Resilience Profile and Prospectus of

# Kelurahan Kalibaru Jakarta

JANUARY 2022

# Resilience Profile and Prospectus of Kelurahan Kalibaru, Jakarta ©2021

## Acknowledgement

This document is a baseline qualitative insight that can serve as a tool for collaborative planning and development to support the achievement of SDG's goals in Kelurahan Kalibaru, Cilincing, Jakarta Utara. The report was developed through a participatory process - with the aim of gathering deep local insights about the challenges of Kalibaru whilst simultaneously building a shared vision to move forward with tangible actions and implementable solutions.

This document was collaboratively developed as part of the DKI Jakarta's goal in implementing "Placed-based SDG's mainstreaming in Kalibaru Subdistrict", supported by Resilient Cities Network (R-Cities)'s Leadership for Urban Resilience and Sustainable Program funded by Citi Foundation.

The report was developed was co-developed by Yayasan Kota Kita, UPT Pusat Inovasi dan Pengembangan Perkotaan Bappeda DKI Jakarta (PIPP), SDGs team within PIPP and Resilience Cities Network. Data collection was supported by the SPRI team (Serikat Perjuangan Rakyat Indonesia), who organized the interview, data collection, and discussion with the Kalibaru stakeholders. We would also like to thank the Lurah and government officials in Kelurahan Kalibaru who have supported the process and community leaders, CSOs, and community groups in Kalibaru who have participated in the series of discussions co-designing the solutions for urban challenges in Kalibaru. Special thanks to the Bappeda DKI Jakarta Team, particularly Mr. Tri Indrawan, the vice Head of Bappeda DKI Jakarta, and the PIPP DKI Jakarta team: Mr. Tulus Ludiyo Setiyawan, Mr. Mohamad Yohan, and Mr. Wendy Prayuda, for the expertise and valuable inputs for the process. Lastly, we hope that this document could serve as a tool to promote multi-stakeholder collaboration. The document presents collectively-identified opportunities that can leverage the local potential of Kalibaru in a more environmentally and economically sustainable manner.

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# Executive Summary

As a coastal capital city, Jakarta is exposed to various shocks and stresses. Unfortunately, the different communities who live in different urban and environmental settings may experience different exposures and vulnerabilities, and how shocks and stresses impacting communities are not equal. The city has identified the need to support the Kalibaru Subdistrict as one of the poorest subdistricts in the capital province. A seaside subdistrict like Kalibaru in North Jakarta faces complex challenges ranging from high poverty rates, poor quality of settlements, limited access to clean water networks, limited access to civic documentation services, and many more.

Reflecting on the challenges and priorities from DKI Jakarta's mid-term plan, in 2019, Kalibaru Subdistrict, Cilincing, North Jakarta, was selected by DKI Jakarta Provincial Government (led by Bappeda DKI Jakarta and SDGs team within Bappeda) and non government organizations as a pilot location to promote collaboration to mainstream and advance SDGs and address the still critical issues through the "Placed-based SDGs mainstreaming in Kalibaru Subdistrict" program. This document, Resilience Profile and Prospectus of Kelurahan Kalibaru, Jakarta, was collaboratively developed as part of the placed-based SDG's mainstreaming program, supported by Resilient Cities Network (R-Cities)'s Leadership for Urban Resilience and Sustainable Program funded by Citi Foundation. The document is hoped to serve as a tool that city officials can use to engage the private sector and other non-government actors for productive collaboration in Kalibaru under Kalibaru Hub, a collaboration platform for multi-stakeholder collaboration

This document presents the profile of Kalibaru subdistrict, highlighting the vulnerability, shock, and stresses of the coastal neighborhood and the communities and the opportunities to improve resiliency. The report was developed through a participatory process to gather deep local insights about the challenges of Kalibaru whilst simultaneously building a shared vision to move forward with tangible actions and implementable solutions.

## The Process

The participatory process promoted during the development of the Kalibaru Resilience Profile aims to gather the insight of various stakeholders through a series of activities:

- **High-level Interviews** with different government agencies at the provincial level (DKI Jakarta Province) to gather general information about Kalibaru, previous and future programs.
- **Field observations and transect walk** were conducted several times by the DKI Jakarta Provincial Government officials with Kota Kita in order to understand the spatial context and challenges of Kalibaru.
- **31 in-depth interviews** were conducted with Kelurahan government officials, RW leaders, community leaders, religious leaders, community associations, non-government organizations, business entities, as well as local residents to understand the complexity of challenges in Kalibaru as well as explore the potential initiatives.
- **Two RW-level focus group discussions** were conducted in the priority areas to deepen the understanding of the water, waste, and industrial waste in the two selected areas: RW 15 and RW 13.





## Vulnerability Profile of A Dense and Diverse Coastal Neighborhood

Kalibaru sits in a dynamic urban area where the socio-economic challenges closely intersect with environmental challenges. In a dense coastal neighborhood with diverse communities, the complexity of the areas illustrates how the different shocks and stresses intertwine, putting the local communities at risk. The following are the highlights of the most notable shocks and stresses faced by Kalibaru:

- **Pre-existing social vulnerabilities**
  - **High level of poverty:** Poverty associated with Kalibaru occupies the seventh-highest vulnerability of poverty in DKI Jakarta. Poverty can be associated with low capability to cope with shock and stresses, as the poor communities often live in areas where they have less access to services, building materials, employment, and have lack of resources to undertake adaptive measures.
  - **Crime / Violence:** Crime and violence is reported to be one of the social challenges that put children and youth at risk in Kalibaru.
- **Vulnerability of Setting**
  - **Slums as high-risk areas:** Kalibaru ranked seventh in DKI Jakarta for Kelurahan with the highest number of slum RWs (Inventory of slum RWs 2017 DKI Jakarta Province);
  - **Risk of flooding, inundation, and fire:** More attention is required for disaster risk reduction. Being a coastal area, in addition to rainfall and tidal flooding, Kalibaru also faces risks of fire due to its high density. Kalibaru also suffers from side effects of uneven area development.
- **Vulnerable systems**
  - **Water insecurity:** Water is available in Kalibaru, but challenges exist around quality and affordability. Kalibaru is still not officially included in the service area of PDAM, and piped water is channeled from nearby service areas. With very limited access to clean piped water, the local community has to pay a significant amount to get access from retail water services.
  - **Inadequate waste infrastructure:** Waste is the most visible and urgent issue in Kalibaru. Most RWs have not been served by solid waste management services where communities need to self organize and rely on informal waste collection service. Unmanaged waste causing environmental degradation in some areas and linked to health concerns. This includes waste from the green mussels industry in the East Coast of Kalibaru.
  - **Inadequate sanitation infrastructure:** Access to sanitation still lacking, particularly in the dense coastal neighborhood

## Modalities and Existing Initiatives

Kalibaru has received a lot of community-development programs from multiple actors. Many programs have targeted behavioral changes, i.e., behavior towards waste, and youth education programs or short-term one-off projects that focus on facilities procurement and upgrade.

Learning from past and existing initiatives it is important to consider that:

- Involvement of local communities and target beneficiaries in all stage of the program are essential in ensuring sustainability
- Social inclusion should always be an underlying principle in any project
- Capacity building program takes time: Result cannot be seen instantly
- Post construction operations and maintenance should be established prior the implementation of projects

Ensuring that the programs cater to the needs of the community and realistic enough to be carried out by them later on (with or without additional capacity building) can be the key to achieve higher success.

## Opportunities to Build Resilience

Linking back to the spirit of the development of the Kalibaru Profile and Prospectus to promote productive multi-stakeholder collaboration, this document outlined the opportunities for initiatives to build neighborhood and community resilience in Kalibaru, that summarized into five strategic vision to tackled the severe waste management issue, access to clean water, disaster risk, and youth issue. The strategies and initiatives were proposed with the following underlying principles:

- **Fulfillment of basic services:** The proposed initiatives targets the fulfillment of the basic service. This would involve implementation of basic infrastructure provision programs particularly for the essential services like water provision, waste management and other basic services.
- **Bite-sized, but integrated initiatives:** As the spirit of the program is to promote collaboration, the proposed initiatives are designed to be undertaken by multiple stakeholders, with different size and scope.
- **Creating co-benefits:** Promotes the creation of co-benefits to create a bigger resilience value. Each project should not only think about solving one particular issue but also look for opportunities for creating co-benefits for other sectors.





The five strategic vision for building resilient neighborhood and communities in Kalibaru, includes:

- **Promoting Integrated Waste Management System and Circular Economy:** Initiative that aims to address the severe waste problem in Kalibaru coastal area needs to be a combination of physical facilities procurement and improvement on waste management service and system, as well as capacity building on the ground. Additionally, the circular waste economy should be further promoted as it provides an opportunity to create a direct impact on converting waste into revenue.
- **Improving Access to Water:** The objective for the future initiatives is primarily to improve the access for affordable and quality water services by improving access to main pipeline connection, while at the same time providing alternative water sources for areas that are not connected to pipeline service.
- **Promoting Sustainable Development Pathway towards Resilient Neighborhood:** Improve the quality of settlement areas and the surrounding environment through sustainable development principles including urban development model and climate-sensitive development principle to address existing and potential conflict, dispute, loss, and damage.
- **Youth Education and Capacity Development:** Support to further promote existing positive activities for youth alongside the development of inclusive public space that encourages positive interactions for Kalibaru's future generations.
- **Institutional Arrangements for Multi-stakeholder Collaboration:** Kalibaru Hub as the key collaboration platform needs to be strengthened and mobilized to push forward multi-stakeholder collaboration in four previous initiatives and accelerate the achievement of SDGs targets in Kalibaru.

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## Acronyms & Abbreviation

| Acronyms and Abbreviations | Bahasa Indonesia | English |
|---|---|---|
| **Bappeda** | Badan Perencanaan Pembangunan Daerah | Regional Development Planning Agency |
| **Bappenas** | Badan Perencanaan Pembangunan Nasional | National Development Planning Agency |
| **BPBD** | Badan Penanggulangan Bencana Daerah | Local Agency for Disaster Management |
| **BPS** | Badan Pusat Statistik | Statistical Bureau |
| **BWS** | Balai Wilayah Sungai | River Basin Organization |
| **CSOs** | Organisasi Masyarakat Sipil | Civil Society Organizations |
| **DED** | Detail Desain Teknis | Detail Engineering Design |
| **DLH** | Dinas Lingkungan Hidup | Department of Environment |
| **DPU** | Dinas Pekerjaan Umum | Department of Public Works |
| **EWS** | Sistem Peringatan Dini | Early Warning System |
| **IPAL** | Instalasi Pengolahan Air Limbah | Wastewater Treatment Plant |
| **LSM** | Lembaga Swadaya Masyarakat | Non-Government Organization |
| **NGO** | Organisasi Non-Pemerintah | Non-Government Organization |
| **NSA** | Aktor Non-Pemerintah | Non-State Actors |
| **PDAM** | Perusahaan Daerah Air Minum | State-owned Water Company |
| **PUPR** | Dinas  Pekerjaan Umum dan Perumahan Rakyat | Department of Public Works and Housing |
| **RDTR** | Rencana Detail Tata Ruang | Detailed Spatial Plan |
| **RPJMD** | Rencana Pembangunan Jangka Menengah Daerah | Medium Term Development Plan |
| **RTBL** | Rencana Tata Bangunan dan Lingkungan | Urban Design Guidelines |
| **RTRW** | Rencana Tata Ruang Wilayah | Spatial Plan |
| **TMB** | Taman Maju Bersama | Green Open Space |
| **TPI** | Tempat Pelelangan Ikan | Fish Auction Site |
| **TPS** | Tempat Pembuangan Sementara | Temporary Landfill |
| **SDG** | Tujuan Pembangunan Berkelanjutan | Sustainable Development Goals |



## Glossary

| Terms | Description |
|---|---|
| **Bagan/bagang** | A fishing instrument (lift net) that uses nets and lights. Bagan is floated out to the sea to catch fishes, squids, and shrimps, and remain in the sea for several days or even months. The catch would be transported to land using other boats. |
| **Hidran (hydrant)** | A water reservoir connected to the PDAM pipeline that can be accessed or purchased by residents for daily uses. It was built by PAM Jaya and managed by a local resident. |
| **Karang Taruna** | Youth organization in the neighborhood-level |
| **Kelurahan** | Sub-district / neighborhood, the lowest level of formal administrative unit in Indonesia |
| **Kecamatan** | District, an administrative unit above city |
| **Kijing** | Green mussel (Perna viridis) |
| **Kota** | City |
| **Nyelang** | A practice of purchasing water through a hose (selang) that connects between the seller's outlet and the buyer's place or containers. |
| **Pengontrak** | A lessee or tenant of a land or building (house, workshop, storefront, etc.). |
| **PKK** | Pembinaan Kesejahteraan Keluarga, women group at the neighborhood to city level |
| **PPSU** | Penanganan Prasarana dan Sarana Umum, the on-ground government operations unit responsible for implementing basic service including waste collection and management at the local level, which operates under the Department of Environment |
| **RT** | Rukun Tetangga, A lowest administrative unit of an Indonesian neighborhood covering around 30-50 households |
| **RW** | Rukun Warga, a territorial and administrative system above RT level |
| **Tawuran** | Tawuran is a form of customary mass street fighting between gangs of youth or students of a particular school in urban Indonesia, practiced largely by males in their junior or senior year of high school. Roughly translated to "youth brawl". |
| **UPT PIPP** | Unsur Pelaksana Teknis - Pusat Inovasi Pengembangan Perkotaan, an implementation unit under Bappeda DKI Jakarta focuses on urban development innovation. This unitis leading the implementation of place-based SDG mainstreaming, with pilot location in Kalibaru. |

# Introduction

1

Context
Objectives
Resilience and SDG Goals
Approach and Methodology

Kalibaru sits in a dynamic urban tissue where the socio-economic challenges closely intersect with environmental challenges. The complexity of dense urban settlements on the north coast of Jakarta is the primary motivator in developing the resilience profile and prospectus of Kelurahan Kalibaru. This chapter establishes the initiative's background, objectives, and methodology.

# Context

Kalibaru sub-district is one of Jakarta's most densely populated and poorest areas. The area represents a complex intersection of socioeconomic and environmental challenges due to the lack of urban services. A significant percentage of the population has limited access to water, sanitation, and solid waste facilities. This condition has put the local communities at risk as they have to access the basic services from informal services, which in most cases, are more expensive. This trapped them in the vicious circle of poverty. On top of that, some areas in Kalibaru are exposed to the risk of both rainfall and tidal flooding. This adds complexity to the effort to improve the basic services in Kalibaru.

According to the inventory of slum RWs DKI Jakarta Province 2017, Kalibaru is in the top ten of Kelurahan with the highest number of slum RWs, with a total of 8 RWs categorized as slums. Kalibaru sub-district is also one of the priority areas in the current Mid-Term Development Plan, as one of the poorest sub-districts in DKI Jakarta. The complex physical and social challenges in Kalibaru gave reasons to the local government to include the area as one of the province's top priorities for improvement, including the development of Community Action Plan (CAP) and Collaborative Implementation Program (CIP) for Kalibaru in 2018.

Since 2019, the DKI Jakarta Provincial Government, through Bappeda and SDGs team initiated a planced-based SDG mainstreaming to promote collaboration between government and non-government actors to address challenges in Kalibaru collectively and advance SDGs achievements. The DKI Jakarta Provincial Government is looking to build the collaboration model across different sectors, promoting the inclusivity principle in the process with the local community and bringing both government and non-government actors. [1]

This document, Resilience Profile and Prospectus of Kelurahan Kalibaru, Jakarta, is a starting point for advancing collaboration and collaborative effort to improve the condition of and foster SDG achievement in Kalibaru. It presents an overview of the gaps, challenges, and opportunities in Kelurahan Kalibaru, particularly on water, wastewater, and resilience issues, which serve as a seed in building collaborative actions.

# Objectives

This document is developed through a series of discussions with different stakeholders with the aim to:

- Understand the current challenges and identify the existing gaps and opportunities in Kalibaru towards achieving SDGs goals on water, sanitation, waste, and energy sector.
- Provide comprehensive baseline information that considers the existing risk, vulnerable community, and planetary limits as a tool to foster multi-stakeholder collaboration, particularly between government and non-government actors. Further, this document marks the starting point of Kalibaru Hub, a collaborative platform for multi-stakeholder collaboration.
- Monitor the achievement of SDGs indicators and the progress against them at the Kelurahan level.
- In the end, PIPP aims that the process and experience in Kalibaru can be set as a model and further replicated in other parts of Jakarta.

[1] SDGs team was formed by the Governor of DKI Jakarta in 2018 through the Governor's decree 1920/2018, with a goal to ensure that Jakarta can achieve the SDGs targets. The work of SDGs team is led by the Head of Bappeda Jakarta by involving non-government actors.



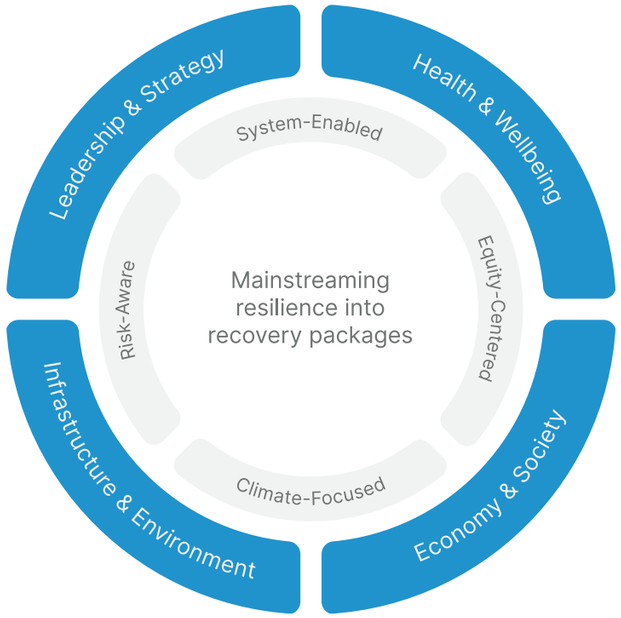


# Resilience and Sustainable Development Goals

This report is developed under the framework of resilience and sustainable development goals. Resilience thinking provides a basis for understanding threats and developing strategies for sustainable transformation in turbulent times. Resilience, according to R-Cities, refers to the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience.

During the COVID-19 pandemic, the existing shocks and stresses are now layered with unprecedented new vulnerabilities and crises, putting a stop to development and testing the city's ability to withstand it all. R-cities resilient recovery framework seeks transformational action fostering adaptive socioeconomic models and increased social, economic, and environmental benefits. By mainstreaming resilience into recovery packages, the efforts should be equity-centered, risk-aware, system-enabled, and climate-focused, resulting in a sustainable and resilient city.

Figure 1: **R-CITIES RESILIENT RECOVERY FRAMEWORK**
The Resilient Recovery Framework builds on the City Resilience Framework.




• **Source:** Resilient Cities Network

Thus, it is vital to integrate SDGs as the mid and long-term goals of recovery efforts. To understand threats and opportunities in achieving SDGs targets, SDG localization is essential. Participation of local communities, minority groups, businesses, and industrial organizations will be the foundation to develop plans, policies, and programs. Local government's consultation with local stakeholders will enhance awareness-raising as well as the formation of needed partnerships and programs. Achieving SDG depends heavily on the local level on local contributions and the capacities of local governments.

Implementation of localized SDGs in Kalibaru will be done through Kalibaru Hub. This approach in encouraging multi-stakeholder collaboration in accelerating the achievement of SDGs targets in Kelurahan Kalibaru will be the pilot initiative for localized SDGs at Kelurahan level.

Kalibaru Hub meetings. All actors involved will be encouraged to carry out routine coordination to ensure ongoing collaboration in accordance with the action plan. Then, all actors will measure their achievements based on the measurement formula that has been mutually agreed upon. This approach encourages multi-stakeholder collaboration in accelerating the achievement of SDGs targets in Kelurahan-level, where Kalibaru will be the pilot initiative.

Through pilots at Kelurahan level, the Provincial Government of DKI Jakarta seeks new approaches in achieving SDGs, especially through optimization of initiatives and innovations from communities at Kelurahan level. These innovations are expected to be the solution for current challenges faced by Jakarta as the capital city.

Furthermore, it is also important to strengthen capacity, especially related to the SDGs, to the lowest level, the kelurahan. Considering the implementation of various programs and activities running at the kelurahan level. With the actors at the kelurahan level getting stronger, it is hoped that the achievement of the SDGs will be accelerated. The diversity of actors at the kelurahan level also requires an appropriate collaborative approach. Jakarta as the capital city has a high level of diversity, both socially, economically and culturally. A collaboration and governance platform that can accommodate various differences can certainly help Jakarta become more inclusive. Therefore, localizing the implementation of SDGs at the kelurahan level will be a new approach that is more sensitive to the conditions faced by the kelurahan.

Figure 2: **SUSTAINABLE DEVELOPMENT GOALS AS THE KEY DEVELOPMENT TARGETS FOR PLACED-BASED IMPROVEMENTS**


• **Source:** Sustainable Development Goals

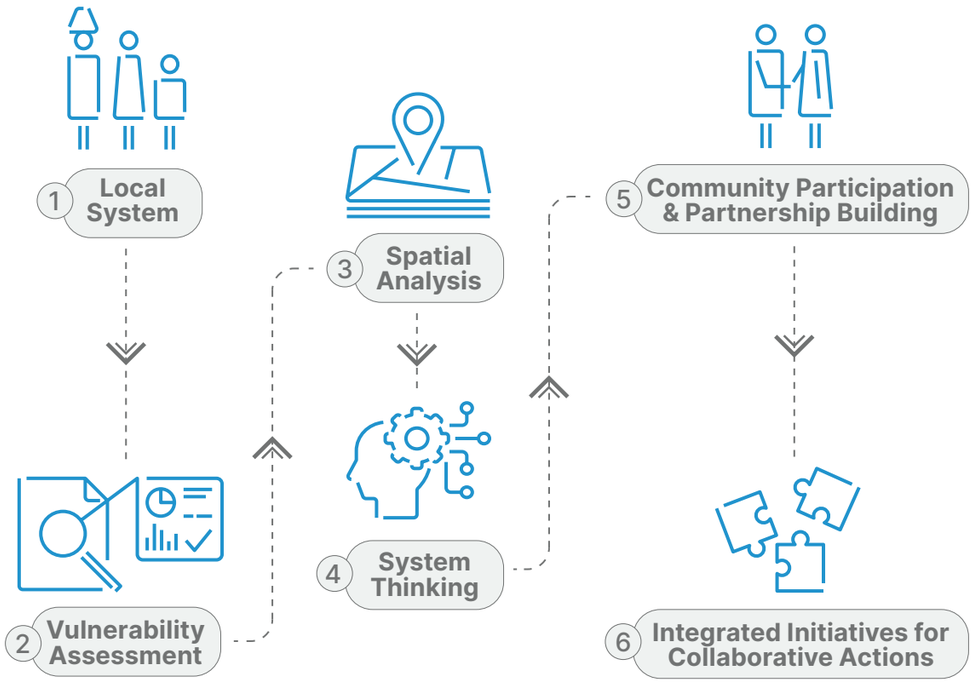




# Approach and Methodology

Kalibaru Hub was initiated with the spirit of building multi-stakeholder collaboration. This document presents information that is built upon long-standing processes and discussions with different stakeholders since 2019, both at provincial and local sub-district levels. The following are the key approaches that outline the activities in the development of the prospectus:

Figure 3: **KEY APPROACH IN THE DEVELOPMENT OF KALIBARU RESILIENCE PROFILE AND PROSPECTUS**




1

**Local System:**
A local inquiry into the existing communities of Kalibaru delving into the local customs and practices, livelihoods, potentials, and resources

2

**Vulnerability Assessment:**
A rapid assessment to understand the vulnerability and resilience profile of Kalibaru, which includes vulnerable groups, places, and systems.

3

**Spatial Analysis:**
A qualitative spatial assessment of the basic infrastructure and community assets and the social and environmental dynamics of Kalibaru.

4

**System Thinking:**
An essential framework of thinking to understand the correlation of one aspect to another and within the context of larger systems.

5

**Community Participation & Partnership Building:**
A collaborative approach is necessary for the long-term sustainability of a place, and it often benefits everybody in the long run. This entails the participation of multiple actors throughout the process.

6

**Integrated Initiatives for Collaborative Actions:**
The participatory identification of opportunities is synthesized into an integrated roadmap for actions that enables contributions from many actors.

• **Source:** Study Findings 2021

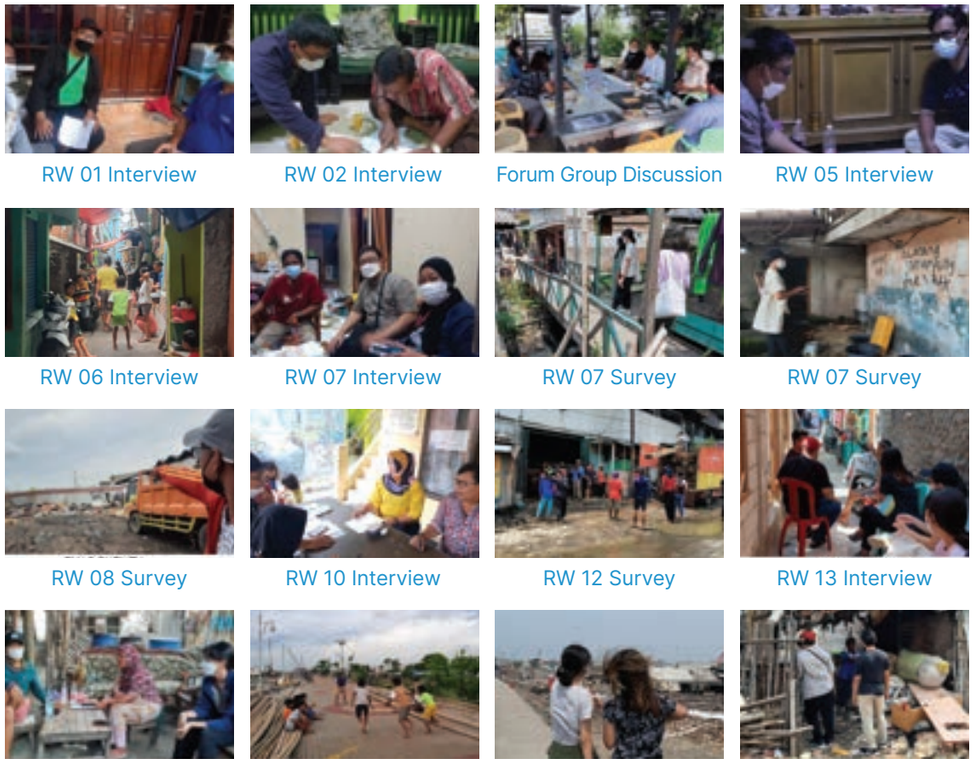
The participatory process promoted during the development of the Kalibaru Resilience Profile aims to both gather information about the Kelurahan as well as bridge the process of vision building amongst the stakeholders through a series of activities:

**High-level Interviews**
with different government agencies at the provincial level (DKI Jakarta Province) to gather basic information about Kalibaru.

**Two RW-level focus group discussions**
were conducted in the priority areas to deepen the understanding of the water, waste, and industrial waste in the two selected areas: RW 15 and RW 13 about Kalibaru.

**31 in-depth interviews:**
Were conducted with Kelurahan government officials, RW leaders, community leaders, religious leaders, community associations, non-government organizations, business entities, as well as local residents to understand the complexity of challenges in Kalibaru as well as explore the potential initiatives.

Figure 4: **ACTIVITIES UNDERTAKEN IN THE DEVELOPMENT OF KALIBARU RESILIENCE PROFILE AND PROSPECTUS**



RW 01 Interview | RW 02 Interview | Forum Group Discussion | RW 05 Interview
RW 06 Interview | RW 07 Interview | RW 07 Survey | RW 07 Survey
RW 08 Survey | RW 10 Interview | RW 12 Survey | RW 13 Interview
RW 14 Interview | RW 14 Survey | RW 15 Survey | RW 15 Survey

• **Source:** Team Documentation





It is important to note that the document was developed during the challenging situation with the surge of COVID cases in Indonesia at the mid to end of 2021. Thus, the stakeholder engagement activities with stakeholders were conducted with respect to the situation. The following are key strategies were undertaken to adapt to the challenging situation:

**Utilization of available secondary data:**
At the early stage, the assessment was conducted using secondary data from different sources i.e., BPS, BIG, etc.

**Online engagement with local government:**
The engagement with key government officials, i.e., meeting, coordination, and consultation, mainly was conducted through online platforms.

**Utilization of local facilitators:**
Working with local facilitators is essential in gathering on-ground information (i.e., Kelurahan level data, gathering community insight, etc.). The role of local facilitator based in Kalibaru was essential, mainly in conducting interviews with community leaders at the RW level, conducting mapping of community assets, and organizing focus group discussions with local actors.


# Kalibaru Context

2

The Area
Demographic Condition
Sense of Places
Land-Use
Economic Activities

As one of the densest neighborhoods in DKI Jakarta situated on the north coast, Kalibaru possesses intertwining social and environmental challenges. This chapter provides an overview of Kelurahan Kalibaru, deliberating the sense of place, demographics condition, land use, and economic activities.

# The Area

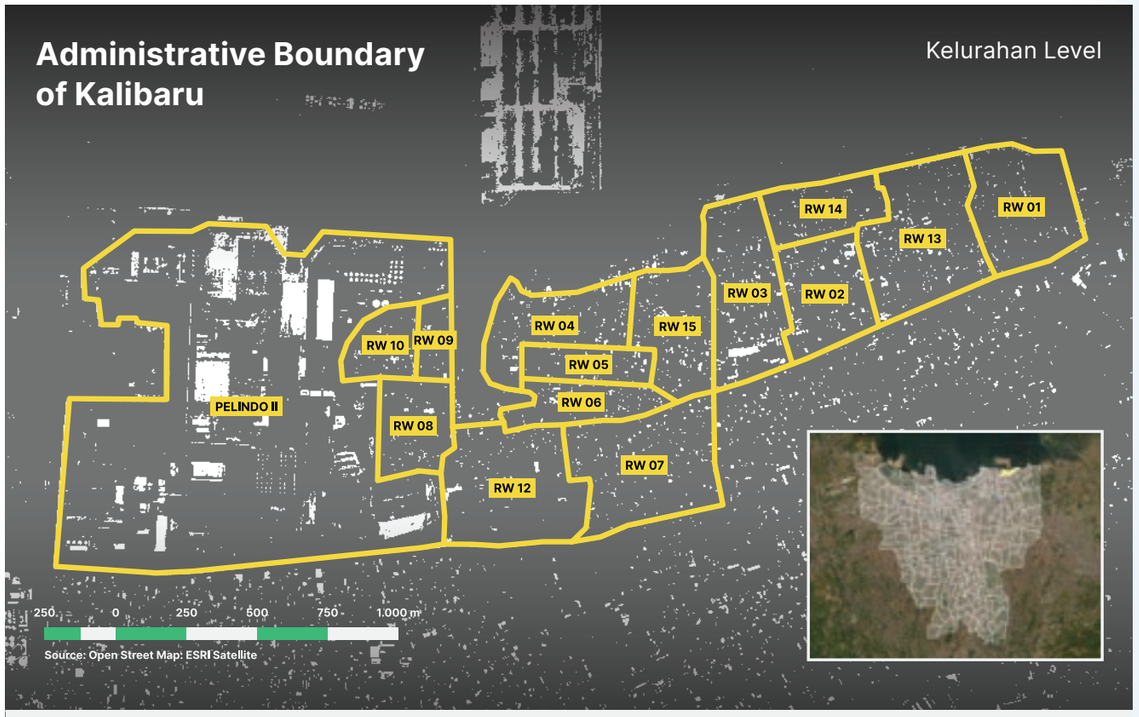
Kalibaru is one of Jakarta's coastal sub-districts (kelurahan) located in the north part of the city. Administratively, the kelurahan is part of Kecamatan Cilincing, under the administration of North Jakarta City. Kalibaru is located in the core of Jakarta's industrial zone and logistical center surrounded by Tanjung Priok Port, Pelindo II, Marunda Industrial Area. Hence, the economy of the local communities of Kalibaru is strongly related to the surrounding economic nodes, which are centered on the fishery economy, industry, and informal sectors.

Administratively, Kalibaru consists of 15 RWs and 172 RTs. The majority of the RWs are characterized by dense settlement areas with local trade and commercial activities on most main roads. Amongst the 15 RWs, one RW is uninhabited—RW 11—, which is the land plot on the west side of the Kelurahan owned and managed by Pelindo II, a state-owned enterprise specialized in port and logistics services.

Kalibaru has a historical significance for Jakarta. This area has had a strong influence in the past as one of Jakarta's busiest fishing ports which operated around the 1960s to 1970s, Kalibaru Port. The name of "Kelurahan Kalibaru" is given after the name of the port, which was the icon of the area.

• **Source:** Open Street Map, ESRI Satellite

Box 1




| | |
|---|---|
| Total Area | 246.65 hectares |
| Number of RWs | 15 RWs |
| Number of RTs | 172 RTs |





# Demographic Condition

With a total population of 84,010 people, Kalibaru is one of the most populated and densest areas in DKI Jakarta. The population density of Kalibaru is around 4,054 people per km2. However, the actual average density of the settlement area is over 60,000 people per km2, discounting the total area of Pelindo as there is no settlement in the area. This is very high compared to DKI Jakarta's average density, around 16,704 people / km2. The area's high density is associated with poor living conditions in the neighborhood.

Figure 5: **NUMBER OF POPULATION AND TOTAL AREA PER RW IN KALIBARU**

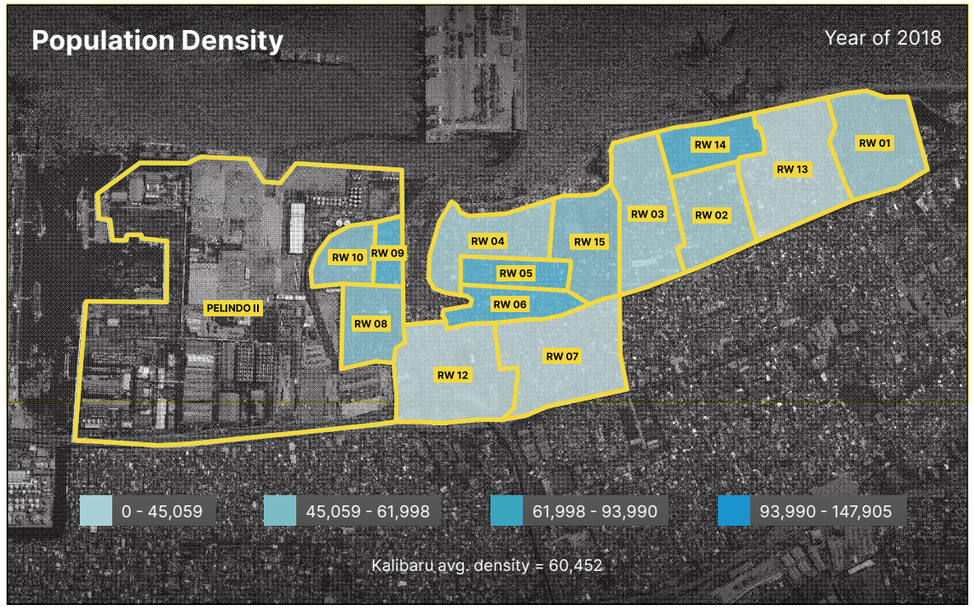
Box 2

| | |
|---|---|
| Total population | 246.65 hectares |
| Total male population | 43,137 |
| Total female population | 40,873 |
| Number of households | 16,781 households |
| Population density | 34,054 people / km2 |


| | |
|---|---|
| Most populated RW | RW03 > RW13 > RW12 > RW01 > RW07 |
| Largest RW Area | RW07 > RW12 > RW13 > RW03 > RW01 |
| Smallest RW Area | RW09 > RW05 > RW10 > RW06 > RW14 |
| Densest RW | RW09 > RW05 > RW06 > RW14 > RW10 |

• **Source:** Profil Kelurahan Kalibaru 2018, QGIS Analysis

Figure 6: **MAP OF KALIBARU POPULATION DENSITY**



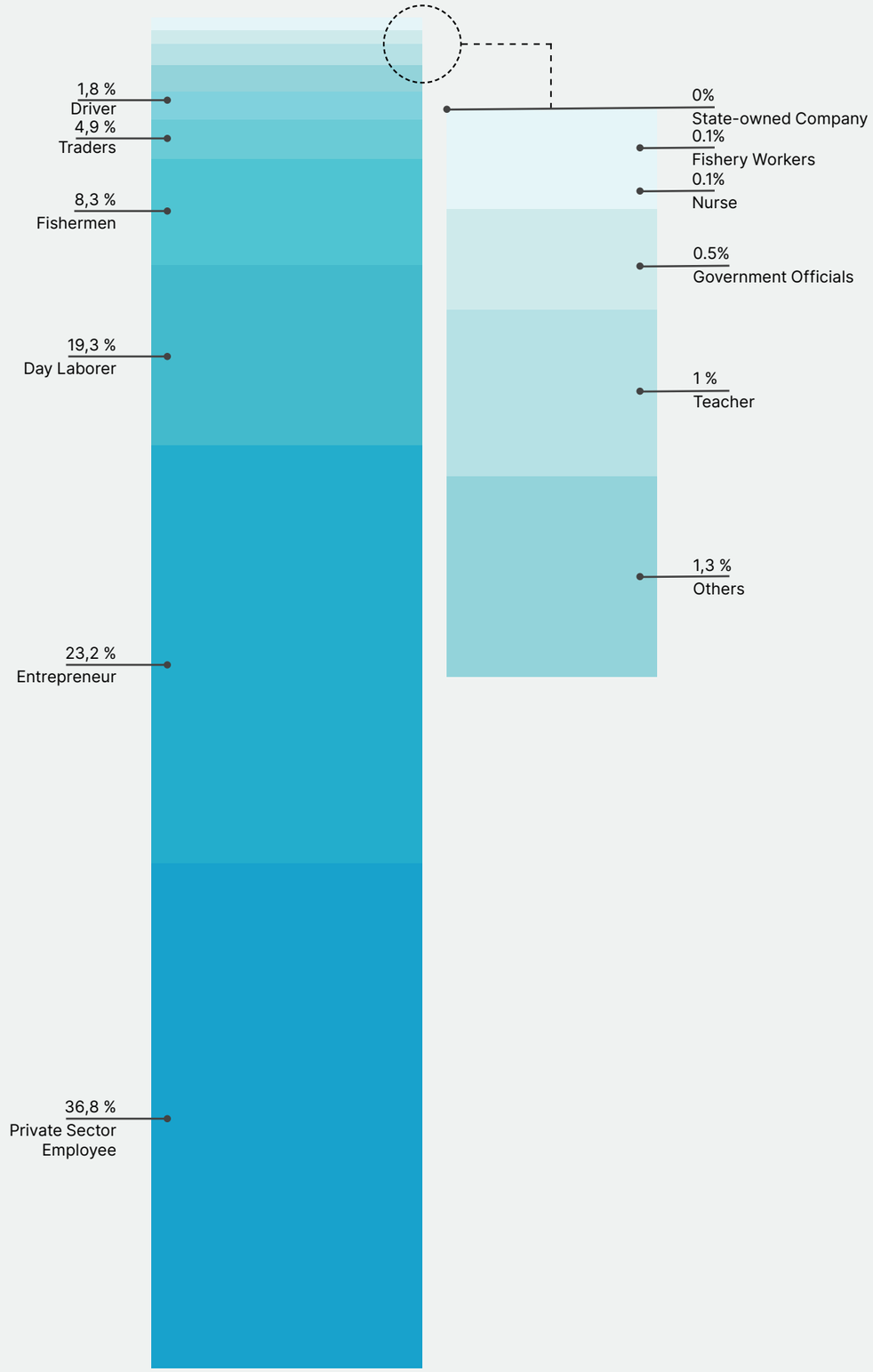

• **Source:** Profil Kelurahan Kalibaru 2018, QGIS analysi

The residents of Kalibaru are culturally diverse, with Bugis, Madurese, and Indramayunese, as the most notable ethnicities. They are widely recognized in the country as the ethnicities with sailing and fishing culture. The type of livelihood in Kalibaru is highly affected by the surrounding economic nodes and activities: many residents work as laborers in the industrial sector, entrepreneurs in local trade and services, and a significant number work in fishery sectors. One of the demographic conditions that need to be highlighted is the high unemployment rate in the area.





