/2013 on General Guidance on Environmental Management and Monitoring Plan (UKL/UPL), and Statement Letter on Ability to Conduct Environmental Management (SPPL)

Regarding other principles, screening process was undertaken at the initial stage of ESMS formulation to identify Adaptation Fund's ESP Principles that potentially apply to the project's sub-activities. As per Adaptation Fund's ESP Guidance, there are three ESPs that always apply to the project, which are: 1) ESP 1 – Compliance with Law, 2) ESP 4 – Human Rights, and 3) ESP 6 – Core Labour Rights. While the other ESPs will be screened to determine its relevance to the proposed project.

The screening is done at the sub-activity level instead of project component and project activity for the screening process in order to provide more clarity and detail on how the project could impact the surrounding environment as oppose to using project component that potentially generic. This clarity on impact then would help in formulating a more appropriate and effective mitigation plan.

Identification was done to pinpoint which environmental components tied to the screened ESP that potentially affected by the project's sub-activity. This impact of sub-activity to the environmental components do not always have negative or severe impacts, but it can also be a positive impact. The screening and identification result is presented at the Annex D.

Screening and identification show that there are 4 out of 15 ESP Principles that do not apply to project implementation. The four ESP Principles and justification for their exclusion are elaborated below.

- *ESP 7- Indigenous People*
  The proposed project site is located in urban area of Samarinda City, and no indigenous or tribal community can be identified as part of the stakeholders and targeted beneficiaries. Residing in an urban area of a capital city, the targeted beneficiaries also considered as has a well-established social norm. Accordingly, this ESP is not applicable for the project. Yet this principle will continue to be monitored throughout the project period.
- *ESP 8 – Involuntary Resettlement*
  Discussion had been done with the Samarinda City Government, and it had been agreed that the project will be designed so that will not lead to involuntary resettlement. Prior to project planning, the city government had conducted land clearing for slum area nearby the proposed site. This land clearing program is part of official government program, and not being driven by the proposed project. Therefore, this ESP is not applicable for the project.
- *ESP 10 – Conservation of Biological Diversity*

The proposed public space is located in an urban area with very limited biological diversity. Therefore, this ESP is not applicable.

- *ESP 14 – Physical and Cultural Heritage*
  The proposed project site is located in urban area of Samarinda City, and no physical and cultural heritage identified at the proposed area. Accordingly, this ESP is not applicable for the project. Yet chance find procedure will be applied throughout the project period

Identification also shows that there are sub-activities that considered as do not pose an impact to the ESP, which are:

- Integrating tools and apps development at Queensland University of Technology (QUT)
- Guideline preparation
- Detail Engineering Design and Build of Quantity (BOQ) Development
- Storage facility for market
- Benches and risen platform beds (as walkways during flood)
- Project monitoring and evaluation
- Small workshop and seminar
- Training for city officials about project findings and replication

In conclusion, social conflict might appear as the main challenge throughout the public space development phases. However, as mention above, those challenges will be mitigated through continuous communication and discussion with stakeholders in each phase. Engagement strategies will also flexibly adjust to maintain relationships among stakeholders as well as to make sure sustainable collaboration in realizing the embracing the sun project.

Based on the analysis of the 15 principles under the Adaptation Fund´s Social and Environmental Policy, the project is highly feasible to be implemented economically, socially, and environmentally. It will result in multiple socio-economic and environmental benefits without significant negative risks. Total number of targeted beneficiaries that directly invite to parcipate in each component are listed below:

Activity	Beneficiaries			Total
	Male	Female	Vulnerable Gr.	
Component 1	60	30	10	**100**
Component 2	480	240	80	**800**
Component 3	165	82	28	**275**
Component 4	96	48	16	**160**
Total	**801**	**400**	**134**	**1335**

Apart from those data, other direct targeted beneficiaries from this project are the 1520 Segiri Market sellers which consist of 889 female and 631male. While indirect beneficiaries will proximately around 152,050 inhabitants from 4 closest subdistricts to the public space designated location. The detail of social, economic, and environmental benefits can be seen in the table below.

Output	Expected Benefits		
	Social	Economic	Environmental
Output 1.1.1. Research conducted on climate-resilient public spaces, including best	This project will endorse behavioral change for the community and	Key findings from these initial activities will become fundamental	Environmentally, this activity will also have a similar effect to the expected economic

Output	Expected Benefits		
	Social	Economic	Environmental
practices and lessons learned within the Asia-Pacific Region, and South-East cities in particular	strengthen social capital between vulnerable groups, e.g., youth, women, and children.	approaches in developing sustainable public space that also directly improving the climate-resilient efforts. The findings will be disseminated through global connection that potentially supports cities throughout the globe in reducing risk and economic loss by nearly $210 billion in 2020, based on CNBC data.	benefit in terms of environmental preservation.
Output 1.1.2. Assessment tool and methodology for the evaluation of climate-resilient public spaces developed	-	The assessment tools will endorse time and budget efficiency for the city to have comprehensive information regarding the process of development. The developed tools and methodology will also become a valuable asset not only to Samarinda Government Municipal but also to other cities in Indonesia that face similar challenges.	A city can assess more efficiently in time so that any environmental problem can be reported and treated properly.
Output 1.1.3. Public space guidelines, incorporating new typologies that can be used as a best practice for replication	-	The guideline will endorse time and budget efficiency for the city to have comprehensive information regarding the process of development. This guideline will also become a valuable asset that made Samarinda as a best practice pioneer in the public space development sector.	The same issue related to the development of public space can be solved faster. Both communities and governments will have comprehensive guidance in managing their environmental resources. Indirectly both communities and government capacity related to climate-resilient will be strengthened.
Output 2.1.1. Community profiling developed for designated locations in the City of Samarinda	This activity will give a clear picture and information related to the social background of citizens affected by climate change	-	-

Output	Expected Benefits		
	Social	Economic	Environmental
	impact near the designated locations. Particularly in a gender-sensitive perspective. This activity will directly describe the local context that needs to be incorporated into the development process. Eventually, this activity will also contribute to identifying the initial socio-culture value that will be transformed into the design concepts in the next phases.		
Output 2.1.2. Targeted communities are engaged in design processes through a participatory approach (e.g., workshops, interactive debates, etc.), focused on climate-resilient public spaces	Public participation will ensure that the needs of communities are met. Special emphasis is put on ensuring the fairness and equal participation of vulnerable groups. Through this activity, the local community will gain a bold experience in developing a sustainable inclusive public space that expected to builds their confidence and trigger them to take part in the upcoming city development. In addition, this activity will encourage them to be good listeners (related to other opinions) and collaborative enthusiasts.	Economically, this activity will improve their sense of belonging to the developed public space and secure investment in the future. Social cohesiveness among the connected communities will also help government municipalities in maintaining the infrastructure.	Similar to social and environmental expected benefits, local communities' involvement is expected to give them direct experience and made them considering the environmental preservation aspects in their daily life.
Output 2.2.1. Climate-resilient public space is co-developed and built in the selected communities (in the city of Samarinda) based on previous findings	Samarinda citizens, especially the local communities near Segiri Market will have an inclusive and sustainable public space that potentially use for a broad range of activities. Women	Multi-function public space will promote better disaster risk reduction and management to reduce economic loss, especially for communities that settled in the flood-prone area near the	The environmental problem that been state in the problem statement will gradually decrease. The developed public space utilization will also boost the environmental preservation near the designated area.

Output	Expected Benefits		
	Social	Economic	Environmental
	sellers will have a safer place to taking care of their children while working in the market. They will also get better access to the basic infrastructure that previously unmanaged or damaged. While the wider public can utilize the public space as an education site that teaches them about sustainable values.	designated area. It Will help the city to reduce annual loss due to climate-related disasters that cost nearly US$ 6,238,887.	
Output 2.2.2. Community groups are established, based on existing governance structures (if present), to ensure adequate maintenance of the public spaces	The community near the designated area will have both formal and informal entities that maintain sustainable communication and coordination for further development, especially in adapting to the climate change impact. Further engagement will also help them to spread sustainable ideas and influence their fellow. This will also be expected to increase the public understanding.	The established community group will able to find other sources of funds through a collaboration maintenance scheme formulated together throughout the program. Afterward, the maintenance budget from the government will be expected to decrease over time.	Both formal and informal entities will give opportunities to local communities to held or expand the environmental preservation movements and gradually increase the environmental capacity regarding the climate adaptation efforts.
Output 3.1.1. Training for community groups to divulgate findings of the project and methodology of the intervention	The Introduced sustainable concepts and activities to communities near the designated area will give them insights and promote better collaboration in adapting to the climate change effect.	The economic loss due to flood, extreme weather, and drought event will be reduced if the community know how to adapt and secure their assets that place in the prone area. The community bounce-back capacity will improve during the training event and enable them to rebuild faster and reduce other economic losses post-disaster.	The environmental condition will be preserved better if the community gain a better understanding regarding kinds of activities in their daily life that have a positive or negative impact.

Output	Expected Benefits		
	Social	**Economic**	**Environmental**
Output 3.1.2. Training for government officials in key sectors (e.g., planning departments) on project findings, methodologies and approaches applied for replication	Government officials will gain better understanding and experience in promoting the sustainable approaches for future city development.	Better planning and maintenance scheme will financially affect the city development budget. The experience that they gain through the training event will expose them to a broad range of possibilities to develop effective and efficient development approaches, particularly in developing public space.	Government officials will gain better knowledge and understanding of treating the environment and their local resources for the greater good.
Output 3.2.1. Lessons learned and best practices on climate-resilient public spaces and community adaptive capacity building are captured and disseminated for regional replication	Sharing the best practices and lessons learned with broader public audience will improve community trust and ownership to the developed public space. This activity also expected to gain global attention and promote Samarinda as leading actor in promoting sustainable city through public space development.	-	-
Output 4.1.1. Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the interventions	Socially, this activity will evaluate the community's bond on and another that becomes a fundamental aspect of doing place-keeping the public space in the future. Evaluation key findings will also help the PMU to adjust the social engagement strategies to accelerate the project objectives achievements.	This activity is crucial parts of Implementation, particularly monitoring and evaluation after the two years project completions. This activity will ensure the project objective which has an economical effect related to AF investment and an efficient city maintenance budget.	Environmentally, this monitoring and evaluation activity will mitigate the environmental degradation due to the construction miss development or management
Output 4.2.1 Multi-dialogue stakeholder meeting post project completion	This multi-dialogue or high-level internal meeting is expected to access the higher	This activity will also be expected to gain the political leader's commitment to	-

Output	Expected Benefits		
	Social	Economic	Environmental
	political leader in Samarinda as the climate-resilient mainstreaming agenda. It expected that the higher political leader will endorse more climate-resilient campaign	incorporate the developed public space into the future development budget planning. It will secure and sustaining the initiatives	

C. Cost-Effectiveness of the Program

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

The total cost of the project implementation plan for the Embracing the Sun project is US$ 824,835 which will have an impact on 8 villages and 4 sub-districts, particularly local citizens that working in Segiri Market, Samarinda. The project budget will be used to conduct research series on climate-resilient public space guideline to optimize public space function in reducing flood vulnerability as climate-change adaptation effort and build the climate-resilient public space to boost the adaptation effort in Samarinda. Aside from being an effort to build climate-resilient public space facing climate change. The use of fund in this program is also dedicated to improve the capacity and awareness of not only for flood event affected local communities near designated area but also government municipal and wider public in Samarinda regarding the activities that potentially improve their climate adaptation agendas.

As described above, there are 4 main program components that will be funded through this project:

1. **Development of theoretical model for the new typology of Public Space**
   The total fund for supporting activities under this component US$ 109,026 which aim to conduct Research on climate-resilient public space, including best practices and lesson learned within the Asia-Pacific Region, and South-East Asia cities in particular, assessment tool and methodology for evaluation of climate-resilient Public Space developed, as well as public space guidelines that incorporating new typologies whose can be used as a best practice for further replication. These activities will play a significant role to build a new paradigm in utilizing public space as not only a recreational place as Indonesia city always takes into account but also a strategic place that builds to address climate-change relevant issues. Activity such as re-thinking public space typologies for urban climate adaptation seminar and round table that will be conducted under this component also expected to build a clear vision for both local communities and government municipal related to collaboration towards a sustainable city. In addition, that activity will build the fundamental social capital to succeeding the program implementation.

2. **Awareness raising and local resilience strengthening through the design and implementation of a new Public Space typology**
   The climate-resilient public space development that conducted with a participatory approach will give a direct experience both for local communities and government municipalities in addressing their city's issues collaboratively and will empower their confidence in facing the climate-related impact. The co-develop climate-resilient public space will also be a best practice that easily replicated in other areas. Eventually, the experience they gained from those activities will inspire them to seek relevant potential alternatives that match with their resources in improving their city's capacity related to climate change adaptation. The total fund for supporting those activities is US$ 459,682.

3. Capacity building, knowledge management and communication

The use of the fund in this component is US$ 81,000. Activities under this component will be focused on training for not only community groups to strengthen community adaptation near developed public space location and but also for government official key sector (e.g., planning and environmental agencies) on problems findings, methodologies, and approaches related to maintenance, especially to sustaining initiatives. These activities will become a crucial part of the implementation process due to their potential to be an advocation strategy in mainstreaming climate adaptation agendas not only in Samarinda but also in other cities in Indonesia. In addition, the establishment of a formal entity during capacity building activities will design to function as an inclusive hub that maintains the city's discourse not only related to developed public space operation and maintenance but also other emerging issues related to climate-resilient adaptation in Samarinda. Activities under this component will be designed to strengthen their bonds and build a robust connection so they can collaboratively formulate a sustainable operation and maintenance scheme that ensures developed public space lasts longer even though the funding and project implementation activities have been done. This component will also capture and disseminate lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building for regional replication.

4. Monitoring and Evaluation

The total fund for supporting activities under this component is US$ 38,288 that will be utilized for supporting the monitoring and evaluation process to ensure the objectives achievements as well as the positive impact resulted from the project implementation.

The detail illustration of cost effectiveness and economic return show below:

Activities	Cost-Effectiveness	Benefit
Development of theoretical model for the new typology of Public Space		
Research on climate-resilient public space, including best practices and lesson learned within the Asia-Pacific Region, and South-East Asia cities in particular	This activity will carry out a discussion series that focused on Re-Thinking Public Space Typologies for Urban Climate Adaptation. The discussion will accommodate meetings that mark the program implementation. The series of discussions will involve audience that includes national and local government, local communities (100 people of targeted groups of beneficiaries that consist of 60 male, 30 female and 10 persons that represent the vulnerable groups), and global thinkers in the public space development sector. These activities will promote a global discourse that triggers ideation on how public space has to accommodate climate change adaptation	It will contribute to the improvement of capacity and increasing the resilience of the community toward climate change impact. Ultimately it will trigger a positive impact on the adaptation effort related to reducing flood, extreme drought, and extreme weather vulnerability near Segiri Market. In Samarinda, an existing loss estimated due to climate-related hazard mentioned above are: Flooding US$ 171,843 per

Assessment tool and methodology for evaluation of climate-resilient Public Space developed	efforts in a sustainable way and relevant to the local's context, particularly in developing countries like Indonesia. Those activities will directly stipulate a clear urgency regarding the needs of public space development paradigm shift. Under this component, a specific guideline that consists of relevant tools and methodologies related to the public space development agenda will develop. Costs incurred for this activity amounted to USD$109,026. Costs incurred for this activity is way much cheaper if we compare it with the average research and discussion budget cost of nearly US$ 160,000. For the contexts, that budget addition is applied due to the expertise fee from global experts around US$ 8,000-12,000 each activity. Therefore, the proposed budget is way much effective because it builds based on the ongoing partnership between UNTAG Surabaya, QUT, and UN-Habitat.	year (350.285 people affected). From drought US$ 1,085,914 (779.339 people affected) from extreme weather US$ 4,962,069 (779.142 people affected). Total lost from the three climate-related disaster events estimated to be US$ 6,238,887 per year. Therefore, these initiatives will bring greater goods for Samarinda in terms of adapting to the climate change impact
Public Space guidelines, incorporating new typologies that can be used as a best practice for replication		
Awareness raising and local resilience strengthening through the design and implementation of a new Public Space typology		
Community profiling developed for targeted locations	This activity involved 150 people that invited based on their closeness (based on home or daily activity) with the Pasar Segiri Market and the proposed public space Infrastructure or the flood-affected area. In this activity, gender-sensitive tools will be applied, therefore the participants will consist of 90 male, 45 female, and 15 persons that represent the vulnerable groups in each subdistrict. So, the total targeted beneficiaries from this activity will around 360 men, 180 women, and 45 persons that represent the vulnerable groups. The cost for this activity is US$ 10,000. This activity conducted to gather basic information related to the community profile as well as their understanding regarding the climate change adaptation efforts in their neighborhood. The activity will also design to identify local community needs, suitable approaches that will be implemented, and local champions that will support all the public space development process. This activity is part of the participatory approach that is important in realizing the inclusive public space. Consequently, the proposed budget for this activity will manifest a bigger sense of belonging to the developed public space that guarantees the initiative's sustainability. Compare with the construction development and future maintenance budget, the proposed budget	Obviously, the benefit from this activity is to secure the US$ 409,682 investment injected in form of an inclusive public space in its future potential since it located close to the Segiri Market that host at least 1520 seller which 631 (41,5%) of them are women and have different needs from other citizens. The developed inclusive public space will accommodate their needs, particularly in taking care of their children while working in the market. This opportunity will also boost the possibility of larger knowledge transfer beyond the AF budget capacity.

	is way much cheaper rather than the future cost that may emerge due to the miss management and social cost due to the apathetic behavior and low sense of belonging to the developed infrastructure.	