Figure 7: **LIVELIHOOD PROFILE OF KALIBARU RESIDENTS**




• **Source:** Jakarta Open Data, 2019

# Sense of Places



### A Dense Coastal Neighborhood

Kalibaru represents a portrait of Indonesia's coastal neighborhoods where the high-density urban settlements intertwine with the fishing economy. It is home to people from different ethnicities and backgrounds. The settlement area is rather dense with a lack of basic services, i.e., access to water, waste management, and sanitation. On top of that, the high density is associated with a lack of open common space for communal activities. Thus, the areas in the coastline, including the sea wall, has become communal space for the communities and playground for kids.

### Fisheries Industry as an Economic Anchor

Although the fisheries-related activities are not as massive compared to the past, the fishing economy remains Kalibaru's foremost identity, with salted fish and green mussels as the most notable products. These activities are concentrated alongside the coastline of Kalibaru, from RW 04 in the west to RW 01 in the east. The fishery activities in Kalibaru do not only serve the local demands but also the wider area with the existence of several regional-scale markets nodes, including TPI in RW 04, the salted-fish market in RW 08, and the green mussels industrial center in RW 13-01.

### Diverse Coastal Communities

Kalibaru is shaped by diverse coastal communities: Bugis, Madurese, Indramayunese, and many more. Most of them originated from other coastal areas in Indonesia, which is known for its coastal and marine culture. The coastal communities are often characterized as straightforward, harsh, and often associated with the fishery and marine economy.





Figure 8: **SENSE OF PLACES OF KALIBARU**

A Densed Coastal Neighborhood

Fisheries Industry as an Economic Anchor

Diverse Coastal Communities

• **Source:** Field Observation, 2021

# Land-use

The land use in Kalibaru is currently dominated by settlement use, particularly in the east part, while a block of the area in the west is the industrial zone owned by Pelindo II. However, referring to the Jakarta Provincial Regulation No. 01 / 2014 on the subzone planning, the land use of the majority of the area in Kalibaru is allocated for industrial use.

Figure 9: **MAP OF SUBZONE PLANNING IN KALIBARU**


• **Source:** Local Government Regulation of DKI Jakarta Province No. 1 of 2014 on Detailed Spatial Plan and Zoning Regulation





# Economic Activities

Fisheries, industries and local-scale trade and services are the most notable economic activities in Kalibaru. These main economic activities are spatially divided into three main parts, fisheries-related activities in the closeby to the coast in the north part of the neighborhood, industry in the west part and areas closeby to the main road as the south border of Kalibaru, and local trade and services in the main roads within Kalibaru. The growth of the local economy not only develops human capital in the sector but also develops other community-based economic activities that can support the development of the place.

## Fisheries Economy

Kalibaru is well-known for the production of green-lipped mussels. It is one of the most notable activities in the coastal part of Kalibaru, especially in the eastern part, including RW 13 and RW 01: known as Kampung Kerang Hijau. There are more than 30 green-lipped mussel processing stalls in Kalibaru Apart from the green mussel industry, the salted fish industry is also one of the main economic activities in Kalibaru, concentrated in several coastal RWs, including RW 13, 04, and 15.

Kalibaru is considered one of the essential nodes in Jakarta in terms of fisheries activities. Several nodes related to the fishery economy become an economic hub, including the fish auction site (TPI) in RW 04 and the salted-fish market in RW 08 Kalibaru. These two markets supply fishery commodities, not only for the Kalibaru area but also to its surrounding areas.

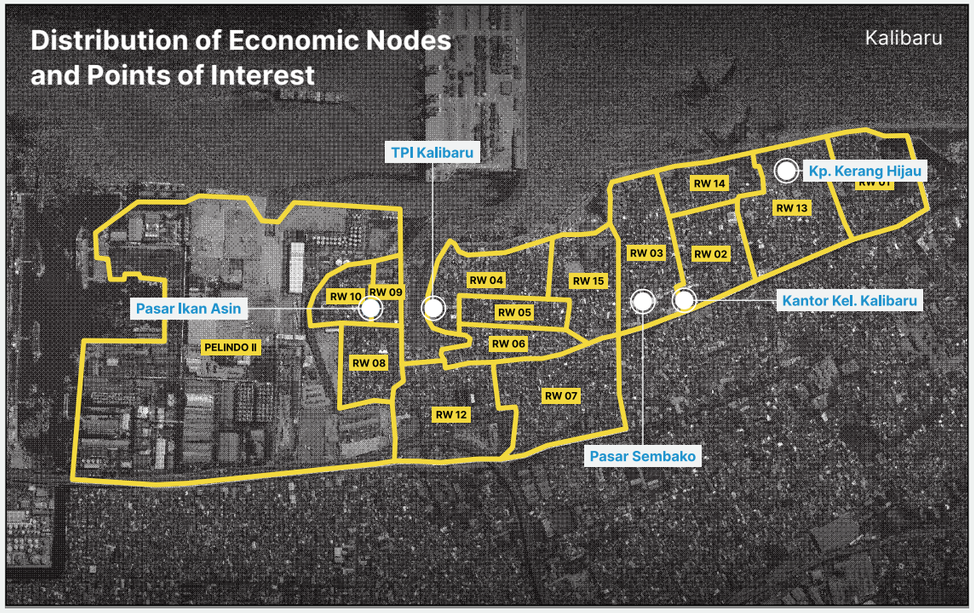
## Industry and Warehouse

The west part of Kalibaru is dominated by industrial use. The whole plot of RW 11 is an industrial and warehouse area owned by Pelindo II. Kalibaru is also surrounded by Tanjung Priok Port in the west, KBN Marunda industrial area. The development of industrial activities in the area has affected the type of livelihood of Kalibaru residents, by which a significant percentage of local communities work as day laborers and employees in private companies.

## Local Trade and Services

Kalibaru is a very vibrant neighborhood. Local trade and services exist alongside the main roads within Kalibaru. Many stalls are available for local residents, which offer many types of products and services, including stores selling primary consumer goods, food, and beverages, electronics, water kiosks, etc.

Figure 10: **MAP OF DISTRIBUTION OF ECONOMIC NODES AND POINTS OF INTEREST**




• **Source:** Field Observation, 2021

Figure 11: **MAIN ECONOMIC ACTIVITIES IN KALIBARU**

• **Source:** Field Observation, 2021





# Basic Infrastructure: Waste, Water and Energy

## Waste Management: the Most Pressing Issue in Kalibaru

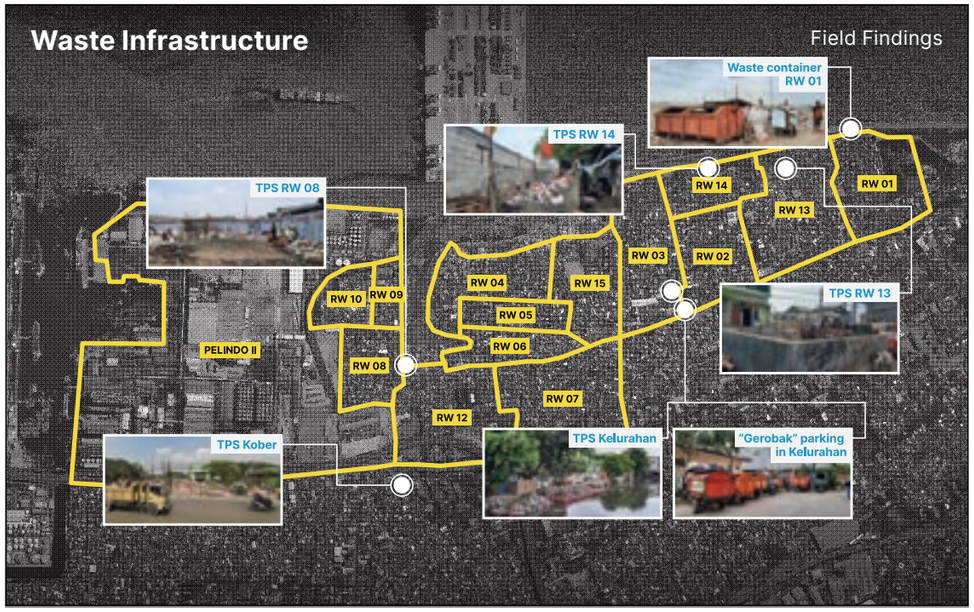
Waste management is one of the most urgent challenges in Kalibaru that needs to be tackled. The problem is notable, particularly in the coastal areas in Kalibaru, where there is an accumulation of waste behind the sea wall. Waste in Kalibaru is derived from household activities, industrial activities, particularly from the green mussel industry, and waste from the river and sea. While the accumulation of household waste is notable on the west coast (RW 04 and RW 15), the pile of green mussel shells accumulated on the east coast (RW 01 and 13) as the center of the green mussel industry.

How is the waste treated in Kalibaru?

Currently, the waste management in Kalibaru is handled by both formal and informal services. The formal government services, which are coordinated by DLH and operationalized by PPSU, are responsible for collecting waste in the main roads in Kalibaru and putting it in the temporary dumpsites / TPS. The garbage in the main road is collected by PPSU daily, while the waste in temporary dumpsites is collected by DLH trucks every two or three days.

Meanwhile, the informal services operate in areas far from the PPSU services and the dense settlements. The tariff for the informal waste service is considered high, as it is usually paid per service. In some areas, the households pay every time they dispose of their waste; the tariff is dependent on the amount of garbage. It ranges from Rp2,000 to Rp5,000 (~$0.14 -$0.35 US) per time. While in the other areas, the community paid weekly for around Rp 5,000 (~$0.35 US) per week.

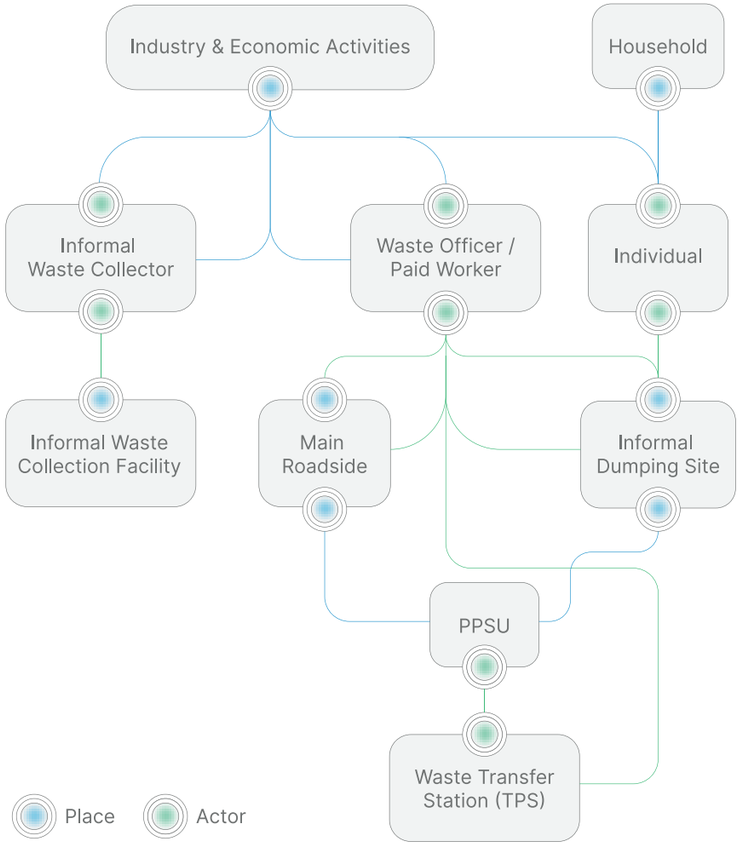
Figure 12: **MAP OF WASTE INFRASTRUCTURES IN KALIBARU**




• **Source:** Field observation, 2021

On the other hand, the waste from the green mussel industry is a different case. The amount of shells produced per day is quite massive, for more than one truck per day. However, the management of shell waste is relatively minimal. The most common current practice is that it is dumped into the sea. While from some other type of mussel, for example, blood clam, the shell is usually collected to be further sold as an admixture to build a house.

Figure 13: **CURRENT WASTE MANAGEMENT SYSTEM IN KALIBARU**




• **Source:** Synthesized from interviews and field observation, 2021

A systemic model for solid-waste management is urgently needed. Local communities and NGOs took individual initiatives to deal with the waste problem in Kalibaru, such as the 'waste bank', beach clean-up activities, but each of these activities is implemented in an ad hoc manner. An integrated waste management system is needed to account for household and industrial waste. A holistic approach would include elements to reduce the amount of waste generated, improve the collection mechanism and logistics involved, and, more importantly, an integrated facility to process solid waste.





Figure 14: **CURRENT WASTE MANAGEMENT SYSTEM AND ACTORS IN KALIBARU**

• **Source:** Field Observation, 2021

## Access to Water: Availability vs. Affordability

How does the community access water in Kalibaru?

Water is available in Kalibaru, yet the issue is on its quality and affordability. Kalibaru is still not officially included in the service area of PDAM service. PDAM water in Kalibaru is channeled from nearby service areas. Much of the water in Kalibaru is sourced from PDAM (AETRA) but is distributed to the house differently. In general, the way the community access water in Kalibaru are the following:

- **Pipeline service PDAM to houses:**
  The PDAM pipeline service is still considered the ultimate water service desired by the community.
  - However, there are still households without access to the PDAM pipeline services, mainly families living in the narrow alleys / dense settlements and those living near the coastline. They are not yet connected to the service due to the high cost of initial pipe installation to the house.
  - In some areas, the quality of PDAM water is not good: whether the water smells or not flowing at certain times (mostly afternoon). The community often needs to use pumps to get the water.
- **Private water service**
  Distributed by jerry cans. Local communities in some RWs, particularly in the east part of Kalibaru, use the private water service, locally referred to as Air Pasar Rebo, distributed with jerry cans.
  - It is mentioned that the water quality is slightly better than the PDAM water and often can be used for oral consumption purposes.
  - The water is distributed using jerry cans with an average price of Rp7,000 / per 6 cans.
- **Retail water services through hydrant/ master meter:**
  For local communities without access to PDAM, they access the water through the retail services from hydrant and master meter, which can be bought through two different ways—jerry can and directly to the house through a hose, locally known as nyelang.
  - Jerry cans: Jerry can water services are quite visible in Karimunjawa as they exist in many places. The cost for 6 jerry cans is Rp7,000 (~$0.49 US).
  - Nyelang: A way to access water through a hose. The hose connects the hydrant/master meter directly to the house. The cost is around Rp 10,000 (~$0.70 US)per 1 drum of water, which equals 30 minutes of tap.





- **Shallow well.**
  Some of the communities get water through shallow wells. However, as Kalibaru is located in a coastal zone, the water quality is reported to be not good, as sometimes it smells.

Access to water - Availability vs. quality and affordability of services

As mentioned earlier, in Kalibaru, water is available, the challenges exist around the quality and the affordability. PDAM water often smells in the afternoon, and the service is not 24 hours. According to local communities, PDAM water often does not flow in the afternoon. Local communities have to have a pump to ensure the water flows to their house, which is an extra cost for them.

Meanwhile, getting water is often more expensive for those who do not have access to PDAM water. Jerry cans cost around Rp7,000 (~$0.49 US) per six cans, and nyelang costs around Rp10,000 (~$0.70 US )per big drum. Both can be used for around one to two days per household, depending on the number of family members. This means community spending for water ranges from around Rp150,000 (~$10.43 US) to Rp300,000 (~$20.87 US) per household, which is quite expensive for low-income communities. This has not counted the spending on drinking water. On top of that, those who access water from hydrants using jerry cans often experience hardship to get the water, as it is often not convenient, particularly for women, as they have to lift the jerry cans. It is not practical and often becomes a burden, they often ask for help from someone else to do so, which also means another extra cost.

Figure 15: **ACCESSES TO WATER: RETAIL WATER SERVICES IN KALIBARU THROUGH HYDRANTS AND MASTER METERS**

• **Source:** Field Observation, 2021


HIDRAN PERCONTOHAN
NO.
NAMA PENJAB
NO.VAK/REK
ALAMAT
KELURAHAN
KECAMATAN
WILAYAH
TARIP
: KA RAYON
: ULHOI/20
: JL.
: KALI BA
: CILINCING
: JAKARTA UTARA

# Vulnerability Profile

3

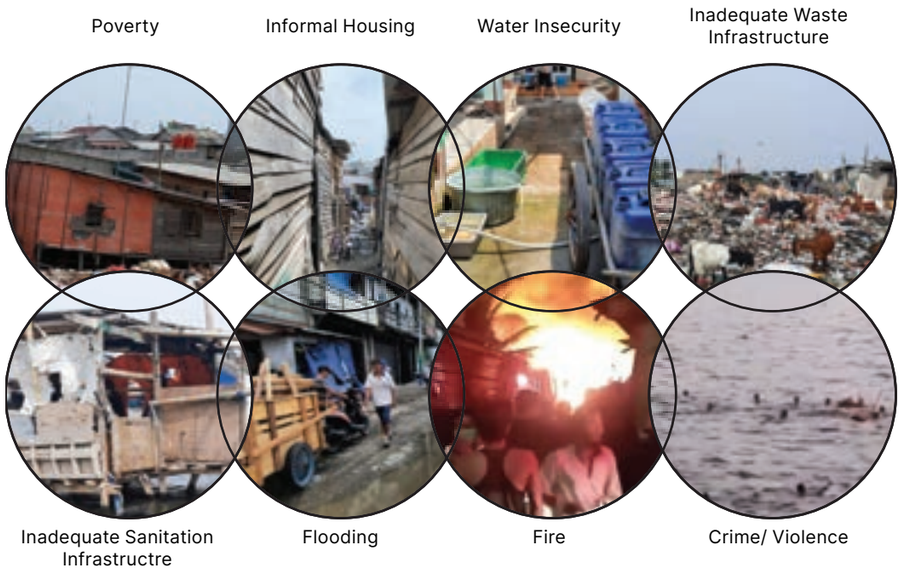
Kalibaru: Interconencting Shock and Stresses
Vulnerability of Setting
Pre-Existing Social Vulnerabilty
Vulnerable Groups
Vulnerable System
COVID - 19 Impact

Understanding vulnerability profiles is a first step in building community and city resilience. This chapter provides an overview of the vulnerability profile of Kelurahan Kalibaru. A discussion on the vulnerability of the place will be used as the starting point of the chapter, continued with a highlight on the pre-existing social vulnerability, the vulnerable groups, and vulnerable systems. The chapter concluded with an elaboration of interconnecting shocks and stresses that illustrate the overall vulnerability in Kalibaru.

# Kalibaru: Interconnecting Shocks and Stresses

Referring to 100 Resilient Cities, city resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt and grow no matter what kinds of chronic stresses and acute shocks they experience—with this framework, understanding the risks, stresses, and shocks that an area and community face are essential in building resilience. A resilient city and community do not mean that a city or community is free from shocks and stresses but rather aware of the risks it faces, and able to take preparedness and anticipatory efforts to reduce losses, and is able to recover conditions efficiently. A good understanding of shocks and stresses faced by the city and community will be a strong baseline in formulating tailored resilient strategies.

Figure 16: **INTERCONNECTING SHOCKS AND STRESSES IN KALIBARU**




• **Source:** Study Findings, 2021

As earlier mentioned, Kalibaru sits in a dynamic urban area where the socio-economic challenges closely intersect with environmental challenges. The complexity of the areas illustrates how the different shocks and stresses intertwine, putting the local communities at risk. The following are the highlight of the most notable shocks and stresses faced by Kalibaru:

- **High level of poverty:**
  Poverty associated with Kalibaru occupies the seventh-highest vulnerability of poverty in DKI Jakarta. Poverty can be associated with low capability to cope with shock and stresses, as the poor communities often live in areas where they have less access to services, building materials, employment, and have lack of resources to undertake adaptive measures;





- **Informal settlements:**
  Kalibaru ranked seventh in DKI Jakarta for Kelurahan with the highest number of slum RWs (Inventory of slum RWs 2017 DKI Jakarta Province);
- **Water insecurity:**
  Water is available in Kalibaru, but challenges exist around quality and affordability. Local community has to pay significant amount to get access from retail water services;
- **Inadequate waste infrastructure:**
  There are many areas that have not been served by solid waste management services, causing environmental degradation in some areas;
- **Inadequate sanitation infrastructure:**
  Access to sanitation still lacking, particularly in the dense coastal neighborhoods;
- **Flooding, inundation, fire:**
  More attention are required for disaster risk reduction (flooding, fire and other climate disasters);
- **Crime / Violence:**
  Crime and violence is reported to be one of the social challenges that put children and youth at risk in Kalibaru.

The following sections will further discuss the vulnerability profile of Kalibaru, which is divided into four parts: vulnerability of settings, which highlight the vulnerable places due to its' physical characteristics and locational aspects, continued with a highlight on the pre-existing social vulnerability focuses on the discussion of social aspects that puts the community at highest risks , the vulnerable groups highlighting the vulnerable communities, and vulnerable systems, which highlight the at-risk urban system.

**Box 3:** Shock and Stresses

**Shock** — Shocks refers to high impact events, usually sudden onset that are timebound and usually of a limited duration

- Blizzard
- Cyber Attack
- Disease Outbreak
- Drought
- Dust / Sand Storm
- Earthquake
- Extreme Cold
- Extreme Heat
- Financial / Economic Crisis
- Fire
- Hazardous Materials Accident
- Hurricane/ Typhoon/ Cyclone
- Infrastructure Failure
- Landslide
- Liquefaction
- Nuclear Incident
- Power Outage
- Rainfall Flooding
- Riot / Civil Unrest
- Severe Storms
- Storm Surge
- Terrorist Attack
- Tornado
- Tsunami
- Volcanic Activity

**Stresses** — Stresses are slow onset events, changes and longer term dynamics that pressure a city on daily or recurrings basis

- Agging Infrastructure
- Aging Population
- Climate Change
- Coastal/Tidal Flooding
- Corruption
- Crime/Violence
- Declining Population/ Human Capital Fight
- Displaced Populations/ Migrants
- Lack of Affordable Housing
- Lack of Green Space
- Lack of Investment
- Lack of Social Cohesion
- Loss of Biodiversity
- Political Instability
- Poor Air Quality
- Poor Regulatory Climate
- Drug / Alcohol Abuse
- Economic Inequality
- Energy Insecurity
- Environmental Degradation
- Ethnic Inequality
- Food Insecurity
- Gender Inequality
- Homelessness
- Inadequate Education Systems
- Population Growth/ Overpopulation
- Poverty
- Sea Level Rise/ Coastal Erosion
- Shifting Macroeconomic Trends
- Structural Racism
- Subsidence
- Traffic Congestion
- Inadequate Health System
- Inadequate Infrastructure
- Inadequate Public Transportation System
- Inadequate Sanitation System
- Informal Housing/ Settlements
- Insecure Municipal Finances
- Traffic Injuries
- Uncontrolled Urban Development
- Undiversivied Economy
- Unemployment
- Urban Blight
- Water Insecurity
- Youth Disenfranchisement





# Vulnerability of Setting

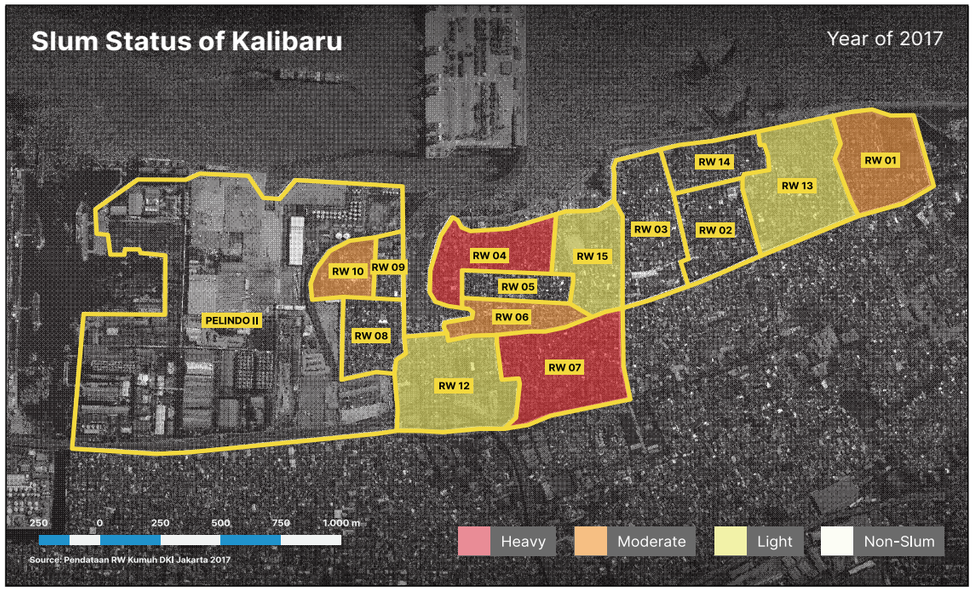
This part highlights the vulnerable places or area due to its' physical characteristics and locational aspects. This includes a highlight on the distribution of high risk areas including slums, areas exposed to flooding and areas with risk of fire.

## High-Risk Areas: Distribution of Slums

Slum areas are not necessarily associated with vulnerability, as they can be socially supportive and economically thriving communities. However, slum areas are often considered as locations with high risk. They are often supplied by fewer social services, water, and sanitation infrastructure and are generally located in areas that are more exposed to climate hazards, i.e., flooding and sea-level rise. The latest government definition of slums characterizes them as settlements with high population density, high building density, low-quality building materials, lack of access to sanitation, have narrow roads, and lack of waste management infrastructures and services[1].

Kalibaru ranked seventh in DKI Jakarta for Kelurahan with the highest number of slum RWs (Inventory of slum RWs 2017 DKI Jakarta Province). There are 8 RWs in Kalibaru categorized as slums based on the criteria set by BPS-Indonesia Statistical Bureau. Of those 8 RWs, two RWs classified as heavy slum: RW 04 in the west part of Kalibaru and RW 07. While RW 01, 06, and 10 are classified as medium-level slums, and RW 12, 13, and 15 are classified as light-level slums.

Figure 17: **MAP OF KALIBARU SLUM STATUS**




• **Source:** DKI Jakarta Slum RW Data Collection, 2017

[1] Determination of slum areas by BPS used several criterias: (1) Population density; (2) Building density; (3) Building quality; (4) Building ventilation and lighting; (5) Sanitation infrastructure; (6) How to treat solid waste; (7) Waste collection frequency; (8) Condition of drainage, (9) Condition of road; (10) Street lighting, and (11) Building order

In general, the slum in Kalibaru characterized by the following conditions:

- **High population density**
- **High building density**
- **Low quality of building materials**
- **Lack of ventilation and lighting**
- **Poor waste management**
- **Lack of access to water and sanitation**
- **Poor condition of drainage**

Figure 18: **THE CONDITION OF RWS CLASSIFIED AS HEAVY SLUM (RW 07 AND RW 04)**
RW 07 (above images) with high building density, lack of ventilation and lighting, and RW 04 (below images) with low quality of building materials, poor waste management.

• **Source:** Field observation, 2021





Table 1: **SLUM RWS IN KALIBARU**

| No | Slum Status | RW | Total # of RTs | Number of slum RTs | Slum RTs |
|---|---|---|---|---|---|
| 1 | Heavy slum | RW 04 | 14 | 13 | 01, 02, 03, 04, 05, 06, 08, 09, 10, 11, 12, 13, 14 |
| | | RW 07 | 15 | 14 | 01, 02, 03, 04, 05, 06, 07, 09, 10, 11, 12, 13, 14, 15 |
| 2 | Medium slum | RW 01 | 15 | 13 | 01, 02, 05, 06, 07, 08, 09, 10, 11, 12, 13, 14, 15 |
| | | RW 06 | 12 | 11 | 01, 02, 04, 05, 06, 07, 08, 09, 10, 11, 12 |
| | | RW 10 | 9 | 9 | 01, 02, 03, 04, 05, 06, 07, 08, 09 |
| 3 | Light slum | RW 12 | 14 | 9 | 01, 02, 03, 05, 06, 08, 11, 12, 14 |
| | | RW 13 | 13 | 5 | 02, 03, 04, 07, 13 |
| | | RW 15 | 12 | 7 | 01, 03, 04, 05, 06, 07, 09 |

• **Source:** Inventory of slum RWs 2017 DKI Jakarta Province

According to the Inventory of Slum RWs in DKI Jakarta Province in 2017 published by BPS, Kalibaru ranked seventh for Kelurahan with the highest number of slum RWs in DKI Jakarta. It is mentioned that these Kelurahan needs to be prioritized in the slum improvement effort. In DKI Jakarta, slums areas are often concentrated along the coast, along rivers, and in the city centers behind commercial districts and large residential areas. These are some of the areas most affected by climate change hazards.

**Box 4:** Kalibaru - One of DKI Jakarta's Priority for Slum Improvement

| No | Sub-District (Kelurahan) | District (Kecamatan) | Location | Number of Slum RWs | Rank |
|---|---|---|---|---|---|
| 1 | Penjaringan | Penjaringan | Coastal | 12 | 1 |
| 2 | Kampung Rawa | Johar Baru | City center | 8 | 2 |
| 3 | Tanah Tinggi | Johar Baru | City center | 8 | 3 |
| 4 | Mangga Dua Selatan | Sawah Besar | City center | 8 | 4 |
| 5 | Wijaya Kusuma | Grogol Petamburan | City center | 8 | 5 |
| 6 | Rawa Badak Utara | Koja | Coastal | 8 | 6 |
| 7 | Kalibaru | Cilincing | Coastal | 8 | 7 |
| 8 | Manggarai | Tebet | City center | 7 | 8 |
| 9 | Keagungan | Taman Sari | City center | 7 | 9 |
| 10 | Cipete Utara | Kebayoran Baru | City center | 6 | 10 |

• **Source:** Pendataan RW Kumuh DKI Jakarta 2017



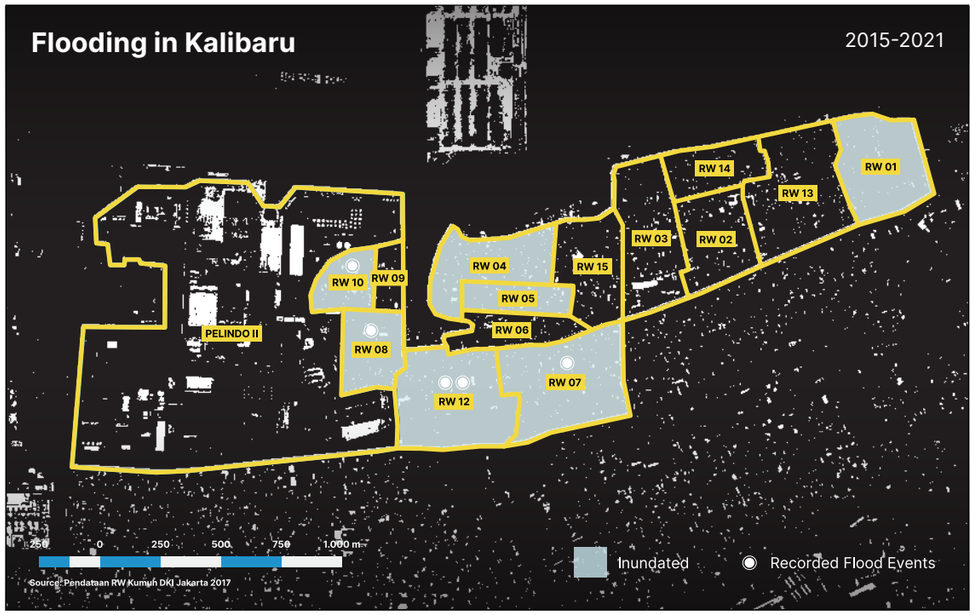


## Risk of Flood and Sea-Level Rise

According to interviews with local stakeholders, flood is not a significant problem in Kalibaru. Coastal flooding has reduced significantly in the coastal part post-construction of the 2.2 kilometers of sea-wall, finalized in 2017. Pluvial flooding occurs when heavy rain occurs, particularly in RW 05, RW 07, RW 08, and RW 13. The inundation lasts for around one hour with a height of 20 to 50 centimeters. The inundation in some RWs occurs due to the poor condition of the drainage system, as there is an accumulation of solid waste and debris.

Apart from that, the flooding in RW 07 is related to the upstream water management, particularly the Dewaruci pump station. While the pump is located upstream of Kalibaru, the water is pumped out from the system during the heavy rainfall, affecting the downstream areas in Kalibaru.

Figure 19: **MAP OF FLOODING IN KALIBARU**




• **Source:** Study findings, 2021

The following table elaborated the areas in Kalibaru affected by flooding and the cause of flooding.

Table 2: **AREAS WITH RISK OF FLOODING IN KALIBARU**

| RW | Flooding events in the last five years | Type of flooding | Condition and cause of flooding |
|---|---|---|---|
| **RW 07** | Heavy slum | Pluvial flooding | • RW 07 is located near the river.<br>• The flooding occurs due to river overflow from the upstream, particularly when water is pumped out from the Dewaruci pump station. |
| **RW 08** | Medium slum | Pluvial flooding | • The main road of RW 08 is often inundated during the rainy season.<br>• Flooding occurs due to poor drainage conditions: Drainage in RW 08 is lower than the surrounding area; it is not connected to the bigger river or sea. |
| **RW 05** | Light slum | Pluvial flooding | • Poor condition of drainage system: drainage system clogged with solid waste<br>• Drainage is built lower than the surrounding areas. |
| **RW 06** | | Pluvial flooding | |
| **RW 10** | | Pluvial flooding | |
| **RW 04** | | Coastal + pluvial flooding | • There is the inundation of sea-water |

• **Source:** Study findings, 2021





## Sea-Level Rise and Land Subsidence in Jakarta

A recent study has identified Jakarta as among the world's major metropolitan areas on the brink of sinking as a result of rising sea levels and extreme weather caused by climate change. Global strategic andrisk consulting company Verisk Maplecroft reported in its 2020 Environmental Risk Outlook issued on Thursday that 11 of the 15 cities most at-risk of sinking are Asian cities that are significant financial and trade centers, including Jakarta, which is especially threatened due to its location in the lowlands. The company assessed sea level rise exposure to 500 cities with a population of more than 1 million people.

Jakarta, the fourth-highest risk city globally, is slowly sinking towards current sea level as the aquifers it sits above are drained. A study from Bandung Institute of Technology (ITB) researchers on data from 1925 to 2015 concluded that significant land subsidence had affected the capital city since 1975. The researchers predicted that a large part of Jakarta will be submerged by 2050. Another research conducted by Erkens et.al. (2015) shows that Jakarta has the highest land subsidence rate compared to other coastal cities (Bangkok, Ho Chi Minh City, Manila, New Orleans, Tokyo, and West Netherlands). The main cause of land subsidence in Jakarta is over-exploitation of groundwater extraction as a result of rapid expansion of urban areas. Groundwater management is excessively important to hamper land subsidence rate in Jakarta.

| Cities | Mean Cumulative Subsidence in Period 1900-2013 (mm) | Mean Current Subsidence Rate (mm/yr) | Maximum Subsidence Rate (mm/yr) | Estimated Additional Mean Cumulative Subsidence Until 2025 (mm) |
|---|---|---|---|---|
| Bangkok | 1,250 | 20-30 | 120 | 190 |
| Ho Chi Minh City | 300 | Up to 80 | 80 | 200 |
| Jakarta | 2,000 | 75-100 | 179 | 1,800 |
| Manila | 1,500 | Up to 45 | 45 | 400 |
| New Orleans | 1,130 | 6 | 26 | > 200 |
| Tokyo | 4,250 | Around 0 | 239 | 0 |
| West Netherlands | 275 | 2-10 | > 17 | 70 |

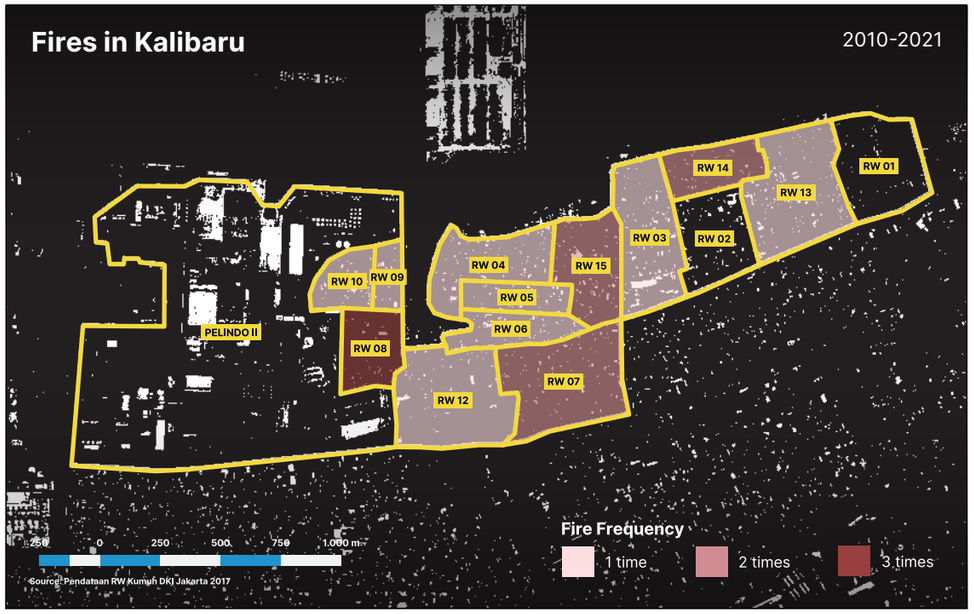
• **Source:** Bangkok: MoNRE-DGR (2012), Aobpaet et al. (2013); Ho Chi Minh City: van Trung and Minh Dinh (2009); Jakarta: Bakr (2011); Manila: Eco et al. (2011); West Netherlands: van de Ven (1993); Tokyo: Kaneko and Toyota (2011) as cited in Erkens et.al (2015).

## Risk of Fire

Kelurahan Kalibaru is very densely populated and some of RWs still consist of houses made from flammable materials. From interviews with local stakeholders, some of the RWs lack fire preparedness despite having recent histories of fires. RW 08 and its surrounding RWs especially possess a higher risk of catching fire due to the nature of the industry and the area density. Common problems between RWs in terms of fire preparedness are the inability to refill the fire extinguishing equipment on schedule and lack of knowledge in fire prevention and management. Some RWs have a fire extinguisher and fire extinguishing ball in every RTS, as well as knowledge and human resources to prevent and put out fires.

Seeing that past fire history causes was mostly due to short circuit, future training and education should put more focus on short circuit prevention, on top of the kitchen fire, and fire management. Increasing the amount of training and providing adequate fire fighting equipment is a crucial step to prepare for a possible fire in Kalibaru. The following table elaborated the areas in Kalibaru that are more prone to fire and have a history of fire in the last five years.

Figure 20: **MAP OF FIRE EVENTS IN KALIBARU**




• **Source:** Study findings, 2021





Table 3: **AREAS WITH RISK OF FIRE IN KALIBARU**

| RW | Recent Fire Event | Causes of Fire | Fire Preparedness and Fire History |
|---|---|---|---|
| **RW 03** | Fire at the market (RT 14) in 2017. Fire deaths were reported | Unknown | • There is a firefighter station in RT 03<br>• The RW post is equipped with a fire extinguishing ball and fire extinguisher.<br>• Each RTs have their own fire extinguisher. Hasn't been used in quite some time and has passed i's refill schedule. |
| **RW 05** | House fire in 2018 | Unknown | • The RW post is equipped with a fire extinguishing ball and 3 fire extinguishers. |
| **RW 06** | Small fire in 2021 | Spreads from fire in RW 08 | • The RW post is equipped with a fire extinguisher<br>• Firefighter volunteer team has been formed formally, although no formal training has been received. Was formed due to a decree from the Kelurahan Office.<br>• Before the Covid-19 pandemic, fire prevention socialization and simulation, especially on exploding gas stoves were often conducted in collaboration with firefighters. |
| **RW 07** | House fire at RT 04 in early 2021 | Kitchen Fire | • There is a firefighter station in RT 03<br>• Each RTs are equipped with a 2kg fire extinguisher.<br>• A big-sized fire extinguisher is provided for each West, Center, and East part of the RW. |
| **RW 08** | In October 2021, a house fire affected 3 houses at RT 11 | Short Circuit | • A big fire happened in 2020, at a wood warehouse in RT 02. 77 houses were affected. The cause was found to be a short circuit.<br>• The RW post is equipped with two fire extinguishers and has never been used before.<br>• Firefighter volunteer team has been formed formally, consisting of more than 20 members, representatives from each RT. No formal training has been received since the formation of the team. Was formed due to a decree from the Kelurahan Office. |
| **RW 09** | In 2021, a house fire affected 3 houses. | Short Circuit | • The RW post is equipped with a fire extinguisher<br>• Each of the RTs is equipped with one fire extinguisher.<br>• A big fire happened in 2010. 3 RTs were affected.<br>• Firefighter volunteer team was formed in 2016, and had received training and simulation on how to put out a fire. |

| | | | |
|---|---|---|---|
| **RW 10** | In 2019 ,a house fire started from one house and spread to nearby houses. | Short Circuit | • The RW post is equipped with a fire extinguisher, received in 2018 |
| **RW 12** | In 2020, a house fire happened at RT 10. | Unknown | • The fire extinguisher has been used before and is now empty. |
| **RW 13** | | | • Only one house fire had ever happened in RW 13.<br>• The RW post is equipped with a fire extinguisher.<br>• Each RTs have their own fire extinguisher.<br>• A Firefighting volunteer team was formed this year, no formal training had been received. Previously had received training on disaster management. |
| **RW 14** | In 2020, a house fire affected two houses at RT 01. | Short Circuit | • No fire extinguisher in RW 14. Have consulted the fire department to facilitate fire extinguishers before the pandemic, but there has been no response. |
| **RW 15** | | | • A house fire happened twice on RW 15. The cause was a short circuit and candle use. |

• **Source:** Study findings, 2021





# Pre-existing Social Vurnerability

## Poverty

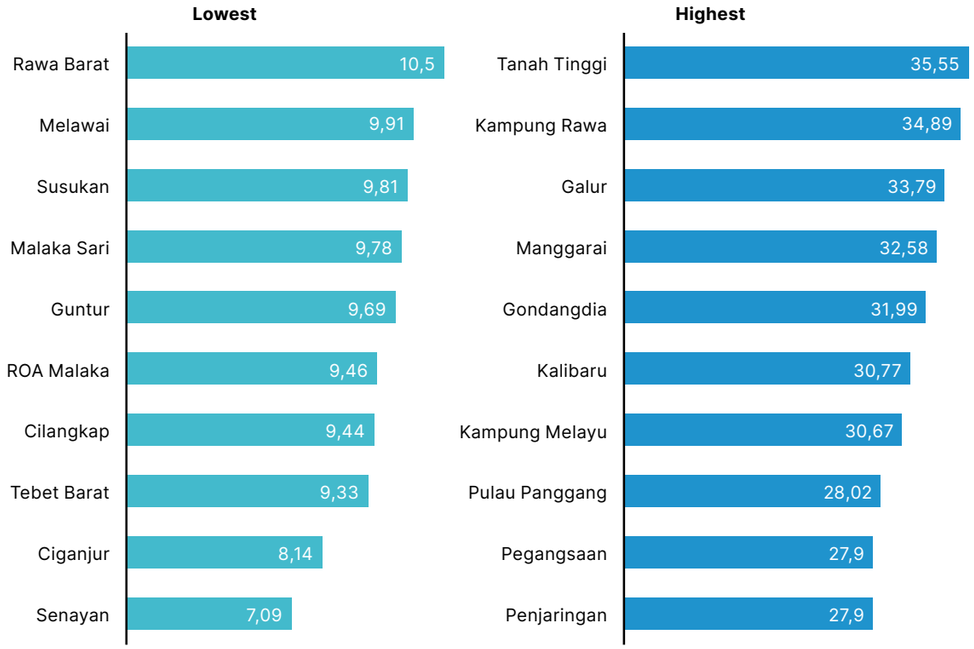
In the agenda of building city's and community's resilience, it is important to understand the current state of social condition of the community. Poverty is, however, a lens to look at social vulnerability. Poverty is a term that indicates a lack of material possessions or money, which can be associated with low capability to cope with shocks and stresses.

Moreover, it is important to understand poverty as there are a number of factors that contribute to it. By understanding these poverty factors, we can better understand why these communities are vulnerable and offer solutions for reducing their vulnerability.

According to DKI Jakarta's Potential Social Vulnerability Index 2019 (Indeks Potensi Kerawanan Sosial), Kalibaru occupies the 7th highest vulnerability of poverty in DKI Jakarta. The poor communities are at risk because they live in areas where they have less access to services, building materials, and employment, and on land that is unclear in terms of status.

Figure 21: **DKI JAKARTA SOCIAL VULNERABILITY INDEX IN 2019**

Left graphic indicates top 10 Kelurahan with lowest social vulnerability index, while the right index indicates top 10 kelurahan with highest vulnerability index. Kalibaru ranks 7th in the Kelurahan with the highest vulnerability profile.




• **Source:** Profil Kerentanan Sosial DKI Jakarta 2019

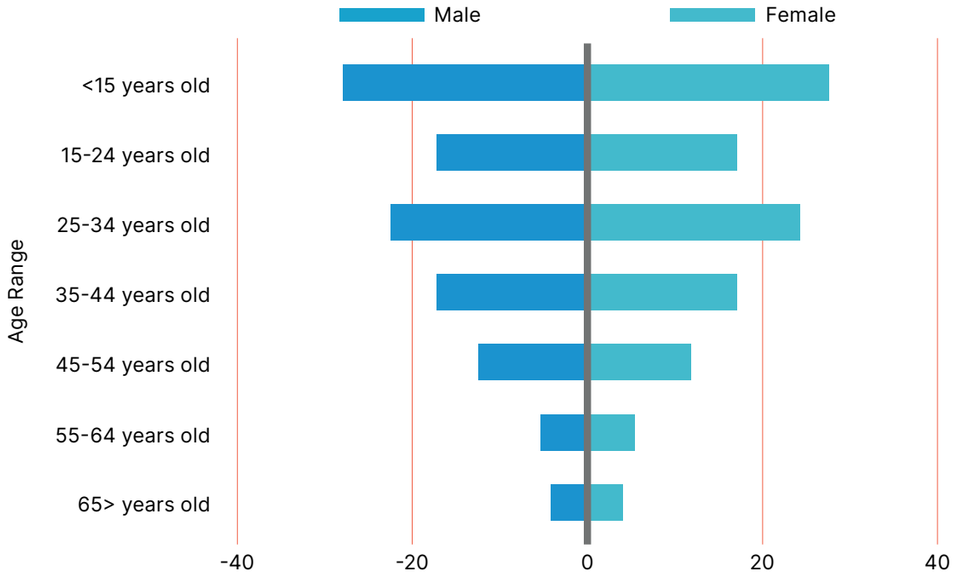
## Social Profile: Gender and Age

Kalibaru's population is balanced in terms of gender distribution, with around 49% of the population being female. In terms of age, Kalibaru's population is very young, with 44.58% of its population below 25 years old, and 27.59% of the population are below 15 years old. This social profile of Kalibaru stresses the importance of education and assistance programs to

the youth groups to ensure the future development of Kalibaru. Community leaders mention that young generations of Kalibaru are at high risk of a negative social environment where there is a lot of crime and brawls between youth groups. If there is no intervention being done in this aspect, there is a risk for the youth to normalize the negative activities, which is dangerous for their future.

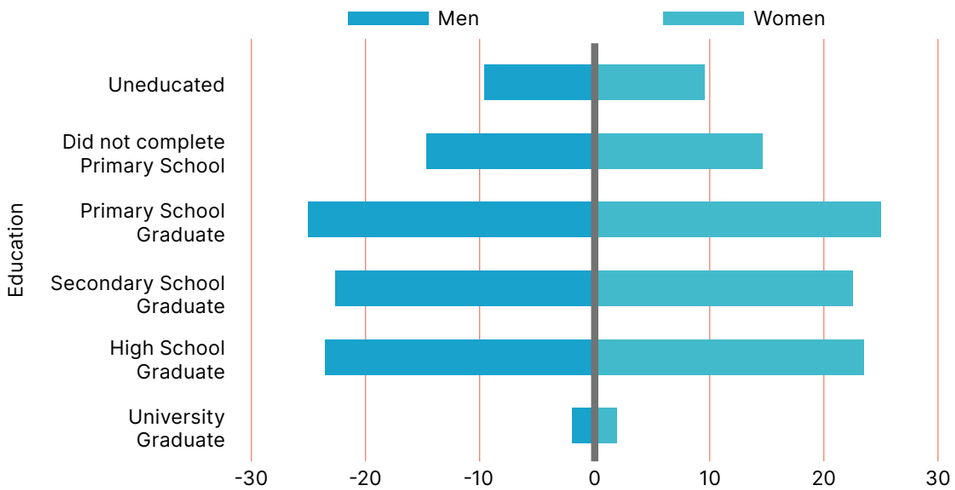
In terms of education, the majority of the population of Kalibaru graduated from primary school and high school. Only a tiny percentage of the community graduated from university. According to interviews with residents, it is observed that the mindset of the local community is to work immediately in the nearby industry or fishery activities.

Figure 22: **GENDER-AGE RATIO IN KALIBARU**




• **Source:** Kalibaru Monthly Report, 2021

Figure 23: **GENDER-EDUCATION RATIO IN KALIBARU**




• **Source:** Kalibaru Monthly Report, 2021

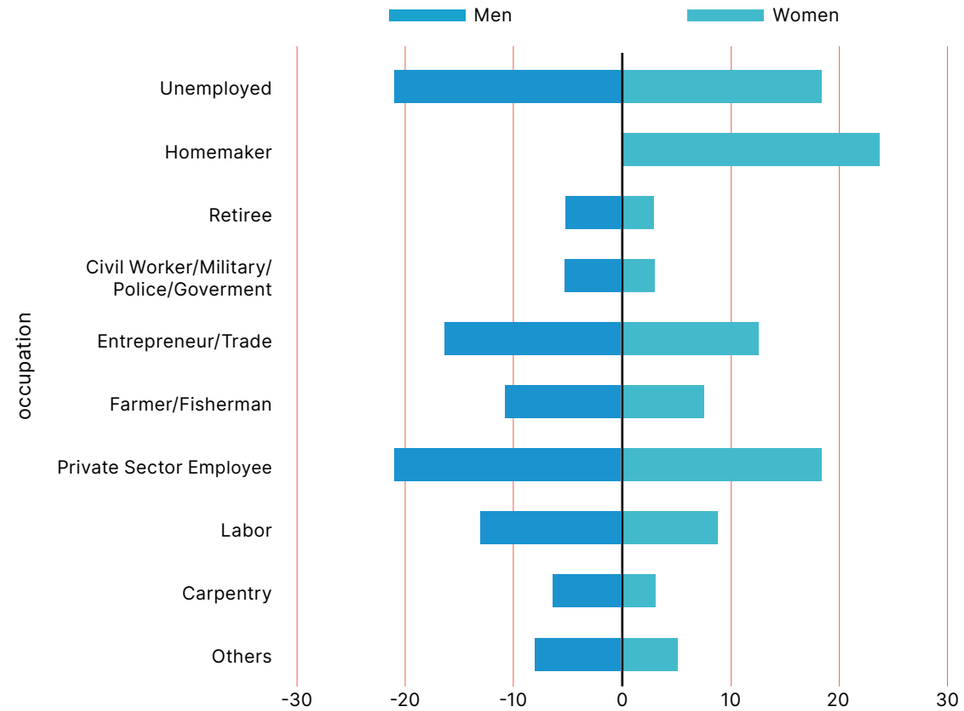




## Unemployment

Meanwhile, in terms of livelihood, it is important to note that a considerable number of the population are unemployed. This has become one of the concerns in the local community.

Figure 24: **GENDER-EMPLOYMENT RATIO IN KALIBARU**




• **Source:** Kalibaru Monthly Report, 2021

## Informality

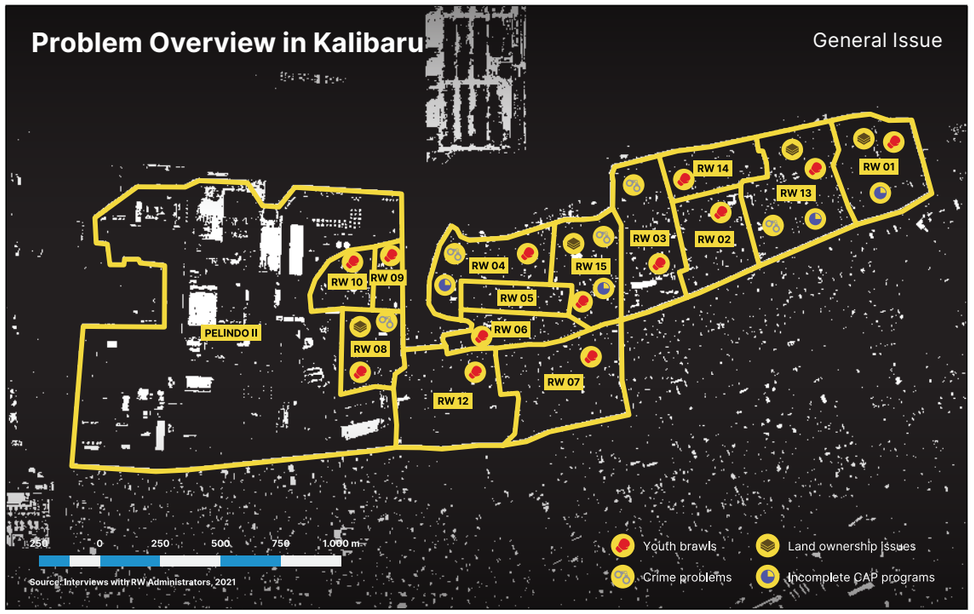
Most of the people in Kalibaru work in the informal sector, mainly in the seafood industry, fishery, factories, or trade and services. These informal workers work without a contract. Most of them are being paid daily according to the results. This working condition leads them to depend on daily wages to afford their daily needs and long-term needs. Often, this daily wage is only sufficient to pay for daily needs such as food and drinking water. Because internet credit and cigarettes are often considered basic daily necessities too, long-term needs such as education, health, and house repairs are often overlooked even further.

## Crime and Teenage Brawl

Teenage brawl is one of the most pressing issues of Kalibaru. All RWs admitted to facing some problems related to teenage brawl. Junior and senior high school age students. Main reasons are believed to be the lack of attention from caretakers and lack of safe space and activities for children and teenagers.

These brawls have taken some lives in the past. These brawls are often connected with crime activities in Kalibaru. Brawls are being held at the same time as narcotic transactions. Often teenagers who participated in these brawls are found to be frequent users of narcotics and alcoholics, as well as having the habit of sniffing glue. Other crime activities in Kalibaru ranges from murder, theft, pickpoketing, to thug and gang activities.

Figure 25: **MAP OF GENERAL ISSUES IN KALIBARU**




• **Source:** Study findings, 2021





# Vurnerable Groups

Another way to think about vulnerability is through the lenses of different groups of people. The shocks and stresses affect people differently depending upon their age, physical conditions, jobs, and access to services. Fishermen who live on the shore, for example, are more vulnerable to changing weather conditions than those who work in a store. Older people, for example, suffer more than younger generations from drought and insufficient water services. The following are the observed vulnerable groups in Kalibaru.

## Fishermen

A significant percentage of the local community in Kalibaru works in the fishery sector as fishermen and fish processing industry. The fisher communities and those working in the fishery sector are particularly vulnerable as their livelihood is heavily dependent on the ecosystem's services. According to an interview with local fishers in Kalibaru, these days, the fishers face more challenges, including the sea's pollution due to industrial activities and the changing climate, which puts them in more significant uncertainty. In the past, the fishermen could find fish near the shore, while now, they have to go farther, which means higher operational costs. The condition of the weather also impacts their livelihoods. During certain periods of poor weather they can't fish and their families will suffer from a lack of income.

## Green Mussels Industries

There is a significant number of people living in the coastal area of Kalibaru (which includes RW 01, 04, 13, and 15) that rely on the green mussel clam industries. The industry is small in scale but covers a wide range of activities and provides for many local people. The activities range from farming, harvesting, processing (precooking, cleaning, debearding, separation), transporting, cooking, selling, and shell disposal. Growing and harvesting of the clam depend on the weather, the quality of water and marine ecosystem, as well as the condition of the coastal environment, which are currently at risk of degrading by the looming climate crisis in addition to the pollution produced by human activities.

## Women

At Kalibaru, the majority of the women work in the informal sector, i.e., in the fish processing industry, green mussel industry, trade and services, and work in the big industrial company. The informal nature of their work makes them vulnerable as they are being paid daily. According to the interview, the daily income makes it hard for them to plan ahead for important matters, such as the children's education or saving. On top of that, their income heavily relies on the mussel industry's condition, which also relies on other external factors, like the weather.

In terms of social relations, the women of Kalibaru play a big part in local organizations and activities compared to men. Women are often also responsible for ensuring access to water at home.

## Children and Youth Groups

Children and youth groups are one of the most vulnerable groups in Kalibaru. Based on interviews with different RW leaders and the Kelurahan, the brawls between different youth groups are quite common in Kalibaru. It has become one of the main problems of Kalibaru, along with child marriage and stunting.

The limited space in a dense living situation in each household forces children and youth to spend time outside. At the same time, the lack of safe and child-friendly public space and attention from caretakers leads to high exposure to waste and increased social conflicts.

## Elderly and People with Disability

Elderly people and People with Disabilities face the danger of invisibility in Kalibaru. As of now, there is no record of their population. This significant knowledge gap makes it difficult to know the exact needs and barriers of the elderly and PwDs in Kalibaru. The possibility of isolation and limited access to basic needs and health care cannot be ruled out.





Figure 26: **VULNERABLE GROUPS IN KALIBARU**

• **Source:** Field Observation, 2021

# Vurnerable System

Vulnerability can also be thought of on a larger scale, in terms of urban systems. Urban systems are networks of services that cover large areas of the city. It provides services for the residents, like a water delivery system or the drainage canal system. The insufficient water service can be seen as a stress for the community. On the other hand, this system is also critical. If these systems are damaged or fail due to certain shocks, for example disasters, problems can be widespread and create bigger problems to the communities.. This is why the urban systems are critical for the city's population and functioning. Some of the critical systems identified for Kalibaru are, but not limited to the following:

## Water Supply System

Water supply system is perhaps the most critical network for the city and community. In Kalibaru, a citywide water supply network is present. However, it hasn't reached all of the community in Kalibaru.

- There are still households that have not become PDAM (AETRA) customers, especially those living in the small alleys and around the coastal areas.
  - They face several obstacles, namely the high installation cost and problems with the land-use permit.
  - In the case of leasing tenants (pengontrak), the existing payment arrears from the previous tenants are often not covered by the house owner, making it hard for the new leasing tenants to reinstall the service as they have to pay for the overdue fine from the previous tenants.
- In some areas, despite accessing the PDAM (AETRA) service, the customers are still facing water problems such as low pressure, foul odor, and clogging at dusk.
  - Most customers need to use a pumping machine to get better water pressure. In the case of the coastal areas, without an additional pumping machine, no water will come out.
  - After water disruption, the clogging often lasts for longer than a week.
- Those who are unable to access the PDAM (AETRA) service choose to buy retail water in jerry cans or are hosed directly to their house from Master PAM.
  - In RW 13, the community also buys water sourced from private service in Pasar Rebo, as the quality is better for cooking and drinking.



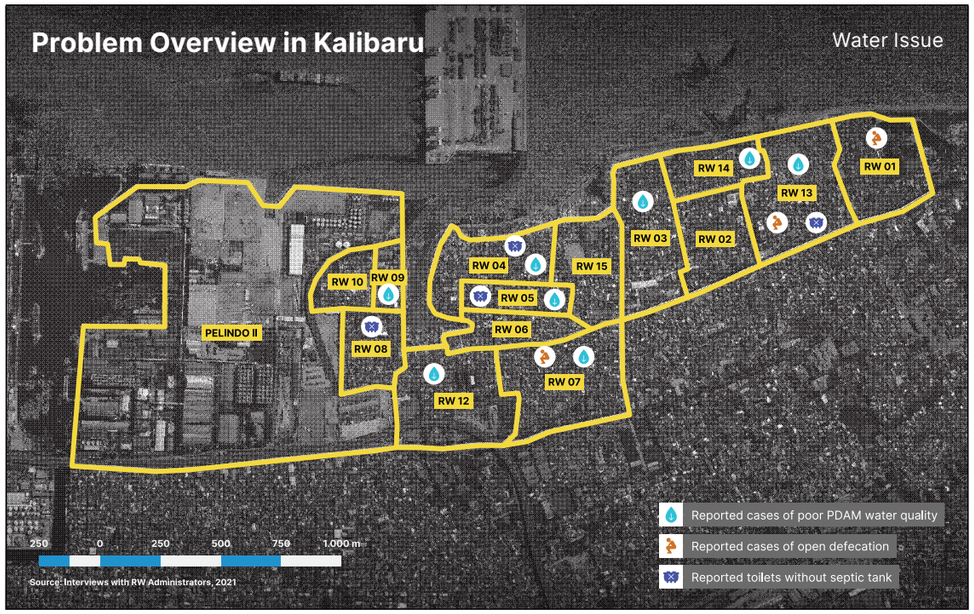


## Sanitation System

Sanitation systems are crucial for a community's health. However, in Kalibaru, there are some areas in the coastal areas with lack of access to sanitation systems.

- Open defecation practice and possible fecal contamination are still found in some RWs in Kalibaru.
  - The limited opening hours of public toilets forced the users (mainly leasing tenants) to relieve themselves outdoors, in the river and sea.
  - There are still flying toilets and household toilets are not equipped with septic tanks. In this case, bath and toilet waste go straight to the waterway or river.

Figure 27: **MAP OF WATER ISSUE IN KALIBARU**




• **Source:** study Findings, 2021

## Waste Management System

- Poor waste management systems and inadequate TPS lead to illegal waste dumping sites and marine debris in the Kalibaru area.
- The community depends on informal waste workers who pick up trash daily from their front door. In RW with no TPS, the waste workers dump the collected trash to illegal waste dumping sites.
- Some of the residents who live near the main road will illegally dump their trash at the side of the street. The garbage will then be picked up by the PPSU truck in the morning.
- Industrial waste from the green mussels industry in RW 1, RW 4, and RW 13 combined with household waste dumped in the sea near the embankment has grown into a landmass.

## Drainage System

Drainage system is one of the critical systems in Kalibaru, particularly in the areas with very high density and areas near the coast.

- Some of the flooding and inundation occurs due to mismanagement of drainage construction. The development of drainage in one area did not consider the impacts to the other areas. Development of drainage systems should be done with systemic thinking.
- Coastal areas in Kalibaru are the most critical as there is no proper drainage system. Some respondents mentioned that drainage improvement was already proposed through the CAP program, yet discontinued due to covid.
- Another issue is that drainage ditches become filled up with trash and are blocked, which creates inundation in the surrounding area.

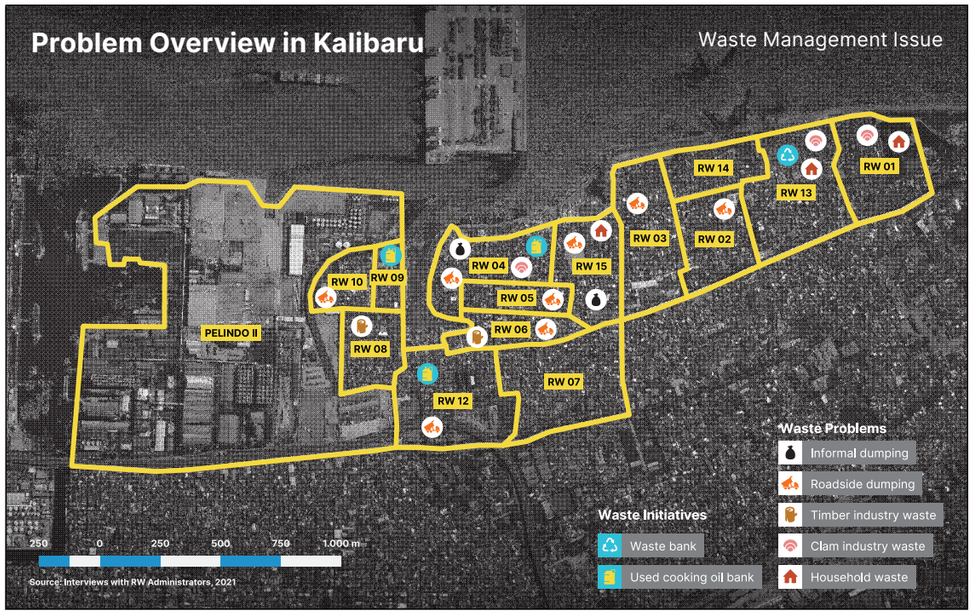
## Energy

- All of the households in Kalibaru have access to electricity service from PLN.
- Most of the fire cases in Kalibaru happened due to short circuits.





Figure 28: **MAP OF WASTE MANAGEMENT ISSUE IN KALIBARU**




• **Source:** Study Findings, 2021

Figure 29: **VULNERABLE URBAN SYSTEMS IN KALIBARU: WATER SUPPLY, WASTE MANAGEMENT, AND DRAINAGE SYSTEM**

• **Source:** Field Observation, 2021.

# COVID-19 Impact

The pandemic has added another layer to the vulnerability of people living in Kalibaru. The basic needs of water and sanitation aren't met, adding up to the risk of COVID-19 spreading in the densely populated area. Other assistance and planned infrastructure development are also postponed until further notice. In a critical situation, fulfillment of vaccination and social assistance cannot be met due to inaccurate population data. Not only the amount of assistance does not match the amount of people living in the area, information about these services and their eligibility often did not reach every household living in the area. A lot of the vulnerable groups are not documented, making it difficult to cater to their specific needs during the pandemic.

With the majority of its people working informal jobs, the number grew even bigger during the pandemic. A lot of the people that lost their former formal jobs during the pandemic layoffs, started working as fishermen, selling food, and other odd jobs. Some of the existing and newly started businesses such as seafood chips, concrete bricks from green mussels shells were hit by major decrease in profit, leading to bankruptcy, forcing them to close down. According to an interview by TribunNews with the green mussels worker, the pandemic especially hit them hard due to the decrease in their work shifts. With markets and restaurants closing down and postponed for quite a while, market demand for green mussels also decreased. One of the workers mentioned that the reduction in sales reached roughly around 50% from their usual profit.

As of now, most of the activities in Kalibaru have resumed just like before the pandemic. The existing business also started to regain their stability. As the pandemic continues, the lack of access to water and sanitation as well as the tendency of people in Kalibaru to neglect COVID-19 health protocols might lead to an explosion in future cases.



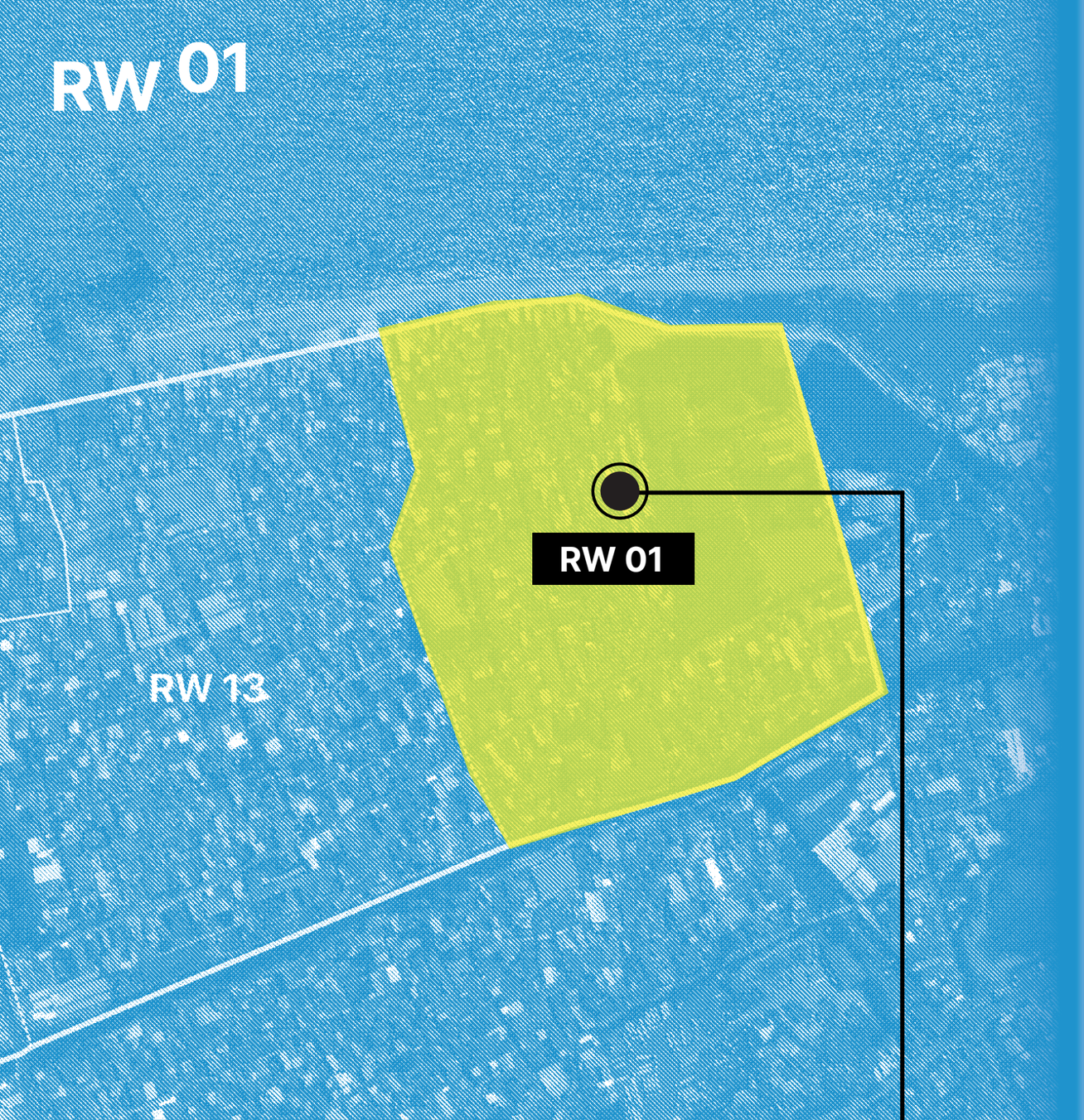
# RW Profiles

4


RW 01 RW 02 RW 03 RW 04 RW 05
RW 06 RW 07 RW 08 RW 09 RW 10
RW 12 RW 13 RW 14 RW 15
Summary of RW Issues


This chapter highlights the characteristics of each RW, including the main economic activities, the most notable feature of the RWs concerning social condition, basic services, particularly on water, waste, and wastewater services, as well as disaster-related information.

# RW 01




| | |
|---|---|
| **Population** | 6,533 people |
| | **M** 3,300 **F** 3,233 |
| **Area** | 0.142 km² |
| **Density** | 52,601 people/km² |
| **Number of RT** | 15 RTs |
| **Slum Status** | ●○○ Light |





## General Overview

RW 01 is located in the eastern most of Kalibaru, bordering the fishermen kampung in Kelurahan Cilincing. According to CAP program standards, this RW is classified as a “light” slum area and all of its RTs are planned to receive assistance from the CAP program. However, the promised development is only partially finished due to the suspension of the program during the COVID-19 pandemic.

RW 01’s location in the coastal line area of Kelurahan Kalibaru, making its main economic activities revolves around the seafood industry. Most of the residents are workers and fishermens of the salted fish and green mussels industry that stretches along the coast by the seawall. The main issues of RW 01 are waste, specifically green mussel shells waste and illegal waste piles.

## Water and Wastewater

Most of the people of RW 01 have access to PDAM service. The location of the RW makes it hard to be reached by the water pipe system, making it essential for the residents to use an extra water pump to increase the debit of the tap water. The water also tends to be dirty and smelly during dawn to 09.00 AM, making it unfit to be used.

Some areas that are located right at the coast area such as RT 09, RT 10, RT 11, and RT 12 are unable to install the service due to land ownership issues or the unaffordable cost and difficulty to get permits for initial pipe installation. In general, in RW 01, about ±20% of people who buy water from the water seller are leasing tenants or pengontrak.

- The alternative for PDAM service is “nyelang”, buying retail water from seller, counted per jerry cans and drums or buying from the public toilet for Rp 2k (~$0.14 US)
- Some of the residents also said that they’ve dug up their own well to backup their water supply. It is said that usable water will only be available in 1-3 meter depth.

Another alternative to PDAM service unique to RW 01 is rainwater harvesting service. RW 01 was chosen as one of out of the two RWs that received rainwater harvesting tanks from DRD DKI Jakarta, BRIN, and School of Environmental Science Universitas Indonesia in Kalibaru Residents of RW 01 can get the water for free by visiting the location and filling the water into the container they brought.

- Despite giving easier access to water for people, especially those living near the location, the majority of them still find it difficult to access due to the long distance they need to take from their home and the burden of carrying water jerry cans or drums.
- Several aspirations from people or RW 01 regarding the rainwater harvesting tank are:
  - For the tank to be located in prayer centers such as Musala or Masjid to support religious activities and to reduce distance to houses or centers of activities.

- For the water supply to be connected directly to their house by pipes to increase access and reduce the amount of money and energy spent daily.
- Procurement should be focused in RT 10, RT 11, and RT 12 which are still facing water shortage.

Regarding sanitation, around 60% of the community in RW 01 has their own private toilet, while the rest (including leasing tenants or pengontrak) uses public toilets. The risk of contamination is high in this RW due to the following reasons:

- As the public toilet closes at 9 PM; the users often relieve themselves in the sea or in the river at night.
- Some toilets still have not used a septic tank, so bath and toilet waste go directly into the water way.

## Waste

RW 01 faces a unique problem related to waste. Other than illegal waste piles on land, RW 01 also struggles with marine debris, illegal industrial waste disposal, and accumulated green mussels shells.

- In 2017, the East Kalibaru Fishermen Cooperative collaborated with Politeknik Kesehatan - Kementerian Kesehatan (Ministry of Health)to process green shells waste into paving blocks. Due to the lack of financial support and market demand, the activity is postponed for the time being.
- In 2021, Sekolah Ilmu Lingkungan UI and Badan Riset dan Inovasi national collaborated with the East Kalibaru Fishermen Cooperation in upcycling the shell waste into home decor items such as placard, ashtray, and coaster.
- Frequent disposal to dumpster or informal temporary dumping site by the sea provided by The Environment Office (DLH).
- There are waste workers in RT/RW that collect waste from households to the dumpster and dumpsite.
- DLH garbage trucks will then collect the waste from the site every 3 days, which is considered by the residents as not being frequent enough with how the waste is often piling up and spilling onto the street.