Targeted communities are engaged in design processes through a participatory approach (e.g., workshop, interactive debate, etc.), focused on climate-resilient Public Space	Aligned with community profiling, this activity is dedicated to capture and accommodate the local ideas then transform them into feasible ideas that incorporate into the public space development. Costs incurred for this activity amounted to US$ 40,000. This activity will involve 80 participants include implementing team, experts from QUT and UN-habitat, 20 design student team that collaborates with the local university, as well as 50 participants from targeted groups. Similar to the other activity, the sensitive-gender approach will also apply in the phase and make sure that 30% of the participants will be female and 10% of theme are relevant persons that represent vulnerable groups. From those arrangements, the proposed cost to support this activity is considerably cheaper than the business as usual. It is possible because the implementing entity has an ongoing partnership with the QUT and UN-Habitat. Another reason that also made this activity become cheaper is that the design team will collaboratively involve college students to not only proceeding the designing needs but also bridging the local communities with the experts. In conclusion, even though the DED will handle by a third party, the whole process is way much cheaper because it excludes the experts and facilitator fees. For the context, the business-as-usual cost will amount to nearly US$ 70,000.	Same as above

Climate-resilient Public Space is co-developed and built in the selected communities (in the City of Samarinda) based on previous findings	This activity will be carried out in the designated near the Segiri Market. The cost estimated to be around US$ 409,682 with the number of indirect beneficiaries proximately reach 152,050 flood-affected people (vulnerable citizens: 76,782, poor citizens: 6,993, and diffable: 61), 332,116 extreme weather affected people (vulnerable citizens: 166,578, poor citizens: 6,993, and diffable: 122), and 332,117 drought-affected people (vulnerable citizens: 166,578, poor citizens: 14,298, diffable: 122) from 4 sub-district (Samarinda Ulu, Samarinda Ilir, Samarinda Kota, and Sungai Pinang). It also will give direct beneficiaries for 1520 people (male: 889, female: 631) that working in the market. On the other hand, based on the Samarinda long-term development plan (2005-2025), the total budget needed for the disaster risk reduction programs until 2035 is around US$ 374,566,506 However, the same document also states that disaster intervention only provides US$ 1,068,155 for drainage normalization and maintenance in 2020 and 2021 while the climate change adaptation programs only have US$ 281,280 in 2021. Therefore, if comparing the budget availability to needed disaster risk reduction activities, Embracing the Sun proposed budget for the public space construction will considerably not only cheap but also profitable.	The sustainable design principle that will be applied in the developed public space will inspire government municipalities to adjust their budget and strategies so they are able to address the climate-related hazard issues and realizing a better city's development at the same time.
Community groups are established, based on the existing governance structure (if present), to ensure adequate maintenance of the Public Space	Similar to the community profiling activities. The cost for supporting this activity is US$ 10,000. However, the purpose of this activity will no longer focus on identifying communities' needs but more focus on the sustainable maintenance scheme formulation that will support their activities in the future. This activity will involve 50 participants that 60% of them are male, 30% female, and 10% persons that represent the vulnerable groups.	Again, the benefit from this activity is to secure the US$ 409,682 investment injected in form of an inclusive public space in its future potential since it located close to the Segiri Market. This activity will also ease the government municipal responsibility in preparing maintenance strategies for the public space.
Capacity building, knowledge management and communication		
Training for community groups to base strengthen community adaptation in Public Space location	Related to component 3, the capacity building and dissemination activities will also apply the gender-sensitive approach. Local community's capacity building activity will involve 100 participants, (60 male, 30 female, and 10 persons that represent the vulnerable groups), government municipal capacity building will invite 50 participants (30 male and 20 female or persons that represent the vulnerable groups), while the	These activities both have tangible and intangible benefits from each agenda. The tangible benefits can be assessed right after the project implementation by conducting a complete evaluation of the participants or targeted beneficiaries. The measurement will focus on

Training for government officials in key sector (e.g. planning department) on project findings, methodologies and approaches app Lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building are captured and disseminated for regional replication	international seminar will involve 125 participants (75 male and 50 female or persons that represent the vulnerable groups). The capacity-building activities will be dedicated to enriching their understanding related to various activities that have a sustainable or unsustainable effect on the environment. The activities seem less effective due to the limited number of participants invited. However, through these activities implementing entity will carefully select local champions that have a great influence on societies. Apart from that, this component also accommodates knowledge management activities that resulting printed or digital material that useful for further advocation strategies, particularly to influence global communities to follow the best practices. The advocation will mark with an international seminar or dialogues that intended to gain global attention. The total cost for supporting this activity US$ 81,000. The benefit of the activity is priceless; so, it should be regarded as very cost-effective.	how narrow their understanding gap before and after project implementation. While the intangible benefits will be a bit difficult to assess right after the program because it's related to the further actions that they made in facing the climate change impact or in maintaining the initiatives. However, through the formal entity that established together with local communities and government municipal, the advocation and communication will be conducted lasts longer. It expected will contribute to the success of the project.
Monitoring and Evaluation		
Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the intervention	This monitoring and evaluation will be conducted pre, post, and particularly after two years of implementation. This activity will cost US$ 17,500. It is a crucial part of the whole program implementation due to its function to measure the intangible aspect that resulted from the program. Most of the public space place-making programs throughout the globe have not a place-keeping mechanism, seem as hit and run program, end up with un-sustained initiatives, and become an abandoned public space that triggers new financial burden for the city in near times. Therefore, this activity has to be placed properly, so the implementing entity will have the capacity to prevent the negative impact together with the government municipality. Thus, the cost requested to support this activity is priceless and regarded as very cost-effective due to its benefit for further replication agendas.	The benefits of this activity also imply the urgency of a place-keeping scheme for all public space development throughout the globe so it can be sustained and address whatever issues tried to solve. Key findings of this activity will also shift the public space development and maintenance paradigm toward a sustainable one.
High level internal meeting with Samarinda Government Municipalities	High-level internal meeting with Samarinda Government Municipalities conducted right after the project completion. This activity intended to access a higher political leader to promote the initiative and advocate the best practices. It is a crucial milestone for the program to get internal attention so it could be integrated deeply with the upcoming city project. Particularly, in the future city's budget plan. This activity cost US$ 20,788 and will also become cost-effective due to its potential to bold the	This activity will include a political move that intended to influence the wider political stakeholder invited to the meeting. It will benefit city with the higher attention on the climate-resilient agendas.

	current and upcoming benefits for future city developments.	

D. Consistency with National and Sub-National Strategies

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.

INDONESIA POLICY FOR CLIMATE CHANGE ADAPTATION

- **Republic of Indonesia Law No. 23 of 1997 Concerning Environmental Management**
  Article 1:
  1. The environment is a unity of space with all objects, power, circumstances, and living things, including human beings and their behavior, which affect the survival of the lives and welfare of humans and other living things;
  2. Environmental management is an integrated effort to preserve the environmental function which includes policies for structuring, utilizing, developing, maintaining, restoring, controlling, and controlling the environment;
  3. Sustainable development that is environmentally sound is a conscious and planned effort, which integrates the environment, including resources, into the development process to ensure the ability, welfare and quality of life of present and future generations;
  4. Ecosystems are the elements of the environment which are whole unity and influence each other in forming environmental balance, stability and productivity;
  5. Preservation of environmental functions is a series of efforts to maintain the continuity of the carrying capacity and capacity of the environment;
  6. The carrying capacity of the environment is the ability of the environment to support the lives of humans and other living beings;
  7. Preservation of environmental carrying capacity is a series of efforts to protect the ability of the environment against the pressure of change and/or negative impacts caused by an activity, so that it is still able to support the lives of humans and other living beings;
  8. Environmental capacity is the ability of the environment to absorb substances, energy, and/or other components that enter or are included in it;
  9. Preservation of environmental capacity is a series of efforts to protect the ability of the environment to absorb substances, energy, and/or other components that are discharged into it;
  10. Resources are elements of the environment that consists of human resources, natural resources, both biological and non-biological, and artificial resources.

- **National Action Plan for Climate Change Adaptation 2014 (*Rencana Aksi* Nasional *Adaptasi Perubahan Ikilm 2014*)**

  By considering the notion of adaptation to climate change and its objectives, adaptation can be said as an effort to increase the resilience of a system to the effects of climate change. Climate change adaptation in Indonesia is directed as:
  1. Adjustment efforts in the form of strategy, policy, management, technology and attitude (negative) impacts of climate change can be reduced to a minimum, and even if possible can utilize and maximize the positive impact.
  2. Efforts to reduce the impact (consequences) caused by climate change, both directly and indirectly directly, both continuous and discontinuous and permanent and impacts according to their level.

In short, the action plan is directed so that: (a) the impact of climate change can be reduced to a minimum possible, (b) can increase resilience and reduce the level of vulnerability of a natural system, life records, programs or activities on the effects of climate change.

To support the field of sustainable living system resilience and resistance to climate change, the main target of the infrastructure sub-sector is to increase the coverage of services and strengthen a reliable and quality infrastructure system in the face of the effects of climate change. The main objectives can be achieved through several targets, as follows:

1. Development of the concept of infrastructure resilience that is adaptive to climate change
2. Development of infrastructure that is adaptive to climate change
3. Provision and adjustment of infrastructure that has a direct impact on the health of the community that has a high level of accessibility, especially for groups of people who are vulnerable and resilient to climate change
4. Management of integrated infrastructure layout with spatial planning in sustainable development

- **Ministry of Public Work Regulation No. 11/PRT/M/2012 About National Action Plan for Climate Change Mitigation and Adaptation Year 2012-2020**

  In an effort to adapt to climate change, Indonesia faces enormous challenges, especially the characteristics of the territory of Indonesia as an archipelago, geographical location in tropical climates, and between the Asian Continent and the Continent of Australia and between the Pacific Ocean and Indian Ocean, which is why Indonesia very vulnerable to climate change. This is indicated by several facts, including droughts and floods, which harm food security, human health, infrastructure, settlements, and housing, especially in coastal areas and urban areas.

- **Ministry of Environmental and Forestry Regulation No. P.33/Menlhk/Setjen/Kum.1/3/2016 About Development Guideline for National Adaptation Plan**

  The significant to integrating climate change adaptation actions into development policies, plans, and/or programs (Article 4 [letter e], Article 9 [paragraph 3], Article 10, Article 11)

- **Nationally Determined Contribution (NDC) the Republic of Indonesia 2017**

  The GOI will implement enhanced actions to study and map regional vulnerabilities as the basis of adaptation information system, and to strengthen institutional capacity and promulgation of climate change sensitive policies and regulations by 2020. The medium-term goal of Indonesia's climate change adaptation strategy is to reduce risks on all development sectors (agriculture, water, energy security, forestry, maritime and fisheries, health, public service, infrastructure, and urban system) by 2030 through local capacity strengthening, improved knowledge management, convergent policy on climate change adaptation and disaster risks reduction, and application of adaptive technology.

The infrastructure also refers to public space as resilience infrastructure. Public space is a place where physical and social resilience meet. Learn from the past, and even innovate to find solutions outside of nature-based solutions to address the risks of climate change. That is why public space must be considered as an important tool for reducing and adapting to rising temperatures and extreme weather.

Until now, Indonesia only has two resilient strategies for the city: City of Jakarta and City or Semarang. Meanwhile, the Badan Nasional Penanggulangan Bencana (BNPB) or Indonesia

National Disaster Agency has published National Risk Index for Disaster in 7 priority area, with 71 indicators for Disaster Resilient and the City of Samarinda one of the cities that adapts the program on their planning system. In this project, we are working day-to-day with the City Government of Samarinda and its people to develop the strategy of city resilient through the development of Public Space.

This project will involve the City Government of Samarinda from the first place and work closely with the City of Samarinda Development Agency, and this project also will follow their adaptation strategy planning, that stated at Regional Regulation on Samarinda Regional Spatial Planning, No. 2 of 2014-2043.

It is stated that Samarinda City Government has an obligation to provide public space, through related agencies, in realizing government policies to plan, utilize and control, related to regional development planning regarding public space by taking into account the indicators of the stages of supply and utilization public space includes: planning, land acquisition, engineering design, implementation of public space development, utilization and maintenance to be useful for current and future generations and the realization of an urban public space area.

E. Compliance with Relevant Standards and Policies

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

The project will follow the technical standards publishes by the Ministry of Public Works and Housing the Republic of Indonesia, e.g., Law No. 28 the Year of 2002 about Building, Law No. 24 the Year of 2007 about Disaster Management, Law No. 26 the Year of 2007 about Spatial Planning, Ministry of Home Affairs Regulation No. 1 the Year of 2007 about Green Open Space Planning In Urban Area, Ministry of Public Works Regulation No. 5 the Year of 2008 about Provision and Utilization Guideline for Green Open Space in Urban Area, etc.

Article 34 of Law Number 24 the Year 2007 about Disaster Management explains that disaster management at the pre-disaster stage is divide into two types; first, in a situation where there is no disaster, and second, in a situation, there is a potential for disaster. More detail in Article 35 explaining that in a situation where there is no disaster, a disaster management plan should cover: disaster management planning, disaster risk reduction, prevention, integration in development planning, disaster risk analysis requirements, implementation and enforcement of spatial planning, education and training, disaster management technical standard requirements.

More detail about the disaster management planning is mention in Article 36 paragraph 4 that should cover; disaster threat identification and assessment, understanding of community vulnerability, analysis of possible disaster impacts, disaster risk reduction action, and determination of preparedness and coping mechanisms for disaster impact. Article 37 paragraph 2 mentions, disaster risk reduction is carried out to reduce the impact of bad things that may arise, especially when there is no disaster should cover; disaster risk recognition and monitoring, participatory disaster management planning, developing a culture of disaster awareness, increased commitment to actors of the response disaster and application of physical, non-physical, and disaster management arrangements.

Article 38 mention prevention should cover; identification with certainty to the source danger or threat of disaster, control over control and management of natural resources which suddenly and/or gradually become a source of disaster hazard, monitoring the use of technology which suddenly and/or progressively has the potential to become a source of disaster threat or danger, spatial planning and environmental management and strengthening of social resilience.

Law 24 the Year 2007 about Disaster Management has given a good indicator about this project that is in-line and relevant to Indonesian policy, through a participatory planning process and

strengthening social resilience. The project is also in-line with the Ministry of Environmental and Forestry Regulation No. P.7/MENLHK/SETJEN/KUM.1/2/2018 about Guidelines for Vulnerability, Risk, and the Impact of Climate Change that mentions in micro-level should use the participatory method approach assess the social and cultural conditions of the community.

F. Duplication of Project

Describe if there is duplication of project/programme with other funding sources, if any.

Currently, there is no duplication of this project with other funding sources. Although projects coordinated by the World Bank such as the "National Urban Development Project" (NUDP) (Project ID: P163896) and the "Improvement of Solid Waste Management to Support Regional and Metropolitan Cities" (Project ID: P157245) also focus on the urban environment, the areas targeted are different. The project "Improvement of Solid Waste Management to Support Regional and Metropolitan Cities" aims to improve solid waste management services in selected cities across Indonesia, supporting solid waste management policy and legislation, financial sustainability, and stakeholder collaboration across all aspects of the sector (e.g., collection, treatment, disposal, recycling and waste generation)[83]. Although Embracing the Sun integrates waste into the proposal, it is with a very different approach. The project aims to identify techniques and tactics to reuse materials that can be incorporated into the design and construction of spaces, with a focus on communities. In this way, the objective in relation to waste will be to raise awareness on the importance of reducing-reusing-recycling model and to find creative solutions that could not only bring environmental benefits but also provide a source of income. It aims to promote and enhance bottom-up and community-based strategies, rather than top-down approaches.

The "National Urban Development Project" aims to improve subnational capacity to prioritize capital investment and help cities achieve more efficient infrastructure development through adequate land use planning. Although there are principles that are presented in both projects, such as the use of spatial tools with landscape carrying capacity to mitigate losses from natural disasters, the project coordinated by the World Bank has a much broader scope. The NUDP interventions aim to lay a foundation for more efficient and effective financing of infrastructure, conducting analyses of land suitability for land use planning and to guide infrastructure investment (referring to a wide range of urban elements, such as water supply, sanitation, schools, etc.), but not specifically public space.

In this way, although the three projects are envisioned within the urban environment, the current project targets public space and focuses on its strategic role as enabler of climate adaptation. In this way, the resulting concrete outputs from this project (i.e., assessment tool and methodology for the evaluation of climate-resilient public spaces, public space guidelines, lessons learned, etc.) aim to increase urban resilience, informing planning processes at the city-level in the area of public space. Therefore, there is no duplication with the aforementioned projects.

Strategic-wise, the project will follow the PPPP (Private - Public - People Partnership) approach. Lessons learned from Surabaya linked to their success in producing public space based on PPPP (i.e Joglo Markeso at Ketandan Kampong, Surabaya) will be taken into consideration. The project draws on lessons learned from several projects funded through UN-Habitat's Global Public Space Programme (e.g., Kampong Ketandan, Tanah Kali Kedinding and Keputih). Aspects such as public participation and the importance of integrating social aspects into the design rather than following only a technical approach mean that these projects can be relevant case studies among best practices that will be researched under component 1 of the project. However, there is no duplication given that this project focuses strongly on the strengthening of climate-resilience of public spaces while incorporating social dimensions to address the underlying causes of vulnerability.

83 http://documents.worldbank.org/curated/en/640491496386470384/pdf/PIDISDS-CON-Print-P157245-06-02-2017-1496386463379.pdf

G. Learning and Knowledge Management

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

Ensuring the project sustainability clearly relies on knowledge management, public engagement strategy as well as the collaboration among stakeholders of each program component in the project. These fundamental aspects become important to make sure of the achievements of the project objectives as well as future replication. This effort can be seen in each component, especially in component 3. Several key activities that support the sustainability of the project are:

1. **Establishing Segiri Market Public Space Community**
   Under project component 2, citizens and municipal government officials will be engaged in every phase of the project development. Engagement experience throughout all the processes will directly and/or indirectly gave them opportunities to be aware then responsive to the climate change adaptation effort. Furthermore, they will be encouraged to establish a community that is intended to be a forum for coordination and knowledge management, discussing relevant issues, and together took a lesson learned along the process of resolving the problems. This community will also enable them to join forces in maintaining and develop segiri market public space for further needs.

2. **Capacity Building**
   Stakeholders capacity building related to the climate change adaptation effort will be crucial. Under component 3, citizens will be introduced to sustainable activities particularly through public space utilization that will help them reduce their vulnerability, while the government official will be introduced to several alternative mechanisms that support them in maintaining public space and formulate other strategies for further development. Eventually, both citizens or government officials will gain capacity improvement to strengthening their climate change adaptation effort, even after embracing the sun project completed.

3. **Publication and Dissemination**
   Aligned with capacity building effort, component 3 will also focus on how to disseminate lessons learned in adapting climate change through embracing the sun project. It will provide project documentation, infographic/video graphic, and other printed publications such as leaflets, posters, and banners as well as book as knowledge product to compile best practices that will capitalize as not only digital material for campaign on social media or website but also advocacy materials for policy brief formulation. Learning will also be obtained and disseminated through a series of studies to support the adaptation of climate change based on public space journal. The results of the study are then disseminated in the form of a research paper or a scientific journal.

In addition, learning and knowledge management that is integrated into the project under component 3 will create awareness about the new typology of public space proposed; its principles, its applicability to different contexts. Sharing and divulgating the findings of the program and its achievement will also allow other communities to gain agency on their urban form, to gain an awareness of the potential of public space in terms of building positive, sustainable, resilient communities and structure urban form in a more sustainable and responsive way.

H. Consultative Process

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.

Initial Consultative Process

In the early stage of the project, the consultative process faces real challenges, especially with the COVID-19 pandemic. However, to maximize the result, the process starts from April 4, 2020, with minimal participants. The first online meeting was held on April 29, 2020, and attended by Head of Environment Agency and a representative from Communication and Informatics Agency, the City of Samarinda. The second online meeting was held on April 30, 2020, and attended by Assistant II Mayor of Samarinda, Head of Environment Agency, Head of International Cooperation and Head of Public Relations, the City Government of Samarinda. In the second meeting, the discussion focused on the alternative of location that suitable for adaptation criteria.

Figure 17. Strengthening Communication with the City Government of Samarinda

On July 20, 2020, the team has organized the first formal meeting with the City Government of Samarinda by using online meeting tools. This meeting was attended by the Mayor of Samarinda City Mr. Syaharie Ja'ang, Samarinda City Secretary Mr. Sugeng Chairuddin, Assistant II Mayor of Samarinda Mrs. Nina Endang Rahayu, Head of Environment Agency Mrs. Nurrahmani, a representative from Kemitraan (Partnership) Mrs. Dewi Rizky and several others participant from City Government of Samarinda, Kemitraan (Partnership) and UNTAG-QUT team. This first meeting aims to get direction and input from the city government about the location that will be implementing place for the proposal. During this first meeting, Mayor of Samarinda explains how important is this project to be in-line with the City of Samarinda program plan, primarily related to flooding management plans. In the discussion, the City of Samarinda permitted the team to have a pre-survey to understand the location and city context better.

Gender Consultative Process

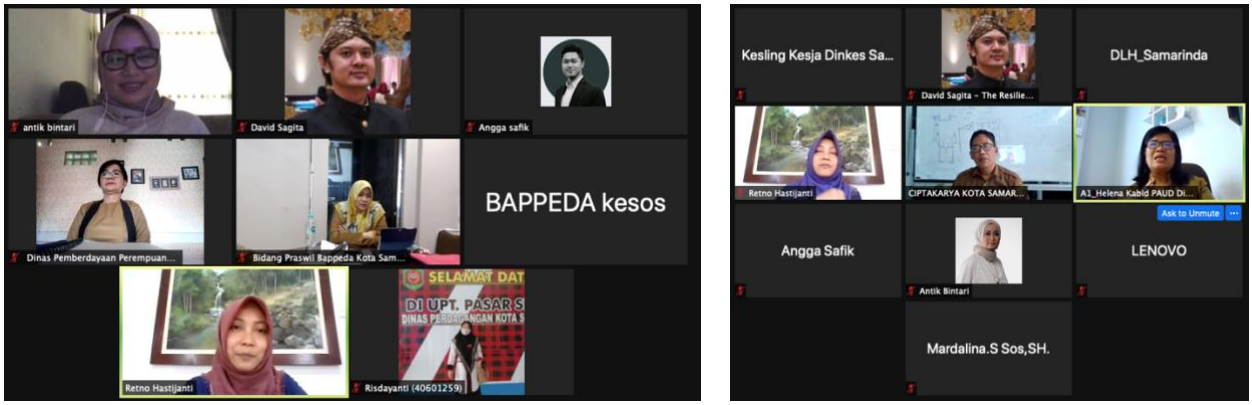


Figure 18 Gender Consultative Discussion with Various City Government Agencies of Samarinda City

From February 8 to 9, 2021, the team has organized two days of consultation with the various Samarinda city government agency focusing on gender perspective in the process of development in Samarinda. The agencies that attending the consultations are:

1. Samarinda Planning and Development Agency (*Badan Perencanaan Pembangunan Daerah/BAPPEDA Kota Samarinda)*;
2. Department of Public Works and Spatial Planning City of Samarinda *(Dinas Pekerjaan Umum dan Pentaan Ruang Kota Samarinda)*;

3. Department of Women Empowerment, and the Child Protection City of Samarinda *(Dinas Pemberdayaan Perempuan dan Perlindungan Anak Kota Samarinda)*;
4. Department of Environment City of Samarinda *(Dinas Lingkungan Hidup Kota Samarinda)*;
5. Department of Education City of Samarinda *(Dinas Pendidikan Kota Samarinda)*;
6. Departement of Social City of Samarinda *(Dinas Sosial Kota Samarinda)*;
7. Department of Health City of Samarinda *(Dinas Kesehatan Kota Samarinda)*;
8. Segiri Market Technical Implementation Unit, Departement f Trade City of Samarinda *(Unit Pelaksana Teknis/UPT Pasar Segiri, Dinas Perdagangan Kota Samarinda)*;

The discussion aims to assess the development process implemented in the city of Samarinda and get information on how gender perspective influences the formulation of city policy, how the city is fulfilling the national target for gender mainstreaming in the process of development. Detailed information is available in Annex C.

Field Survey to The City of Samarinda

Figure 19. Several Location proposed by Samarinda Municipal Government

The first field survey was dedicated to visiting several locations that have proposed by the Mayor of Samarinda to be the location of embracing the sun project. Each location has its advantages and challenges. However, the location near Segiri Market is the preferable to choose because located in the higher ground and close to the area that prone to flood events. Moreover, the chosen area is also located closely with dense settlements that have complex challenges related to climate change. Issues such as poor waste management, low access to clean water, and minimum access to reliable energy as well as gender issues become the main consideration why this location will be a perfect hub to boost climate change adaptation efforts in Samarinda.

Figure 19. Settlement and Poor Waste Management System Near Designated Area

Besides visiting the proposed area, further coordination with the Mayor of Samarinda is also held in this field survey. This meeting was obtained to reconnect the team objective and what the city can benefit from embracing the sun project implementation. Through this discussion, the team explained that the project will prioritize flood mitigation and risk reduction in the designated area, but along the process, the project will also engage with the local community to address climate change issues.

The Mayor of Samarinda agreed with the initial proposal and inform that they have other initiatives that might be integrated into the designated area. Government Municipal collaborate with the ministry of public works to build a waste treatment plant near Segiri Market and a retaining wall along Karang Mumus River as a mitigation strategy in reducing flood risk. Therefore, the mayor of Samarinda believes that embracing the sun project will bring added value for the city development plan that already made as well as become valuable assets in adapting climate change effort in Samarinda.

Figure 21. Coordination Meeting with Mayor of Samarinda City

Realizing challenges that will come along the implementation of the project, it's important to engaged with the local youth community in Samarinda. The local youth community will be involved in encouraging the wider public to take part in the development process as well as promoting a fresh perspective in utilizing public space as a tool to deal with climate change effect.

During the discussion, embracing the sun project need to address social as well as economic issues in designated area. The local youth community thinks it can begin with reimagining the root function of the market itself as an economic hub for the city. Consequently, the developed public space has to address the socio-economic context and combining with a new approach that promotes sustainability. they believe this idea will bridge the climate change adaptation process smoothly and encourage local citizens to involve more.

Aligned with those ideas, the collaboration established along the development process can also utilize to manifest a new sustainable maintenance scheme that will support the government municipal in maintaining the public space. The initial idea is to establish relevant economic activities in the designated area as an attraction that produces a new source of income or other benefits.

The attraction will draw citizens to utilize the public space and get an exposure to the climate change adaptation component builds there. The collective contribution from economic activities

near the public space will be managed by the established community independently and capitalized for maintaining the public space itself. This approach believes will be a solution for boosting the community's sense of belonging to the public space, as well as to reduce the government cost in maintaining their assets.

Figure 202.Concultation Process with Local Youth Community

During the second visit to Samarinda, the team focused on the gender assessment and other issues relevant to it for further consideration. From the list of names form Local Technical Implementation Unit - Segiri Market and market observation, there tend to be more women sellers than men living and working in the market particularly in the “wet” section of the market that mostly sells fresh fruit, dry food, and fresh meat and vegetables.

This situation also leads the embracing the sun team to observe the basic infrastructure that supports women and children activities in the Segiri Market. The results showed that there is an absence of proper basic infrastructures such as toilet or day-care that accommodates women and children needs. This finding strengthens the need to establish comprehensive public space that not only focuses on the flood management system but also reducing community vulnerability as part of the climate change adaptation efforts.

Along the observation process, the government municipal official also explains that women and children near Segiri Market mostly affected by flood events. They cannot access water as easily as they can do before the flood happens. The water will be contaminated by the waste leftover near the Segiri Market and provoke greater risk not only for women's hygiene but also for the children's health.

Figure 23. Segiri Market Observation

The summarize of the consultation process that has been done can be seen in the following table:

Table 12. Consultation with the City of Samarinda Stakeholders

No.	Stakeholders	Date	Issue
1	*Environment Office City of Samarinda*	*April 29, 2020*	*Introduction to the project/program*
2	*Assistant II to the Mayor of Samarinda*	*April 30, 2020*	*Location of Implementation, Project Supporting Data*
3	*Mayor of Samarinda*	*July 20, 2020*	*Beneficiaries, Strategy, Location point*
4	*Environment Office City of Samarinda*	*July 27, 2020*	*Priority locatin and issuess in each location*
5	*Sidodadi Sub-District Office*	*July 28, 2020*	*Disaster data event, beneficiaries, local community and stakeholders, and commitment in supporting this projectt*
6	*Development and Planning Agency*	*July 28, 2020*	*Spatial Plan of Samarinda City, Samarinda Mid-term Development Plan, other collaboration related to climate change adaptation in Samarinda*
7	*Environment Office City of Samarinda*	*July 28, 2020*	*Climate Change Adaptation Local Action Plan, Environmental issues*
8	*Local Technical Implementation Unit - Segiri Market*	*July 28, 2020*	*Male and Female merchant's data, gender issues, existing waste management system, further development plan*
9	*Mayor of Samarinda*	*July 29, 2020*	*Next step and further consideration*
10	*Local Youth Community*	*July 29, 2020*	*Issues and key stakeholders in a preferable location, approaches in mass gathering, and existing local collaboration activities*
11	*Local merchant in Segiri Market*	*August 3, 2020*	*Basic infrastructure, daily activities, gender issues, economic issues, and other issues related to Pasar Segiri neighborhood development*
12	*Local Youth Community*	*August 4, 2020*	*Segiri Market field observation, alternative idea to support development plan*

Based on the data analysis and consultative process with the government municipal, the location near the Segiri Market will be the most suitable option to implement embracing the sun project. The total number of potential beneficiaries and the complexity of the issues will make the project became a valuable effort, especially in the climate change adaptation process in Samarinda.

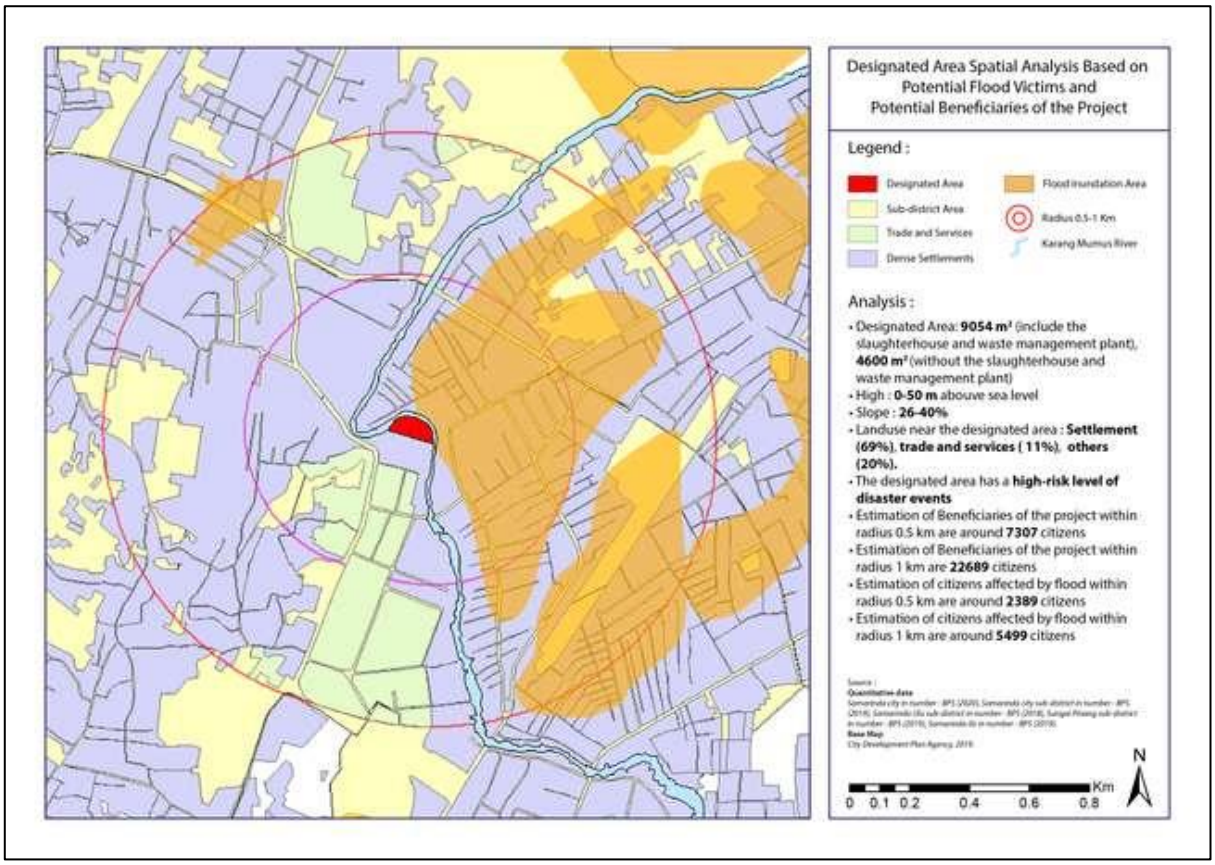


Figure 24. Spatial Analysis Map for Potential Flood Impact

I. Justification for funding requested

Provide justification for funding requested, focusing on the full cost of adaptation reasoning.