## Disaster

Flooding events:

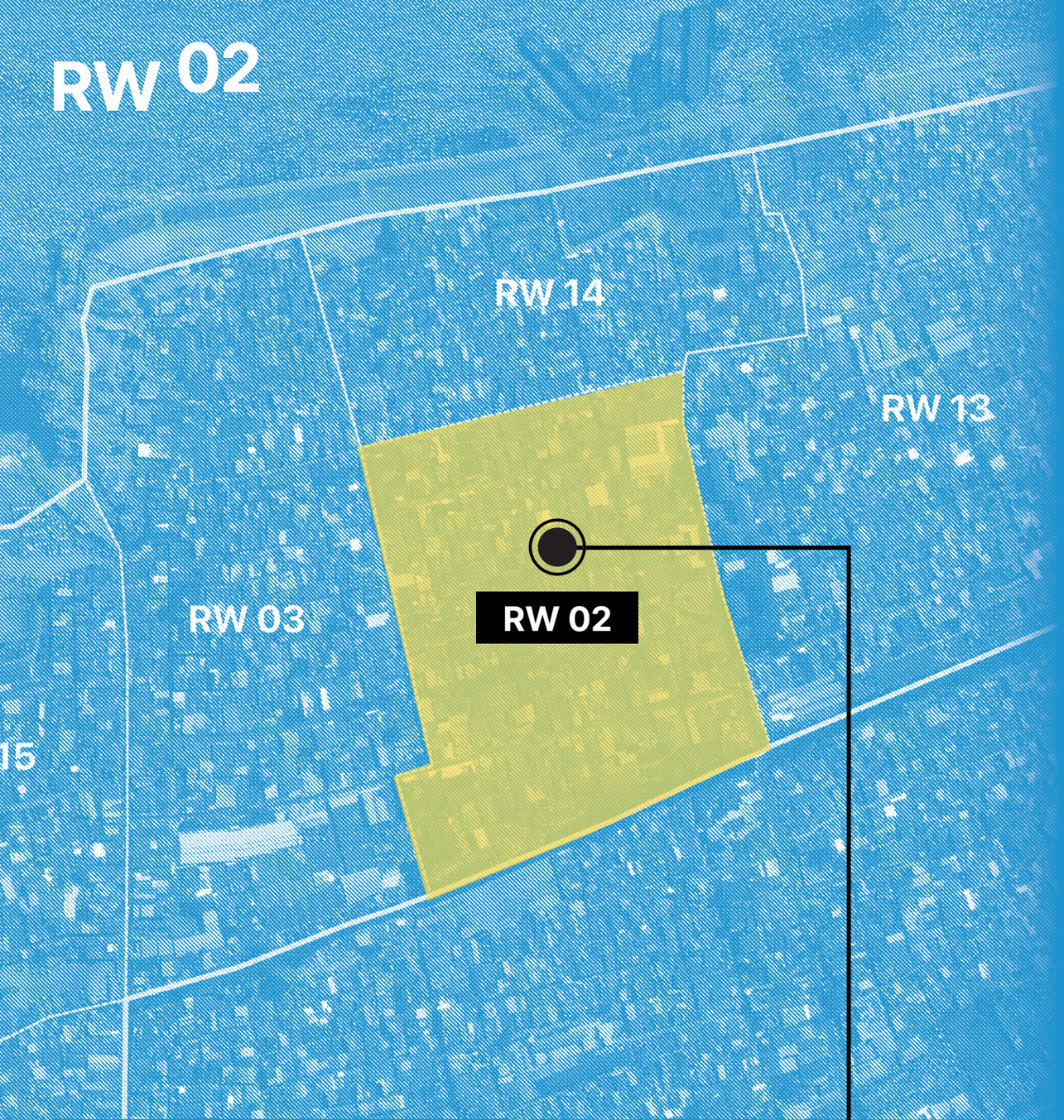
- Tidal flooding (rob) happened before the sea wall was built. At the present time, there is no big flooding anymore. In general, there are short-term "inundations" —not "flooding"— in the event of a downpour that recedes in an hour after the rain stops. It happens in low points of the neighborhood.

Fire events:

- According to data and interviews, there have been no fires in RW 01 in the last few years. There is fire extinguishing equipment placed in every RT and RW. Before the COVID-19 pandemic, there were fire drills every 6 months.

• **Source:** (left) Field Observation, 2021.

# RW 02




| | |
|---|---|
| **Population** | 5,375 people |
| | **M** 2,809 **F** 2,566 |
| **Area** | 0.099 km² |
| **Density** | 53,966 people/km² |
| **Number of RT** | 13 RTs |
| **Slum Status** | ○○○ None |

## General Overview

RW 02 is considered as the center of Kalibaru with the presence of the Kelurahan Office and the main market, Pasar Kalibaru. Community members are actively involved in various competitions related to cleanliness

## Water and Wastewater

- Bath and dish wastewaters are disposed of directly into the drainage.
- Every household in RW 02 has their own private toilet.
- Every toilet has utilized septic tanks.

## Waste

- There is one TPS in RW 02 located near Kelurahan Kalibaru office.
- Frequent littering around RT 12, RT 09, and RT 10, roughly around one garbage cart of waste a day
- Littering is often done at night to avoid citizen surveillance
- There are officers in RT/RW that collect waste from 95% of the community household to the dumpster near Kelurahan.
- The market has its own waste management workers.
- There are 4 small-scale solid waste scavengers stalls in the area.

## Disaster

- Flooding and fire has never happened in RW 02
- Has a team that cleans waterways and trash piles. The schedule depends on the needs, most activities are done in the rainy season to prevent water inundation.

# RW 03


| | |
|---|---|
| **Population** | 6,688 people |
| | **M** 3,512 **F** 3,176 |
| **Area** | 0.134 km² |
| **Density** | 49,762 people/km² |
| **Number of RT** | 17 RTs |
| **Slum Status** | ○○○ None |





## General Overview

Located in the outskirts of Kelurahan Kalibaru, RW 03 is surrounded by bigger roads such as Jl. Raya Cilincing and Jl. Kelapa Dua. RW 03 is also located next to the Banglio River. Some of the RT 01 areas are still considered as part of the Pasar Kalibaru area (traditional market).

## Water and Wastewater

- Roughly 90% of the residents use private toilets. There are public toilet users in RT 11 and the traditional market in RT 01.
- Some problems related to the quality and service of PDAM still exist in this RW. Previously the water smelled foul. Since March 2021, the water pipes in all have been clogged with sand and pebbles. Although several cleaning and repairing efforts have been done, the clogging often comes back after a week. Every toilet has utilized septic tanks.
- The Local Government has offered PDAM water tank installation for a cheaper price. Planned to be installed this year in 4 spots, each of the tanks can handle up to five thousand liters of water.

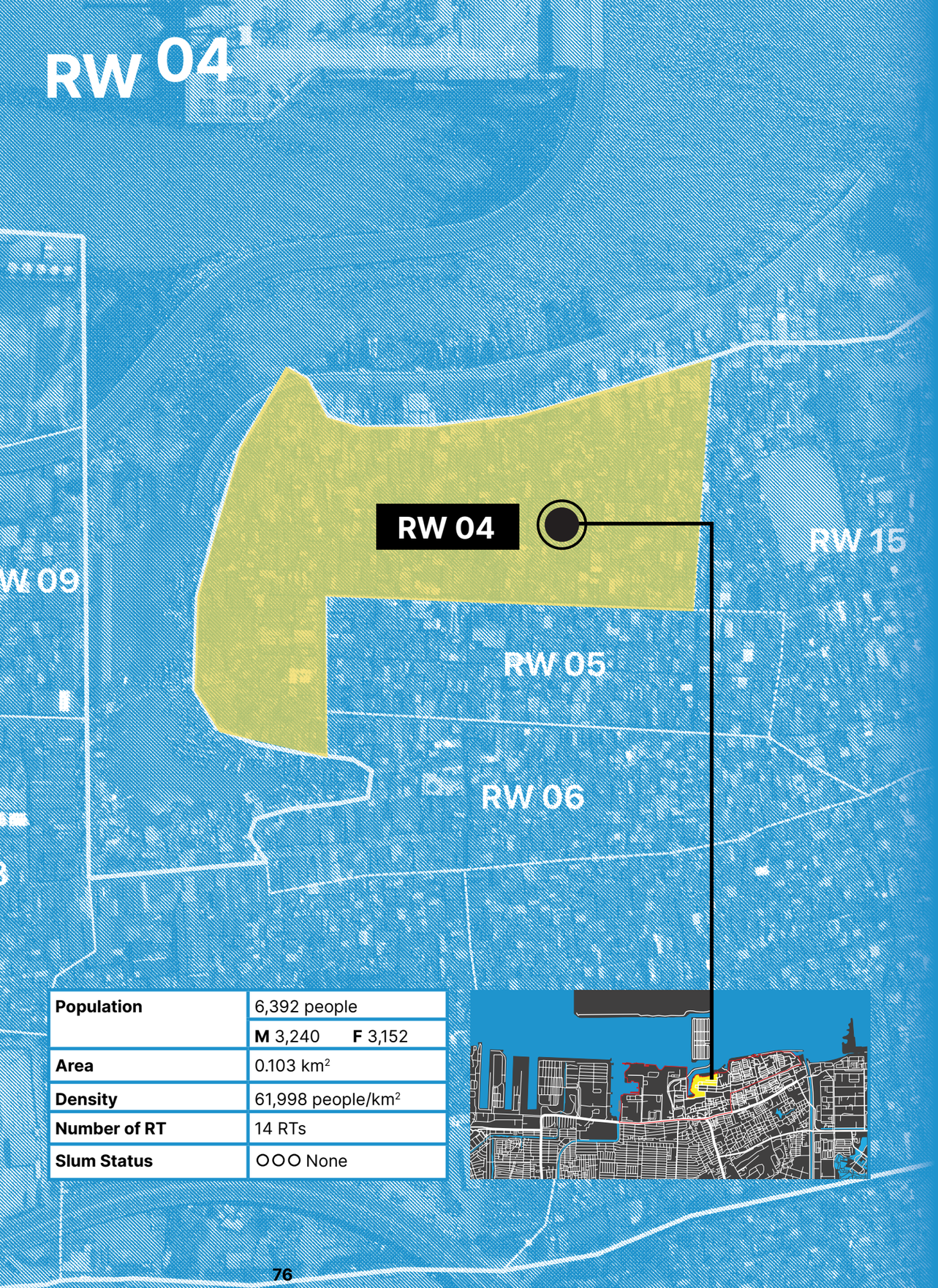
## Waste

- The RW organized 8 waste workers to pick up the trash of all 12 RTs to the TPS near Kelurahan Office. Although the RW supports the workers with trash bins and uniforms, the garbage fee is paid directly by the residents to the workers.
- Frequent littering at night in the main road area (RT 03) by the people of RW 03 and residents from other RW.

## Disaster

- Since 1994, flooding has never happened in RW 03. RW 03 has a team that cleans waterways and trash piles. The schedule depends on the needs, most activities are done in the rainy season to prevent water inundation.
- Four years ago, a fire happened in the market area (RT 14). Fatality and material loss were recorded. The Kalibaru Fire Station is located in RW 03.

# RW 04




| | |
|---|---|
| **Population** | 6,392 people |
| | **M** 3,240 **F** 3,152 |
| **Area** | 0.103 km² |
| **Density** | 61,998 people/km² |
| **Number of RT** | 14 RTs |
| **Slum Status** | ○○○ None |

## General Overview

RW 04 is a coastal neighborhood in the west part of Kalibaru. RW 04 has a vital role in Kalibaru with different economic activities and essential nodes in the fisheries industry, including the fish auction market (TPI), salted fish industry, and green-lipped mussels industry. All parts of RW 04 coastlines are already entirely protected with NCICD sea-wall.

## Water and Wastewater

- Majority of the community uses private toilet, while the rest (including leasing tenants or pengontrak) uses public toilet
- Although there are needs for public toilets, it is unable to be fulfilled due to lack of available land.
- Bath and dish wastewaters are disposed directly into the drainage that flows into the sea
- There are some toilets that still has not use septic tanks, the toilet waste goes directly into the drainage.
- Used cooking oil is collected by the RW's Family Welfare Guidance Programme (PKK)

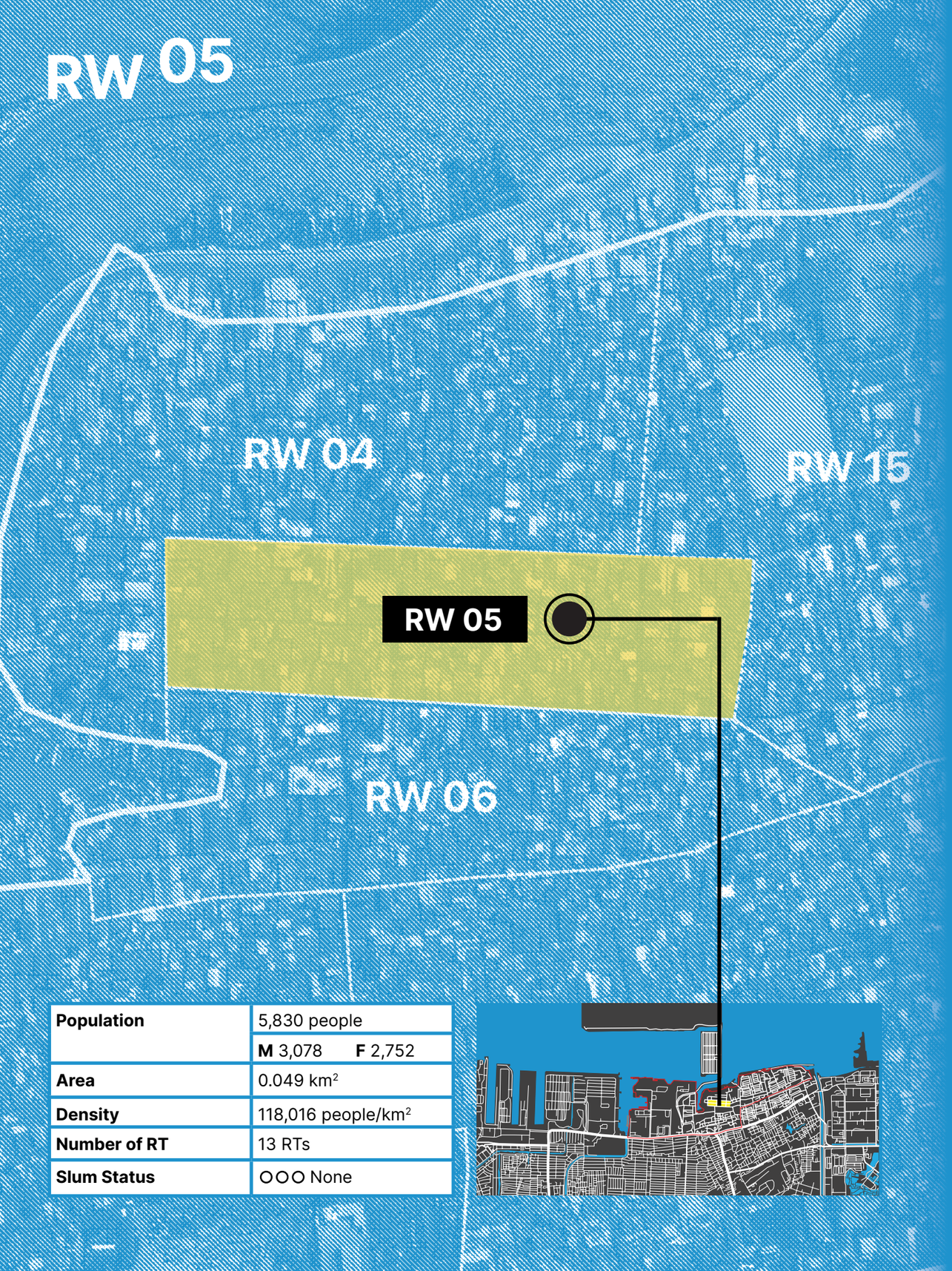
## Solid Waste

- There is no TPS in RW 04. Solid waste management is one of the most visible problems in RW 04, particularly to the area behind the sea-wall.
- There are officers in RT/RW that collect waste from household to the illegal dumping site by the sea
- The trash continues to accumulate by the sea as the DLH is unable to pick it up due to lack of human resources and lack of access to the area.
- Some also dispose of their trash on the side of the road, it will then be picked up by the DLH truck every morning around 7 AM.

## Disaster

- No fire has ever happened in this RW. The existing fire extinguisher hasn't been used in a long period of time.
- Intense rainfall produced 20cm high inundation around RT 04, RT 05, RT 06, and RT 11.

# RW 05




| | |
|---|---|
| **Population** | 5,830 people |
| | **M** 3,078 **F** 2,752 |
| **Area** | 0.049 km² |
| **Density** | 118,016 people/km² |
| **Number of RT** | 13 RTs |
| **Slum Status** | ○○○ None |



## General Overview

RW 05 is located in the northern middle of Kalibaru but is not bordering with any coastal area. The layout of RW 05 is straight and the arrangement is relatively ordered. Most of the people in RW 05 are known to be involved in sea-related activities and business so they are dependent on the other RWs near the sea. Some have boats that they park in RW 04 and 06, some work at clam processing businesses, while some others become street vendors.

## Water and Wastewater

- The majority of the community uses PDAM service. In this RW, the water often smells during dusk.
- Almost all of the houses have utilized private toilet, while 10% of the community uses public toilet.
- There are some toilets that still have not used septic tanks, the toilet waste goes directly into the drainage.
- Due to development and improvement from the CAP program in the next RW, some of the drainages are now clogged.

## Waste

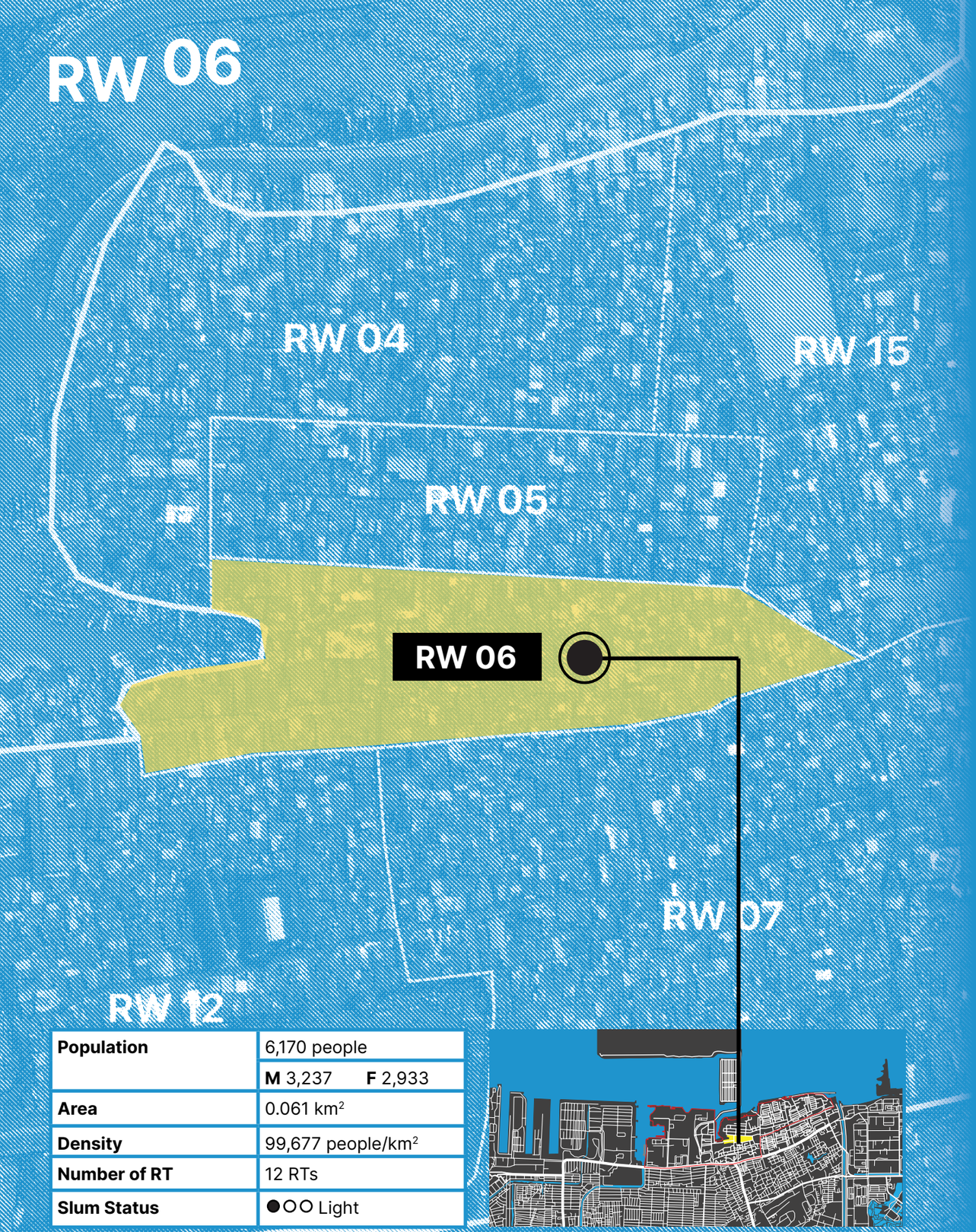
- There is no TPS in RW 05.
- In the rainy season, the people often do communal clean up to prevent water inundation. The area in RT 05 and RT 10 are especially prone to garbage accumulation during the rainy season.
- The trash is picked up by local security officers or hansip with garbage carts and dumped at TPS in RW 08 and RW 15. This service costs the people around $0.35 daily. But as for people that live on the main road, PPSU will pick up their trash.
- Despite having plans for a waste bank, several challenges such as land availability and lack of tools stops the plan from being implemented.

## Disaster

- Flooding has never happened in RW 05. Although in RT 05, RT 06, RT 09, and RT 10, inundation around 30 cm are to be expected for the next 1 to 2 hours after a heavy rainfall.
- In 2018, a house fire happened in RW 01. The fire was extinguished by the people and RT administrators.
- There are 3 fire extinguishers set and a fire extinguishing ball in the RW office.

  There is also a fire volunteer group that has received training in fire response.

# RW 06




| | |
|---|---|
| **Population** | 6,170 people |
| | **M** 3,237 **F** 2,933 |
| **Area** | 0.061 km² |
| **Density** | 99,677 people/km² |
| **Number of RT** | 12 RTs |
| **Slum Status** | ●○○ Light |

## General Overview

RW 06 is located in the center of Kalibaru, surrounded by five other RWs. This RW is bordering with the nook on the eastern Kalibaru inlet that is used as fishermen's boats parking spot. The development of the sea wall, unfortunately, will change this nook into a retention pond.

Interviews with RW administrators revealed that this RW received several programs from CAP that include road raising, main road casting, street lighting installation, wall greening with potted plants, and a mural. There were also some drainage works along streets in RT 04, 05, 06, 07, 08, 09, and 10 that were stopped because of the pandemic.

## Water and Wastewater

- Most people in RW 06 have access to PDAM water, except for the households in RT 01, 08, 09, and 12 that have not connected their house to PDAM (Aetra).
  - The problem was reported to be installation cost because an additional cost is incurred for every meter of pipeline exceeding the standard length to connect to houses from the nearest main line. The further the location from the main street, the more expensive and inconvenient (neighborhood permit, excavating nearby street, construction noise) it is to access PDAM.
  - The community has once proposed a financing scheme to subsidize the pipe installation cost to PDAM but it was denied due to the need of budget approval from DPRD.
- Most people in RW 06 have access to PDAM water, except for the households in RT 01, 08, 09, and 12 that have not connected their house to PDAM (Aetra).
- On average, PDAM water costs around Rp120.000,00 (~$8.5 US) per month, not including additional burden of electricity cost from the pump or "Sanyo" that is needed to normalize the discharge rate of the PDAM water. Refillable gallon water costs around Rp100.000,00 (~$7 US) per month.
- Around 70% households have private toilets and are using septic tanks. The rest are using three privately-managed public toilets in RT 04, 06, and 11 that were built using a grant but are now managed by the land owners.
- Gray wastewater is drained directly into the sewer and into the sea.

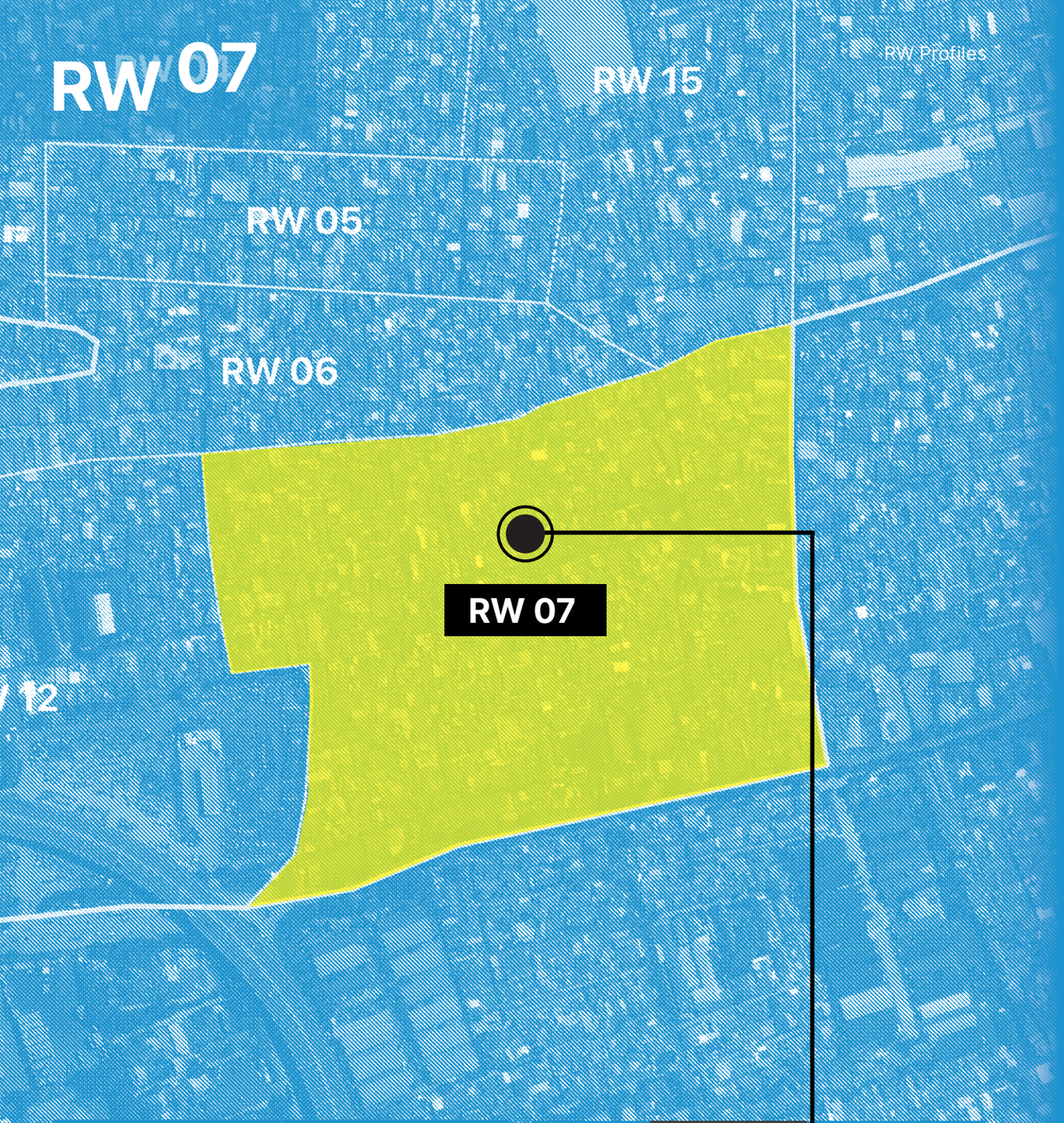
## Waste

- The trash is picked up by two officers (one in east and one in west) with garbage carts and dumped at TPS in RW 08. This service is paid daily with an as-you-wish amount. But as for people that live on the main road, PPSU will pick up their trash.
- Aside from household waste, wood sawdust and wood chips waste are also common to be found in RW 06. This wood-related waste is usually burned.
- The PKK and RW administrators are currently planning to organize a waste bank.

## Disaster

- There is reportedly no flooding nor inundation in RW 06.
- In 2021, a small fire broke out but mostly spread in RW 08.
- There is a fire extinguisher set in the RW office. There is also a fire volunteer group that has received training in fire response.

• **Source:** (right) Field Observation, 2021.




| | |
|---|---|
| **Population** | 6,513 people |
| | **M** 3,229 **F** 3,284 |
| **Area** | 0.167 km² |
| **Density** | 38,860 people/km² |
| **Number of RT** | 15 RTs |
| **Slum Status** | ●○○ Light |



## General Overview

RW 07 is located in the southern-mid of Kalibaru, bordering with Kelurahan Cilincing. This area is one of the "entrances" into Kalibaru area, which contributes to the observed thriving economic activity in addition to its relatively large population. Unfortunately, this RW is classified as a slum area in the "heavy" category and 14 out of 15 RTs here are categorized as a slum. The Slum Area Verification document in 2017 noted dense and disorganized building arrangement in some cases, as well as poor living conditions and environment. Interviews with the RW administrators also showed that this area is infamous for its youth brawl (tawuran) since long ago and is still struggling on the issue of public space availability.

## Water and Wastewater

- PDAM water is used to wash and bath only, while drinking and cooking uses refillable gallon water. PDAM water costs around Rp280.000,00 (~$19.5 US) per month and gallon water costs around Rp50.000,00 (~$3.5 US) per month.
- Some people in RW 07 are struggling to have access to PDAM water. Around 50 households from RT 08, 13, 05, 01, and 03 reported that they cannot accessit due to the pipework limitation. The location of their homes is making it difficult to install and connect pipes from the main line underneath the bigger street.
- Most people use private toilets but there are two public toilets on the side of the river in RT 05.
- There is no wastewater installation, any wastewater goes directly to the sewer.

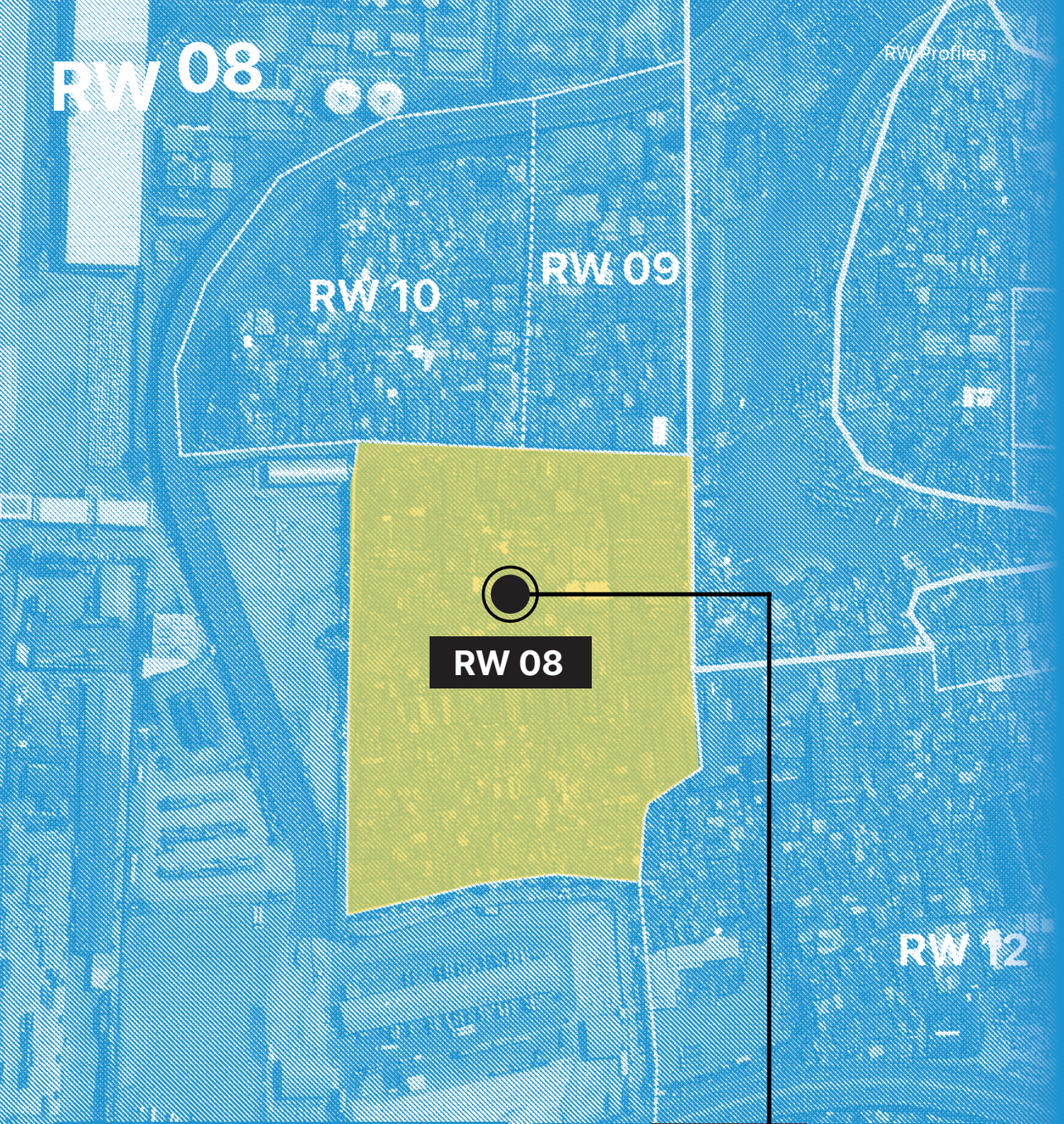
## Waste

- Trashes are picked up from house to house by officers using garbage carts and will be dumped at TPS Kober in Semper Barat.
- There is no land available in RW 07 for them to build their own TPS. The nearest one would be an informal local TPS in RW 02 which are unfortunately reserved only for people from RW 02.
- In 2015, RT 03 organized a waste bank through Kawasan Sehat Mandiri (Self-sustaining Healthy Area) program funded by Mandiri Bank. Unfortunately, the program was stopped due to land unavailability for the waste bank.

## Disaster

In 2020, a fire broke out in RT 05 and burnt one house. As for flooding, typically, there is no flooding in RW 07, only inundations that last 1-2 hours after an intense rainfall. But, there are several things noted from observations and interviews:

- RW 07 is crossed by Kali Bang Leo river. Every rainy season, the water surface rises and threatens the people living near the river.
- On the southwest of RW 07 just outside Kalibaru, lies Dewa Ruci pump house, a pump house managed by the Water Management office with a maximum capacity of 1000 × 2 L/s.




| | |
|---|---|
| **Population** | 5,532 people |
| | **M** 2,904 **F** 2,628 |
| **Area** | 0.072 km² |
| **Density** | 75,989 people/km² |
| **Number of RT** | 11 RTs |
| **Slum Status** | ●○○ None |



## General Overview

RW 08 is located in the western part of Kalibaru, on the southwest corner of the inlet and directly bordering the industrial area. One of the main economic features observed is the timber and woodworking business stretched along the main road of RW 08. Another notable economic hub in RW 08 would be a salted fish market or pasar ikan asin.

Despite the lack of implemented programs from the government through Musrenbang—suspected to be caused by the land ownership status—RW 08 has won a neighborhood competition in the past and is said to be RW with the most greeneries. However, unfortunately, the area is also reported to be still riddled with brawls and drug issues involving local youth.

## Water and Wastewater

There are no significant issues regarding water in RW 08. Our interview revealed that most households in RW 08 have access to water and own private toilets.

- People buy refillable gallon water and subscribe to PDAM water for daily use. Around 95% of households in RW 08 have access to the PDAM water service, with reportedly good quality water. On average, PDAM water costs Rp50.000,00 ($3.5) per month and refillable water costs Rp75.000,00 ($5.3) per month;
- There is one water well in RW 08, but the quality of the drawn water is poor and it smells.
- In RW 08, the greywater from bathing and washing drains out directly into the drainage and then into the sea;
- It is estimated that around 5% of the households do not have septic tanks.

## Waste

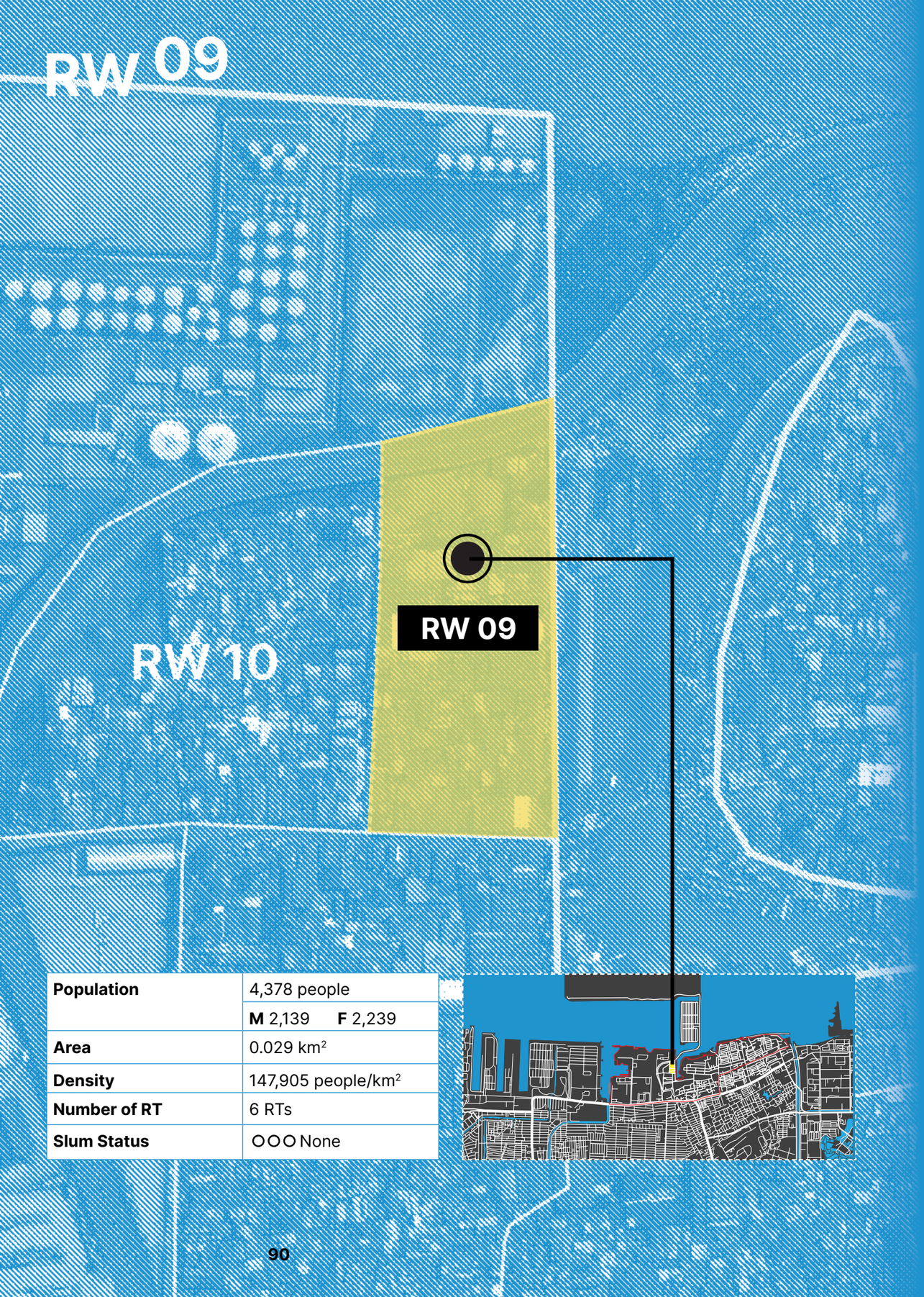
RW 08 holds strategic significance in waste management due to a TPS situated there. Its waste management system is functional, and the neighborhood is observed to be comparably neat and clean. Notable findings and observations on waste issues would be:

- The TPS covers the surrounding RW 09 and RW 10, as well as shelters waste from other places;
- For their internal waste management system, they employ three officers to collect trash from houses that paid to the services with garbage cart and dump it in the TPS;
- RW 08 was designated as a waste sorting location by the Kelurahan. There are also recycling bins in RT 05, 04, and 10;
- DLH kecamatan has visited RW 08 to instruct on the development of a waste bank, which now is currently running;
- After the development of the seawall, the TPS reportedly faces potential renunciations from the timber industries nearby;
- The sawdust from the timber and woodworking industries is causing air pollution, primarily affecting RT 01, 02, 04, 05, and 13.