The proposed project components, outcomes and outputs fully align with national and local government priorities and gaps identified, and with the results framework of the AF. The table below provides a justification for funding requested, showing the impact of AF funding compared to no funding (baseline) related to expected project outcomes.

No.	Program Component	Baseline	Additionally (with AF)
1	Research and Development on city-wide adaptation to climate change through public spaces	There is a lack of research conducted on climate-resilient public spaces, best practices in the region and assessment tools for the evaluation of public spaces.	Research is conducted on climate-resilient public spaces and best practices in the Asia-Pacific Region, with an emphasis on South-East countries. Based on the research, an assessment tool is developed in order to evaluate their level of climate-resilience. The aforementioned inform the development of public space guidelines that incorporate new typologies and that can be implemented and replicated.
2	Awareness raising and local resilience strengthening through the design and implementation of a	The target locations for the development of the project are not climate-resilient and frequently affected by floods. Public participation is not currently mainstreamed into	Communities have been fully involved in the design processes of the pilot public space. The pilot project is co-developed and built in the selected locations, and community groups are

No.	Program Component	Baseline	Additionally (with AF)
	new public space typology	design processes. There is also a lack of innovation related to the climate-hazard intervention. It reflects on their formal document (long and mid-term development plan) that only focuses on the mitigation effort instead of combining it with the adaptation effort to reduce the risk.	established for the use and maintenance of the public spaces. In addition, 15-20% construction budget will be dedicated to supporting sustainable initiatives in form of a wind turbine, solar PV, and water tank. This infrastructure will show how the public space can be a comprehensive tool that addresses the mitigation and adaptation effort at the same time.
3	Capacity building, knowledge management and communication	1. Public awareness of climate change threats is very low. 2. Local authorities have limited understanding of local climate change vulnerabilities and disaster risks and have no plans to address these.	1. Public awareness on climate change threats and the importance of co-creation through participatory design of public spaces is increased. 2. Local authorities have used tools and are capable of implementing the approaches and methodologies.
4	Monitoring	There are no assessment tools for the evaluation of climate-resilient public spaces and no implemented projects that have been evaluated against an assessment framework.	One site is assessed before the intervention, at completion and after the completion of the intervention based on the assessment tool developed under component 1, serving as example on how to evaluate and monitor climate-resilient public spaces.

J. Sustainability of the Project

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

In terms of the long-term feasibility of the intervention; the public spaces will be designed applying solutions, technologies, and materials that will require minimal maintenance. The planning, design, construction, and maintenance processes of the project will be based on the 4P model[84]: Public-Private-People-Partnership. The engagement of public and private stakeholders, as well as the local communities, will be vital to the success of the project. The aim of the participatory approach is to create ownership by the community, so that in the future the community is empowered with the activation and maintenance of the public spaces in collaboration with the local government. Skills learned by community members during the construction phase will be strategic also for the day-to-day maintenance of the public spaces.

The 4P model[85] ensures a more resilient and sustainable management structure better equipped to face the challenges of climate change, because it relies on a variety of stakeholders and it is grounded in the engagement of end users, the communities where the public spaces will be developed, in every phase of the process. The handover of the space from the local government to the local community will be a key phase of the process, grounded in the participatory design of the project.

[84] Ng, S., Wong, J., & Wong, K. (2013). A public private people partnerships (P4) process framework for infrastructure development in Hong Kong. Cities, 31(C), 370–381. https://doi.org/10.1016/j.cities.2012.12.002

[85] Marana, P., Labaka, L., &Sarriegi, J. (2018). A framework for public-private-people partnerships in the city resilience-building process. Safety Science, 110, 39–50. https://doi.org/10.1016/j.ssci.2017.12.011

Figure 25. 4P model, based on Wong & Wong (2013)

To make sure the sustainability of the project regarding the limitation of funding source and time, the government municipal will establish a special task force based on Mayor decree and directly supervise by the city's secretary. The decree will be an ex-officio mandate to make sure the task force work sustainably. It will not depend on certain persons even though the government official changes along or beyond the process.

The task force will bring together government officials to support the project development and implementation as well as to align the planned public space with the existing city's development plan. Upon future needs and development, this task force will be encouraged to make sure that the developed public space mention in the future city's development plan and integrated with the city's vision. The PMU and the communities involved in the development process will advocate the developed public space as a key point that triggered urban renewal agendas in the city. By doing that, it’s expected that the developed public space will be mentioned in the future city development plan so the developed public space will gain enough attention as a key asset for the city.

As mentioned in the consultative process, through the established Segiri Market public space community, the developed public space will have a part that became an economic attraction and generate valuable activities. This part will gain contributions and other benefits that can capitalize to maintain the developed public space independently. Eventually, both financial and institutional sustainability will achieve not only for near development but also for further climate change adaptation efforts.

K. Overview of the Environmental and Social Impacts and Risks

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

The proposed project seeks to fully align with the Adaptation Fund’s Environmental and Social Policy (ESP) and the Adaptation Fund’s Gender Policy. Table 13 summarizes findings of the preliminary assessment process that has been carried out to evaluate environmental and social impacts and risks of the entire project.

Activities under Component 1 (Research and Development on city-wide adaptation to climate change through public spaces) and component 3 (Capacity building, knowledge management

and communication resilience strengthening) have been categorized as low risk (Category C). The activities under Component 2 (output 2.2.1) are still to be defined based on the guidelines and methodology developed under component 1.

As such, some activities have the potential to adversely impact the environment and affected people, without an adequate management plan and mitigation measures. For this reason, activities under component 2 (output 2.2.1) are categorized as medium risk (Category B) or low risk (Category C). Given the small scale and localized interventions that are envisaged under this component, category A is not considered.

In this way, the project is regarded as a medium risk (Category B).

Table 13. Overview of the environmental, social impacts and risks identified as being relevant to the project/programme.

Checklist of environmental and social principles	Further assessment and management required for compliance	Potential impacts and risks and opportunities	Mitigation
Compliance with the Law	The activities that have been defined at project preparation phase are aligned with existing laws and normative acts. However, those activities that are still to be defined under component 2 will need to be screened and assessed at a later phase to ensure full compliance with laws, regulations and standards.	Insufficient alignment with laws, regulations and standards, particularly for interventions under component 2 (construction of public space).	Compliance of project activities will be monitored throughout design and implementation phase. Local technicians will be consulted on this.
Access and Equity	The community profiling (Component 2, Output 2.1.1.) will provide an in-depth analysis of existing groups and dynamics within the community. This will help assess whether additional measures are required to ensure equal participation and access.	Unequal distribution of project benefits among target communities. Unequal engagement and participation in workshops, consultations, etc. throughout the project process. This could potentially exclude less empowered community members from decision-making processes.	Vulnerable groups in the target communities will be identified. Then, activities will be designed to ensure full participation of vulnerable groups, by conducting specific focus group discussions (if needed).
Marginalized and Vulnerable Groups	Ensuring participation of people with disabilities or engaging peak bodies that represent them will be particularly important during the design phase to ensure that the public	Potential risks include that traditionally vulnerable groups such as women, youth, children, the elderly, people with disabilities are not	Consultations and other participatory approaches will be tailored to the context by for example, conducting women-only / youth-specific focus group discussions or workshops.

Checklist of environmental and social principles	Further assessment and management required for compliance	Potential impacts and risks and opportunities	Mitigation
	spaces meet accessibly requirements.	engaged appropriately throughout design and execution phases.	
Human Rights	Consultations will capture issues related to human rights in the target areas.	Principle that applies to community-related processes and interventions in public space.	Consultations and participatory processes will be designed to follow a human-based approach.
Gender Equity and Women's Empowerment	Ensuring the woman participation is crucial in the public space development process. Especially, due to its closeness to the Segiri Market that hosts 631 (41,5%) women vendors, from1520 sellers, in total. Further assessment related to the ideal time to invite them will be needed since most of them working until late. In addition, finding the women champions that have a positive influence on others will also be an important challenge.	Despite progress made, inequalities between men and women are still present across the country[86]. Among the issues that hinder gender equality are: deficient participation of women in paid employment, gender inequality in access to education, weak institutional framework for gender mainstreaming, low participation of women in decision making and violence against women. Risks identified are related to a potential lack of participation of women as well as their capacity in communicating their ideas.	Women-only focus group discussions or workshops will be implemented if needed in order to ensure equal participation throughout the design phases. Gender empowerment and the involvement of women in decision-making will be promoted by ensuring that an equal number of female and male representatives are present in the established community groups. The local college students Will deploy to help the women group in communicating their ideas and sensitive needs.
Core Labour Rights	Safety and security measures related to the construction phase under 2 must be in place and are to be monitored throughout the construction phase.	Potential lack of adherence to the ILO labor Standards and national labor laws. Communities may not apply safety and security measures during construction works related to the implementation of activities under output 2.	Adherence to the ILO labor Standards and national labor laws is to be monitored throughout the process as a standard procedure. This includes the eight International Labor Organization Convention (ILO) core labor standards related to fundamental principles and rights of workers, as

86 https://www.adb.org/sites/default/files/institutional-document/32231/cga-indonesia.pdf

Checklist of environmental and social principles	Further assessment and management required for compliance	Potential impacts and risks and opportunities	Mitigation
			well as ILO Convention No. 169, which concerns rights of indigenous and tribal peoples. Contracts will be reviewed periodically to ensure compliance with these laws.
Indigenous Peoples	Consultations will capture issues and needs related to the different ethnic groups that are present in the target communities.	Indonesia is a country of great diversity and complexity in its culture, ethnicity, language, people, and geography[87]. There are 500 ethnic groups speaking more than 600 languages across the country[88]. The Javanese form the majority ethnic group at 45% of the population. The Sundanese, Madurese, Coastal Malays, and other ethnic groups make up the rest. Muslims form the majority religious group at 89% of the total population[89]. The complexity of the context will require that this principle is monitored throughout the planning and implementation phases.	Appropriate tools translated to the relevant languages within each context will be used to ensure that communities are aware of their rights. The project will be consistent with UNDRIP, and particularly with regard to Free, Prior, Informed Consent (FPIC) during project design and implementation.
Involuntary Resettlement	Interventions under component 2 will be designed to avoid resettlement.	The design of public spaces could potentially identify the need to demolish existing buildings. This could potentially lead to involuntary resettlement.	If involuntary resettlement is identified as a potential risk, related activities will not be approved.
Protection of Natural Habitats		Given that the interventions are planned to be	

87 https://www.adb.org/sites/default/files/institutional-document/32231/cga-indonesia.pdf
88 https://www.adb.org/sites/default/files/publication/28024/indigenous-peoples-indonesia.pdf
89 https://www.adb.org/sites/default/files/institutional-document/32231/cga-indonesia.pdf

Checklist of environmental and social principles	Further assessment and management required for compliance	Potential impacts and risks and opportunities	Mitigation
		executed within an urban context, the risk of negative environmental impacts in natural habitats is low. Furthermore, the project aims to incorporate eco-system-based adaptation measures that will provide environmental and socio-economic co-benefits.	
Conservation of Biological Diversity	Further assessment will be linked to the enhancement of identified opportunities. These are linked to both planning and implementation processes (e.g. Promoting the enhancement of conservation of biological diversity as part of the Guidelines developed under component 1)	Indonesia is considered to be one of the 17 megadiverse countries in the world. However, existing pressures such as habitat degradation, overexploitation, climate change, economic crises in the country, among others, threaten biodiversity conservation[90]. Opportunities identified for the project include the recognition of public spaces as enhancers of biodiversity in urban contexts, potentially acting as ecological corridors.	No risks identified
Climate Change		Project activities aim to increase climate change adaptation and to promote practices that contribute to climate change mitigation (e.g., renewable energy sources). No risks are identified for this principle.	The assessment tool and methodology for the evaluation of climate-resilient public space typologies (activity 1.1.4) will ensure that interventions under component 2 have no negative impacts with regards to this principle.
Pollution Prevention and Resource Efficiency	Design and construction phases will prioritize and	Construction could lead to inadequate	Waste management is integrated into the

[90] https://www.cbd.int/countries/profile/default.shtml?country=id

Checklist of environmental and social principles	Further assessment and management required for compliance	Potential impacts and risks and opportunities	Mitigation
	promote the use of local materials.	resource management and production of excessive waste	approach in order to raise awareness on the issue and promote good practices. This will be applied throughout the whole process
Public Health	Further assessment is related to the enhancement of opportunities.	Public spaces have the potential of improving citizens' health and well-being. This can be achieved by creating green spaces, spaces that can be used for recreational and sports activities, etc. Opportunities are identified that can be enhanced through the project.	No risks identified
Physical and Cultural Heritage		Project activities might affect unidentified cultural sites which exist in the targeted areas and are impacted by project activities	The community profiling (Component 2, Output 2.1.1.) will collect local knowledge on physical and cultural heritage in the targeted areas. This will allow analyzing the perceptions on physical and cultural assets that may be highly valuable to the community.
Lands and Soil Conservation	Screening of activity 2.2.1. will determine whether additional management is required once the design phase is completed.	No risks are identified for activities under components 1 and 3. Component 2 will require further assessment based on the activities that are defined after the designing phase. Given that the project is within an urban context and will promote urban agriculture at a small scale it is highly unlikely that any risks are triggered.	No risks identified

PART III: IMPLEMENTATION ARRANGEMENTS

A. Arrangement for Project Implementation

Describe the arrangements for project/programme implementation.

Location of implementation of proposal:

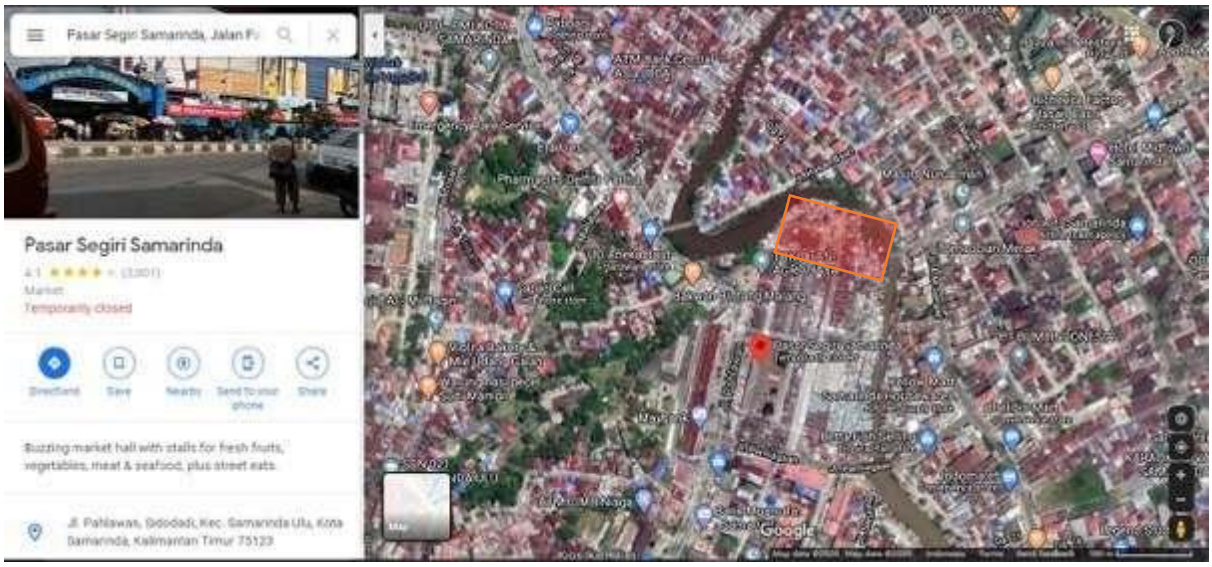


Figure 26. Location of Segiri Market and its surrounding

Area : 1.300 m^2
Owner : City Government of Samarinda
Other : (1) Located on the banks of Karang Mumus River
(2) The government's plan to make it a Green Open Space on the banks
(3) Located near the Traditional Market (*Pasar Segiri*)

The location for implementation of the project has discussed with the City Government of Samarinda with specific criteria that will in line with the city's strategic plan. This location located in the city center of Samarinda, near the Segiri Market, and the total area is 54.090-meter square.

The City Government of Samarinda's strategic plan explains that the location has a significant social problem. Based on that, this project hopefully will answer not only the climate change problem but also a social problem.

Table 14. Stakeholder involvement by output or activity.

Output	Stakeholders
1.1.1 Research conducted on climate-resilient public space, including best practices and lesson learned within the Asia-Pacific Region, and South-East Asia cities in particular	Central Government, Municipal Government, UN-Habitat Global Public Space, and Pratt Institute New York.
1.1.2 Assessment tool and methodology for evaluation of climate-resilient Public Space developed	UNTAG Surabaya, QUT, Pratt Institute New York, Municipal Government, and UN-Habitat Global Public Space
1.1.3 Public Space guidelines, incorporating new typologies that can be used as a best practice for replication	UNTAG Surabaya, QUT, Pratt Institute New York, Municipal Government, and UN-Habitat Global Public Space
2.1.1 Community profiling developed for targeted locations	Municipal Government, Local University, Local Community, Local CSO

Output	Stakeholders
2.1.2 Targeted communities are engaged in design processes through a participatory approach (e.g., workshop, interactive debate, etc.), focused on climate-resilient Public Space	Municipal Government, Local University, Local Community, Local CSO
2.2.2 Community groups are established, based on the existing governance structure (if present), to ensure adequate maintenance of the Public Space	Municipal Government, Local University, Local Community, Local CSO
3.1.1 Training for community groups to base strengthen community adaptation in Public Space location	Municipal Government, Local University, Local Community, Local CSO
3.1.2 Training for government officials in key sector (e.g. planning department) on project findings, methodologies and approaches app	Municipal Government, Local University.
3.2.1 Lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building are captured and disseminated for regional replication	City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan
4.1.1 Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the intervention	City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan
4.2.1 Lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building are captured and disseminated for regional replication	City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan

B. Measures for financial and project risk management

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

All risks in project implementation are analyzed during the design phase with the participation of all relevant stakeholders. A mitigation strategy is established to ensure that the risk is well managed. The table below presents the types of risks, description of risk and risk level and the strategies that have been and will be done to minimize them.

Type of Risk	Description of Risk	Risk category (H/M/L)	Risk Mitigation Strategy
Institutional	Weak commitment built by project implementers with central/provincial/local government due to changes in government structure and lack of coordination and communication.	Medium	This project will build in Segiri Market neighborhood that being hot-spot area related to political issues and social economy activities. The development process that happened in the election year might be one of the sensitive issues that use to politicization the designated area. To minimize the risk, PMU will ask the municipal government to form an official team under Secretary of Samarinda City (ex officio) supervision
	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.

Type of Risk	Description of Risk	Risk category (H/M/L)	Risk Mitigation Strategy
			With this mechanism, the personnel attachment with the consortium in achieving the project goal will be the legal basis.
Financial	Delays in disbursement of funds, procurement and institutional efficiency (long approval process and others) that delay project implementation.	Medium	Building active communication with the grantor and fulfilling all forms of financial procedures in budget disbursement.
Social	Lack of community (direct beneficiaries) in supporting to the project	Medium	• Building good relationships with local government, community and the community leaders (direct beneficiaries) before the project starts • Establishing temporary mini-groups for specific beneficiaries (local youth community, merchants, general citizens near designated location) to gather targeted community • Utilization of activities in the form of training/workshops/group discussions to provide amn 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 climate change adaptation through public space development.	Medium	This project will encourage the communities and introduce participatory methods to so that they can be provided with understanding on the impacts of climate change.
	Conflict of community interest in developed public space	Medium	This project will build trust among stakeholders in the Segiri Market neighborhood. There will be a representation person for each group that coordinates in the decision-making process. Furthermore, this project will promote collaboration in every phase of development to prevent conflict of community interest
	Low technical knowledge of municipal government officials and communities to maintaining the public space.	Medium	This project will provide the municipal government and communities with sustainable scheme related to public space maintenance. The alternative sustainable scheme is expected to reduce the maintenance cost that burden the local development budget

C. Environmental and Social Risk Management

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

Project/program preparation has identified environmental or social risks, where the proposal should include environmental and social management plans that identify actions necessary to avoid, minimize, or mitigate potential environmental and social risks.

Vulnerable groups in the project location

Project/program preparation has identified environmental or social risks, where the proposal should include environmental and social management plans that identify actions necessary to avoid, minimize, or mitigate potential environmental and social risks.

Environmental and Social Principles	Description of Risks	Risk category (H/M/L)	Risk Mitigation Strategy
Marginal and Vulnerable Groups	There are several possibilities that will not involve some vulnerable groups in project activities	Low	• The Assessments of vulnerable groups who will be involved in the project are identified by several categories such as age, work, income and family dependents. The data will then be fairly chosen for group involvement in each project activity • The Project activity must record how much the involvement of vulnerable groups as beneficiaries, and must be evaluated • Monitoring will have an impact on this will be carried out as scheduled during the project carried out through monitoring and evaluation on each project activity
	The participation of vulnerable groups who are beneficiaries is not fully approved, so that it will trigger uneven social impacts	Low	The existence of assistance activities for vulnerable groups in an effort to increase capacity

Grievance Mechanism

In alignment to the Adaptation Fund´s Environmental and Social Safeguards Policy, the implementing entity (Kermitraan) has a grievance mechanism in place, available in the target areas, ensuring an accessible, transparent, fair and effective means of communicating concerns during project design and implementation. Project stakeholders affected by the project will be informed of the grievance mechanism for any criticism or complaint of an activity.

This grievance mechanism will allow affected stakeholders to raise concerns and will be given the option to remain anonymous. Modalities for raising grievances will include a postal address to which community members can write in any language, an email address and a confidential telephone number. Consultations and workshops held throughout the project implementation will also serve as a means for stakeholders to raise concerns or suggestions.

These mechanisms consider the special needs of different indigenous groups as well as gender considerations. A hotline and mailbox offer an immediate way for affected stakeholders to express their concerns. The hotline will be available in local languages and offer the opportunity

for those that may be affected by the project to complain or provide suggestions on how to improve project design and implementation.

In addition to the grievance mechanism set in place by the implementing entity, the address and e-mail address of the Adaptation Fund will also be made public (i.e., social media, participatory workshops, etc.) for anyone to raise concerns regarding the project:

Adaptation Fund Board secretariat
Mail stop: MSN P-4-400
1818 H Street NW
Washington DC
20433 USA
Tel: 001-202-478-7347
afbsec@adaptation-fund.org

Designation	Responsibility
Program Management Unit (PMU)	- Identification of Environmental and Social Problems at the Project Site - Public disclosure - Creation of grievance mechanism at EE level - Reporting and disposal of grievances
Kemitraan (Partnership)	- Monitor and review the process ESMP implementation - Set up the grievance mechanism at IE level - Disposal of grievances

Gender Assessment

The details of gender assessment can be seen in Annex E. Meanwhile the results can be seen in the table below. This Gender assessment is conducted in the COVID-19 pandemic.

Gender Assessment Categories	Description relevant to project	Action Needed
Gender Roles	• Women near designated area in many contexts are therefore disproportionately affected by natural disasters and extreme weather events, such as floods, droughts, and mudslides. • Women near designated are under-represented in decision making at the household, community and societal level, including policy formulation, implementation, and monitoring and evaluation processes. This limits their ability to contribute their unique and valuable perspectives and gender-specific expertise. In order for this situation to improve, there is a need for gender- sensitive policies and strategies. This phenomenon reflected on basic infrastructure (water and sanitation) near the designated area that has not accommodate women and vulnerable groups' needs.	• Supporting the provision of tools or measures to adapt to and/or mitigate the impacts of climate change, including vulnerability assessments that build on local and indigenous knowledge of both women and men; • Involving women in the development of new technologies related to climate change adaptation or mitigation which take into account women's specific priorities and needs, and make full use of their knowledge, expertise and traditional practices. This will ensure that the technologies are gender-sensitive, user-friendly, effective and sustainable; • Facilitating extension studies, particularly for women, to improve

	• Low understanding of how societal expectations, roles, status, and economic power of women and men affect, and are affected differently by climate change will consequently improve actions taken to reduce vulnerability and combat climate change in the developing world. • Low understanding related to adaptation efforts should systematically and effectively address gender-specific impacts of climate change in the areas of energy, water, food security, agriculture and fisheries, biodiversity and ecosystem services, health, industry, human settlements, disaster management, and conflict and security	the accessibility and use of new technology;
Gender Based Violence	• The development process may involve workers from outside the region / location. This can have social impacts, such as violence against women and children • Based on data from the Centre for Integrated Services for Women's Empowerment and Child Protection (P2TP2A), East Kalimantan Province, in 2014 there were 369 cases of violence against women and in 2015 there were an increase of 613 cases. Meanwhile, based on data per city / district, in Samarinda Municipality there are 344 cases. Data from the Women Empowerment and Child Protection Agency (DP2PA) in 2019 recorded 132 cases of violence. Of the total number of cases of violence, 107 cases of violence against children and 25 cases of violence against women, with the most types of violence were sexual violence and psychological violence. • Based on the gender profile book of Samarinda City, it is known that child marriage often occurs throughout 2019. The total number of child marriage cases that occurred in 2019 was 91 children (aged 15-18 years).	• It is necessary to mitigate the prevention and handling of violence that occurs at the project site
Gender Equality	• The Gender Development Measurement/Index for Samarinda City in 2019 is 89.41, while the Gender Empowerment Measurement/ Index for Samarinda City in 2019 is 66.29. • Based on data, Kota Samarinda is still dealing with gender disparities in the role / participation of women in politics,	• Integrating gender analysis and gender equality indicators into programs and projects to identify where specific vulnerabilities to climate change lie, and where opportunities for mitigating and adapting to climate change can be found;

	economy and decision making, as well as control of economic resources.	
Policy/Government of Indonesia's (GOI) Law for Gender Mainstreaming	• The government of Indonesia has put strong efforts in promoting gender equality. The country has put in place a number of laws, regulations and programmes that provide support to girls and women. However, gender inequality is still persisting, although there are already progress to date. Legal barriers in some key areas, coupled with unequal gender norms and gender role practiced in the community continue to prevent girls and women from fulfilling their rights. • Gender mainstreaming is important in development planning, especially in urban and regional planning, in accordance with the mandate of Presidential Instruction No. 9 Year 2000 which obliges government agencies at all levels to carry out gender mainstreaming, namely placing gender as one of the bases for consideration of developing work programs. • More recently, the Indonesian Government committed to improving gender equality in RPJMN 2020-2024, which includes targets on access to education, employment, health, violence, and representation in politics. • Decree of the Minister of Public Works regarding the Establishment of the Gender Mainstreaming Team of the Ministry of Public Works No. 165 / KPTS / M / 2013 • Guidelines for Gender Responsive Planning and Budgeting • The Samarinda City Government has a Regional Regulation on Gender Mainstreaming in the Region No.2 /2020.	• Conducting a gender analysis of all budget lines and financial instruments for climate change initiatives to ensure gender-sensitive investments in programs for adaptation, mitigation, technology transfer and capacity building;

D. Monitoring and Evaluation

Describe the monitoring and evaluation arrangements and provide a budgeted M & E plan.

To ensure the project implemented smoothly, monitoring and evaluation need to held sustainably. The monitoring and evaluation activities will provide insights needed regarding the project strategy implementation, effectiveness and efficiency of the resource's utilization, as well as relevant conditions that will be included in the reporting to guide future planning. Therefore, monitoring and evaluation of embracing the sun project described as bellow:

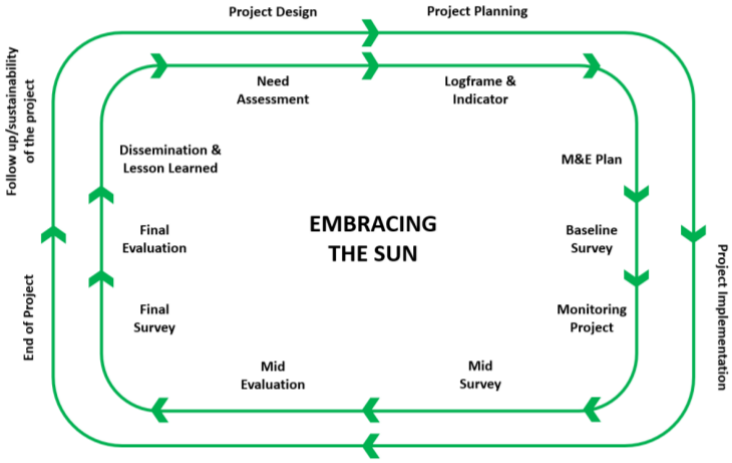


Figure 27. Monitoring Evaluation in Project Cycle

Monitoring is defined as continuous observation and recording of activities occurring within a program. The activities focus on gathering information on all aspects of the program to get an overview of the existing status of the program implementation that useful both for the program implementation and other stakeholders. The monitoring and evaluation plan is prepared to take into account the Program Context, Institutional Capacity, Information Needs and Grant Requirements.

Monitoring will be conducted by the monitoring and evaluation expert (selected by Kemitraan) responsible for monitoring evaluation. Monitoring will be carried out in 1-month, 3-month, 6-month and mid-program stage to see the achievement in each phase and program outcomes (Output, Outcome) as planned. Monitoring will be conducted in the Document Review method, Field Survey, Interview, or Discussion of the parties. Monitoring is directed to see Efficiency, Effectiveness and Results.

The results are expected to provide learning material used for strategy adjustment and improvement. the results will be reported periodically to the relevant parties: Adaptation Fund, Kemitraan, and Stakeholders in the region. The Monitoring and Evaluation Implementation Phase in this program is described in the figure below:

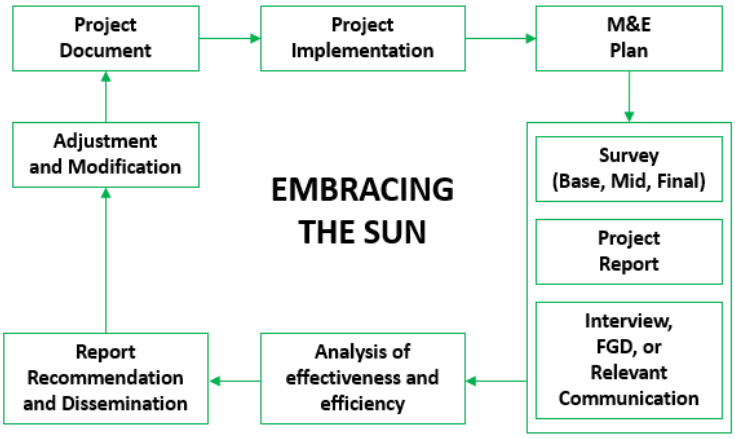


Figure 28. Monitoring Evaluation Implementation Phases

Through the analysis of the effectiveness and efficiency of the project implementation phase, recommendations will be formulated to provide alternative strategies and disseminated among stakeholders to accelerate and reinforce the project's achievements.

Monitoring and Evaluation Activities and Budget

Activities	Target	Cost	Time
Baseline Survey	Outcome, output indicator targets	$ 2,652	Start of Project
Mid Survey	Outcome, output indicator targets	$ 1,136	Mid of Project
Final Project Survey	Target indicator outcome, output	$ 1,894	End of Project
Report reviews, interviews, PMU FGD	Process, milestones, efficiency, effectiveness, results	$ 1,894	1 Time in A Month
M & E workshop	Process, milestones, efficiency, effectiveness, results	$ 1,515	Six Month
Program Implementation Audit	Management	$ -	Annual

Project Results	Indicators	Target	Sort by	Monitoring Methods & Tools	Frequency	Responsibility
Project Component 1. Research and Development on city-wide adaptation to climate change through public spaces						
Outcome 1.1 Increased urban resilience through the development of a new public space typology and guidelines that can inform planning processes at the city-level	Collective approaches (In one module) and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change	Month 1-8	None	• Mapping review • Approaches and model review • Quarterly report review	Quarterly	Kermitraan and EEs
Output Level:						
1.1.1. Research conducted on climate-resilient public spaces, including best practices and lessons learned within the Asia-Pacific Region, and South-East cities in particular	Complete mapping and research regarding best practices and lessons learned of public space in the Asia-Pacific Region, and South-East cities. 100 participate in the initial meeting (60 male, 40 female)	Month 1-5	Asia-Pacific Region, and South-East cities	• Mapping review • Approaches and model review • Quarterly report review	Quarterly	Kermitraan and EEs
1.1.2. Assessment tool and methodology for the evaluation of climate-resilient public spaces developed	Complete guideline of tool and methodology for the evaluation of climate-resilient public space	Month 5-7	Designated Area	• Mapping review • Approaches and model review • Quarterly report review	Quarterly	Kermitraan and EEs
1.1.3. Public space guidelines, incorporating new typologies that can be used as a best practice for replication	Complete guideline of new public space typologies best practices	Month 7-8	Designated Area and Neighborhood	• Mapping review • Approaches and model review • Quarterly report review	Quarterly	Kermitraan and EEs

Project Component 2. Awareness raising and local resilience strengthening through the design and implementation of a new public space typology						
Outcome 2.1 Increased awareness and ownership of design processes	650 (390 male, 260 female) of targeted population aware of climate projections and expected impacts	Month 1-16	Designated Area and Neighborhood	• Documentation review • Activity Report review • Participation lists • Quarterly Report review • Baseline Survey • Mid Survey • Final Survey	Quarterly	Kermitraan and EEs
Outcome 2.2 Community-based infrastructure developed resulting in a strengthened adaptive capacity	Physical infrastructure improved to with stand climate change and variability-induced stress. 150 (90 male, 60 female) of targeted group involve in the development process	Month 1-16	Designated Area and Neighborhood	• Documentation review • Activity Report review • Quarterly Report review • Baseline Survey • Mid Survey • Final Survey	Quarterly	Kermitraan and EEs
Output Level:						
2.1.1. Community profiling developed for targeted location in the City of Samarinda	Number of community profiles developed for the targeted location. 600 participants involve (360 male, 240 female)	Month 1-7	Neighborhood surrounding designated area	• Documentation review	Quarterly	Kermitraan and EEs
2.1.2. Targeted communities are engaged in design processes through a participatory approach (e.g., workshops, interactive debates, etc.), focused on climate-resilient public spaces	Design strategies are formulated at with the local communities. 50 participants involve (30 male, 20 female)	Month 8-9	Neighborhood surrounding designated area	• Activity Report review • Participation List • Quarterly Report review	Quarterly	Kermitraan and EEs