## Disaster

RW 08 deals with inundations almost every time heavy rainfall occurs. These inundations affect several areas that last for at least an hour. The leading cause is thought to be drainage not functioning correctly. Aside from inundations, RW 08 is also somewhat prone to fire, considering areas full of combustible timber. Notable findings and observations regarding disaster would be:

- There are several areas prone to inundations:
  - In RT 02 near a mosque; inundations due to the drainage (gutters) in the alleyway narrowing from 50 cm to 20 cm;
  - In RT 08, 09, and 10; inundations due to water flowing from the higher ground of the neighboring RW which streets were raised through a CAP program;
  - In the area around the RW community post, there was a drainage construction project by the Dinas Tata Air (Water Management Office) in 2018, but the drainage did not work.
- In general, the rainwater overflows from the drainage into the streets because the water cannot be channeled appropriately, either caused by blockages, insufficient capacity, or disconnected drainage. These drainage systems span across RT 01, 03, 04, 05, 06, and 11.
- It was reported that the development of Pelindo or IPC (Indonesia Port Corporation) contributed to the disconnection between the local drainage system in RW 08 and the sea. Currently, the RW is working together with Adhi Karya to plan the development of a canal that will connect to the sea.
- As for fires, there were at least two recorded fires. In 2021, a house caught fire and spread to the other two houses. In 2020, a great fire wreaked havoc in timber storage areas and scorched 77 buildings. Short circuits caused both fires.
- In 2020, a fire prevention volunteer group consisting of around 20 representatives from RW 08 was formed, but it no longer continued after a decree from Kelurahan.
- There are two fire extinguisher sets in the RW community post.




| | |
|---|---|
| **Population** | 4,378 people |
| | **M** 2,139 **F** 2,239 |
| **Area** | 0.029 km² |
| **Density** | 147,905 people/km² |
| **Number of RT** | 6 RTs |
| **Slum Status** | ○○○ None |





## General Overview

RW 09 is located in the western part of Kalibaru, on the northwest corner of the inlet and directly bordering the industrial area. Even though RW 09 is the smallest RW in Kalibaru, and consequently the densest by number, this RW has no slum status. There is no CAP program or any development project as well.

## Water and Wastewater

There are no significant issues regarding water in RW 09. Our interview revealed that around 70% of households in RW 09 have access to PDAM water, and most households own private toilets.

- The rest of the households with no access to PDAM are getting their water from "nyelang" for Rp80.000,00 (~$5.6 US) per month, which more or less costs the same with PDAM water, but minus the inconvenience.
- Water from PDAM and "nyelang" are used for washing, bathing, and cooking. For drinking, most households reportedly prefer bottled or refillable gallon water, which costs around Rp32.000,00 (~$2.2 US) per month.
- There are ten wells in RW 09.
- After an intense rainfall, the PDAM water usually stops flowing for a whole day.
- Most people in RW 09 use private toilets, but there is one unit of public toilet that is used by pengontrak or the lessees.
- Wastewater is drained directly into the drainage and the sea.

## Solid Waste

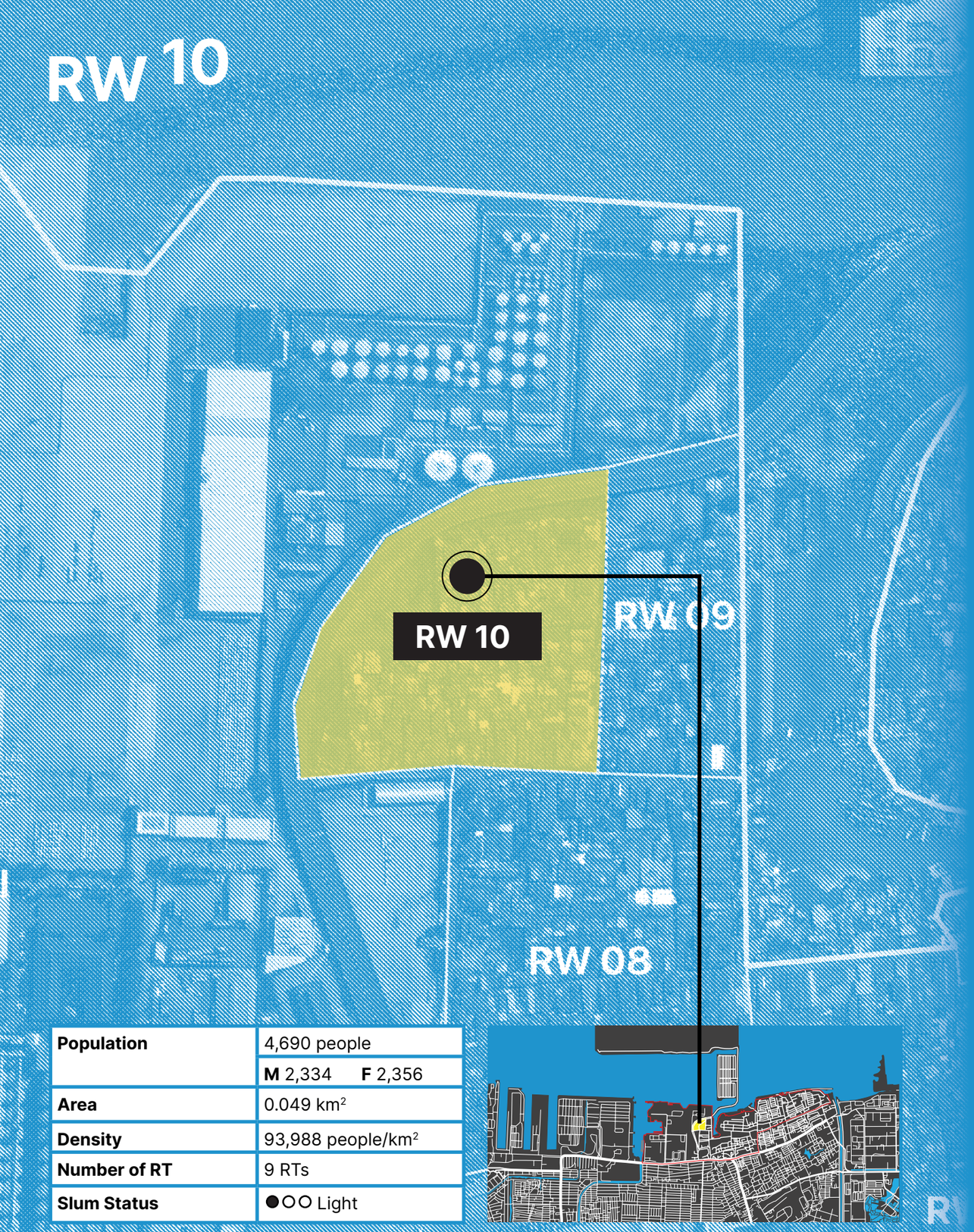
Due to its proximity to the TPS in RW 08, there has been no significant issue regarding solid waste disposal in RW 09.

- RW 09 organizes community cleanup every month and has won an award once for their cleanliness.
- There are three waste collection officers in RW 09: two for the RW and one for the market. The RW officers collect waste from house to house and dump it at the TPS in RW 08.
- Used cooking oil is collected through a waste bank scheme by RW's Family Welfare Guidance Programme (PKK) that has been going for at least a month.
- Regular waste banks were constrained by land availability.

## Disaster

- The interviewees reported no flooding happening in RW 09. Any inundation would recede immediately after the rain stops.
- As for fires, there were several occurrences in the past. One is only a few months past, caused by a short circuit and burnt three buildings. The other one is a great fire in 2010 that spread to three RTs.
- There is one fire extinguisher set in the RW community post and one in each RT community post.
- In 2016, a fire prevention task force was formed and conducted a fire drill simulation.

# RW 10




| | |
|---|---|
| **Population** | 4,690 people |
| | **M** 2,334 **F** 2,356 |
| **Area** | 0.049 km² |
| **Density** | 93,988 people/km² |
| **Number of RT** | 9 RTs |
| **Slum Status** | ●○○ Light |





## General Overview

RW 10 is located in the northwestern tip of Kalibaru, directly bordering the industrial area. This RW is the third smallest area in Kalibaru. An angkot terminal is located here.

## Water and Wastewater

There are no significant issues regarding access to water as well as wastewater in RW 10.

- Most of the households in RW 10 have access to water from various sources, which are:
  - PDAM (70%) is used majorly for consumption (drinking and cooking) as well as washing and bathing. PDAM costs around Rp200.000,00 (~$14 US) per month;
  - Nyelang or nyalur (25%) is used as a substitute source for those without access to PDAM water, mostly lessees;
  - Well water (5%) is used by a small number of people and is located in a musalla in RT 07;
  - Refillable gallon water (10%) is used only for cooking and drinking. It costs around Rp120.000,00 (~$8.4 US) per month.
- Most of the households in RW 10 have private toilets. Currently, no usage of public toilets is reported nor observed.
- Wastewater is drained directly into the drainage and then into the sea.

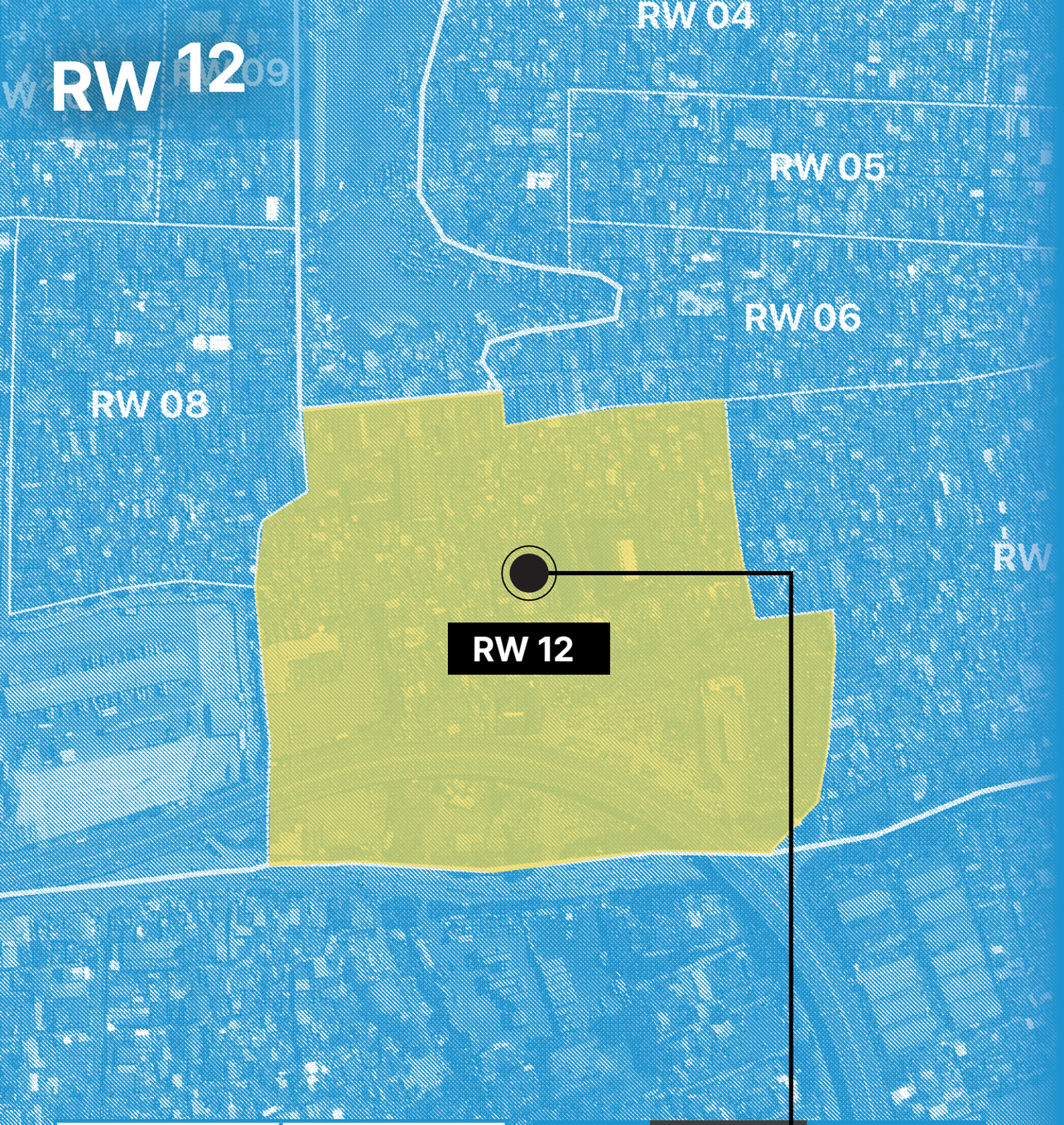
## Water and Wastewater

- There is no official waste collector officer from the RW. The community can either take them directly to the TPS, pay someone (usually an informal waste collector) to take their trash away, or put it down at the side of the street to be taken away by PPSU.
- Many people are reportedly sorting resellable trash such as bottles, plastics, papers, cardboards, etc.).
- Kelurahan is currently offering to plan and organize a waste bank.

## Disaster

- The interviewees reported no flooding happening in RW 10, only inundation whenever it rains.
- In 2019, a fire broke out due to a short circuit and damaged one house.
- There are two disaster preparedness group activities in RW 10. The first one is Tagana which stands for Taruna Siaga Bencana (disaster preparedness cadets/youths). The second one is a monthly joint monitoring between RW officers and the FKDM.

# RW 12




| | |
|---|---|
| **Population** | 6,571 people |
| | **M** 3,487 **F** 3,084 |
| **Area** | 0.164 km² |
| **Density** | 39,873 people/km² |
| **Number of RT** | 14 RTs |
| **Slum Status** | ●●● Heavy |

## General Overview

RW 12 is located in the southern-mid of Kalibaru and is one of the main "entrances" into Kalibaru. This RW is observed to be densely populated with tight building arrangements and signs of houses being raised to cope with flooding. A large portion of the land in this RW is being used for container parking and cargo business, acting as a hub that connects the coast and the rest of the city, but in turn also contributing in populating the nearby roads with trucks and heavy duty vehicles, rendering them relatively unsafe for pedestrians, children, and two-wheels vehicles.

## Water and Wastewater

- Most households are using PDAM water for washing and bathing, some are using it for cooking. As for drinking and other consumption needs, refillable gallon water is used.
  - On average, PDAM water costs around Rp100.000,00 (~$7 US) per month while refillable gallon water costs around Rp60.000,00 (~$4.2 US) per month.
  - Some people complain about the expensive costs of PDAM water. The discharge rate of PDAM water is also reported to be small, an additional pump is needed for optimal use.
- A household in RT 03 is reported to be still using well water despite its poor quality (fit only for watering plants)
- Most households in RW 12 use private toilets with septic tanks. Public toilets are known to be used in RT 03 only by lessees or pengontrak.
- Gray wastewater is drained directly into the drainage that goes out into the sea.
- There are several drainage parts not working optimally: sewers in RT 02, narrowing drainage caused by abrasion in RT 12, and drainage in RT 05 that cannot contain the stormwater.

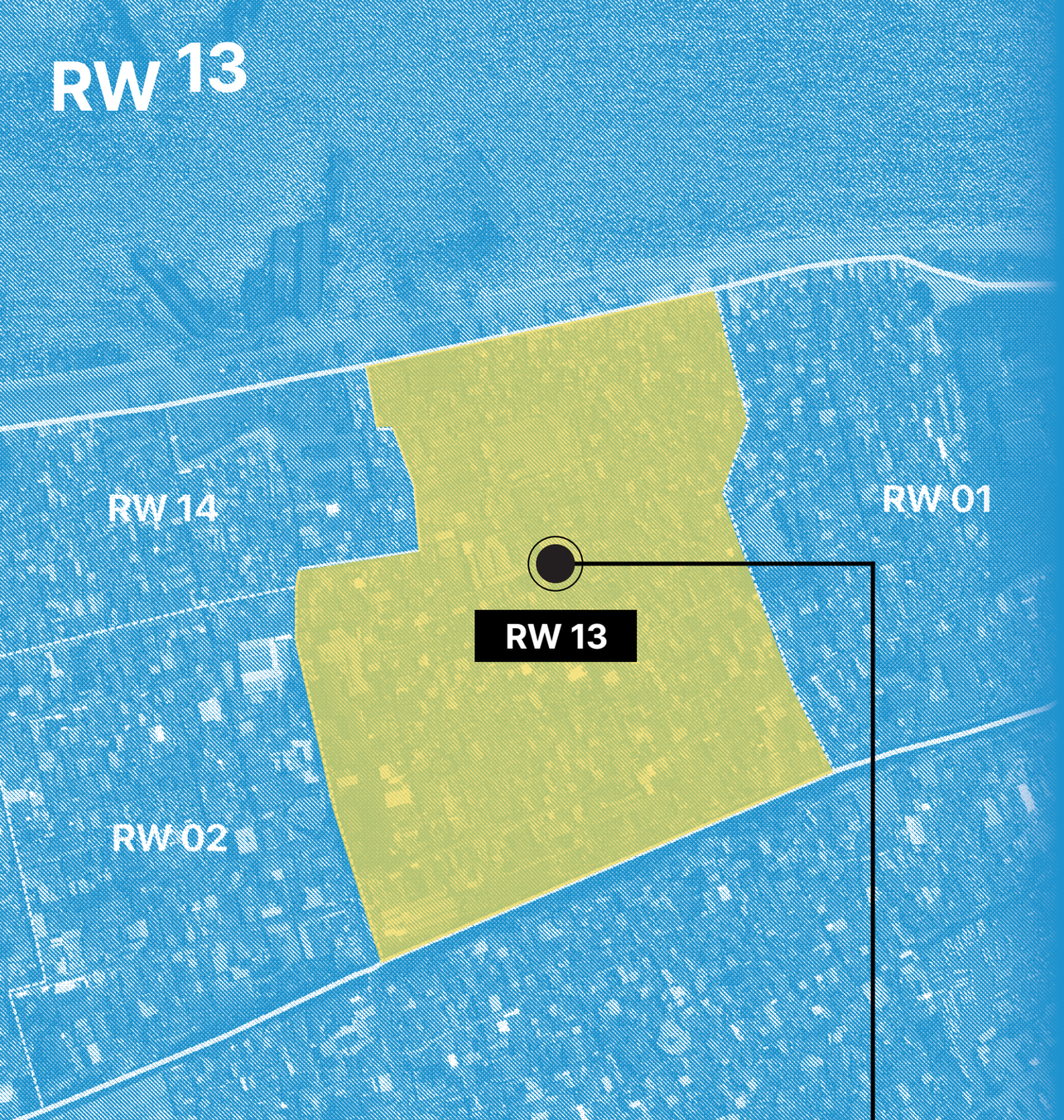
## Water and Wastewater

- People on the main roads would put their trash on the side of the streets and will be picked up by PPSU every morning
- As for other people, there are at least six uncoordinated officers that will pick up the trash from their houses every other day for a payment of Rp5.000,00 (~$0.35 US) per pick-up.
- There is no waste bank in RW 12 due to unavailability of land and supporting equipment. But, the PKK has been organizing the collection of used cooking oil for two months.

## Disaster

- After intense rainfall, a 50 cm high inundation usually happens along the street in RT 12 that can last up to 5 hours.
- In 2020, a fire broke out in RT 10 and burnt one house.
- There is no flood management infrastructure or equipment in RW 12, as well as any working fire extinguishers.

# RW 13




| | |
|---|---|
| **Population** | 6,594 people |
| | **M** 3,386 **F** 3,208 |
| **Area** | 0.163 km² |
| **Density** | 40,355 people/km² |
| **Number of RT** | 13 RTs |
| **Slum Status** | ●○○ Light |





## General Overview

RW 13 is located on the coastal area of eastern Kalibaru, directly facing the sea. This RW is the second most populated and the third-largest region in Kalibaru. Classified as a "light" slum area, this RW received the CAP program from the government. Due to the COVID-19 pandemic, however, the program is currently suspended, leaving roughly 20% of the promised development postponed.

There is a central area for green mussel clam home industries located in the northern part of this RW, commonly known as "Kampung Kerang Hijau" or the green mussel clam district. Most people in this area took part in various clam industry activities such as farming, harvesting, processing (precooking, cleaning, debearding, separation), transporting, cooking, selling, and disposal. In Kampung Kerang Hijau and along the coast by the seawall of RW 13, there are at least more than twenty small-scale clam processing home industries that employ, based on observation, at least a dozen people each.

Land ownership and land use rights are one of the main issues in RW 13. This land issue proves to be a significant obstacle hindering the overall development of the area. The consequences include difficulties in obtaining the permit to install water pipelines from PDAM and the lack of a land plot for an accessible and proper temporary dumpsite.

## Water and Wastewater

Roughly more than half of the residents in RW 13 are reported to have water access from PDAM, though the current accessibility of the whole area is suboptimal. Sanitation-wise, around 70% of the community uses private toilets, whereas the rest utilize public toilets around the area. Several other notable conditions regarding water and wastewater in RW 13 are:

- The issue of land ownership might be the leading cause that troubles the residents when subscribing to the service because PDAM can only install pipes on land with clear proof of ownership.
- For those without access to PDAM, there are several ways they can access water:
  - First, they purchase water from those with access to PDAM, either through the formal scheme of "master meter" or other mechanisms. This method is commonly observed to involve the installation of underground pipes leading to several water taps around the neighborhood where the employed attendant would connect a hose to the buyer's house or container upon request.
  - Second, they purchase retail water from sellers in packaged/bottled waters, refillable water gallons, or water in jerry cans. The last method is usually done by the buyer walking up in person to the water retailer where they can purchase up to six jerry cans. They would then be lent a cart to transport the jerry cans to their house, move the water to their container, and return the jerry cans as well as the cart to the retailer. In some cases, people commission someone to buy and transport the water to their house.

- Even with access to PDAM, the water pressure is reported to be relatively low, especially nearing dusk. Most users are compelled to install a pump or “Sanyo” in order to increase the debit of the water coming out of the tap, therefore further burdening the household expense.
- A relatively small number of people still use public toilets, especially the leasing tenants or pengontrak. Some public toilet users are reportedly unable to access the toilet after 9 PM, resulting in open defecation practice in rivers & sea. Some toilets still have not used a septic tank, so bath and toilet waste go directly into the infiltration gallery.

## Waste

In RW 13, the waste infrastructures available are:

- One (1) informal TPS is situated on Bedhenk field in Kampung Kerang Hijau in RT 13. Despite its relatively small volume, this TPS is reportedly serving two other surrounding RWs, which contributes to the waste overflow observed around the field, especially clam shell wastes.
- One (1) dumpster. RW 13 is originally in possession of two dumpsters acquired from the past CAP program Unfortunately, one was damaged over time and the other one left is currently located near the TPS.
- There is also one (1) waste bank that has been operating for two years, as well as four (4) garbage collection stalls (pengepul) that collect and buy from informal waste collectors or scavengers (pemulung).

The waste management system in RW 13 is functionally operating regardless of the seemingly insufficient local waste storage capacity.

- For houses along the main road, waste trucks and officers from DLH will pick up their waste every morning. The schedule used to be once a week, but the RW administrator coordinated with Kasatpel DLH to negotiate the collection frequency to respond to the ever-increasing waste volume.
- As for the other part of the neighborhood, in 10 out of 13 RTs, officers are employed to manage the waste. For a service contribution of Rp5.000,00 (~$0.35 US) per week per household, these officers will collect wastes directly from houses and transport them to the TPS in RW 13 or other TPS.

Another notable issue is the green-mussel clam which is known to be one of the primary economic sources of the community in RW 13. The intensity of this clam industry-related activities is proportional to the volume of clam-related waste produced along the coastal area, which is massive and poses a dire problem:

- Along the coastal area of RW 13, where most clam-processing activities are, clamshell wastes are piling up. The amount of green mussels shell wastes can reach up to one truck each day, which unfortunately are not being properly disposed of.





- The shell waste used to be dumped in the Bedhenk field near the TPS. Ever since a playground and futsal goalposts are built in the field, the shell wastes are thrown directly to the sea, resulting in new masses of land just beyond the sea wall made up of washed-up shell waste clumped over time.

## Disaster

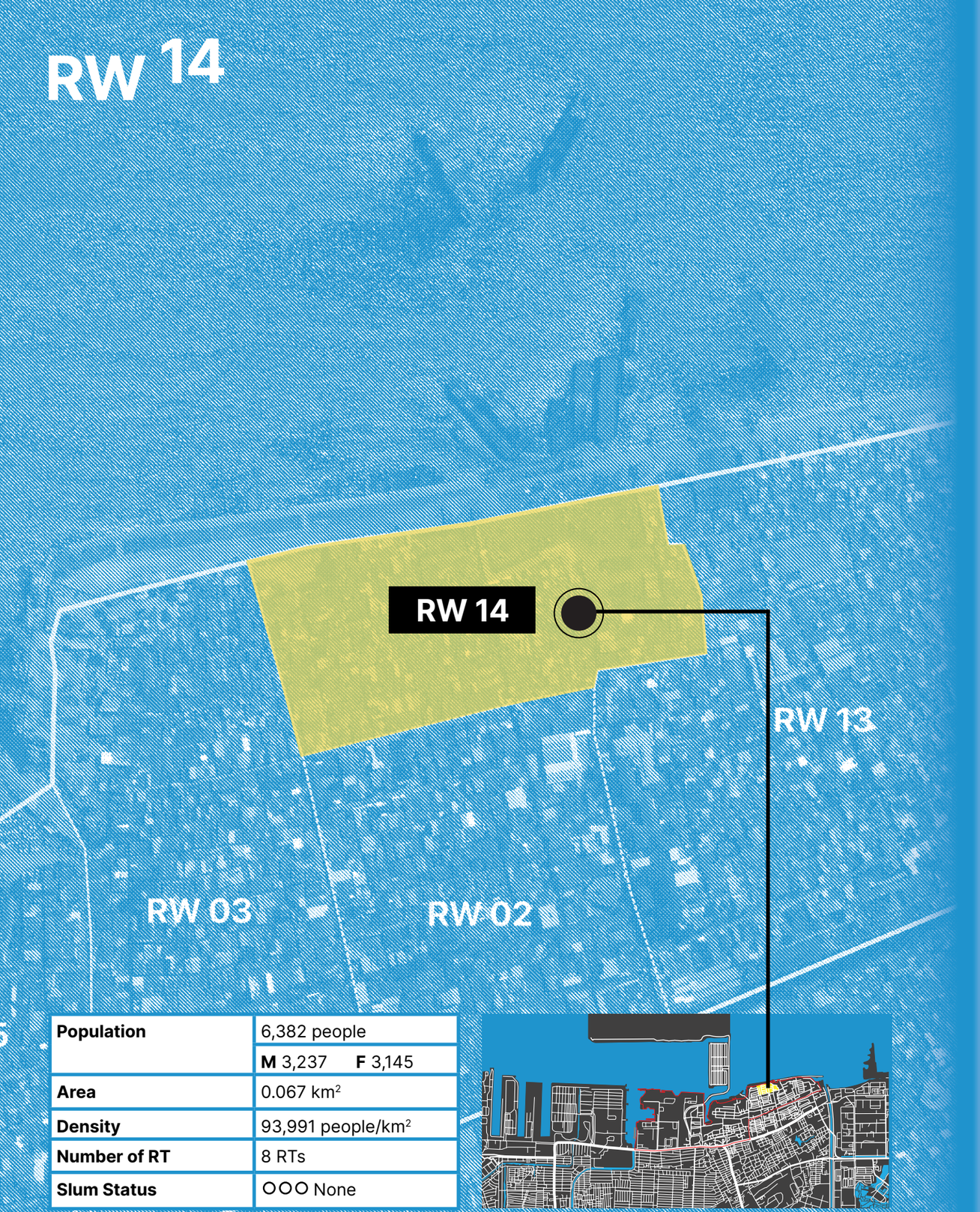
Flooding events:

- In general, there are "inundations" (not "floodings") in the event of a downpour and a high tide. These inundations often last until up to two hours after the downpour ends. On the off chance the rain coincides with a high tide, the inundation can last up to 5 hours.
- Inundation often occurs in RT 02, 03, 13, 06, and 11. RT 02, 03, and 13 are the areas that are potentially prone to inundation due to the proximity to the sea and the currently halted waterway construction process (from the CAP program), which obstructs the storm drainage system.
- Before the CAP program, inundation can reach up to 20 cm on the street and 30 cm inside the houses.

Fire events:

- There was a recent fire case (in the last five years) that affected one house in RW 15;
- There is a fire volunteer team that will be trained directly by the firefighter, although the training has been postponed for the time being. Also, there is fire-extinguishing equipment placed in every RT and RW.

# RW 14




| | |
|---|---|
| **Population** | 6,382 people |
| | **M** 3,237 **F** 3,145 |
| **Area** | 0.067 km² |
| **Density** | 93,991 people/km² |
| **Number of RT** | 8 RTs |
| **Slum Status** | ○○○ None |





## General Overview

Due to its proximity with RW 01, most of its people are workers of green mussels shells and the salted fish industry.

- The RT in the coastal area faces problems related to PDAM service. The water does not flow from the pipe. The reason behind it is still unknown. Some work has been done by AETRA, but the problem still hasn't been solved yet.
- Every month communal clean up is organized by RW and RT.

## Water and Wastewater

- Roughly around 70% of people have installed the PDAM service in RW 14. The RTs in coastal areas such as RT 06 and RT 05 are out of the service area, making the residents unable to install the service.
- Other problems related to the PDAM services are clogged pipes and dirty water that comes out every dusk.
- 23% of the people use the well to support their water needs.
- The monthly costs of PDAM service reached up to $14, and the costs of gallon water reached upto $8.3
- A relatively small number of people still use public toilets in RT 01 and RT 02. All toilet waste goes to the septic tank while bath waste goes directly to the drainage.

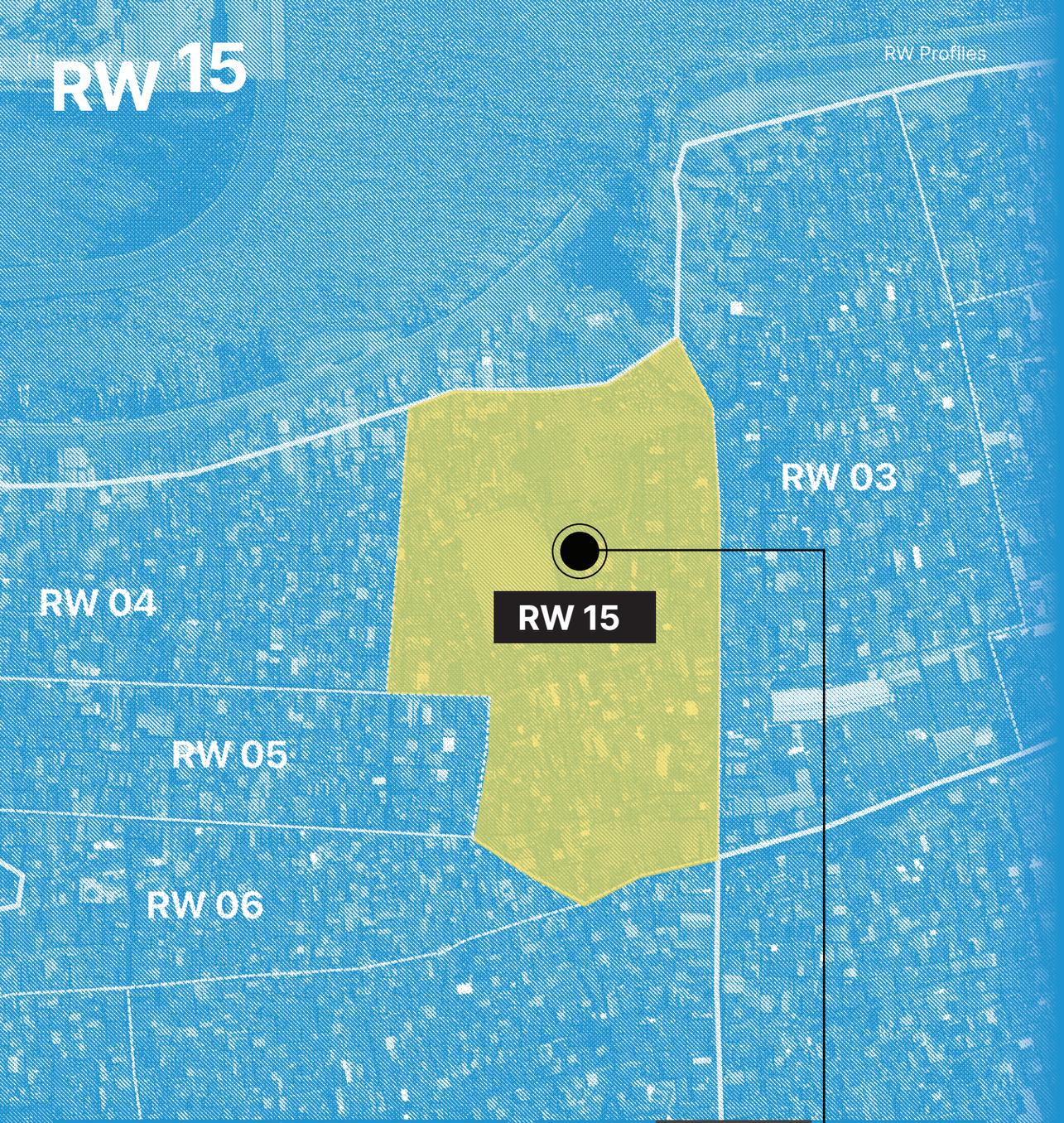
## Waste

- The waste infrastructure in RW 14 includes 1 (one) TPS in RT 02.
- The waste pile in TPS RT 02 often spills out onto the road due to the inconsistent waste pickup schedule by PPSU. In some instances, the pickup delay can reach up to three or seven days.
- In RW 14, 4 (four) officers are employed to manage household waste. These officers will collect wastes directly from houses with carts and transport them to the TPS in RT 02.
- The plan for a waste bank has not been carried out due to land availability. As of now, the RT 05 administrators are collecting used cooking oil from the people.
- Every month communal clean-up is organized by RW and RT.

## Disaster

After the sea wall was built, despite heavy rainfall or high tide, no flooding has ever happened again in RW 14. As for fire, the most recent fire was a result of a short circuit; two houses were burned down in RT 01 last year. There has been no fire extinguisher in RW 14 since before the pandemic. The RW administrators have consulted the fire department but have not received any assistance since then.

# RW 15




| | |
|---|---|
| **Population** | 6,362 people |
| | **M** 3,245 **F** 3,117 |
| **Area** | 0.101 km² |
| **Density** | 62,928 people/km² |
| **Number of RT** | 12 RTs |
| **Slum Status** | ○○○ None |



## General Overview

RW 15 is located in the mid-coast of Kalibaru. The seaside areas thrive with marine products business such as salted fish and green mussel clam processing. However, unfortunately, the areas are littered with piles of trash, from household waste to clamshell waste. Local communities, including their children, are observed living among poor environmental conditions. The sea wall is cut off from this RW eastward, stopped in its tracks by a land ownership issue regarding a ship parking plot as well as other plots.

Accessibility is also an issue due to the dense building arrangement, making it hard for vehicles such as water tank trucks or garbage trucks to reach the nooks of the settlement towards the north. Youth brawls, as well as drug dealing, have also been a problem for the local community. Inadequate monitoring and reinforcement from parents to their children, exacerbated by lack of proper public space, poverty, and education issues, are said to contribute to such social conditions.

## Water and Wastewater

- Most people (around 90%) in RW 15 use PDAM water, and around 5% use ground well water. For consumption, people are using refillable gallon water.
- PDAM water costs around Rp100.000,00–Rp300.000,00 ($7-$21 US) per month, while gallon water costs Rp32.000,00 (~$2.2 US) per gallon with eight gallons consumed each month on average.
- People without access to PDAM water, especially in RT 03, 05, and 06, usually use nyelang water. It was reported that the initial cost of installing PDAM is too expensive for some people.
- Wastewater is drained directly into the sewer. Wastewater includes gray water from washing and bathing as well as wastewater from boiling fish in salted fish processing. The sewer is reported to be flowing southward towards the main road instead of directly into the sea.
- Most households in RW 10 use private toilets with septic tanks. There are also ten public toilets, especially in leased residences.

## Waste

- People living near the main roads put their trash on the side of the streets to be picked up by PPSU every morning. People living in the inner area, especially towards the coast, get their trash picked up by three officers who will then be thrown into the sea.
- There is an informal, if not illegal, TPS by the sea in RW 15. People are accustomed to littering, throwing any kind of trash to the ground, especially around the sea wall. Further development of the sea wall should also consider this littering problem and make space for a proper dumpsite.
- In 2017, a waste bank was organized but shortly stopped because the community lost their interest due to the small economic value compared to the effort exerted.

## Disaster

There is no flood or inundation in RW 15. Any puddle recedes almost immediately after the rain stops. There were two fires caused by candles and a short circuit in the past—one of the fires burnt down one house.