2.2.1. Climate-resilient public space is co-developed and built in the selected communities (in the city of Samarinda) based on previous findings	Physical public space build constructed to withstand conditions resulting from climate variability and change (by asset types). 100 participants involve (60 male, 40 female)	Month 10-16	Neighborhood surrounding designated area	• Activity Report review documentation • Quarterly Report review	Quarterly	Kermitraan and EEs
2.2.2. Community groups are established, based on existing governance structures (if present), to ensure adequate maintenance of the public spaces	1 community groups established. 50 participants involve (30 male, 20 female)	Month 13-14	Neighborhood surrounding designated area	• Activity Report review • Participation lists • Quarterly Report review	Quarterly	Kermitraan and EEs
Project Component 3. Capacity building, knowledge management and communication						
Outcome 3.1 Increased capacity at the city- and community-levels on climate-resilient strategies and design options for public spaces	150 (90 male, 60 female) targeted beneficiaries involve with increased capacity to minimize exposure to climate variability risks	Month 13-16	City	• Activity Report review • Participation lists	Quarterly	Kermitraan and EEs
Outcome 3.2 Knowledge sharing and increased awareness on project results among targeted audience (communities, governmental bodies, general public)	125 (75 male, 50 female) targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	Month 13-16	City and pubic audience	• Quarterly Report review • Documentation	Quarterly	Kermitraan and EEs
Output Level:						
3.1.1. Training for community groups to divulgate findings of the project and methodology of the intervention	100 (60 male, 40 female) of people aware of predicted adverse impacts of climate change, appropriate responses and project and	Month 14-15	Neighborhood surrounding designated area	• Activity Report review • Documentation • Participation lists • Baseline Survey • Mid Survey • Final Survey	Quarterly	Kermitraan and EEs

	methodologies implemented in the intervention					
3.1.2. Training for government officials in key sectors (e.g., planning departments) on project findings, methodologies and approaches applied for replication	50 (30 male, and 20 female) Government officials trained to design and replicate the public space approaches	Month 14-15	City	• Activity Report review • Documentation • Participation lists • Baseline Survey • Mid Survey • Final Survey	Quarterly	Kermitraan and EEs
3.2.1. Lessons learned and best practices on climate-resilient public spaces and community adaptive capacity building are captured and disseminated for regional replication	1 Book 1 Documented Video and 125 (75 male, 50 female) of people aware of the benefit of the developed public space through international seminar 3 news outlets in the local press and media covering the topic.	Month 15-16	None	• Quarterly Report review • Documentation	Quarterly	Kermitraan and EEs
Project Component 4. Monitoring						
Outcome 4.1 Increased understanding and awareness of the impact of the intervention	Evaluation of the project impacts. 60 (36 male, 24 female) participants will engage in terms of data collection	Month 10-18	City	• Documentation review • Baseline survey, end of completion survey, survey two years after the completion of the intervention	Quarterly	Kermitraan and EEs

Outcome 4.2 High-level internal meeting with Samarinda Government Municipalities	Multi-dialogue stakeholder meeting post project completion. Will involve 100 (60 male, 40 female) participants to discuss the further steps related to climate-resilient mainstreaming agenda	Month 10-18	City	• Activity Report review • Documentation • Participation lists	Quarterly	Kermitraan and EEs
Output Level:						
4.1.1 Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the interventions	Evaluation report in the project location 60 (36 male, 24 female) participants will engage in terms of data collection	Month 10-18	Designated Area and Neighborhood	• Baseline survey, end of completion survey, survey two years after the completion of the intervention	Quarterly	Kermitraan and EEs
4.2.1 Policy advocation related to the public space development benefits and further climate-resilient mainstreaming agendas	1 Internal meeting with the government municipal that involve 100 (60 male, 40 female) participants	Month 10-18	City	• Activity Report review • Documentation • Participation lists	Quarterly	Kermitraan and EEs

E. Result Framework

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

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risk & Assumption
Project Component 1. Research and Development on city-wide adaptation to climate change through public spaces					
Outcome 1.1 Increased urban resilience through the development of a new public space typology and guidelines that can inform planning processes at the city-level	Collective approaches and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change	0	1 Complete document related to Collective approaches and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change	• Activity Report, • Documentation • Copy of assessment tool and methodology • Copy of public space guidelines	-
Output 1.1.1. Research conducted on climate-resilient public spaces, including best practices and lessons learned within the Asia-Pacific Region, and South-East cities in particular	Complete mapping and research regarding best practices and lessons learned of public space in the Asia-Pacific Region, and South-East cities	0	1 Complete document of mapping and research finding regarding best practices and lessons learned of public space in the Asia-Pacific Region, and South-East cities	• Activity Report, • Documentation	-
Output 1.1.2. Assessment tool and methodology for the evaluation of climate-resilient public spaces developed	Complete guideline of tool and methodology for the evaluation of climate-resilient public space	0	1 Complete guideline of tool and methodology for the evaluation of climate-resilient public space	• Copy of assessment tool and methodology	-
Output 1.1.3. Public space guidelines, incorporating new typologies that can be used as a best practice for replication	Complete guideline of new public space typologies best practices	0	1 Complete document of new public space typologies best practices	• Copy of public space guidelines	-

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risk & Assumption
Project Component 2. Awareness raising and local resilience strengthening through the design and implementation of a new public space typology					
Outcome 2.1 Increased awareness and ownership of design processes	650 (390 male, 260 female) of targeted population aware of climate projections and expected impacts	0	50 %	• Copy of community profiles • Activity Report • Participation lists • Documentation	-
Output 2.1.1. Community profiling developed for targeted location in the City of Samarinda	1 Complete community profiles document. 600 participants involve (360 male, 240 female)	0	1 and 50% participants involve	• Community profiles (documentation) • Activity Report • Participation lists • Documentation	Several groups less interested with the development process
Output 2.1.2. Targeted communities are engaged in design processes through a participatory approach (e.g., workshops, interactive debates, etc.), focused on climate-resilient public spaces	1 Design strategies are formulated at with the local communities. 50 participants involve (30 male, 20 female)	0	1 design and 50% participant involve	• Activity Report • Participation lists	Overlapping interest within community in utilizing the designated area for public space development
Outcome 2.2 Community-based infrastructure developed resulting in a strengthened adaptive capacity	Physical infrastructure developed to withstand climate change and variability-induced stress 150 participants involve in the process (90 male, 60 female)	0	1 public space	• Activity Report • Documentation	-
Output 2.2.1. Climate-resilient public space is co-developed and built in the selected communities (in the city of Samarinda) based on previous findings	1 physical public space build constructed to withstand conditions resulting from climate variability and change (by asset types). 100 participants involve (60 male, 40 female)	0	1 public space and 50% participants involve	• Activity Report • Documentation	Low level of public space ownership due to the lack of idea representation from each group of communities

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risk & Assumption
Output 2.2.2 Community groups are established, based on existing governance structures (if present), to ensure adequate maintenance of the public spaces	1 community groups established. 50 participant involve (30 male, 20 female)	0	1 formalize entity	• Activity Report • Participation lists	-
Project Component 3. Capacity building, knowledge management and communication					
Outcome 3.1 Increased capacity at the city- and community-levels on climate-resilient strategies and design options for public spaces	150 (90 male, 60 female) targeted beneficiaries involve with increased capacity to minimize exposure to climate variability risks	0	1 activitiy	• Activity Report • Participation lists • Survey results	-
Output 3.1.1. Training for community groups to divulgate findings of the project and methodology of the intervention	Number of people aware of predicted adverse impacts of climate change, appropriate responses and project and methodologies implemented in the intervention	0	1 training (at least 50% women participating)	• Activity Report • Participation lists • Survey results	Minimum participant due to the pandemic and other social issues
Output 3.1.2. Training for government officials in key sectors (e.g., planning departments) on project findings, methodologies and approaches applied for replication	20 staff trained	0	20 staff trained	• Activity Report • Participation lists • Survey results	Stakeholder reshuffle in government bodies

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risk & Assumption
Outcome 3.2 Knowledge sharing and increased awareness on project results among targeted audience (communities, governmental bodies, general public)	125 (75 male, 50 female) targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	0	50% participant involve	• Activity Report • Documentation • Participation lists	-
Output 3.2.1. Lessons learned and best practices on climate-resilient public spaces and community adaptive capacity building are captured and disseminated for regional replication	1 Book 1 Documented Video and 125 (75 male, 50 female) of people aware of the benefit of the developed public space through international seminar. 3 news outlets in the local press and media covering the topic.	0	1 Book 1 Documented Video and 50% of participant involve 1 news outlet the local press and media covering the topic.	• Activity Report • Documentation • Participation lists	Minimum participant due to the pandemic and other social issues or Stakeholder reshuffle in government bodies
Component 4. Monitoring and Evaluation					
Outcome 4.1 Increased understanding and awareness of the impact of the intervention	1 Evaluation report in the project implementation 60 (36 male, 24 female) participants will engage in terms of data collection	0	1 report	• Documentation • Baseline survey, end of completion survey, survey two years after the completion of the intervention	-
Output 4.1.1 Evaluation of place quality before the intervention, at completion of the intervention, and two	1 Evaluation report in the project implementation 60 (36 male, 24 female) participants will engage in terms of data collection	0	1 report and 50% participant involve	• Documentation • Baseline survey, end of completion survey, survey two years after the completion of the intervention	Minimum participant due to the pandemic and other social issues

Outcome/ Output	Indicator	Baseline	Target	Source of Verification	Risk & Assumption
years after the completion of the interventions					
Outcome 4.2 High-level internal meeting with Samarinda Government Municipalities	1 Evaluation complete document of the project development	0	1 report activities	• Activity Report • Documentation • Participation lists	-
4.2.1 Policy advocation related to the public space development benefits and further climate-resilient mainstreaming agendas	1 Internal meeting with the government municipal that involve 100 (60 male, 40 female) participants		1 report activities and 50% participant involve	• Activity Report • Documentation • Participation lists •	Minimum participant due to the pandemic and other social issues or Stakeholder reshuffle in government bodies

F. Alignment with the Results Framework of the Adaptation Fund

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

Project Outcome(s)	Project Outcome Indicator(s)	Fund Outcome	Fund Outcome Indicator	Grant Amount (USD)
Outcome 1.1. Increased urban resilience through the development of a new public space typology and guidelines that can inform planning processes at the city-level	1 Complete document related to Collective approaches and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change	**Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	**7.** Climate change priorities are integrated into national development strategy	**109,026**
Outcome 2.1. Increased awareness and ownership of design processes	650 of targeted population aware of climate projections and expected impacts	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.2.** Modification in behavior of targeted population	**50,000**
Outcome 2.2. Community-based infrastructure developed resulting in a strengthened adaptive capacity	1 public space developed to support the adaptation efforts.	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced	**2.1.** No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	**409,682**

	1 formalize entity establish to support the further activities in the developed public space. 150 participants involve in the process (90 male, 60 female)	socioeconomic and environmental losses **Outcome 4:** Increased adaptive capacity within relevant development and natural resource sectors	**4.2.** Physical infrastructure improved to withstand climate change and variability-induced stress	
Outcome 3.1. Increased capacity at the city- and community-levels on climate-resilient strategies and design options for public spaces	150 targeted beneficiaries involve with increased capacity to minimize exposure to climate variability risks	**Outcome 2:** Strengthened institutional capacity to reduce risks associated with climate-induced socioeconomic and environmental losses	**2.1.** No. and type of targeted institutions with increased capacity to minimize exposure to climate variability risks	**30,000**
Outcome 3.2. Knowledge sharing and increased awareness on project results among targeted audience (communities, governmental bodies, general public)	125 targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**51,000**
Outcome 4.1 Increased understanding and awareness of the impact of the intervention	60 participants will engage in terms of data collection and have strengthened their awareness and ownership	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**17,500**
Outcome 4.2 High-level internal meeting with Samarinda Government Municipalitie	1 Multi-dialogue stakeholder meeting post project completion. That involve 100 participants to discuss the further steps related to climate-resilient mainstreaming agendas	**Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	**7.** Climate change priorities are integrated into national development strategy	**20,788**
Project Outputs	**Project Objective Indicator(s)**	**Fund Outcome**	**Fund Outcome Indicator**	**Grant Amount (USD)**

1.1 Research conducted on climate-resilient public spaces, including best practices and lessons learned within the Asia-Pacific Region, and South-East cities in particular. **1.2** Assessment tool and methodology for the evaluation of climate-resilient public spaces developed **1.3** Public space guidelines, incorporating new typologies that can be used as a best practice for replication.	1 comprehensive collective approaches and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change	**Output 7:** Improved integration of climate-resilience strategies into country development plans	**7.1.** Number type, and sector of policies introduced or adjusted to address climate change risks	**109,026**
2.1.1 Community profiling developed for targeted locations in the City of Samarinda **2.1.2** Targeted communities are engaged in design processes through a participatory approach (e.g., workshops, interactive debates, etc.), focused on climate-resilient public spaces	1 community profiles developed for the targeted locations 1 type of risk reduction actions or strategies introduced at local level	**Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.1** No. and type of risk reduction actions or strategies introduced at local level	**50.000**
2.2.1 Climate-resilient public space is co-developed and built in the selected communities (across the four cities) based on previous findings	1 public space strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	**Output 4:** Vulnerable physical, natural, and social assets strengthened in response to climate change impacts, including variability	**4.1.2.** No. of physical assets strengthened or constructed to withstand conditions resulting from climate variability and change (by asset types)	**409,682**

3.1.1 Training for community groups to divulgate findings of the project and methodology of the intervention	600 people aware of predicted adverse impacts of climate change, appropriate responses and project and methodologies implemented in the intervention	**Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**15.000**
3.1.2 Training for government officials in key sectors (e.g., planning departments) on project findings, methodologies and approaches applied for replication	50 staff trained and gain an awereness nad capacity improvement	**Output 2.1:** Strengthened capacity of national and regional centers and networks to respond rapidly to extreme weather events	**2.1.1.** No. of staff trained to respond to, and mitigate impacts of, climate-related events	**15.000**
3.2.1 Lessons learned and best practices on climate-resilient public spaces and community adaptive capacity building are captured and disseminated for regional replication	1 Book 1 Documented Video and 125 of people aware of the benefit of the developed public space through international seminar. 3 news outlets in the local press and media covering the topic	**Output 3:** Targeted population groups participating in adaptation and risk reduction awareness activities	**3.1.2** No. of news outlets in the local press and media that have covered the topic	**51.000**
4.1.1 Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the interventions	1 Evaluation report in the project implementation 60 participants will engage in terms of data collection	**Outcome 3:** Strengthened awareness and ownership of adaptation and climate risk reduction processes at local level	**3.1.** Percentage of targeted population aware of predicted adverse impacts of climate change, and of appropriate responses	**17,500**
4.2.1 Policy advocation related to the public space development benefits and further climate-resilient mainstreaming agendas	1 Internal meeting with the government municipal that involve 100 participants	**Outcome 7:** Improved policies and regulations that promote and enforce resilience measures	**7.** Climate change priorities are integrated into national development strategy	**20,788**

G. Budget

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.