# Summary of RW Issues



RW Profiles

Table 4: **SUMMARY OF RW ISSUES IN KALIBARU**

| Concern & Aspirations | Areas | | | | | | | | | | | | | | Description |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | RW 01 | RW 02 | RW 03 | RW 04 | RW 05 | RW 06 | RW 07 | RW 08 | RW 09 | RW 10 | RW 12 | RW 13 | RW 14 | RW 15 | |
| Land Ownership | ✔ | | | | | | | ✔ | | | | ✔ | | ✔ | RW 01: Land ownership issue due to sea wall<br>RW 08: Land ownership issue and land use rights owned by PT Pelindo<br>RW 13: Land ownership issue<br>RW 15: Land grabs & illegal building |
| Teenage Brawl | ✔ | ✔ | ✔ | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Teenager Brawl is one of the main concerns in Kalibaru. Teenagers are often forced to spend time outside to prioritize space in the house for more vulnerable members of the family, and often received little attention from parents or caretakers. Brawls are also often used as a distraction from others crimes such as theft, smuggling, and drug transaction. Teenagers from all RWs participated in brawls. |
| Criminality | | | ✔ | ✔ | | | | ✔ | | | | ✔ | | ✔ | RW 02: Murder<br>RW 03: Theft<br>RW 04: Theft<br>RW 08: Theft<br>RW 13: Theft<br>RW 15: Theft |
| Access to Water | ✔ | | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | Poor water quality & access to PAM water |
| Waste | ✔ | ✔ | ✔ | ✔ | ✔ | ✔ | | ✔ | | ✔ | ✔ | ✔ | | ✔ | Litter<br>RW 06 & 08: Sawdust pollution<br>RW 01, 04, & 13: Green mussels shells |

RW Profiles

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Flood & Inundation | ✓ | | | ✓ | ✓ | | ✓ | ✓ | | | ✓ | ✓ | ✓ | | |
| **Concern & Aspirations** | **Areas** | | | | | | | | | | | | | | **Description** |
| | **RW 01** | **RW 02** | **RW 03** | **RW 04** | **RW 05** | **RW 06** | **RW 07** | **RW 08** | **RW 09** | **RW 10** | **RW 12** | **RW 13** | **RW 14** | **RW 15** | |
| Fire<br>(in the last 5 years) | | | ✓ | | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ | ✓ | RW 05: 2018<br>RW 06: 2020<br>RW 07: 2020<br>RW 08: 2021 due to short circuit<br>RW 09: 2021, due to short circuit<br>RW 10: 2019, due to short circuit<br>RW 14: 2020, due to short circuit<br>RW 15: due to short circuit |

# Priority Issues and Areas

5

Priority Location 1: West Coast of Kalibaru
Priority Location 2: East Coast of Kalibaru

This chapter provides a more profound overview on the condition of the priority issues in the priority areas. The priority areas were chosen by considering the magnitude of focus issues (water, waste, and wastewater) in Kalibaru based on the discussion with local stakeholders.

# PRIORITY LOCATION 1: WEST COAST OF KALIBARU RW 15, 04, 05



Figure 30: **RESIDENTS WORKING BETWEEN LIVESTOCKS AND TRASH PILES**

• **Source:** Field Observation, 2021.



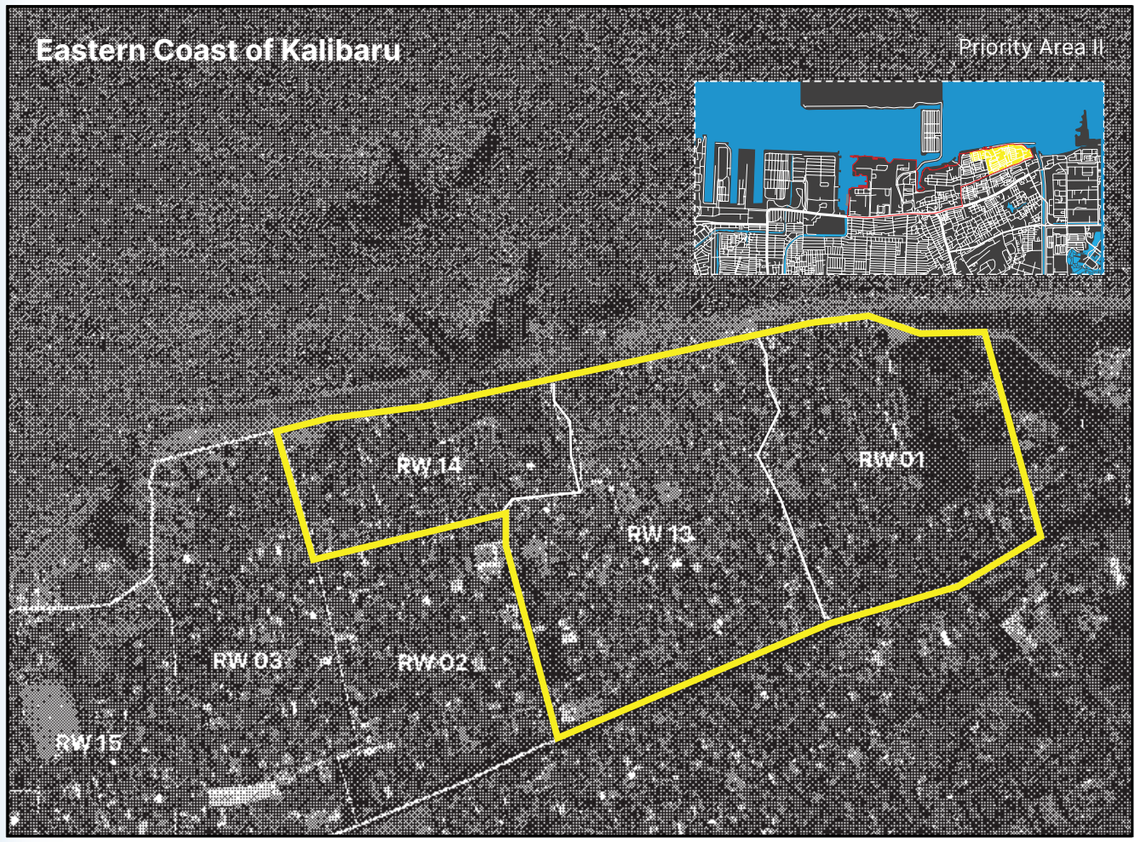


## Overview RW 15, 04, 05

RW 04, RW 05, and RW 15 make up the area often referred to as the west coast of Kalibaru. In this area, a coastline of approximately 1.1 km stretches from the eastern end of RW 15 to an inlet in RW 04. Various activities can be found along this coast, including salted fish business, green-mussel clam business, fishermen, food stalls and vendors, boat parking, fish auction market, and residential area.

These three RWs, with RW 05 located on land between RW 15 and RW 04, interact as an interdependent neighborhood system. People in RW 05 mostly work as fishermen, and they park their boats in RW 04. Others work in salting fish and selling food, and they get their fish from the market and local fishers. In the context of waste management, their waste system is interconnected. The coastline areas on RW 15 and RW 04 turned into informal waste dumps. Limited land availability and the lack of waste facilities such as TPS are forcing the RWs around the coast to also throw their garbage along the sea embankment area. Poor accessibility also plays a role in rendering waste transport around the areas difficult. Being near the coast also brings another hardship in terms of limited access to water. The distance from the coast to the main water pipeline, coupled with the issue of land ownership, makes it difficult for the residents around the coast to access water cheaply.

Figure 31: **MAP OF WESTERN COAST OF KALIBARU**




• **Source:** Open Source Map, ESRI Satellite

## Priority Issue: Waste

### Current Condition

Waste is an urgent and universal issue in Kelurahan Kalibaru. Compared to other RWs, the issue is exceptionally complicated and severe in the West Coast area of Kalibaru. In RW 15 and RW 04, piles of waste can be seen accumulated along the sea embankment line. The waste is generated from all over Kalibaru, especially nearby RWs such as RW 05 and RW 06, consisting mainly of household and market waste.

Accumulation of the waste pile is also a problem for people who live near the main road. As the PPSU can only clean trash along the main road, the people who live in smaller alleys secretly dump their trash on the main road sidewalk at night. The PPSU will then pick it up at dawn. Besides the foul smell that spreads, the trash pile also clogs the drain during the rainy season, causing inundation.

The waste problem can be attributed to a few reasons, including the lack of adequate waste management and facilities in Kelurahan Kalibaru and the complication due to the variety of actors involved. In future planning, the complexity of the situation in Kalibaru needs to be carefully considered, especially regarding actor mapping for the land provision and the need to target both the location of illegal waste piles and waste sources.

Figure 32: **TRASH PILES ON THE PATH ALONG THE SEA EMBANKMENT IN RW 15**

• **Source:** Field Observation, 2021.





### Past and Existing Initiatives

There were plans to build a TPS in the area twice in the past. The first was a plan discussed by RW 15, 04, 05, and 06 in the kelurahan waste management forum to build a TPS with containers. One of the containers was intended to be placed in RW 15 near the primary road access. Other surrounding areas would collect and transport their waste to this container TPS, and the PPSU garbage truck could easily pick up the accumulated wastes.

The second plan was discussed by the administrators of RW 04 to build a TPS by the sea. Patches of land were available at that time. The TPS would have brick and mortar walls built,the structure facing the land. This idea was rejected, however, in consideration of several reasons. One, huge waves might hit the TPS, wetting and messing up the trash; two, sea breeze would push the smell towards the land and settlement areas; three, the TPS in that area would not be easily accessible by the garbage truck.

### Aspiration and Opportunities

There are opportunities and a need for small-scale waste reduction programs that can give the residents additional income sources, which can be encouraged through collaboration with the private sector. Directions for such programs need to be accompanied by support for increasing knowledge and facilities. Continuous efforts are required to deal with the Kalibaru systemic waste issue. Focus group discussions with representatives from this area exposed several ideas from the residents regarding the waste management issue:

1. **Waste dumping site (TPS)**

   Despite the challenges and failure of the past initiatives, an appropriate dumping site or TPS is inevitably vital to improving waste management of the west coast. Land availability (as well as ownership status) and accessibility were identified as one of the primary issues in proposing TPS development. However, the residents possess insight on possible locations to at least put waste containers to store waste temporarily. The locations proposed are a plot of land behind the embankment in RW 15 and one in RW 04. Following up on this might introduce significant positive changes to waste issues on the west coast.

2. **Improving waste collection coverage and infrastructure**

   The representatives in the group discussion proposed the procurement of garbage bins or dumpsters to be placed on the main streets that would serve as temporary places to store the trash before being collected by PPSU in the morning. Consent from people living on the main street must be obtained, considering trash would be put in front of their houses. Complementing that, collaboration with the government is also needed to improve and expand PPSU service coverage in general, including integration with the existing informal waste management of the area.

### 3 Reducing waste from the source

Several activities on waste reduction from the source were brought up, which are training on organic-inorganic waste sorting, black soldier fly maggot composting, and urban farming for local food. There was also an opportunity to sell cardboard boxes, plastic bottles, or particular package waste to the supermarket or other accepting vendors. Although they seemed basic and ordinary, these initiatives are deemed important because the waste problem is rooted in people's behavior. Women were proposed to be the main participant group in these training because of their keen understanding of the issue and their influence to shape the behavior of the whole household members.

Figure 33: (right) **FISH SALTING TRAYS LAID ABOVE THE TRASHES ON THE GROUND. ECONOMIC ACTIVITIES ARE THRIVING DESPITE THE POOR ENVIRONMENTAL CONDITION**

• **Source:** (right) Field Observation, 2021.

• **Source:** Field Observation, 2021.

# PRIORITY LOCATION 2: EAST COAST OF KALIBARU RW 01, 13, 14



Figure 34: **CHILDREN PLAYING WITH INDUSTRIAL WASTE**

• **Source:** Field Observation, 2021.

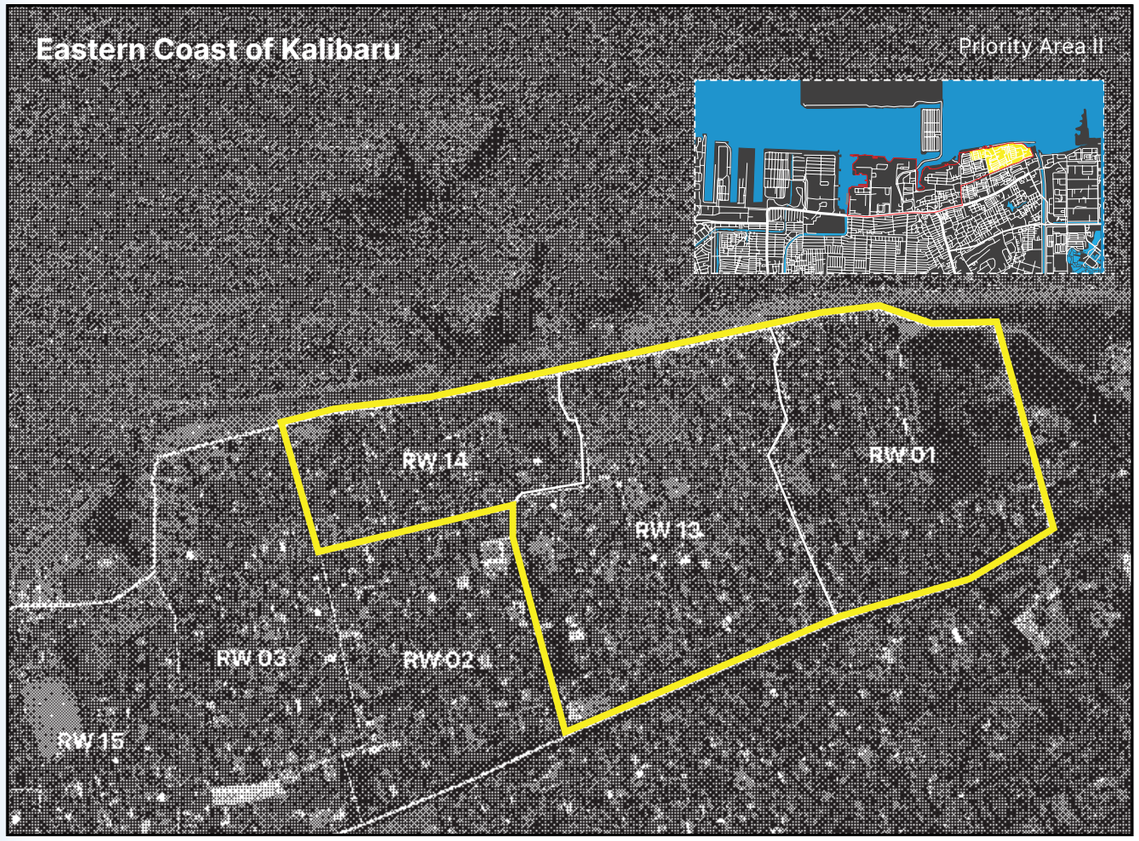




## Overview RW 01, 13, 14

The east coast of Kalibaru consists of RW 01, RW 13, and RW 14. These RWs play a major part as the production core of the seafood business. The home industry of the green-mussel business as well as fishermen village is located here. Similar to the west coast of Kalibaru, the hardships in limited access to water and illegal waste dumps is also experienced by the people living in the east coast of Kalibaru. Problems related to illegal land ownership are also a major concern in this area, especially in RW 13.

Figure 35: **MAP OF EASTERN COAST OF KALIBARU**




• **Source:** Open Source Map, ESRI Satellite

## Priority Issue: Waste

### Current Condition

The east coast of Kalibaru is troubled with waste management issues on land as well as in the sea. Industrial complexes along the coast of Jakarta significantly contribute to the latter problem. Plant waste started to pollute the sea ever since the Marunda industrial area was developed in the 1990s, admit group discussion participants. In the event of intense rainfall, residents witnessed an increase in the waste disposal rate coming out of the factories sewer into the sea. Presumably, according to participants, in the hope that the rainwater would be mixed with the waste and wash it away. This issue, combined with the waste from land that finds its way into the sea, plays a role in destroying the marine habitat, worsening the water quality, and killing the clams—affecting the livelihood of Kalibaru residents.

As for the waste on land, insufficient land availability and poor coastal accessibility can be considered the primary causes of the problem. There are two TPS on the east coast of Kalibaru: one in RW 13 that takes waste from the east coast area, and one in RW 14 that is limited to waste generated in RW 14. Both TPS suffer from a high volume of waste and inconsistent waste pickup schedules. The TPS are not formal ones with concrete walls, but instead temporary garbage containers. Every three days, the PPSU will empty the containers. This schedule, however, is considered as not enough, resulting in overflowing trash. Narrow, damaged, and unpaved roads leading into the coastal area further complicate the waste collection process by PPSU as large trucks cannot easily access the site.

As a result, heaps of waste can be observed lying around along the embankment area where more than 300 clam and fish-related workers go about their daily activities, side by side with trash, shells, and waste of other various sources. The locals are aware of this hostile environment but have become accustomed to it.





Figure 36: **OCEAN WAVE PUSHES THROWN AND SPILLED TRASHES BACK ONTO THE LAND**

• **Source:** Field Observation, 2021.

### Past and Existing Initiatives

The common practice of having informal waste workers also exists in this area. The practice slightly differs in each RWs. In RW 01, the waste workers are divided into RW and RT levels. At RT level, the waste worker picks up trash from each house to the temporary garbage can, while the one at RW level picks up the waste that PPSU did not pick up. Meanwhile, in RW 13, there are 10 RTs that manage their waste workers, and the remaining 3 RTs, like RW 14, pay the service of self-employed waste workers.

In RW 13, a waste bank has been operating since 2019, collecting used cooking oils & recyclable waste. Other RWs have been collecting used cooking oils since this year too. However, it has been months since the cooking oils were last picked up.

## Priority Issue: Water & Sanitation

### Current Condition

Although most of the people on the east coast use the PDAM water service, the use of retail water (sourced from PDAM), and well water to fulfill their daily water needs is still a usual practice. In RW 13, 20% of the people also buy retail water from private companies, usually referred to as "Air Pasar Rebo". The interviewees said that it has a better quality compared to PDAM water, as this water can be consumed orally.

The closer it is to the coastal area, the harder and more expensive it is to be connected to the PDAM service, making access to water one of the most pressing issues in the east coast area. The large costs of additional pipes that will be added during the initial installation are considered too burdensome for some. This is said to be one of the main reasons why some people still chose to purchase retail water. Other reasons are land ownership and the high cost of piled-up bills in rental houses (rumah kontrak).

PDAM water service customers who reside on the east coast also face unpleasant experiences related to the water and service quality, it is said that the farther it is from the bay, the better the water quality will be. Common problems experienced by the residents are changes in odor and water pressure at dawn and dusk. Despite being warned by PDAM officials related to the use of the water pump, installing an additional water pump is essential, otherwise, the water won't come out. In RW 01, the water that comes out at 5 AM-9 AM smells and foams like sewer water. If used, the water will cause itchiness, enough to cause a quite serious one which requires medicine from the health center (Puskesmas).

Most of the people have private toilets in their houses. Some public toilets are still available, especially for pengontrak. The public toilets are often closed at night (after 9 PM), thus open defecation practice still exists in the area. Some of the houses are still not equipped with septic tanks, domestic wastewater flows directly into the infiltration and drains.





Figure 37: **"NYELANG" WATER MECHANISM USES HOSES TO CONNECT BETWEEN THE BUYER HOUSE (LEFT) AND THE WATER TAPS BUILT BY THE SELLER (RIGHT) THAT ARE FOUND SPREAD OUT AROUND THE NEIGHBORHOOD.**

• **Source:** Field Observation, 2021.

### Past and Existing Initiatives

In regards to the access to water problems, previously, the people have tried to communicate the problems related to water quality that they are facing to AETRA, however, no response or improvement has been made until now.

Recently in 2021, a new initiative by the School of Environmental Science (SIL) Universitas Indonesia was implemented in RW 01. Through the rainwater harvesting program, one water tower which collects and treats rainwater is placed in the fishermen cooperative office in RW 01. The reason behind choosing the fishermen cooperative office as the location for the water tower is unknown, as none of the RW 01 administrators were present in the initial meeting.

The people can use this water for free by bringing and refilling their own containers. The RW administrators admitted that this process is still deemed difficult by the residents, as they need to carry the heavy water-filled container to the area where they live, which can be quite far from the water tower location. This became an additional challenge, as most of them were already exhausted from their daily jobs.

Figure 38: **WATER RETAILERS FILL UP JERRY CANS TO BE SOLD FOR AROUND RP7.000,00 (US$ 0.5). THE BUYER WOULD COME AND PULL THE CART BY THEMSELVES AND RETURN IT AFTER THEY ARE DONE.**

• **Source:** Field Observation, 2021.

## Aspiration and Opportunities

Focus group discussions with representatives from this area exposed several ideas from the residents about the need for enhanced initiatives and possible schemes to address the difficulty of access to water on the east coast area:

1. **Financial assistance scheme for PDAM pipe connection**

   One of the major obstacles for people living near the coastal line to access PDAM water service is the high initial cost that comes with the need to install additional pipes to supply tap water service in the area. Providing financial relief to low-income households will alleviate the major barrier, increasing the number of households that have access to PDAM water service.

2. **Rainwater Harvesting Initiative**

   The RW administrators have concluded some suggestions and responses to the existing rainwater harvesting initiative. First, additional water towers will be better located in a religious center such as a mosque/musalla will be more effective. Most of the religious centers are located near the residential area, cutting the distance that needs to be taken by the people. The water tower can also support the water needs for religious activities; Second, the initiative needs to focus on coastal areas that still have troubles in accessing water due to its location, examples being RT 10, 11, and 12 from RW 01. Third; for the water tower to be connected directly to the residents' houses through pipes. Despite the higher initial cost, the water will be more accessible and reduce the amount of energy and cost that needs to be spent daily later on.





Figure 39: **RAINWATER HARVESTING INITIATIVE**


• **Source:** Field Observation, 2021.

## Priority Issue: Clam Business and Waste

### Current Condition

The clam industry is the primary lifeline in this area, especially in RW 01 and RW 13. Dozens of clam processing home industries stretch along the eastern coast of Kalibaru, just behind the sea embankment. The industry is small in scale but covers a wide range of activities and provides for many local people; a thriving economic ecosystem firmly embedded with far-reaching business networks spreading to other cities and regions.

There are at least two types of clam here: green mussel (Perna viridis) or locally referred to as “kijing”, and blood clam (Anadara granosa) or “kerang dara”. The whole process of the clam industry is lengthy and labor-intensive, whose activities include farming, harvesting, processing (precooking, cleaning, debearding, separation), transporting, cooking, selling, and shell disposing.

Clams are caught, processed, and sold almost daily, except when bad weather or strong wind occurs—which residents admit to being worse every year. As people’s livelihoods are centered around seafood products (green mussel and salted fish), combined with the massive catch volume and intense processing activities, wastes of equal magnitude are produced. Clam shell wastes are observed to be the most abundant, found nearly in every part along the eastern coastal area. Various clam post-processing residues, household trash, food waste, packaging garbage, dust, construction debris, and other materials are mixing up with the shell wastes and filling up the land behind the sea embankment, spilling over to the other side of the wall and creating new masses of land on the sea. Interviews with RW stakeholders revealed that shell wastes could amount to up to one garbage truck per day in volume.

The shell of the green mussel is delicate and can easily shatter into pieces when stepped on or given impact. That characteristic, exacerbated by strong wind in coastal areas, makes the green mussel shell waste scatter around in dust-like form and is hard to manage. Piles and sharp fragments of shell waste are also found on the road and in places where people walk and children play, raising alert to the risk of safety.





Figure 40: **CLAM SHELL WASTES ARE FOUND UNMANAGED IN THE SEA AND ON NEARBY PLAYGROUND.**

• **Source:** Field Observation, 2021.

### Past and Existing Initiatives

The focus group discussion revealed that residents around the clam industry area are also concerned about the volume of shell wastes and the condition of the neighborhood. Two measures were taken in the past:

1. **Requesting assistance from DLH**

   The RW administrators have once requested assistance from the Environment Office (DLH) to manage the waste. However, the request was declined because the waste volume exceeded the number of available resources at that time. Currently, the business owners are dumping the shell wastes on the field (RW 13), on empty lots around the area, on spaces along the embankment, and directly into the sea.

2 **Shell recycling facility**

Two programs that explored the possibilities of recycling shell waste were conducted within a span of 5 years. Both programs were done in collaboration with the East Kalibaru Fishermen Cooperative. In 2017, Politeknik Kesehatan (Ministry of Health) researched on the possibilities of recycling green mussel clam shell waste into a material for paving blocks. The research and strength test is only completed in 2022. The most recent program was conducted in 2021, in which Sekolah Ilmu Lingkungan UI and Badan Riset dan Inovasi Indonesia gave several workshops and support for recycling shell waste into home decoration items (placard, ashtray, coaster, etc).

Both programs have not yet generated revenue for the people in Kalibaru. Due to the lack of funding, the programs did not manage to pass through the stage of cost and revenue calculation, let alone enter the market. Although the initiatives can be the solution to Kalibaru's shell waste problems, the need to form a clear plan and support to get the business running still stand as the biggest challenge.

Figure 41: **THE GREEN MUSSEL CLAM INDUSTRIES ARE ABLE TO EMPLOY MANY PEOPLE IN RW 01 AND 13, INCLUDING WOMEN AND YOUTH. THE WORKSHOPS ALSO SERVE AS PUBLIC SPACES WHERE PEOPLE MINGLE WITH EACH OTHER.**

• **Source:** Field Observation, 2021.





## Aspiration and Opportunities

In general, the local residents aspire to have a good neighborhood environment and appropriate dumping sites. Several opportunities were discussed with respect to that aspirations:

1 **Resuming the shell recycling facility initiative**

It might be efficient to resume the previous shell recycling program, considering the machines are still there and some are already familiar with the process. What might improve the initiative, reckoning the previous reasons for termination, are to identify and secure the whole business process in advance, connect with business partners, and train locals in not only processing labor but also in bookkeeping, networking, or communication. Community is the essential aspect to be considered and involved. Therefore, prior trust with the local actors and residents must be established, as well as a common understanding of how the initiative works, what each one needs to do and will gain. This initiative would also have more chances to be successful by involving other interested stakeholders that can, among others, provide funding, lend technical expertise, assist in negotiation, or connect to broader networks.

2 **Diversifying and adding value from clam waste-derived product**

As of now, green mussel and blood clam are mostly sold just after they are debearded, cleaned, and precooked. Some are peeled from the shells, seasoned, and sold or hawked as ready-to-eat food. Locals also mentioned past initiatives to process the clam meat as crackers (kerupuk), and turn the shells into craft products, although not to be sold. These current trends call for opportunities to diversify the clam-derived products and add economic value to improve the locals' welfare. Some ideas were thrown into the discussion, such as other clam-based snacks and the development of unique clam-based culinary. As for the shell waste, to also solve the waste problem, it can be ground and processed into shell powder, which then can be further recycled into mixing materials for cement, bricks, paving blocks, or into chicken food, fertilizer, or litter sand for pets. There is also an opportunity, albeit a complicated one, to utilize the remaining uncrushed shells as natural breakwaters and water filters. Further study of existing practice is necessary. In the case of successful implementation, the clam industry in Kalibaru would be able to contribute to a safer and cleaner environment on a larger scale, the local business itself would take a step further in transforming into a sustainable and circular ecosystem.



### 3 Developing Kampung Kerang Hijau and Kampung Nelayan

Kampung Kerang Hijau (green mussel kampung) is an established identity referring to the area in RT 13 RW 13 where many of its residents are involved in clam-related activities. This identity embodies not only mere tourism significance but also socio-economic ambitions. Although preliminary observations showed that no substantial impact was yielded as a result of the "brand", this existing identity presents opportunities a foundation to build upon a coherent and comprehensive development plan together.

In RW 13 exists a vacant land that has the potential to be developed as Kampung Nelayan (Fishermen Village). To develop the land, there are two options that can be done: first, the vacant land can be purchased by the North Jakarta Municipal Government to be further regulated by the North Jakarta City Government; second, land owners are included as “stakeholders” who convert land use into a fishing and tourism area where land owners are “shareholders” and at the same time the fishing community manages the area more professionally.

# Stakeholder Analysis

6

Current Governance Structure and Existing Programs

Prior Engagement and Moving Forward

This chapter provides an overview of the current state of the involvement of different stakeholders in Kelurahan Kalibaru, as well as potential stakeholder to be engaged. This will equip a clear picture of the current challenges, gaps, and opportunities in the development of Kalibaru to promote future collaboration.

# Current Governance Structure and Existing Programs



In order to strengthen the commitment in regards to declaration of the mainstreaming of place-based Sustainable Development Goals (TPB/SDGs) in Kalibaru in December 2019, the Governor and representatives of civil society organizations signed an initial commitment to collaborate in responding to these challenges.

The declaration of TPB/SDGs mainstreaming was signed by the Governor as the person in charge of TKPK DKI Jakarta Province together with representatives from all stakeholders, namely Bappeda (government element), University of Indonesia (academic element), PT Astra International Tbk (business world element), Red Nose Foundation (NGO element), BAZNAS (BAZIS) DKI Jakarta Province (philanthropy element), and PKK Kalibaru Village (local community element).

The moment became a milestone for the collaboration preparation process of Kalibaru Hub. The following table elaborates the non-state actors preliminary identified in 2019 for the implementation of SDGs mainstreaming in Kalibaru. Prior engagement has already been undertaken, although commitment from each stakeholder has not been clearly staged at that time. In the next process, all parties will discuss and agree on the draft joint action plan, as well as form a working team at the kelurahan level or called the Kalibaru Hub.





## Government Stakeholders

The following table elaborates the local government actors involved in developing Kalibaru, their responsibilities/mandate, and their existing programs in Kalibaru.

Table 5: **GOVERNMENT STAKEHOLDER INVOLVED IN THE DEVELOPMENT OF KALIBARU**

| No | Stakeholders | Responsibilities/ Existing Projects (in Kalibaru) |
|---|---|---|
| 1 | **River Basin Organization Ciliwung-Cisadane**<br>Balai Besar Wilayah Sungai Ciliwung-Cisadane | • Responsible for managing the main river and coastal area.<br>• Development of 2.2 km of sea-wall as part of the national capital integrated coastal development (NCICD). |
| 2 | **Department Planning Agency**<br>(BAPPEDA DKI Jakarta) | • Responsible for developing, coordinating, and evaluating the development programs.<br>• In Kalibaru, BAPPEDA has led the development of place-based SDG mainstreaming and initiated KAlibaru Hub's development. |
| 3 | **Department of Public Works**<br>(Dinas Bina Marga) | • Responsible for undertaking government programs on the public works aspect, particularly on road and settlement. |
| 4 | **Department of Water Resources**<br>(Dinas Sumber Daya Air) | • Responsible for improving the quality of settlement infrastructures including water resource management, water provision, waste-water management, and drainage. |
| 5 | **Department of Environment**<br>(Dinas Lingkungan Hidup) | • Responsible for undertaking government programs on environmental management, and solid waste management.<br>• Specific scope of work of DLH including: provision of waste infrastructures, network and system, waste-water infrastructures (communal septic tank, communal toilet), monitoring of water quality. |
| 6 | **Department of Public Housing and Settlement Areas**<br>(Dinas Perumahan Rakyat dan Kawasan Permukiman) | • Responsible for undertaking government programs on public housing and settlement upgradation. |
| 7 | **Department of Human Settlements, Spatial Planning and Land Affairs**<br>(Dinas Cipta Karya, Tata Ruang dan Pertanahan) | • Responsible for undertaking government programs on spatial planning, building and environmental arrangements, and land affairs. |
| 8 | **Department of Fire and Rescue**<br>(Dinas Penanggulangan Kebakaran dan Penyelamatan) | • Responsible for minimizing risk of fire, provision of fire risk reduction infrastructures (hydrant, APKAR) and capacity building (disaster management training) |
| 9 | **Department of Industry, Trade, Cooperatives, Small and Medium Enterprises**<br>(Dinas Perindustrian, Perdagangan, Koperasi, Usaha Kecil dan Menengah) | • Responsible for undertaking government program on industry, trade and development of SMEs<br>• Specific scope of work of this department includes improvement of traditional markets, entrepreneurship training and capacity building for SMEs. |
| 10 | **Department of Empowerment, Child Protection and Population Control**<br>(Dinas Pemberdayaan, Perlindungan Anak dan Pengendalian Penduduk - DPPAPP) | • Responsible for undertaking government programs on community development, women empowerment and child protection, population control and family planning. |

## Non-State Actors in Kalibaru

As earlier mentioned, the involvement of non-state actors has been very significant in Kalibaru since a long time ago, responding to the social issues and needs in Kalibaru. These NGOs, CSOs, and academics work on various topics, including education, skill development, economic improvement, and waste and environment issues. The following table elaborates on the current involvement of non-state actors in Kelurahan Kalibaru.

Table 6: **NON-STATE ACTORS INVOLVED IN THE DEVELOPMENT OF KALIBARU**

| No | Non-State Actor | Focus Issue | SDG | Description |
|---|---|---|---|---|
| **NON-GOVERNMENT ORGANIZATION** | | | | |
| 1 | **Kelas Jurnalis Cilik** | Capacity building for youth, Journalism | 4 QUALITY EDUCATION | Kelas Jurnalis Cilik is a community-based organization based in Kalibaru focusing on sharing journalism capacity with youth generations in Kalibaru. |
| 2 | **Yayasan HOPE** | Education, Health, Capacity Building | 4 QUALITY EDUCATION | Yayasan HOPE Indonesia's activity focuses on the issue of education, health, community, and disaster response. In Kalibaru, their activities focus on health and education. They facilitated the establishment of Cilincing Community Center as a youth community center that has a library and hosts many activities like Saturday Academy (SA), TTT (Trash to Treasure), English Training Center (ETC). |
| 3 | **Komunitas Taman Siswa** | Youth literacy, Education | 4 QUALITY EDUCATION | The Taman Siswa community teaches children various literacy skills. Its activities include reading and writing, cultural arts every Sunday, and reading the Koran every Friday. |
| 4 | **Yayasan Hidung Merah Department of Water Resources** (Dinas Sumber Daya Air) | Skill building for youth | 4 QUALITY EDUCATION | Yayasan Hidung Merah is a non-profit organization focuses on arts, education & personal development for underprivileged communities. In Kalibaru, their focus is to support education and skill development of children through circus training. The activity was started in 2010 in Kalibaru with the aim to provide positive activity for youth in the fishermen kampung. As of now, no less than 320 children were taught in two learning centers in East Jurangmangu, South Tangerang and Kalibaru, North Jakarta. |
| **ACADEMICS** | | | | |
| 5 | **Sekolah Ilmu Lingkungan (SIL) Universitas Indonesia** | Access to water | 6 CLEAN WATER AND SANITATION; 11 SUSTAINABLE CITIES AND COMMUNITIES | In collaboration with BRIN, Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI) contributed to developing a rain-water harvesting system in Kalibaru, which serves as an alternative water source for the local communities. |





| | | | | |
|---|---|---|---|---|
| 6 | **Politeknik Kesehatan Jakarta** | Waste Management | 9 INDUSTRY, INNOVATION AND INFRASTRUCTURE | Politeknik Kesehatan Jakarta contributed in researching on the possibility of recycling green mussels shell waste as paving block |
| **LOCAL COMMUNITIES / ASSOCIATIONS** | | | | |
| 7 | **Forum RT/RW** | General development | 11 SUSTAINABLE CITIES AND COMMUNITIES | This forum is an association of RW and RT leaders in Kalibaru. This forum has a regular discussion on the development issue and program in Kalibaru. |
| 8 | **Fishermen Association** | Local economy | 8 DECENT WORK AND ECONOMIC GROWTH; 11 SUSTAINABLE CITIES AND COMMUNITIES | Fishermen associations often advocate for economic support for fishermen communities in Kalibaru. |
| 9 | **Green Mussel Industry Association** | Local economy | 8 DECENT WORK AND ECONOMIC GROWTH; 11 SUSTAINABLE CITIES AND COMMUNITIES | The green mussel industry association focuses on how to improve the green mussel business and work together to access government support to improve the business. |
| 10 | **Salted Fish Business Association** | Local economy | 8 DECENT WORK AND ECONOMIC GROWTH; 11 SUSTAINABLE CITIES AND COMMUNITIES | The salted fish business association focuses on improving the salted industry business and works as a collective to access support to improve the business. |
| 11 | **PKK Kalibaru (Women Association)** | Women empowerment, Neighborhood improvement, Health | 5 GENDER EQUALITY; 6 CLEAN WATER AND SANITATION; 11 SUSTAINABLE CITIES AND COMMUNITIES | PKK or neighborhood women associations have an important role in neighborhood development particularly on health issues, women empowerment and neighborhood improvement. |
| 12 | **Karang Taruna** | Youth empowerment | 4 QUALITY EDUCATION; 11 SUSTAINABLE CITIES AND COMMUNITIES | Youth groups have the potential to be further empowered for education and skill improvement programs. |

# Prior Engagement And Moving Forward



## Prior Engagements for Place-Based SDG Mainstreaming

In order to strengthen the commitment in regards to declaration of the mainstreaming of place-based Sustainable Development Goals (TPB/SDGs) in Kalibaru in December 2019, the Governor and representatives of civil society organizations signed an initial commitment to collaborate in responding to these challenges.

The declaration of TPB/SDGs mainstreaming was signed by the Governor as the person in charge of TKPK DKI Jakarta Province together with representatives from all stakeholders, namely Bappeda (government element), University of Indonesia (academic element), PT Astra International Tbk (business world element), Red Nose Foundation (NGO element), BAZNAS (BAZIS) DKI Jakarta Province (philanthropy element), and PKK Kalibaru Village (local community element).

The moment became a milestone for the collaboration preparation process of Kalibaru Hub. The following table elaborates the non-state actors preliminary identified in 2019 for the implementation of SDGs mainstreaming in Kalibaru. Prior engagement has already been undertaken, although commitment from each stakeholder has not been clearly staged at that time. In the next process, all parties will discuss and agree on the draft joint action plan, as well as form a working team at the kelurahan level or called the Kalibaru Hub.