For the detail see Annex B (Excel File)

Code	Program	Description	Budget Notes	Detail Budget
				Total in USD
1	Component 1	Development of theoretical model for the new typology of Public Space		$ 109,026
1.1	Outcome 1.1	New Public Space typology and guideline that can be implemented in the city		$ 109,026
1.1.1	Output 1.1.1	Research conducted on climate-resilient public space, including best practices and lesson learned within the Asia-Pacific Region, and South-East Asia cities in particular	Objection: Developing collective approaches and theoretical model for a new typology of Public Space related to the traditional market and riverside area improvement as the social and economic activities epicenter in adapting climate change Involvement: Central Government, Municipal Government, UN-Habitat Global Public Space, and Pratt Institute New York.	$ 85,026
1.1.2	Output 1.1.2	Assesment tool and methodology for evaluation of climate-resilient Public Space developed	Objection: Developing user-friendly tools and apps to help citizens to perceive climate and resilience context in public space that will be utilized in development location Involvement: UNTAG Surabaya, QUT, Pratt Institute New York, Municipal Government, and UN-Habitat Global Public Space	$ 14,000
1.1.3	Output 1.1.3	Public Space guidelines, incorporating new typologies that can be used as a best practice for replication	Objection: Building interactive boots that will be used as knowledge transfer media among citizens, local stakeholders, and government officials to understand climate change and resilience through in public space development. So it can be a best practice that will replicate for further development in Samarinda City or other Indonesian cities. Involvement: UNTAG Surabaya, QUT, Pratt Institute New York, Municipal Government, and UN-Habitat Global Public Space	$ 10,000

	Component 2	Awareness raising and local resilience strengthening through the design and implementation of a new Public Space typology		$ 459,682
2.1	Outcome 2.1	Increased awareness and ownership of the design processes		$ 50,000
2.1.1	Output 2.1.1	Community profiling developed for targeted locations	Target: Citizens, community, and local merchants in Segiri Market neighborhood as well as the youth community in Samarinda Objection: Building Trust with the local community as well as municipal government to collaborate and support the public space development through embracing the sun project Involvement: Municipal Government, Local University, Local Community, Local CSO	$ 10,000
2.1.1	Output 2.1.2	Targeted communities are enggaged in design processes through a participatory approach (e.g. workshop, interactive debate, etc.), focused on climate-resilient Public Space	Target: Citizens, community, and local merchants in Segiri Market neighborhood. Objection: Collaborating and incorporating local ideas to public space development plan in the designated area. Involvement: Municipal Government, Local University, Local Community, Local CSO	$ 40,000
2.2	Outcome 2.2	Community-based infrastructure developed resulting in a strengthened adaptive capacity		$ 409,682
2.2.1	Output 2.2.1	Climate-resilient Public Space is co-developed and built in the selected communities (in the City of Samarinda) based on previous findings	Target: Segiri Market Neighborhood Objection: Improvement and construction of basic infrastructure (exp: sanitation, waste management, lighting, education center, etc) in Segiri Market Neighborhood.	$ 399,682

			Involvement: Municipal Government, Local University, Local Community, Local CSO, Private Sector (Construction and installation)	
2.2.2	Output 2.2.2	Community groups are established, based on the existing governance structure (if present), to ensure adequate maintanance of the Public Space	Target: Segiri Market Neighborhood Objection: Establishing Segiri Market public space community and strengthening their bonds to support the maintenance of public space process through collaborative and sustainable model in the effort of adapting climate change Involvement: Municipal Government, Local University, Local Community, Local CSO	$ 10,000
3	Component 3	Capacity building, knowledge management and communication		$ 81,000
3.1	Outcome 3.1	Increased capacity at the city and community-level on climate-resilient strategies and design option for Public Space		$ 30,000
3.1.1	Output 3.1.1	Training for community groups to base strengthen community adaptation in Pubiic Space location	Target: Segiri Market Neighborhood Objection: Introducing citizens near Segiri Market with sustainable activities that will help them in adapting to climate change effect. Strengthening local community ownership of the developed public space through embracing the sun project Involvement: Municipal Government, Local University, Local Community, Local CSO	$ 15,000
3.1.2	Output 3.1.2	Training for government officials in key sector (e.g. planning department) on project findings, methodologies and approaches app	Target: Municipal Government Objection: Improving Municipal Government Officials' understanding regarding sustainable maintenance schemes that will help them in monitoring and preserving the public space that has developed by embracing the sun projects. Introducing them with best practices from cities throughout the	$ 15,000

			globe related to improving and managing public space for further development. Involvement: Municipal Government, Local University.	
3.2	Outcome 3.2	Knowledge sharing and increased awareness on project result among targeted audience (communities, governmental bodies, general public)		$ 51,000
3.2.1	Output 3.2.1	Lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building are captured and disseminated for regional replication	Target: Governmental bodies and the general public Objection: Spreading embracing the sun project' result and lessons learned to the wider public (national and international). Involvement: City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan	$ 51,000
4	Component 4	Monitoring and Evaluation		$ 38,288
4.1	Outcome 4.1	Increased understanding and awareness of the impact of the intervention		$ 17,500
4.1.1	Output 4.1.1	Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the intervention	Target: Segiri Market Neighborhood Objection: Monitoring and evaluation of the project implementation, especially how the intervention promotes better adaptation of climate change. Involvement: City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan	$ 17,500
4.2	Outcome 4.2	High-level internal meeting with Samarinda Government Municipalities	Target: Governmental bodies and the general public. Objection: Spreading embracing the sun project' result and lessons learned to the wider public (national and international).	$ 20,788

			Involvement: City Government of Samarinda, UNTAG Surabaya, QUT, Kemitraan		
	Total Activity			$	687,996
	Total Output			$	687,996
	Total Outcome			$	687,996
	Total Component			$	687,996
A.	**Total Project/Programme Activities Cost**			**$**	**687,996**
B	**Total Project Execution Cost (PEC) and M & E Cost**			**$**	**72,221**
	Project identification and Development			$	3,231
	Project Implementation and Supervision			$	48,464
	Evaluation and Knowledge Management			$	12,924
C	**Project/Programme Cycle Management Fee charged by the Implementing Entity**			**$**	**64,618**
	TOTAL			**$**	**824,835**

H. Disbursement schedule

Include a disbursement schedule with time-bound milestones.

Table 15. Disbursement Milestone

	Upon signature of Agreement	One Year after Project Start [a)]	Total
Schedule Date			
Project Cost	$ 458,664	$ 229,332	$ 687,996
Execution Cost	$ 48,147	$ 24,074	$ 72,221
Implementing Entity Fee	$ 43,079	$ 21,539	$ 64,618
Total	**$ 549,890**	**$ 274,945**	**$ 824,835**

a) Use projected start date to approximate first year disbursement
b) Subsequent dates will follow the year anniversary of project start
c) Add columns for years as needed

Table 16. Time-Bound Project Activities

Component	Expected Output	Activities	Sub Activities	Timeframe/Months																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Development of theoretical model for the new typology of Public Space	1.1.1 Research conducted on climate-resilient public space, including best practices and lesson learned within the Asia-Pacific Region, and South-East Asia cities in particular	1.1.1.1 Re-Thinking Public Space Typologies for Urban Climate Adaptation	A. High level kick off round table for Urban Climate Adaptation (Keynote Speaker: Minister of National Planning and Development, Minister of Forestry and Environment, Minister of Spatial Planning and Land Management)																		
			B. Discussion and Workshop with UN - Habitat Global Public Space Programme (Nairobi) and Block-By-Block Foundation																		
			C. Discussion and Workshop with Pratt Institute New York (Master Program of Urban Placemaking and Management) and Project for Public Space																		
			D. Tool and Method Development at QUT																		

Component	Expected Output	Activities	Sub Activities	Timeframe/Months																	
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	1.1.2 Assessment tool and methodology for evaluation of climate-resilient Public Space developed	1.1.2.1 Formulating tool and methodology to became user friendly	E. Integrating tools and apps development at QUT																		
	1.1.3 Public Space guidelines, incorporating new typologies that can be used as a best practice for replication	1.1.3.1 Tools and Methods Finalization	F. Guideline preparation																		
2. Awareness raising and local resilience strengthening through the design and implementation of a new Public Space typology	2.1.1 Community profiling developed for targeted locations	2.1.1.1 Community engagement	G. Need assessment and group discussion																		
	2.1.2 Targeted communities are engaged in design processes through a participatory approach (e.g. workshop, interactive debate, etc.), focused on climate-	2.1.2.1 Community engagement	H. Participatory Design Workshop																		
			I. Detail Engineering Design and BOQ Development																		

Component	Expected Output	Activities	Sub Activities	Timeframe/Months																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	resilient Public Space																				
	2.2.1 Climate-resilient Public Space is co-developed and built in the selected communities (in the City of Samarinda) based on previous findings	2.2.1.1 Development of Climate Resilient Public Space	J. Construction of Public Space																		
	2.2.2 Community groups are established, based on the existing governance structure (if present), to ensure adequate maintenance of the Public Space	2.2.2.1 Community organizing	K. Community maintenance training																		
3. Capacity building, knowledge management and communication	3.1.1 Training for community groups to base strengthen community adaptation in Public Space location	3.1.1.1 Community Training	L. Training for community about adaptation in the new develop Public Space																		

Component	Expected Output	Activities	Sub Activities	Timeframe/Months																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
	3.1.2 Training for government officials in key sector (e.g. planning department) on project findings, methodologies and approaches app	3.1.2.1 Official Training	M. Training for city officials about project findings and replication																		
	3.2.1 Lessons learned and best practices on climate-resilient Public Space and community adaptive capacity building are captured and disseminated for regional replication	3.2.1.1 Dissemination	N. Book Publishing																		
			O. Video Publishing																		
			P. International Seminar																		
4. Monitoring	4.1.1 Evaluation of place quality before the intervention, at completion of the intervention, and two years after the completion of the intervention	4.1.1.1 Evaluation Pre, Post and Impact	Q. Project Monitoring and Evaluation																		
	4.2.1 High-level internal meeting with Samarinda Government Municipalities	4.2.1.1 Evaluation Pre, Post and Impact	R. Small Workshop and Seminar																		

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

A. Record of Endorsement on Behalf of the Government

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:

H.E. H. Syaharie Ja'ang, S.H., M.Si. Mayor of Samarinda	Date: July, 30th, 2019
Prof. Johan Silas Advisor to the Mayor for City Planning and Urban Heritage	Date: January, 10th, 2019

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

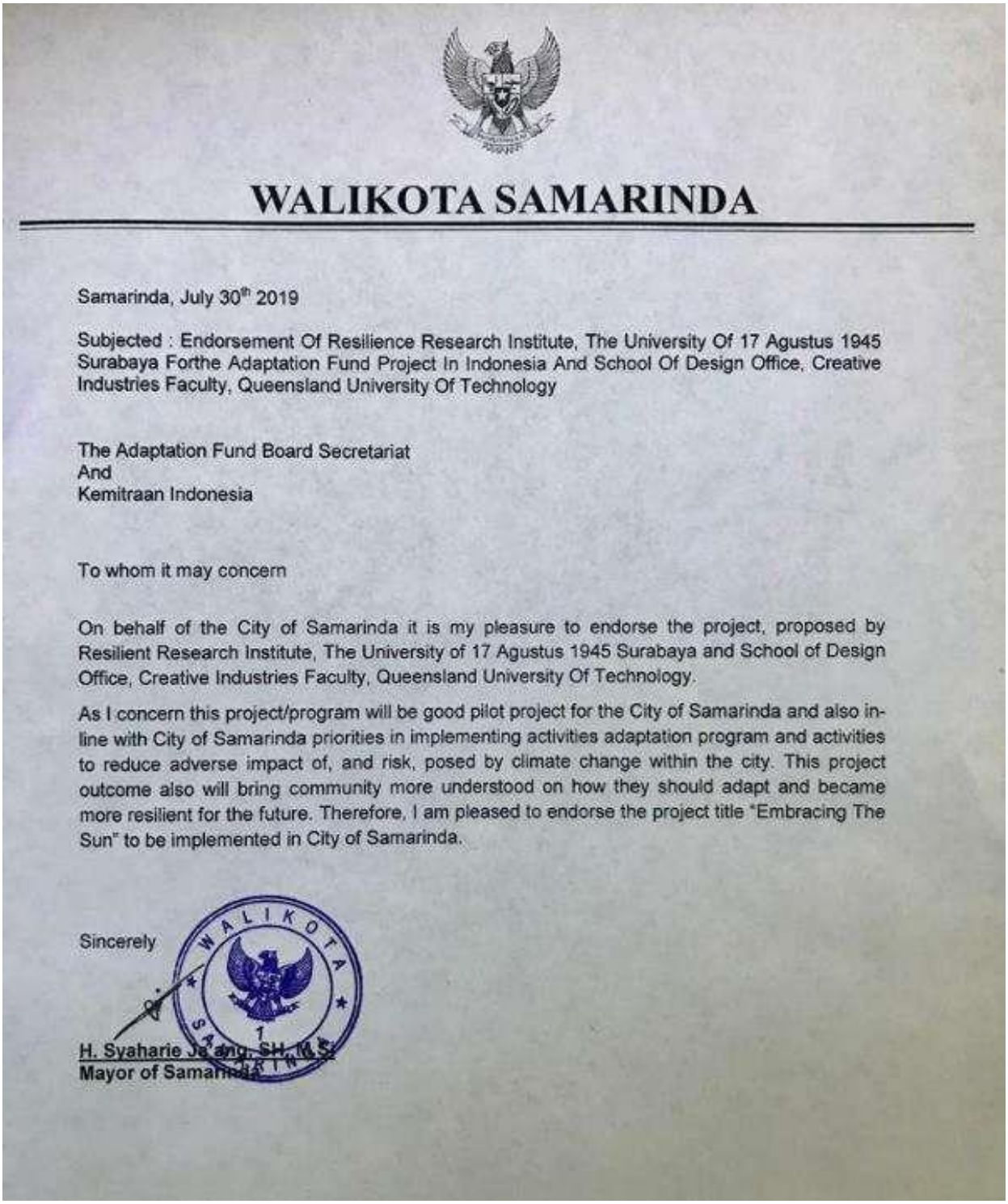
I certify that this proposal has been prepared in accordance with guidelines provided by the Adaptation Fund Board, and prevailing National Development and Adaptation Plans (President Decree No. 16/2015; P.13/MENLHK/Setjen/OTL.0/1/2016; P.33/MENLHK/Setjen/Kum.1/3/2016; Indonesia Intended Nationally Determined 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 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.

Inda Presanti Loekman
Executive Director a.i. of Kemitraan
Implementing Entity Coordinator

Date: January 17th, 2020	Tel. and email: +62-21-7279 9566; Inda.Loekman@kemitraan.or.id
Project Contact Person: **Dewi Rizki**	
Tel. and Email: +62-21-7279 9566; Dewi.Rizki@kemitraan.or.id	

ANNEX A.

Endorsement Letters



WALIKOTA SAMARINDA

Samarinda, July 30th 2019

Subjected : Endorsement Of Resilience Research Institute, The University Of 17 Agustus 1945 Surabaya Forthe Adaptation Fund Project In Indonesia And School Of Design Office, Creative Industries Faculty, Queensland University Of Technology

The Adaptation Fund Board Secretariat
And
Kemitraan Indonesia

To whom it may concern

On behalf of the City of Samarinda it is my pleasure to endorse the project, proposed by Resilient Research Institute, The University of 17 Agustus 1945 Surabaya and School of Design Office, Creative Industries Faculty, Queensland University Of Technology.

As I concern this project/program will be good pilot project for the City of Samarinda and also in-line with City of Samarinda priorities in implementing activities adaptation program and activities to reduce adverse impact of, and risk, posed by climate change within the city. This project outcome also will bring community more understood on how they should adapt and became more resilient for the future. Therefore, I am pleased to endorse the project title "Embracing The Sun" to be implemented in City of Samarinda.

Sincerely

H. Syaharie Jaang, SH, M.Si
Mayor of Samarinda

Annex A 1. The Endorsement Letter from the Mayor of Samarinda City (Municipal Government City of Samarinda)

The Adaptation Fund Board Secretariat
1818 H Street NW
MSN P4-400
Washington, D.C., 20433
U.S.A

Surabaya, 20th January, 2019

Subject:
Endorsement of UNTAG Surabaya Resilience Institute (Pusat Studi Resiliensi), Universitas 17 Agustus 1945 Surabaya, Indonesia, for the Adaptation Fund Project in Indonesia

To Whom It May Concern,

On behalf of the Surabaya City Government, it is my pleasure to endorse the project, proposed by UNTAG Surabaya Resilience Institute (Pusat Studi Resiliensi), Universitas 17 Agustus 1945 Surabaya, Indonesia.

Surabaya is one of the largest cities in Indonesia. The city has won various global awards, because it represents the future of the city of Indonesia, with good governance and innovation in overcoming the challenges facing the urban environment, especially related to global climate change, to bring economic and environmental benefits holistically to the people of Surabaya. In developing its benefits, Surabaya hopes to be a role model for other cities in Indonesia.

Therefore, it is necessary to invite other local governments in the potential cities, to learn what has been done by Surabaya, so that it can be duplicated in their cities. Here the role of non-government organizations, such as the UNTAG Surabaya Resilience Institute is needed. This institution is always active and participates in various activities in Surabaya and its surroundings. They participate to building resilience at the local level through advocacy, awareness raising, capacity building, design workshop & implementation and promoting city-to-city collaboration. One of the trusted institutions that are partners is the School of Design Office, Creative Industries Faculty, The Queensland University of Technology. I am confident, through this collaboration; they will produce better and more useful products.

Sincerely,

Prof. Johan Silas
Advisor to the Mayor for City Planning
and Urban Heritage

Annex A 2. The Endorsement Letter from the Advisor to the Mayor for City Planning and Urban Heritage

ANNEX B.

Detail Budget (kindly refer to excel file attached along with this proposal)

ANNEX C.