Table 7: **POTENTIAL NON-STATE ACTORS TO BE INVOLVED IN THE DEVELOPMENT OF KALIBARU**

| Non-Government Organizations | | |
|---|---|---|
| **The SMERU Research Institute** | BAZNAS (BAZIS) Provinsi DKI Jakarta | Second Chance Foundation |
| **Jakarta Berketahanan** | Johns Hopkins Center for Communication Programs | Sekolah Perempuan Jakarta |
| **Abdi Rakyat** | Kesatuan Aksi Pelajar Muslim Indonesia | Sendalu Permaculture |
| **ABNON Provinsi DKI Jakarta** | Klinik Pendidikan MIPA | SERUM Jakarta |
| **ACT** | LBH APIK Jakarta | UCLG ASPAC |
| **Bang Japar** | KSM Nyiur | Smoke Free Agent |
| **BPD AKU** | LH Cilincing | Wahana Visi Indonesia |
| **budayakan.id** | LKNU Jakarta | Yayasan Buddha Tzu Chi Indonesia |
| **Cilincing Bersatu** | Pergerakan Indonesia | Yayasan Emong Lansia |
| **ECPAT Indonesia** | Pergerakan Mahasiswa Islam Indonesia Jakarta Utara | Yayasan Hidung Merah |
| **FKPD Provinsi DKI Jakarta** | PKPU Human Initiative | Yayasan Pay & Do It |
| **Forum Anak Jakarta** | Posyantek Kecamatan Koja | Yayasan Rumah Energi |
| **Forum RPTRA Jakarta Pusat** | PP Indonesia Sehat Amira | Yayasan Rumah Kita Bersama Indonesia |





| | | |
|---|---|---|
| **Gardu Masyarakat** | Rekan Indonesia | Yayasan Rumah Rachel |
| **InDEC** | Rimbawan Muda Indonesia | Yayasan Rumah Zakat |
| **Inkindo** | RKBN Pulo Kambing | Yayasan SEJIWA |
| **InSWA** | | yukbantu.com |

| Media | Private Sector | Academics |
|---|---|---|
| Berita Jakarta | Asuransi JASINDO | Universitas Atma Jaya Jakarta |
| DAAI TV | PT. Indofood Sukses Makmur - Bogasari Flour Mills | Universitas Negeri Jakarta |
| | Forum CSR DKI Jakarta | Universitas Indonesia |
| | GO-JEK | Universitas Indraprasta PGRI |
| | PT. DKB Shipyard II | |
| | New Priok Container Terminal 1 | |
| | PT. Dok & Perkapalan Kodja Bahari | |
| | PT. AIRIN (Indonesian Air & Marine Supply) | |
| | PT. Samudera Sukses Makmur | |
| | PT. Transporindo Lima Perkasa | |
| | PT. Indonesia Kendaraan Terminal | |
| | PT. Adiguna Shipbuilding & Engineering | |
| | PT. PP Tbk. Kalibaru Project | |
| | PT. Pancaran Darat Transport | |
| | PT. Dharma Karya Perdana | |
| | PT. Semen Indonesia Beton | |
| | PT Antam | |
| | PT Astra International | |
| | PT Bank DKI | |
| | PT Food Station | |
| | PT Pertamina | |
| | PT. Xaviera Global Synergy | |
| | PT. XL Axiata Tbk | |

## Moving Forward: Stakeholder Mapping per Priority Issue

To move forward, clear actions and targets need to be outlined and the relevant stakeholders to be mobilized, which is not only limited to the current stakeholders already engaged in Kalibaru but also exploring new collaboration opportunities with new stakeholders. The Kalibaru Hub, as the collaboration platform, should coordinate the joint action plan and manage the multi-stakeholder collaboration in each of the priority issues. The following tables elaborate the stakeholder mapping per priority in Kalibaru as the first steps to push forward for future collaboration.

### WASTE MANAGEMENT

Table 8: **STAKEHOLDER MAPPING ON WASTE MANAGEMENT ISSUE**

| Category | Stakeholders | Potential Involvement in Kalibaru |
|---|---|---|
| Current Stakeholder Involved | **Department of Environment** (Dinas Lingkungan Hidup) | Lead the improvement of the overall waste management system in Kalibaru:<br>• Improving scope of work and waste collection route of PPSU<br>• Installing of waste infrastructures and facility (waste container, waste bins)<br>• Providing assistance in the implementation of waste bank programs. |
| | **PPSU** | Improving scope of work of PPSU and coordinate the Kelurahan-level waste bank program |
| | **Politeknik Kesehatan** (Kementerian Kesehatan) | Initiating clam shell waste upcycling as paving block |
| | **Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI)** | Provide expert insights and assistance in developing the clam shell waste recycling initiative |
| Potential Stakeholder to be Involved | **State Electricity Company** (Perusahaan Listrik Nasional) | PLN's CSR-Community Development to support the waste bank initiatives through the Shining Entrepreneur Program "PPOB – Pay electricity with rubbish" and "Master Trash Bank". |
| | **Local Cellular Service Providers** | Support for waste bank through scheme that enables recyclable trash to be exchanged with voucher or internet credits |
| | **CSR Programs of Private Sectors** | Financial support for waste facility procurement, coastal cleanup events and implementation of capacity building program to minimize waste production at the community level:<br>• Waste segregation<br>• Composting and urban farming |
| | **Startup companies and innovators focusing on waste** | To support the development of integrated activities and as a partner for circular economy initiatives related to waste |
| | **NGOs working on organic waste and urban farming** | To support the development of integrated activities, involving organic waste processing (composting) and urban farming. |





| | | |
|---|---|---|
| Local Communities Association to be Engaged | **Women Group (PKK)** | Potential local stakeholder to implement community-based waste management program, i.e. waste bank, composting and urban farming. |
| | **Youth Group (Karang Taruna)** | Potential local stakeholder to implement community-based waste management program, i.e. waste bank, composting and urban farming. |

### ACCESS TO WATER

Table 9: **STAKEHOLDER MAPPING ON WASTER ISSUE**

| Category | Stakeholders | Potential Involvement in Kalibaru |
|---|---|---|
| Current Stakeholder Involved | **PDAM (Aetra)** | Development of a program to improve access to water for low-income communities, i.e.:<br>• Subsidy for pipeline connection for low-income communities<br>• Water kiosk |
| | **Department of Water Resources** (Dinas Sumber Daya Air) | Development and construction of local drainage system |
| | **Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI)** | Enhancement of the current rainwater harvesting, pilot project addressing the challenges faced by local communities. |
| | **Badan Riset dan Inovasi Nasional (BRIN)** | Provide technical inputs to enhance the current rainwater harvesting system. |
| Potential Stakeholder to be Involved | **CSR Programs of Private Sectors** | Support for implementation of alternative access to clean water i.e. replication of current rainwater harvesting programs to more areas. |
| | **University partners** | To seek for other alternative water provision models that are more sustainable. |
| Local Communities Association to be Engaged | **RW, RT and local community leaders** | As water is a critical basic issue, involvement of RW, RT and community leaders are essentials to mitigate risks or potential conflicts caused by disruption in the current water system. |
| | **Fishermen Association** | Potential local stakeholder to manage the alternative water provision systems |
| | **Mosque Association** | Potential local stakeholder to manage the alternative water provision systems |

## YOUTH EDUCATION AND CAPACITY BUILDING

Table 10: **STAKEHOLDER MAPPING ON YOUTH EDUCATION AND CAPACITY BUILDING**

| Category | Stakeholders | Potential Involvement in Kalibaru |
|---|---|---|
| Current Stakeholder Involved | **Kelas Jurnalis Cilik** | Already involved in youth skill building by sharing journalism capacity with youth generations in Kalibaru. |
| | **Yayasan HOPE** | Already involved in Kalibaru for various programs on health and education, i.e. development of Cilincing Community Center as a youth community center. |
| | **Komunitas Taman Siswa** | Already involved in children literacy programs. |
| | **Insani Teater Cilincing (ITACI)** | Providing learning opportunities for children and youth interested in acting and theater |
| | **Red Nose Foundation** | Already involved in Kalibaru to support education and skill development of children through circus training. |
| Potential Stakeholder to be Involved | **Institut KAPAL Perempuan** | Through the Women's School program, Institut KAPAL Perempuan provides a forum for learning and managing knowledge about social justice and gender, inclusiveness, leadership, and poverty alleviation in coastal areas. |
| | **CSR Programs of Private Sectors** | Implementation of capacity building program at the community level as well as assistance in facility development, including:<br>• Career development classes<br>• Educational training equivalent to high school diploma (Paket C)<br>• Development of public space, mini library, playground, etc.<br>• Procurement of equipments and materials |
| Local Communities Association to be Engaged | **Youth Group (Karang Taruna)** | Youth groups in Kalibaru need to be engaged as a key actor to maintain positive activities in the neighborhood, particularly to reduce vulnerability to brawls. |





## LOCAL ECONOMIC DEVELOPMENT

Table 11: **STAKEHOLDER MAPPING ON LOCAL ECONOMIC DEVELOPMENT**

| Category | Stakeholders | Potential Involvement in Kalibaru |
|---|---|---|
| Current Stakeholder Involved | **Politeknik Kesehatan - Ministry of Health** (Kementerian Kesehatan) | Already involved in youth skill building by sharing journalism capacity with youth generations in Kalibaru.<br>• Support equipment for green mussel industry<br>• Shell waste processing to brick |
| | **Ministry of Marine and Fisheries Affairs** (Kementerian Kelautan dan Perikanan) | Already involved in Kalibaru for various programs on health and education, i.e. development of Cilincing Community Center as a youth community center. |
| | **Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI)** | Has been involved in supporting the SME in the green mussel industry in initiating the processing of the green mussel shell waste into shell powder as materials for modern craft. |
| Potential Stakeholder to be Involved | **CSR Programs of Private Sectors** | Implementation of capacity building program at for the SMEs as well as financial assistance, including:<br>• Small and medium enterprises training and development<br>• Partnership fund |
| | **Academics and NGO partners** | Identification of most viable business model for shell waste: Collaboration with university or NGO partners to identify innovative options of shell waste processing and the most viable business model. |
| | **Startup companies and innovators focusing on waste** | To support the development of integrated activities and as a partner for circular economy initiatives related to waste |
| | **Private sector** who seek for alternative materials | To establish collaboration with new potential private sectors that seek alternative materials for their business. Shell waste has a potential for the new emerging industry that uses alternative and more sustainable materials. |
| Local Communities Association to be Engaged | **Green mussel industry association** | Potential local stakeholder to receive the capacity building programs - particularly on the shell waste upcycling |
| | **Women workers of green mussel shell industry** | Potential local stakeholders to receive the capacity building programs - particularly on the shell waste upcycling |
| | **Youth Group (Karang Taruna)** | Potential local stakeholders to receive the capacity building programs - particularly on the shell waste upcycling |

# Action Inventory

7

Existing Initiatives

Lesson Learned from Implementation of Past and Existing Initiatives

This chapter highlights the past and existing initiatives implemented in Kalibaru by multiple non-state actors. It provides a general overview for the readers on what has been done and the room for future collaborations. The last section summarizes the key lessons learned from the past initiatives as a reflective note for implementing future projects.

# Existing Initiatives

## Journalistic Class for Children

**Initiator**

Kelas Jurnalis Cilik

**About The Initiative**

Kelas Jurnalis Cilik is a community-based organization based in Kalibaru focusing on sharing journalism capacity with youth generations in Kalibaru. It was founded by Syamsudin Ilyas, a coastal-born journalist with his friends, with the aim to channel their journalistic knowledge to prevent coastal communities, particularly children, from juvenile delinquency. The initiative was founded in 2019, and up to now, they have already conducted six batches of classes. The local communities well-received the initiative, both children and their parents. It provides a positive space for children to channel their interests and avoid them from negative activities.

**Type of Initiatives**

Capacity building for youth; Journalism, Youth education

**Location of Activities**

RW 01 Kelurahan Kalibaru

**Stakeholder Involved**

Local communities (mainly school-aged children in RW 01)
Status: Ongoing

Figure 42: **KELAS JURNALIS CILIK (KJC) EVENT**


• **Source:** instagram.com/kelasjurnaliscilik_/





# Existing Initiatives

## Komunitas Taman Siswa: Literacy for Children

**Initiator**

Komunitas Taman Siswa

**About The Initiative**

The Taman Siswa community, referred to by the local communities as “Sanggar Gimbal” is located in RW 04 and teaches children various literacy skills. Its activities include reading and writing, cultural arts every Sunday, and reading the Koran every Friday.

**Type of Initiatives**

Youth literacy, Education

**Location of Activities**

RW 04 Kalibaru

**Stakeholder Involved**

Local communities (mainly school-aged children in RW 04)
Status: Ongoing

Figure 43: **KOMUNITAS TAMAN SISWA EVENT**

• **Source:** instagram.com/kelasjurnaliscilik_/

**Further Information**

Komunitas Taman Siswa

# Existing Initiatives

## Cilincing Community Center for Education and Health

**Initiator**

Yayasan HOPE

**About The Initiative**

Yayasan HOPE Indonesia is a social organization with a vision to help the life of the unable family in Indonesia. Overall, HOPE Indonesia's activity focuses on the issue of education, health, community, and disaster response. In Kalibaru, their activities focus on health and education. They facilitated the establishment of Cilincing Community Center as a youth community center that has a library and hosts many activities like Saturday Academy (SA), TTT (Trash to Treasure), English Training Center (ETC).

**Type of Initiatives**

Education, Health, Capacity Building

**Location of Activities**

Multiple, focuses on RW 01.

**Stakeholder Involved**

Status: Ongoing

**Further Information**

https://www.hopeindonesia.org/
https://cilincingcommunitycentre.wordpress.com/
https://www.hopeindonesia.org/komunitas-rw-12-kalibaru/

Figure 44: **YAYASAN HOPE EVENT**

• **Source:** hope indonesia.org

**Further Information**

https://www.hopeindonesia.org/ • https://cilincingcommunitycentre.wordpress.com/
https://www.hopeindonesia.org/komunitas-rw-12-kalibaru/





# Existing Initiatives

## Art and Circus Training - Yayasan Hidung Merah

**Initiator**

Yayasan Hidung Merah

**About The Initiative**

Yayasan Hidung Merah is a non-profit organization that focuses on arts, education & personal development for underprivileged communities in Indonesia. RNF's mission is to support education, adopt a healthy lifestyle, and develop the potential of children living in underprivileged situations by promoting youth empowerment through art and creative learning to become a positive contribution and agent of change in society. In Kalibaru, the activity of Yayasan Hidung Merah is to support education and skill development of children through circus training. The activity was started in 2010 in Kalibaru with the aim to provide positive activity for youth in the fishermen kampung. As of now, no less than 320 children were taught by Yayasan Hidung Merah in two learning centers in East Jurangmangu, South Tangerang and Kalibaru, Cilincing, North Jakarta.

**Type of Initiatives**

Skill-building for youth; Capacity development

**Location of Activities**

Kampung Bambu, Kalibaru

**Stakeholder Involved**

Youth in Kelurahan Kalibaru, Status: Ongoing

Figure 45: **YAYASAN HIDUNG MERAH (RED NOSE FOUNDATION) CLASS**

• **Source:** faktual.net

**Further Information**

https://beritagar.id/media/galeri-foto/harapan-dalam-sekolah-sirkus

# Existing Initiatives

## Rainwater Harvesting Program

**Initiator**

Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI), Badan Riset dan Inovasi Nasional (BRIN)

**About The Initiative**

In response to the issue of water access in Kalibaru, Sekolah Ilmu Lingkungan Universitas Indonesia (SIL-UI) in collaboration with BRIN, contributed to developing a rain-water harvesting system in Kalibaru. The rain-water harvesting system is expected to serve as an alternative water source for the local communities. They install three rainwater harvesting systems in three coastal RWs: RW 01, RW 15, and RW 04.

**Type of Initiatives**

Water infrastructure, Access to water

**Location of Activities**

Three locations: RW 01, RW 15, and RW 04

**Stakeholder Involved**

Kelurahan government, local community of RW 15, Fishermen association RW 01, Status: Installed in December 2021

Figure 46: **RAINWATER HARVESTIN PROGRAM FROM SIL-UI IN RW 13**


• **Source:** Photo of Dennie Ramon, 2021





# Lesson Learned from Implementation of Past and Existing Initiatives

Implementation of programs often faces some on-ground challenges. According to the interview with some of the ongoing programs and the community leaders in Kalibaru, the following are the critical lessons gained from the implementation of past and existing programs and activities in Kelurahan Kalibaru.

- **Involving local communities and target beneficiaries in the program are often essential in ensuring sustainability**

  Local communities are essential stakeholders to be engaged in community-based projects in any sector. Often, a project is designed with little discussion and consultations with the community, yet they are the ones who will be involved daily with the project. Lack of consultation in the design phase of a community-based program leads to obstacles in the implementation: delay in implementation due to lack-of buy-in, resistance, or failure to achieve the intended objectives. Early engagement of community and stakeholders will contribute to:

  The co-design process of the program with communities is essential to:

  - building local buy-in and the sense of belonging to the proposed projects;
  - identify the needs of the targeted beneficiaries;
  - design the most effective implementations strategies / business models.

- **Social inclusion should always be underlying principle in any project**

  Engaging and mobilizing a diverse range of actors within the community — youth groups, women's groups, etc. — is essential in capturing different voices and needs of different groups within the communities, as well as ensuring the inclusivity of the process.

- **Capacity building program takes time: Result cannot be seen instantly**

  Kalibaru has received a lot of community-development programs from multiple actors. Many programs have targeted behavioral changes, i.e., behavior towards waste, and youth education programs. Although it is well-received by the local communities, future program implementers should note that capacity-building programs take time. Future program implementers should design programs with a gradual advancement target over time rather than implementing short-term one-off projects.

- **Post construction operations and maintenance should be established prior the implementation of project**

  For community-based infrastructure projects, it is important to establish a post-construction operations and maintenance mechanism, to ensure the operationalization of the infrastructure. This include key questions



# Opportunities

8

Integrated Waste Management System

Improving Access to Water

Sustainable Development Pathway Towards Resilient Neighborhood

Youth Education and Capacity Development

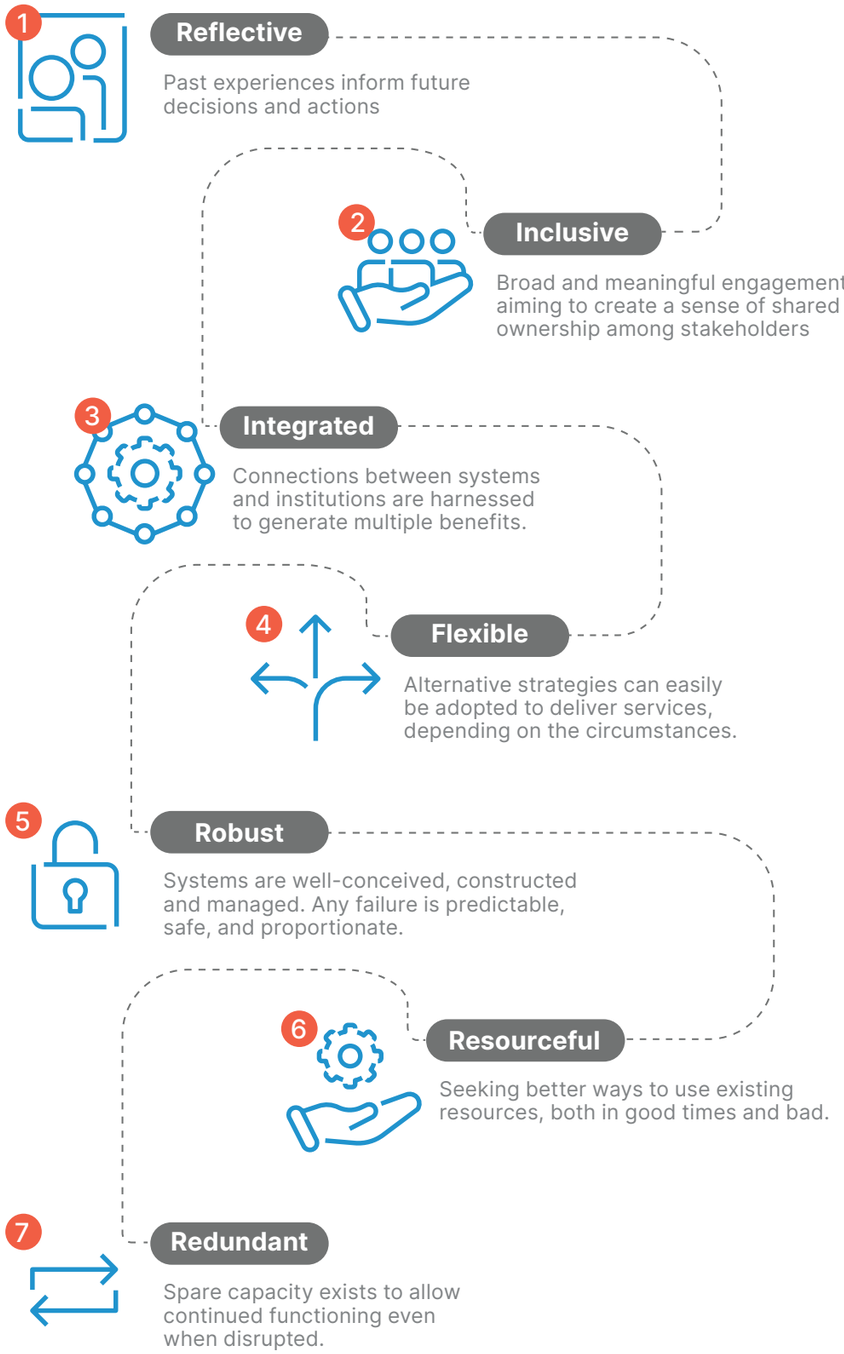
Insitutional Arrangement for Multi-Stakeholder Collaboration

Strategy Initiatives

This chapter elaborates on the potential opportunities that can be initiated by various stakeholders to harness a more sustainable future for Kalibaru. The initiatives are furthered upon under each section following the format of the previous chapter on the priority issues. Certain strategic initiatives will be elaborated to provide an example of the possible pathways for implementation.

Implementation of programs often faces some on-ground challenges. According to the interview with some of the ongoing programs and the community leaders in Kalibaru, the following are the critical lessons gained from the implementation of past and existing programs and activities in Kelurahan Kalibaru.

Figure 47: **7 QUALITIES OF A RESILIENCE CITY**



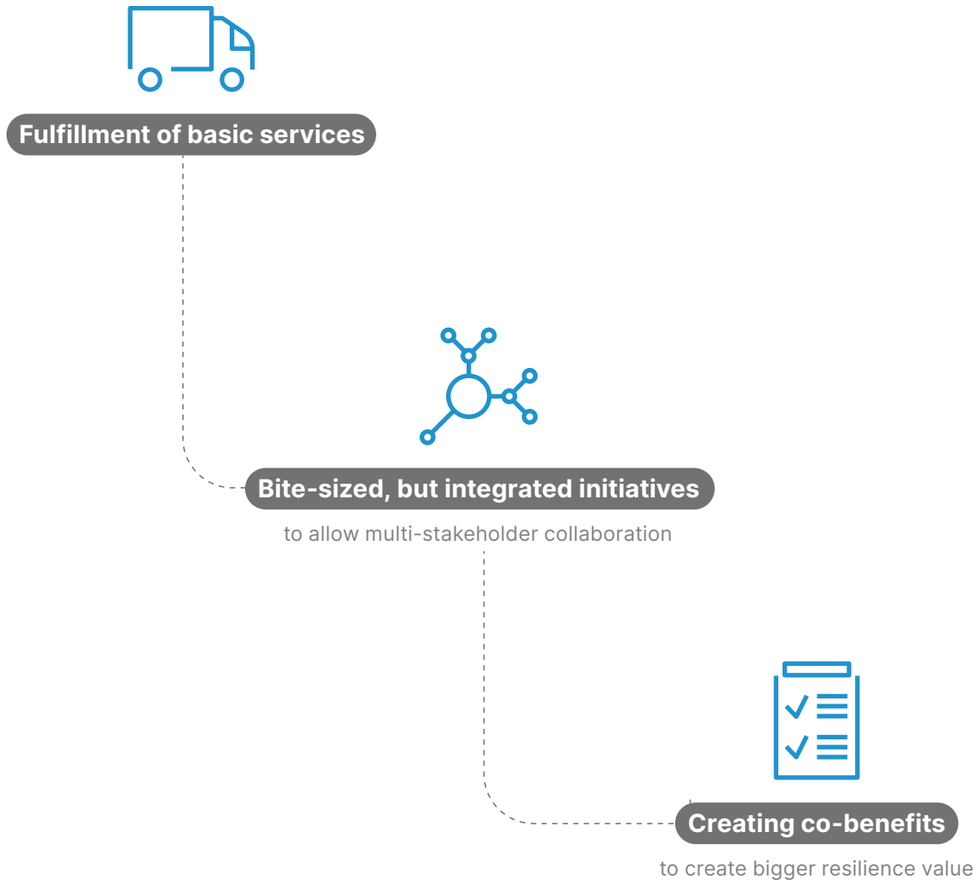





The shortlisted initiatives and opportunities were proposed with the following underlying principles:

- **Fulfillment of basic services:**
  The proposed initiatives targets the fulfillment of the basic service. This would involve implementation of basic infrastructure provision programs particularly for the essential services like water provision, waste management and other basic services.
- **Bite-sized, but integrated initiatives:**
  As the spirit of the program is to promote collaboration, the proposed initiatives are designed to be undertaken by multiple stakeholders, with different size and scope
- **Creating co-benefits:**
  Promotes the creation of co-benefits to create a bigger resilience value. Each project should not only think about solving one particular issue but also look for opportunities for creating co-benefits for other sectors. For example, solutions to the issue of waste should also address the economic challenges faced by the community and bigger environmental co-benefits.

Figure 48: **UNDERLYING PRINCIPLES IN DESIGNING THE PROPOSED INITIATIVES**



# Integrated Waste Management System



## Goals

- An integrated waste management system to account for 100% of waste in Kalibaru;
- A self-sustaining model for community-based waste management—creating revenue streams for local waste management model;
- An increase in awareness of personal and collective impacts;
- Reduce waste produced in Kalibaru and ending in landfills.

## Description

Waste is a notable problem in several areas in Kalibaru due to the absence of a temporary landfill in the area. However, as the issue of waste in Kalibaru is quite complex, it requires comprehensive thinking and integrated solutions to not only address the lack of services but also long-term change towards more sustainable behavior. A physical intervention on waste facilities needs to be combined with improvement on waste management service and system, as well as capacity building on the ground. Additionally, the circular waste economy should be further promoted as it provides an opportunity to create a direct impact on converting waste into revenue. Combining each of the waste management facilities into a centered Kalibaru-based waste management center consisting of both organic and inorganic waste processing facilities can also be considered. Services that earn more income can cover the operational costs of services that do not have a large economic value, hence ensuring sustainability of integrated waste management in Kalibaru.

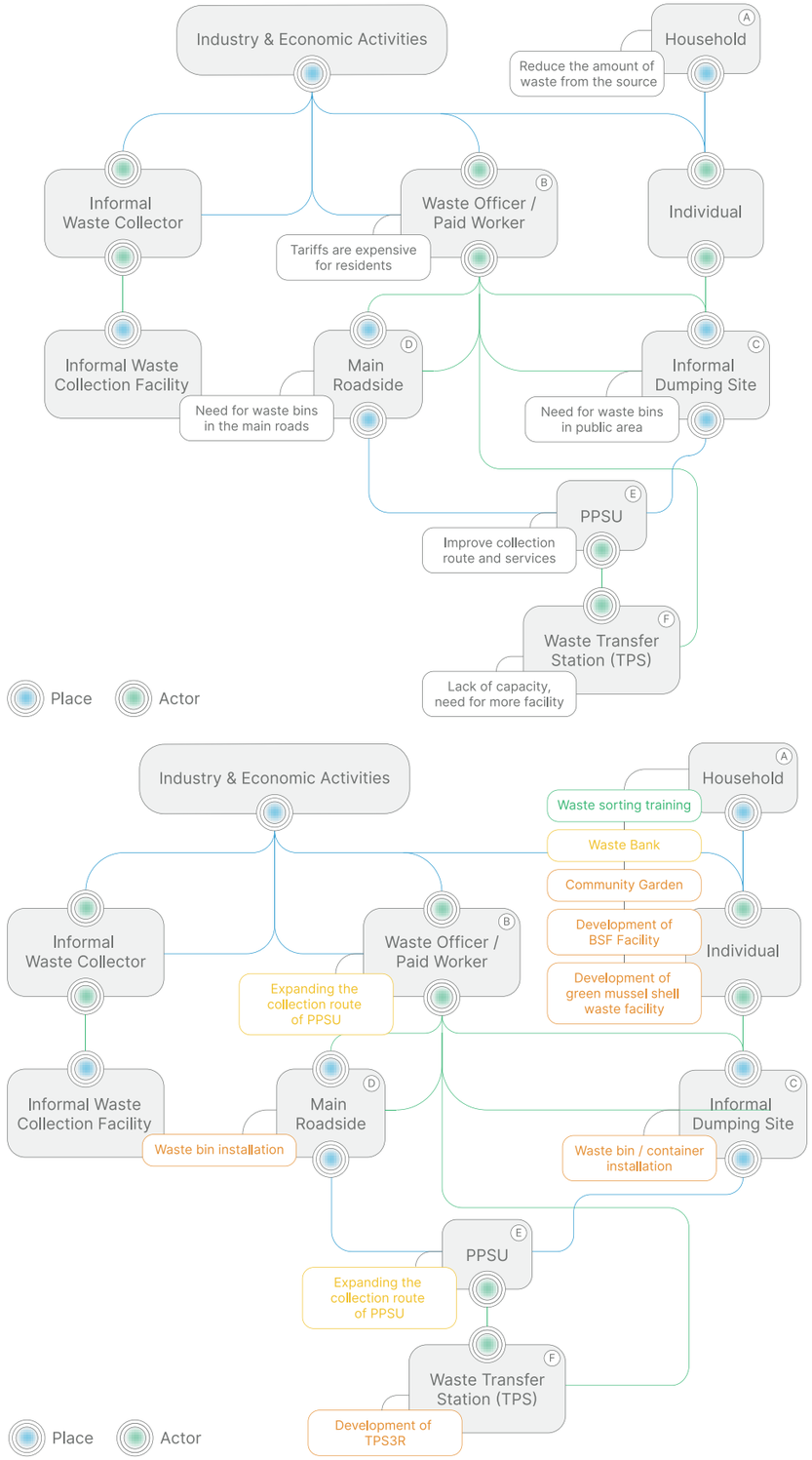
Figure 49: **PPSU COLLECTING TRASHES ON ROADSIDE IN KALIBARU**


• **Source:** Photo of Dennie Ramon, 2021





Figure 50: **GAPS IN THE CURRENT WASTE MANAGEMENT SYSTEM AND POTENTIAL INITIATIVES**




• **Source:** Study Findings, 2021

**Potential Initiatives:**

- **Development of TPS3R / Waste Container in area without access to waste facility**
  Development of a temporary landfill that serves several areas serving areas with a lack of waste management services. The development of TPS should also be accompanied by the development of the collection route of the PPSU.water provision, waste management and other basic services.

- **Improvement of PPSU's scope of area and services**
  PPSU's limited resources and schedules prevent them from expanding their service, especially to smaller alleys and areas that are hard to reach with big vehicles or trucks. Giving more incentives, hiring more people with knowledge of those areas, and providing smaller vehicles to pick up the trash can cater to the needs of adequate waste management service in Kalibaru, lowering the risk of illegal waste dumps.

- **Provision of garbage collection container or space in front of alleys**
  The accumulated garbage not only produces a foul smell but also increases the risk of drainage blockage. By providing spaces and containers to store the waste, it will be easier for the PPSU to pick them up from designated spots. It will also reduce the chance of garbage flying away due to wind or clogging the drains.

- **Waste Segregation**
  Separating waste into three categories: inorganic, organic, and hazardous waste will lower the risk of cross-contamination and environmental contamination, facilitate recycling and composting as well ensuring correct disposal. Through waste segregation practice, the community will then be able to re-assess and understand their general waste output, and if possible change consumption patterns accordingly.

- **Waste Bank**
  In most of the RWs in Kalibaru, the residents have expressed their interests and plan for a waste bank. Unfortunately, the initiatives are often met with failure due to the lack of financial support and lack of interest from the community for its low economic benefit. The waste bank can serve as an essential component to ensure the continuation of waste segregation practice.

  Another business model such as a waste barter system with electricity tokens, internet credit, or other diverse necessities should also be considered. The necessities can be customized according to the local group needs in each area to increase the customers' enthusiasm.





- **Black Soldier Fly (BSF) Nursery**
  The use of BSF can be the chosen method to process the Kelurahan level of organic waste. BSF Larvae is quite tolerant to feeding substrates, ranging from household waste, market waste, food, and restaurant waste to food processing and slaughterhouse waste, making it a suitable option to process Kalibaru's wide range of organic waste.
  - Opportunity for revenue streams from the sales of larvae-derived products (e.g. whole larvae, protein meal, larval oil, etc.) and waste residue (fertilizer and biogas).
  - Some obstacles that might exist are (1) unavailability of sufficient uncontaminated organic, lack of support for capital and operating costs, lack of available land for the facility, and limited water and electricity supply.
  - An organic waste buyback scheme that offers some incentives to residents that submitted their organic waste can be applied to push for waste segregation practice through economic benefits.

- **Community Garden: Composting and Urban Farming**
  Development of community gardens as an opportunity to improve organic waste management while at the same time greening the neighborhood and producing food for the local community.

- **Upcycling & Valorization of Shell Waste**
  A Circular Economy for Green Mussel Shell Waste through fostering shell waste upcycling initiatives that can reduce the number of waste, add economic value to the products, as well as create more jobs.

Table 12: **POTENTIAL INITIATIVES TO IMPROVE WASTE MANAGEMENT SYSTEM IN KALIBARU**



Opportunities

| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners |
|---|---|---|---|---|---|---|---|---|---|
| 1 | Waste Sorting Training | Workshop and socialization on segregating waste to inorganic, organic, and hazardous waste at the house-hold level. Aimed to increase community's knowledge on segregated waste and reduce the amount of waste that will end up in landfills. | Waste Management | Climate Change, Environmental Degradation | - Socialization on types of waste<br>- Workshops on waste segregation<br>- Socialization on added-value and financial opportunities related to segregated waste | Kalibaru<br>- All RWs | - Characteristic of the coastal community that is often characterized as harsh, straightforward, and difficult to accept influence from outsiders<br>- Financial limitation and sanitation concerns related to purchasing of single-use plastic alternatives | NGOs/ Dasawisma | NGOs, experts, schools and universities, youth organization |
| 2 | Waste bin installation in the main roads | Installation of waste bins in the main roads (in front of alleys) to improve the local waste management and collection system in Kalibaru. | Waste Management | Climate Change, Environmental Degradation, Inadequate Waste Infrastructure | - Procurement of waste bins<br>- Installation of waste bins in the main roads and strategic locations | Kalibaru (in the main roads)<br>- All RWs | - Need to communicate with the local community and business entities in the main road for their support to maintain the waste bins | Dinas Lingkungan Hidup | CSR |
| 3 | Development of Waste Bank | Development of a waste bank to receive segregated recyclable waste from the community. | Waste Management | Climate Change, Environmental Degradation, Inadequate Waste Infrastructure | - Land acquisition<br>- Identification of business partners<br>- Construction of the Waste bank<br>- Creating management and system<br>- Socialization to community | Kalibaru<br>- All RWs | - Lack of available land<br>- Not enough client to ensure the sustainability<br>- Inconsistent waste pick up schedule | Dinas Lingkungan Hidup | NGOs, experts, schools and universities, youth organization |
| 4 | Expanding the collection route and service of PPSU | Improving the waste management service of PPSU | Waste Management | Climate Change, Environmental Degradation, Inadequate Waste Infrastructure | - Diversifying mode of collection<br>- Adding human resources and improving capacity<br>- Mapping efficient routes<br>- Integration with local waste workers | Kalibaru<br>- All RWs | - Lack of financial support | Dinas Lingkungan Hidup | |
| 5 | Development of Green Mussels Shells Waste Facility | Development of a shell waste processing facility that can reduce the number of waste, add economic value to the products, as well as create more jobs. | Waste Management | Climate Change, Environmental Degradation, | - Identification of the economic system and buyers from each phases<br>- Negotiating with business partners<br>- Identification and procurement of needed equipment<br>- Planning facility<br>- Training people, integrating the process into existing business process | Green Mussels Industry - RW 01, RW 04, RW 13 | - Integration with existing business process<br>- Find buyers or business partners before creating any products | Dinas Lingkungan Hidup, Dinas UMKM | NGOs, experts, schools and universities |

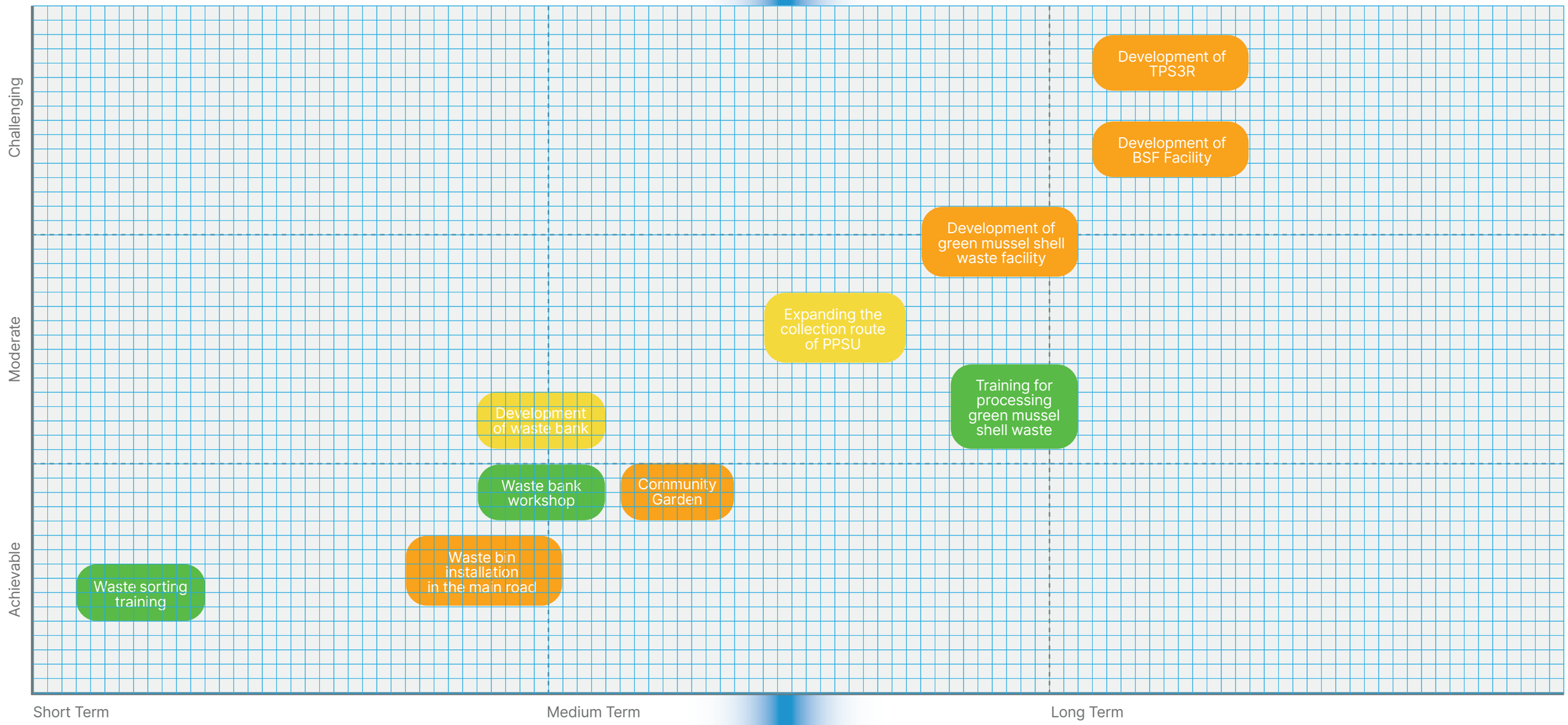
| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners |
|---|---|---|---|---|---|---|---|---|---|
| 6 | Community garden: Composting and urban farming | Development of community gardens as an opportunity to improve organic waste management while at the same time greening the neighborhood and producing food for the local community. | Waste Management | Climate Change, Environmental Degradation, Lack of Green Space | - Identification of the economic system and buyers from each phases<br>- Negotiating with business partners<br>- Identification and procurement of needed equipment Planning facility<br>- Training people, integrating the process into existing business process | All RWs with active women groups or community associations | - Need to work with an active women group or community who has interest in gardening to ensure the success of the initiative. | Multiple | Multiple (Gov, CSR, Academics, Donor) |
| 7 | Development of Black Soldier Fly Nursery | Development of Black Soldier Fly (BSF) nursery to process Kalibaru's wide range of organic waste and reduce organic waste from being sent to landfill. Increased opportunity for revenue streams from the sales of larvae-derived products (e.g. whole larvae, protein meal, larval oil, etc.) and waste residue (fertilizer and biogas) | Waste management | Climate Change, Environmental Degradation, | - Land acquisition<br>- Identification of the economic system and buyers from each phases<br>- Negotiating with business partners<br>- Identification and procurement of needed equipment<br>- Planning facility<br>- Training people, integrating the process into existing business process | Kalibaru - Kelurahan level | - Unavailability of sufficient uncontaminated organic waste<br>- Lack of support for capital and operating costs<br>- Lack of available land for the facility<br>- Limited water and electricity supply.<br>- Find buyers or business partners before creating any products | Dinas Lingkungan Hidup | NGOs, experts, schools and universities, local organizations |
| 8 | Development of TPS | Development of a temporary landfill that serves several areas serving areas with lack of waste management services. The development of TPS should also be accompanied with the development of the collection route of the PPSU. | Waste management | Climate Change, Environmental Degradation, Inadequate Waste Infrastructure | - Land acquisition<br>- Negotiation and discussion with local communities and business entities surrounding the potential location<br>- Construction of the TPS | West coast of Kalibaru (Potential location: Area behind the sea-wall RW 04-15 | - Land is still becoming the issue. There is an opportunity for land behind the sea wall, but the government needs to facilitate the process.<br>- Need to make sure the potential location have a sufficient access point | Dinas Lingkungan Hidup | Dinas PU Cipta Karya (development of the TPS infrastructure), Kementerian PU SDA (for the land) |

# Waste Management

Opportunities

Opportunities

Figure 51: **TIMEFRAME-FEASIBILITY OF WASTE MANAGEMENT INITIATIVES**




**Overall Objectives:**

- An integrated waste management system to account for 100% of waste in Kalibaru
- A self-sustaining model for community-based waste management
- An increase in awareness of personal and collective impacts
- Reduce waste produced in Kalibaru

**Type of Initiatives**

- Infrastructure
- Service Provision
- Capacity Building


• **Source:** Study Findings, 2021

# Improving Access to Water



**Overall Objectives:**

- Improving access to water that account for 100% households
- Improving pipeline water connection
- Provide alternative access to water for area that doesn't connect to pipeline service
- Improve affordability of service for pipeline water service for poor communities
- Improve water quality


**Description**

Water is an essential basic service that should be accessible for all residents. Water is available in Kalibaru, the challenges exist around the quality and the affordability. Major improvement in water provision is urgently needed to support the low-income communities. The objective for the future initiatives is primarily to improve the access for affordable and quality water services by improving access to main pipeline connection, while at the same time providing alternative water sources for areas that are not connected to pipeline service.