Field Report

Field Report for Adaptation Fun Proposal “Embracing the Sun”
Samarinda, July 27 - 30, and August 4 - 6, 2020

1. Meeting Summary with Samarinda Environmental Agency
   Attendance:

No.	Name	Position
1.	Nurrahmani	Head of Environmental Office, City Government of Samarinda
2.	Rosana	Head of Pollution Control and Environmental Damage (PCED) Department, Environmental Office, City Government of Samarinda
3.	Yudi Sulistyanto	Head of Environmental Division, PCED Department, Environmental Office, City Government of Samarinda
4.	M. Arief Surochman	Regional Asset Division, Regional Financial and Asset Management Agency, City Government of Samarinda

Meeting Notes:
*The field visit to the City of Samarinda was conducted during the COVID-19 pandemic. All attendance during the field visit is following the strict health protocol.

The field visit aims to have confirmation from the City Government of Samarinda about the location that will be used for the Adaptation Fund Implementation project. Before the field visit, the City Government of Samarinda has sent four places that might be possible to be the location for project implementation. The four sites are scattered in a different part of the city. Two areas are located in the north of Samarinda, and the other two. are located in the south of Samarinda. One of the indicators used to select the place is the land should be owned by the City Government of Samarinda and should be used for the public interest.

The first location is located at the Karang Mumus riverbank near the Segiri Market. This location has complexity problems, not only the environment but also social. The second location is still located at Karang Mumus riverbank but more to the south; this area is more ready, but during the field visit, based on a quick observation, there is no significant problem of the environment nor social that need to be addressed. The third location is at Untung Suropati Street in front of the big mall; this area is not suitable for implementing the program due to the place's condition were only green median that separated two streets. The fourth location was inside the new low-cost housing complex at Cipto Mangunkusumo Street. This location was also not suitable for the project's aim because it has lower environmental and social problems that need to be addressed.

Based on the field observation, a suitable location for project implementation is the Karang Mumus riverbanks near the Segiri Market. And as the conclusion of this field survey, the Head of the Environment Office will report it to the Mayor of Samarinda and discuss it with the project team.

2. Meeting Summary with the Mayor of Samarinda
   Attendance:

No.	Name	Position
1.	H.E. Mr. Syaharie Ja’ang	Mayor of the City of Samarinda

2.	Dr. Sugeng Chairuddin	City Secretary of the City of Samarinda
3.	Mrs. Nina Endang Rahayu	Assistant II for the Mayor of the City of Samarinda
4.	Nurrahmani	Head of Environmental Office, City Government of Samarinda
5.	Rosana	Head of Pollution Control and Environmental Damage (PCED) Department, Environmental Office, City Government of Samarinda
6.	Idfi Septiani	Head of Public Relations, the Regional Secretariat the City of Samarinda, City Government of Samarinda

Meeting Notes:
*The field visit to the City of Samarinda was conducted during the COVID-19 pandemic. All attendance during the field visit is following the strict health protocol.

During the meeting with the Mayor of the City of Samarinda, the proposal team presents the field observation result. The aims of the meeting to get the same perception between the city government and the project team. The perception alignment is crucial to put the proposal in line with the city government's future development plan, so the proposal's result will be sustainable in the future.

The other thing that the proposal team discusses in this meeting is the methods used for the project. The approach that will be implemented is a bottom-up method that will focus on participation and collaboration. This approach will put the public as an active subject, not just the proposals or projects' object. It means that the design process will be based on observation, discussion, the public's input, or in other words, all the phases of programming and designing will be produced in Samarinda and with the public. The proposal team will not bring any program or design to the Samarinda; we will use a blank sheet.

The Mayor of the City of Samarinda has agreed with the proposals' ideas and will give full support to the proposal team. The Mayor of the City of Samarinda also instructed the City Secretary of Samarinda and Assistant II to the Mayor of Samarinda to help, support, and convoy the program and align with the program be implemented in Samarinda.

The meeting's conclusions are:
- the Mayor of Samarinda asked for a regular meeting between the proposal team and the City Government of Samarinda, and it will lead by the City Secretary of Samarinda,
- the City of Samarinda will provide all data that will be needed by the proposal team, and the Head of Environmental Office will be the person in charge,
- the City Government of Samarinda will facilitate the process of discussion between the proposal team with all the stakeholder inside the city government, and
- the City Government of Samarinda will follow-up on several processes that need to be done in the field.

3. Meeting Summary with the Youth Group
Attendance:

No.	Name	Position
1.	Rachel I. T.	Sajen Group
2.	Adi Chandra	Sajen Group Owner
3.	Yogi Septiawan	Ngegass Group Owner
4.	Christian	Airo Water

5.	Ryanto Chaniago	Karma Industries
6.	Idfi Septiani	Head of Public Relations, the Regional Secretariat the City of Samarinda, City Government of Samarinda

Meeting Notes:
*The field visit to the City of Samarinda was conducted during the COVID-19 pandemic. All attendance during the field visit is following the strict health protocol.

The youth group meeting talks about bringing economic value and developing a creative economy in line with the proposal idea. Not only that, during the meeting, but we also discuss the engagement with the youth, how they can contribute since the early phase of the program.

This phase is essential since the process of climate change adaptation must be supported by all and giving both benefits to the environment and humans. The youth was giving the idea of how the river can use not only a river but also the centre of attention; by doing that, people will start to think of the river as their asset.

Meeting conclusion, the youth group agrees to work together with the proposal team to involve the process actively.

4. Meeting Summary with Woman and Vulnerable
Meeting Notes:
*The field visit to the City of Samarinda was conducted during the COVID-19 pandemic. All attendance during the field visit is following the strict health protocol.

Meeting with women and other vulnerable groups was talking about what they understand about climate change and adaptation to climate change. This question triggers the discussion about the necessary infrastructure that they hope can support them in adapting climate change, how they see their daily life in reality. During the field observation, the team found out that their not enough facility can be used both by women and children.

5. Meeting Summary with various Samarinda government agency
Meeting Notes:
* Due to the COVID-19 pandemic, the discussion was conducted online; in several cases, the connection was not good, and the visibility of the attendee is not available.

Focus Group Discussion (FGD) Event Minutes
Gender Perspective in The Development Process in Samarinda City

Date : Monday/February 8, 2021
Location : Zoom Room Online
Agenda : Gender Perspective in The Development Process in Samarinda City
Topic of Discussion : General conditions for gender empowerment and development in Samarinda

Department of Women Empowerment and Child Protection City of Samarinda	We do not hold detailed data, but in general, women's empowerment or in terms of gender, according to the existing studies, Samarinda is still below standard. From a gender perspective, there is still a lot of homework to increase commitment in terms of gender. From DP3A office always encourage improvement considering in Samarinda city, there has been a regional regulation that has been regulating since 2020. However, until now, the gender empowerment index and the gender development index in Samarinda are still below the national level. For gender-responsive budgeting, we have not received it from the related agencies concerned. In general, the social status of the

	people in Samarinda is diverse; no one is dominant. Society mingles, but women's position in employment, education, work opportunities, or development does not make any difference under such conditions. Only in terms of opportunities for women in politics and public officials are still lacking—six female board members out of 45 board members. From the results of our study, it turned out that the problem was from the woman who was not confident in herself. Even though it already exists and was allowed to take up the position. The education rate for women is high; many are undergraduate. The data has been disaggregated but is still not well organized; we are still processing it. Some districts have yet to provide us with the information. Regarding public space development in Samarinda City, we consider that it is already good if seen from the development results. However, there are some in certain areas that still do not have public space. There are many public space parks at the city level, not yet at the village level. However, we have planned an innovative park that is friendly to children and disabilities. However, some do not qualify for the elderly and with disabilities. There have been no reports of violence in public spaces for data on violence occurring in public spaces; much violence happens at home. In terms of markets, there are indeed many women traders. However, we haven't done any coaching, nor have we got there yet. We focus on market violence and moneylenders. For information, the loan shark victim is in the Sungai Kunjang sub-district, not in Senggiri Market. Later we will look for other data in other districts. We have collaborated with Indonesia Central Bank to foster victims of moneylenders. Data on women heads of female families already exist.
Samarinda Planning and Development Agency	2019 is a technical assistant in Yogyakarta, a program to build good infrastructures such as sidewalks and others directed towards gender equality. In terms of infrastructure, we aim at, for example, public toilets, playground infrastructure. We have used the Gender Responsive Planning and Budgeting Guideline for parks and development; it has been supported by the Ministerial of Public Works and Housing and may refer to Gender Responsive Budget. Our targets are mostly on sports facilities, wheelchair ramps. For market conditions, especially Samarindas' public market facilities, will be explained by the Technical Implementation Unit of Segiri Market. In our opinion, the answer is that for traditional markets, I think they prefer open space facilities such as playgrounds and sidewalks as well. Which is used every day to be safe for gender-responsive budget; we do not memorize and have not compiled it in that direction. Maybe it's more of an economic person. Gender-responsive planning and budgeting have not been collected, so there are no documents in the gender-responsive budget. Data on the number of restrooms is complex, especially the Public Works and Housing Department's sanitation data. Slum area infrastructure data, maybe not one single data. But we attach the majority. For 2020 there is no training. There is no latest document yet, last 2017; it is not final. Gender Responsive Planning and Budgeting does not exist. The consideration of Bappeda in making public spaces is to coordinate with the DP3A only to support the budget. This year for 2021, we budget 1.2 billion for safe houses for victims of violence, located in Samarinda City, the city level. Can the

	Rumah Aman become the regional technical implementation unit? There is no gender analysis in budgeting, only go directly to specialized agencies and carry out programs.
Technical Implementation Unit Market Segiri	Gender treatment for women is different, market officials pay more attention to women traders. Like collectors or security personnel, they have treated women traffickers better. There is no special training for violence prevention at market traders. There is no socialization to apply a gender-based approach to traders. Must start from the socialization approach. The approach should be different for women and men traders. Gender socialization officers. Female officers approach women traffickers. Vice versa. There are no reports of abuse from traders or market visitors and traders' children, we are safe and comfortable. Maybe market life is like that. So, we never got the report. Because maybe we also only service traders. There is no moneylender issue in the market that we manage. Maybe there used to be when we were on the river bank. But now it's not there anymore. Data on women traffickers exist, each year it is recorded. But not yet integrated.
The Team	Is there an academic paper so that we can review it for gender studies to formulate a solution? BLU and BLT data use family cards. With this data, of course, you will see the female family heads who received assistance. This data will be beneficial in preparing studies later. Do data on women traffickers exist? We can know the increase every year will be seen so that it can illustrate women's participation in the economic sector. Is there data on the number of toilets? If this exists, it can be linked to health data, leading to data on women's health.

Date : Tuesday/February 9, 2021
Location : Zoom Room Online
Agenda : Gender Perspective in The Development Process in Samarinda City
Topic of Discussion : General conditions for gender empowerment and development in Samarinda

Department of Health	• We have participated in gender-responsive training, gender-responsive budgeting, gender-responsive health services. One of the topics is presenting gender-responsive budgeting. There is already many gender-responsive budgets in the health office, for example, in services for the elderly, the availability of separate toilets in health care facilities. Our public health center (Puskesmas) used to be a pilot project for victims of violence victims. Services are provided to children, women, and transgender women who are victims of violence. Furthermore, we collaborated with the Office of Women's Empowerment and Child Protection. • We have prepared an Occupational Health Unit *(Unit Kesehatan Kerja)* post and essential health services. This post is intended for informal sector workers. A community-led by Puskesmas formed the UKK post. However, the unit's market location is not yet available. The new UKK post is available for farmer and fishers' groups.
Department of Environment	• PROKLIM/Program Kampung Iklim (Climate Kampong Program) was launched starting in 2018. Many women were involved and participated in the field because it was related to hygiene and healthy living behavior. PROKLIM also deals with reforestation regarding waste processing. However, the

	program does not show disaggregated data on the involvement of women and men. • Once again, there are no specific regulations for women's involvement in each program. Although it is not my concern, I know that Kota Samarinda has a program for the City of Children and several violence cases against women that have occurred. • We regularly conduct socialization about the importance of women's involvement and participation in all programs related to the environment.
Department Public Works and Spatial Planning	• As far as we know, public infrastructure development is based on Ministerial of Public Works regulations. For example, regulations regarding disabled-friendly buildings, separate toilets for men and women, nursing rooms. But I don't know about gender-responsive budgeting in our programs • We do not have a special budget for market revitalization for this year. In 2020 we will build a public service mall and library by considering access for people with disabilities. We always try to follow the standards.
Department of Education	• In Early Childhood Education, gender issues are directed at fulfilling gender-responsive infrastructure, for example, the provision of separate toilets. We also pay attention to the needs of nursing mothers with the availability of nursing rooms. • The participation rate of school children in Early Childhood Education decreased in 2020, from 37% to 26%. Since the implementation of the PAUD Permit Management Policy, we have had difficulties in licensing due to new provisions.
Department of Social	Due the networking and some technical problem we can't hear the explanation from Department of Social City of Samarinda.

Meeting Notes:
* Due to the COVID-19 pandemic, the discussion was conducted online; in several cases, the connection was not good, and the visibility of the attendee is not available.

ANNEX D.

Screening and Identification Results

PROGRAM DETAILS		ESP AND AFFECTED ENVIRONMENTAL COMPONENTS																								
		1	2	3		4	5		6		7	8	9	10	11		12				13		14		15
		Compliance with the Law	Access and equity	Marginalized and Vulnerable Groups		Human Rights	Gender Equity and Women's Empowerment		Core Labour Rights		Indigenous People	Involuntary Resettlement	Protection of Natural Habitats	Conservation of Biological Diversity	Climate Change		Pollution Prevention and Resource Efficiency				Public Health		Physical and Cultural Heritage		Land and Soil Conservation
COMPONENT	SUB-ACTIVITY	Legal and environmental impact	Social conflict	Social conflict	Economic impact	Social conflict	Social conflict	Economic impact	Social conflict	Economic impact	Social conflict	Social conflict	Ecosystem disruption	Ecosystem disruption	Increase GHG emission	Increase vulnerability	Water Quality	Soil Quality	Air and Noise Quality	Physical impact	Social conflict	Health impact	Social conflict	Physical impact	Land use changes
1 - Research and development on city-wide adaptation to climate change through public spaces	A. High level kick off round table for Urban Climate Adaptation		-	-																					
	B. Discussion and Workshop with UN - Habitat Global Public Space Programme (Nairobi) and Block-By-Block Foundation		-	-																					
	C. Discussion and Workshop with Pratt Institute New York and Project For Public Space		-	-																					
	D. Tool and Method Development at QUT		-	-																					
	E. Integrating tools and apps development at QUT																								
	F. Guideline preparation																								
2. Awareness raising and local resilience strengthening through the design and implementation of a new public space typology	G. Need assesment and group discussion		-	-			-																		
	H. Participatory Design Workshop		-	-			-																		
	I. Detail Engineering Design and BOQ Development																								
	J. Construction of public space that would include:		-	-			-	-	-				-				-	-	-	-					+
	Rooftop:																								

PROGRAM DETAILS		ESP AND AFFECTED ENVIRONMENTAL COMPONENTS																										
		1	2	3		4	5		6		7	8	9	10	11		12					13		14		15
		Compliance with the Law	Access and equity	Marginalized and Vulnerable Groups		Human Rights	Gender Equity and Women's Empowerment		Core Labour Rights		Indigenous People	Involuntary Resettlement	Protection of Natural Habitats	Conservation of Biological Diversity	Climate Change		Pollution Prevention and Resource Efficiency				Public Health		Physical and Cultural Heritage		Land and Soil Conservation
	Solar panel and wind turbine														+	+										
	Urban farming (and at building envelope)															+										
	Upper level:																									
	Flood shelter		-	-			-									+										
	Community hub and daycare		-	-																						
	Collection points for emergency needs (sandbags, tarps etc)		-													+										
	Mezzanine level:																									
	Storage facility for market																									
	Rainwater storage															+										
	Sanitation facility															+	-/+	-/+				-/+				
	Ground level:																									
	Floodable ground floor that used as market and playground in normal condition		-		-		-	-								-										
	Benches and risen platform beds (as walkways during flood)																									
	Sand storage																-									
	Retention pond															-										
	Waste collection and recycling point (including composting area)																-	-	-			-				
	Green infrastructure																+					+				
	K. Community maintenance training																									

PROGRAM DETAILS		ESP AND AFFECTED ENVIRONMENTAL COMPONENTS																									
		1	2	3		4	5		6		7	8	9	10	11		12				13		14		15
		Compliance with the Law	Access and equity	Marginalized and Vulnerable Groups		Human Rights	Gender Equity and Women's Empowerment		Core Labour Rights		Indigenous People	Involuntary Resettlement	Protection of Natural Habitats	Conservation of Biological Diversity	Climate Change		Pollution Prevention and Resource Efficiency				Public Health		Physical and Cultural Heritage		Land and Soil Conservation
3. Capacity building, knowledge management and communication	L. Training for community about adaptation in the new develop Public Space		-	-			-																			
	M. Training for city officials about project findings and replication																									
	N. Book Publishing		-	-			-																			
	O. Video Publishing		-	-			-																			
	P. International Seminar		-	-			-																			
4. Monitoring	Q. Project Monitoring and Evaluation																									

ANNEX E.

Gender Assessment (kindly refer to excel file attached along with this proposal)