**Potential Initiatives:**

- **Water Kiosk**
  Development of a water provision scheme by developing "kiosks" or large water containers that can be regularly refilled by water tanks from which the local community can acquire water. The Water Kiosk is actually a current government initiative for water provision in areas without PDAM pipeline connection, and specifically targeted to poor communities.
- **Communal Rainwater Harvesting Program**
  Development of a rain-water harvesting system as an alternative water source for local communities for non-potable uses. This would not serve as the main water source for the community but rather as a complementary system.
- **Subsidy to connect to the pipeline system**
  Development of subsidy financing scheme to pay for the initial cost of installing PDAM pipes for houses that are far from the main line.


Figure 52: (right) **WATER RETAILER FILLING UP JERRY CANS TO BE SOLD**

• **Source:** (right) Photo of Dennie Ramon, 2021

Table 13: **POTENTIAL INITIATIVES TO IMPROVE ACCESS TO CLEAN WATER IN KALIBARU**



Opportunities

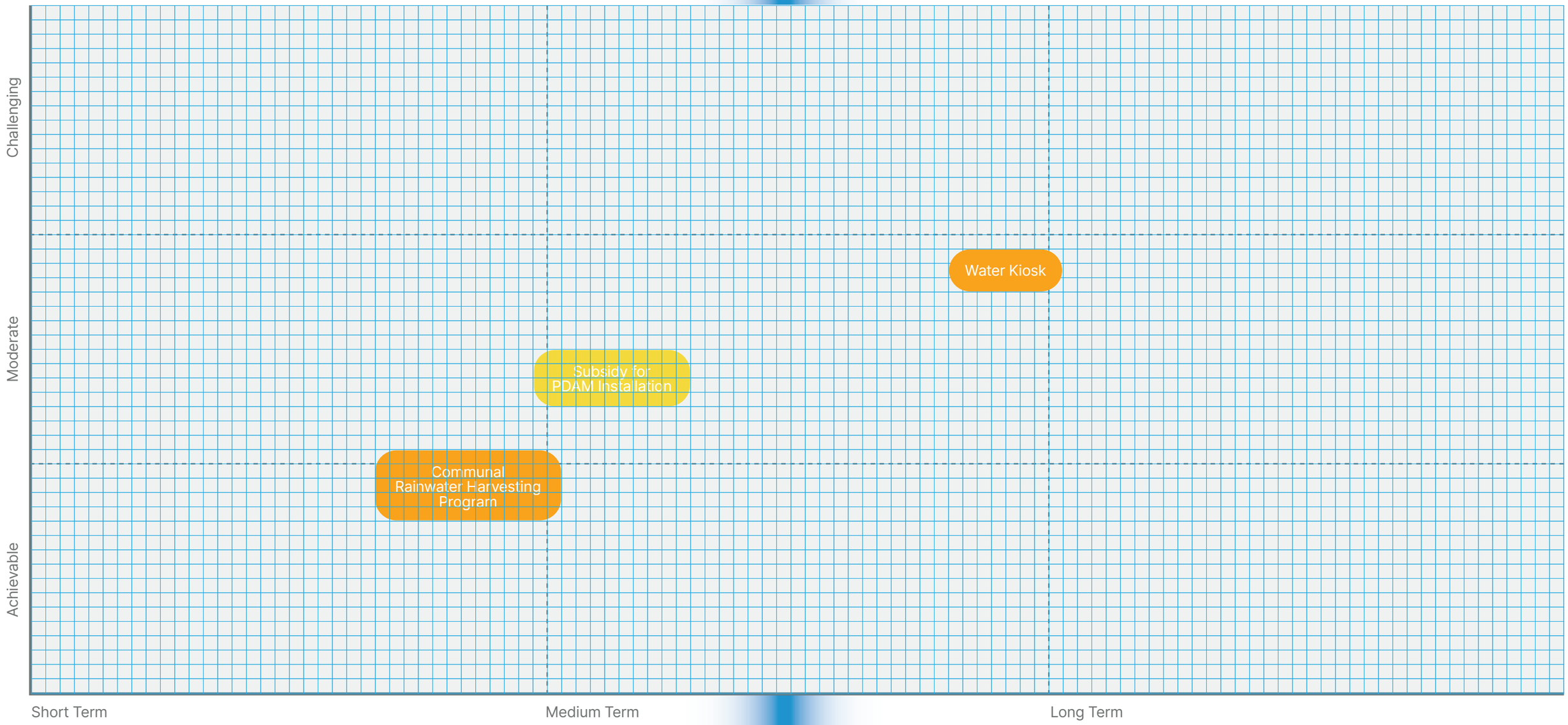
| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners | Potential Funding Sources | Implementation Timeline |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Water Kiosk | Development of a water provision scheme by developing "kiosks" or large water containers that can be regularly refilled by water tanks from which the local community can acquire water. | Access to clean water | Water Insecurity | - land acquisition and construction<br>- negotiating with local communities and local water business owner<br>- negotiating with water provision provider<br>- securing accessibility for water truck<br>- calculating business scheme | RWs in coastal area | - Making sure water supply is stable so the community doesn't have to buy back from air nyelang in the case of a problem in water supply<br>- Price must be lower from air nyelang<br>- Must be easy and convenient for the people to obtain water (place to put jerry can, provide water cart, provide officers) | PDAM (Aetra) | Dinas Sumber Daya Air (water trucks) | PDAM; DKI Jakarta Provincial Government | Medium long term |
| 2 | Rainwater Harvesting Program | Development of a rain-water harvesting system as an alternative water source for local communities for non-potable uses. This would not serve as the main water source for the community but rather as a complementary system | Access to clean water | Water Insecurity | - Discussion with community to determine the location of the RWH system<br>- Establish the maintenance and operations mechanism<br>- Installation of the RWH system | Areas with limited access to clean water - Priority 1 : coastal RWs (RW 01, 13, 04, 15) Priority 2 : dense RWs (RW 06, 12, 07) | - Maintenance and operation mechanism post-installation needs to be established (When, by whom, how?)<br>- Consider to form a community group for maintaining the RWH system<br>- There is an option to locate the RWH system in the location that allows a community-based maintenance scheme: Mushola, community association, etc. | Multiple | Multiple (Gov, CSR, Academ ics, Donor) | Multiple (Gov, CSR, Academ ics, Donor) | Short-medium term |
| 3 | Subsidy to connect to the pipeline system | Development of subsidy financing scheme to pay for the initial cost of install-ing PDAM pipes for houses that are far from main line | Access to clean water | Water Insecurity | - Identification of households without PDAM access and with difficulties of paying initial cost of piping<br>- Negotiating with PDAM and financing partners<br>- Pipeline works | Areas with limited access to clean water in coastal areas (RW 06 has proposed once) | - Disturbance due to the scale of the works<br>- Budget approval from DPRD if financed by PDAM<br>- Confirming availability of monthly payment | PDAM (Aetra) | Kelurahan | PDAM; DKI Jakarta Provincial Government; CSR | Medium-long term |

# Improving Access to Water

Opportunities

Opportunities

Figure 53: **TIMEFRAME-FEASIBILITY OF WATER ACCESSIBILITY INITIATIVES**




**Overall Objectives:**

Improving access to clean water that account for 100% households:

- Improving pipeline water connection
- Provide alternative clean water access for area that doesn't connect to pipeline service
- Improve affordability of service for pipeline water service for poor communities
- Improve water quality

**Type of Initiatives**

- Infrastructure
- Service Provision
- Capacity Building


• **Source:** Study Findings, 2021

# Sustainable Development Pathway Towards Resilient Neighbourhood

**Overall Objectives:**

- Improve the quality of settlement areas and the surrounding environment through sustainable development principles
- Promote urban development model to solve current land conflict and dispute
- Reduce the potential loss and damage due to climate disasters through climate-sensitive development principle

**Potential Initiatives:**

- **Water-sensitive development guideline**
  Establishment of water-sensitive development guidelines for Kalibaru which serve as a tool to minimize risk of flooding in the future. This guideline aims to minimize risk of flooding and ensure sustainable development.
- **Integrated drainage improvement**
  Integrated drainage improvement aims to minimize the risk of pluvial flooding in several areas of Kalibaru that is caused by improvement of drainage channels and roads in other areas.
- **Settlement Improvement though Land Consolidation**
  Land ownership is one of the major issues in Kalibaru that burden the improvement of settlement areas including the provision of basic services. Land consolidation is needed as a method to improve settlement areas.
- **Collaborative Asset / Land Management**
  Development of a partnership model between the government and local communities in managing land in Kalibaru to improve settlement areas.


Figure 54: (right) **NEIGHBOR-HOOD ALLEY CONDITION**

• **Source:** (right) Photo of Dennie Ramon, 2021

Table 14: **POTENTIAL INITIATIVES TO PROMOTE SUSTAINABLE DEVELOPMENT PRACTICES TOWARDS RESILIENT NEIGHBORHOOD**



Opportunities

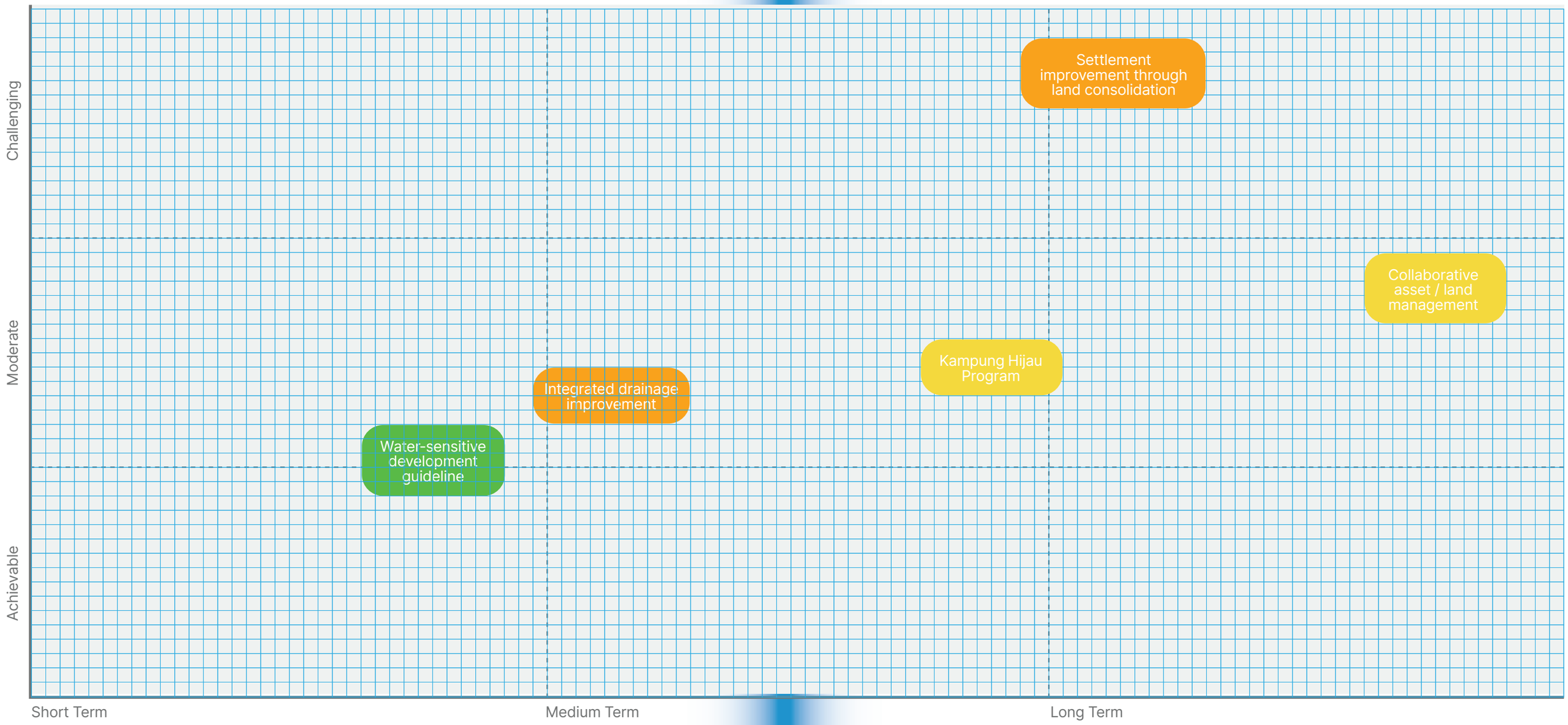
| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners | Potential Funding Sources | Implementation Timeline |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Water-sensitive development guideline | Establishment of water -sensitive development guidelines for Kalibaru which serve as a tool to minimize risk of flooding in the future. | Development Issues | Pluvial Flooding/ Inundation | - Mapping and assessment of current water system<br>- Assessment of flood occurrence and infrastructure<br>- Discussion with the locals for guideline development<br>- Consulting water and flooding expert | Kalibaru | - Drainage system of the whole Kalibaru needs to be taken into account | DCKTRP Jakarta | Dinas SDA Jakarta, DCKTRP Jakarta, Bappeda Jakarta, BPBD Jakarta | | Short-term |
| 2 | Integrated drainage improvement | Integrated drainage improvement for drainage and road in several areas cause flooding in other areas | Development Issues | Pluvial Flooding/ Inundation | - Mapping and assessment of current drainage system<br>- Discussion with the locals to gain insight<br>- Consulting with expert and relevant governmental stakeholder<br>- Finding partner for funding | Location prone to pluvial flooding | - Drainage system of the whole Kalibaru needs to be taken into account<br>- Some neighbor hoods have self-initiated their own drainage improve ment | Dinas SDA Jakarta, DCKTRP Jakarta, Bappeda Jakarta | Dinas SDA Jakarta, DCKTRP Jakarta, Bappeda Jakarta, BPBD Jakarta | | Short - medium term |
| 3 | Settlement Improvement though Land Consolidation | Settlement improvement though land land consol-idation in area with land ownership issue | Development Issues | Informal Housing/ Settle-ments | - Assessment and mapping of land status<br>- Review available document of local land status<br>- Consulting with Kanwil BPN, ATR/BPN, and other relevant stakeholder<br>- Initiate land consolidation process and method upon sufficient assessment and necessary agreement | RW with land dispute (RW 13- RW01) | - Many informal and/or unsettled land ownership status in Kalibaru<br>- Negative sentiment towards land-related inquiries | | Kanwil BPN Jakarta, ATR/BPN, land owner, Bappeda Jakarta | | Long-term |
| 4 | Collaborative Asset / Land Management | Development of a part-nership model between the government and local communities in managing land in Kalibaru. | Development Issues | Informal Housing/ Settle-ments | - Asset identification and mapping<br>- Discussion with the locals, government, and interested parties<br>- Benchmark study<br>- Co-develop collaborative management approach | RW with land dispute (RW 13-RW01) | - There area number of under-utilized state-owned land and assets found in Kalibaru<br>- Many informal and/or unsettled land ownership status in Kalibaru<br>- Negative sentiment towards land-related inquiries | | Kanwil BPN Jakarta, ATR/BPN, land owner, BPAD Jakarta, Bappeda Jakarta | | Long-term |

# Sustainable Development Pathway Towards Resilient Neighbourhood





Figure 55: **TIMEFRAME-FEASIBILITY OF RESILIENT NEIGHBORHOOD INITIATIVES**




**Overall Objectives:**

- Improve quality of settlement areas and the surrounding environment through sustainable development principles
- Promote development model to solve current land conflict and dispute
- Reduce the potential loss and damage due to climate disasters through climate-sensitive development principle

**Type of Initiatives**

- Infrastructure
- Service Provision
- Capacity Building


• **Source:**
Study Findings, 2021

# Youth Education and Capacity Development



**Overall Objectives:**

- Promote positive activities for skill development for children and youth group
- Promote safe and inclusive space for children and youth for personal development and minimize risk of brawl

**Description**

Youth and children are considered as one of the most vulnerable groups in Kalibaru, as the social setting makes them vulnerable. Teenage brawls and drugs are a severe problem for the area. Positive programs that promote youth development are crucial in Kalibaru. Currently, there are many initiatives undertaken by different non-government organizations and community-based organizations to promote positive activities in some areas: promoting journalism skills, circus skills, literacy activities, etc. These activities need to be further promoted alongside the development of inclusive public space that encourages positive interactions for Kalibaru's future generations.


**Potential Initiatives:**

- **Development Integrated Public Space (TMB)**

  Lack of safe space for children to play leads to unwanted activities around the neighborhood. The objective of the development of Taman Maju Bersama (TMB), a green open space designed with community-based planning approach, is to provide public space for the communities and nurture social cohesion.

Figure 56: (right) **EVENTING ACTIVITIES OF COASTAL COMMUNITY IN KALIBARU**

• **Source:** Photo of Dennie Ramon, 2021

Table 15: **POTENTIAL INITIATIVES ON YOUTH EDUCATION AND CAPACITY DEVELOPMENT**

**Opportunities**

**Opportunities**

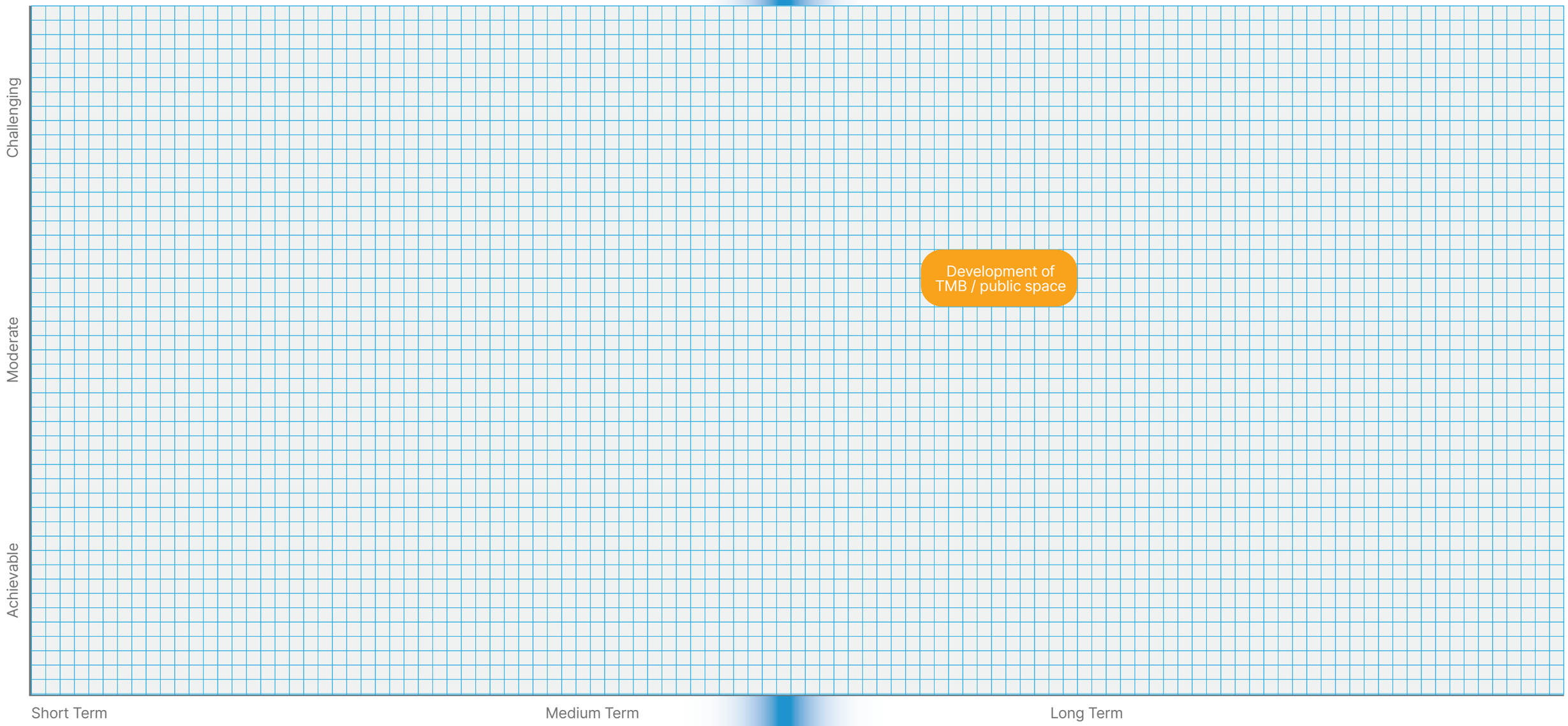
| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners | Potential Funding Sources | Implementation Timeline |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Development of Integrated public space (Taman Maju Bersama - TMB) | Development of TMB to provide public space for the communities and nurture social cohesion | Lack of public space; Youth and children issue | Lack of Green Space, Lack of Social Cohesion | - Identification of locations<br>- Securing permit and support from local communities and user candidate<br>- Co-designing public spaces<br>- Construction of public spaces | Areas with youth brawling history and no formal public space | - Placement of TMB that can be easily accessible<br>- Land ownership<br>- Maintenance and institutionalization | Dinas Pertamanan dan Hutan Kota; Dinas Pekerjaan Umum DKI Jakarta | Kelurahan; DPPAPP; child expert; architect and urban designer; relevant NGO | PDAM; DKI Jakarta Provincial Government; CSR | Long-term |

# Youth and Children

Opportunities

Opportunities

Figure 57: **TIMEFRAME-FEASIBILITY OF YOUTH AND CHILDREN INITIATIVES**




**Overall Objectives:**

- Promote positive activities for skill development for children and youth group
- Promote safe and inclusive space for children and youth for personal development and minimize risk of brawl

**Type of Initiatives**

- Infrastructure
- Service Provision
- Capacity Building

**Sustainable Development Goals**


• **Source:** Study Findings, 2021

# Institutional Arrangements for Multi-Stakeholder Collaboration

**Goals:**

Strengthening of the current institutional model, Kalibaru Hub, to promote multi-stakeholder collaboration for the mainstreaming of place-based SDG mainstreaming in Kalibaru.


**Potential Initiatives:**

- **Mobilization of Kalibaru Hub**
  Kalibaru Hub as the collaboration platform needs to be strengthened and mobilized to push forward multi-stakeholder collaboration. Mobilization of Kalibaru Hub as the institutional arrangement to promote and manage multi-stakeholder collaboration, is required. Ultimately, the mobilization of Kalibaru-Hub will strengthen the position of the platform, in order to promote multi-stakeholder collaboration and collective actions to accelerate the achievement of SDGs targets in Kalibaru





Figure 58: **PRELIMINARY SURVEY BY PIPP TEAM IN KALIBARU**

• **Source:** Documentation of SDG Team, 2019

Table 16: **POTENTIAL INITIATIVES ON INSTITUTIONAL ARRANGEMENT FOR MULTI-STAKEHOLDER COLLABORATION**



Opportunities

| No | Potential Initiative | Description and Goals | Category of Initiatives | Shock and stresses Addresses | Main Components | Scale of Initiative / Potential Location | Things to Consider | Potential Project Lead | Potential Partners | Potential Funding Sources | Implementation Timeline |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Mobilization of Kalibaru Hub | Mobilization of Kalibaru Hub as the institutional arrangement to promote and manage multi-stakeholder collaboration. | Institutional Arrangement for Multi-Stakeholder Collaboration | Uncontrolled Urban Development | • Legal basis: Formalization of Kalibaru Hub as a collaborative platform through governor decree<br>• Agreement of the institutional model (Platform vs consortia vs other model)<br>• Set annual targets for program implementation<br>• Establishment of multi-stakeholder forum (involving private sector, NGOs, and CSOs)<br>• Integration with other existing funding platform (i.e. JDCN, etc)<br>• Set program implementation guideline to ensure sustainability of each initiatives | Kalibaru | | PIPP Bappeda Jakarta | JDCN; Kelurahan Kalibaru; Wali kota Jakarta Utara | Multiple (Gov, CSR, Academics, Donor) | Short-term |

## 1 Integrated Public Space Development (Taman Maju Bersama)

Figure 59: **TMB TULIP IN EAST JAKARTA**



### GENERAL INFORMATION

**Objective:**

Provide public space for the communities and nurture social cohesion, while at the same time provide space for basic service

**Co-benefits**

Controlled growth environment for children; provide social interaction spaces

**Description**

Taman Maju Bersama (TMB) is a government-owned park that is designed through collaborative design between the government and the local community. Through TMB, an opportunity to provide integrated public space development for communities that nurture social cohesion, while at the same time providing space for basic services in the form of a one-stop spot. Development of TMB will target one of the major problems in Kalibaru, where lack of safe space for children to play leads to unwanted activities around the neighborhood. In some examples of Taman Maju Bersama, several facilities exist in the TMB, ranging from amphitheater, benches, jogging track, musola, playground, urban farming, to organic waste facilities. The facilities are chosen out of the aspirations and needs of the people of the area, compiled through a series of focus group discussions.

• **Source:** Radio Republik Indonesia





**Timeframe**

Long term

**Potential Location**

Lapangan Bedhenk RW 113 and WIKA seawall; located in the coastal area of Kalibaru. Previously, although undeveloped, the two potential areas have been commonly used for sport and recreation activities, especially for kids and youth. During the afternoon, several street vendors that sell food, drinks, toys, and games started appearing along with the increased activities. In Lapangan Bedhenk RW 13, the existing playground and cement soccer field are surrounded by green mussel shell waste, disposed furniture, other debris, and a temporary sunshade. The WIKA sea wall is still relatively new, other than the paved walkway next to the sea wall, most of it is still undeveloped.

**Shock & Stresses Addressed**

- Climate change
- Lack of green and public space
- Lack of social cohesion
- Urban heat
- Flooding
- Inadequate waste management system
- Water insecurity
- Poor air quality

### STRATEGIC CONSIDERATION

**Potential Bottlenecks**

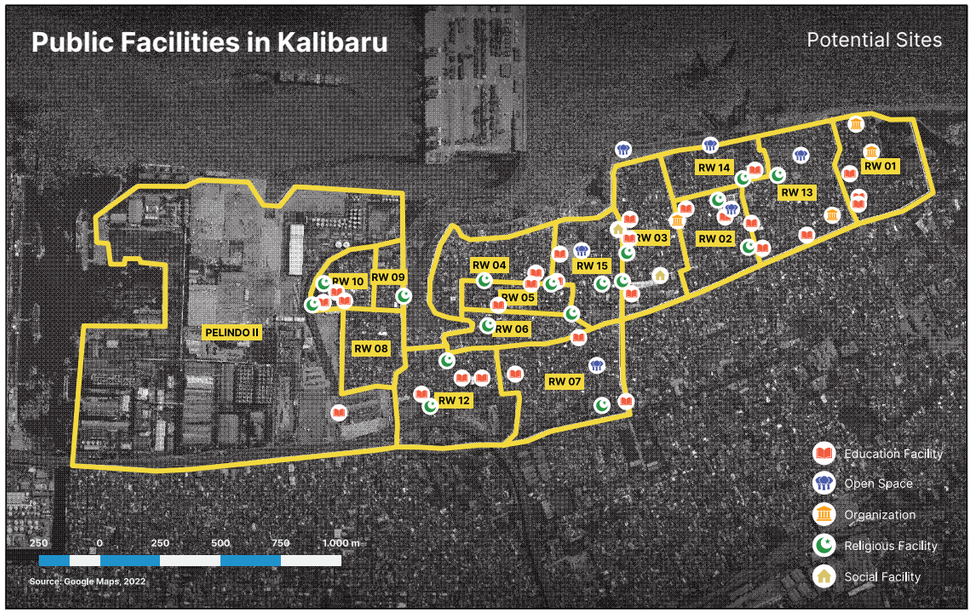
- Options of location to develop TMB is quite limited in Kalibaru
- Land ownership might be an issue
- Maintenance and Institutionalization

**Mitigation Strategies**

Table 17: **MITIGATION STRATEGIES FOR POSSIBLE BOTTLENECK IN INTEGRATED PUBLIC SPACE DEVELOPMENT**

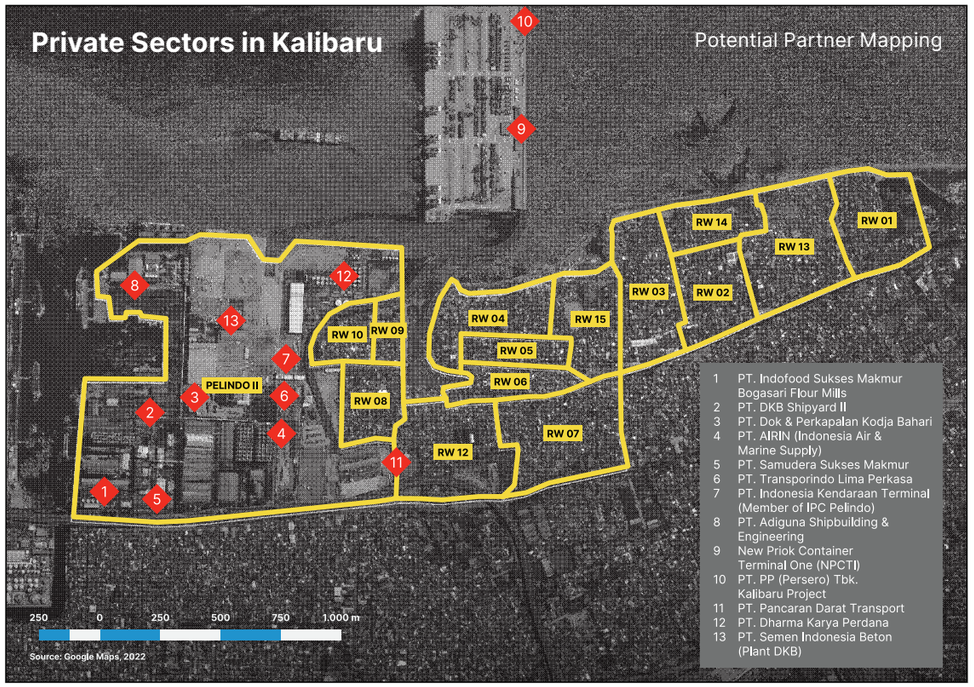
| Issues to Consider | Recommended Mitigation Strategies |
|---|---|
| Options of location to develop TMB is quite limited in Kalibaru<br>Land ownership might be an issue | • Utilizing the land and that is currently owned by the government<br>• Utilizing government-owned public facilities to double duty as green and/or child-friendly public space |
| Financial support for procurement and implementation | • Promoting placed based initiatives: potential to engage nearby private sectors |
| Maintenance and Institutionalization | • Work closely with women groups for activation of the public space: urban farming and composting<br>• Work closely with community leaders to gain community support |

Figure 60: **MAP OF GOVERNMENT-OWNED PUBLIC FACILITIES IN KALIBARU**




• **Source:** Google Maps, 2022

Figure 61: **MAP OF PRIVATE SECTORS BASED IN KALIBARU**




• **Source:** Google Maps, 2022

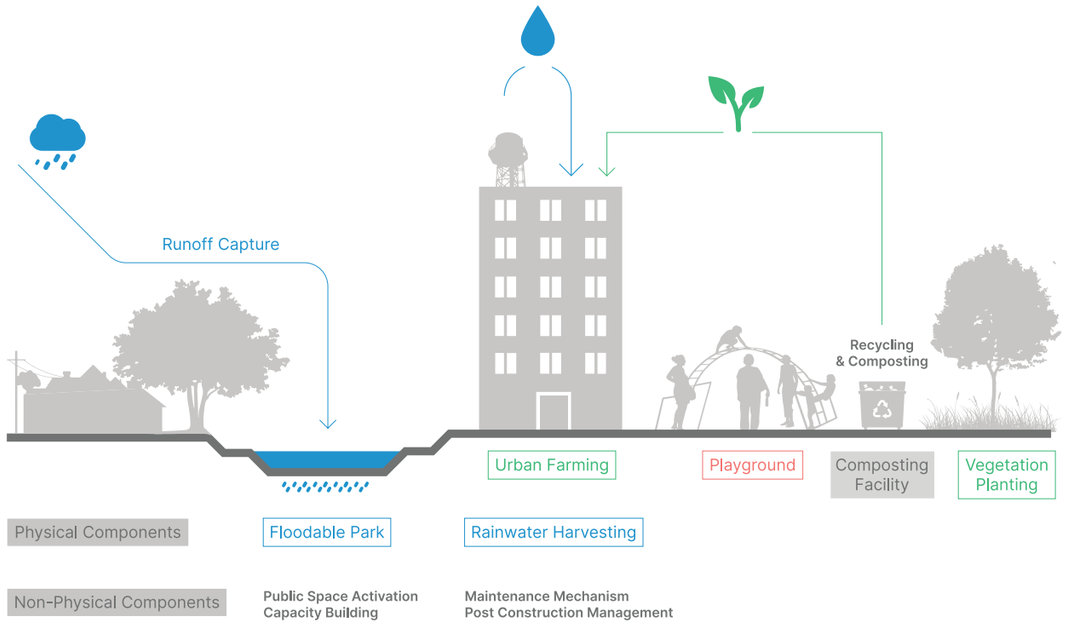




## Potential Program Components

In the co-design process, it is important to get information and inputs not only from representatives of RTs, and RWs but also from all levels and groups of the community including children, women, and other vulnerable groups. Thus, increasing the chance of making it a safe space for all communities while solving some existing problems through specific facilities. Possible components include but not limited to Playground, urban farming facility, PKK mart, library, rainwater harvesting facility, BSF & composting facility as well as sports equipment.

Figure 62: **COMPONENTS FOR PROPOSED PUBLIC SPACE INITIATIVES**




### Collaboration Opportunities

- Scaling up current Universitas Indonesia rainwater harvesting program
- Utilization of green mussel shells derived materials as pacing, decorational tiles, cement, and fertilizer.
- Consolidating and upscale various different youth empowerment and skill improvement programs for activation of the public space

## 2 Community Gardens

Figure 63: **COMMUNAL GARDENING IN ONE ALLEY IN KALIBARU**


### GENERAL INFORMATION

**Objective:**

Improve organic waste management and provide edible and medicinal plants for daily use

**Co-benefits**

- Greening the kampung - provide shade in the alleys
- Strengthen social cohesion
- Provide food for local community
- Provide space for positive activities

**Description**

Development of kampung level green-initiatives: composting organic waste and urban farming of edible plants.

**Timeframe**

Medium term

**Potential Location**

Small alleys and vacant land in all RWs, Schoolyards, and other Jakarta Provincial Government-owned building yards.

**Shocks & Stresses Addressed**

- Climate change
- Lack of green and public space
- Loss of biodiversity
- Urban heat
- Poor air quality

• **Source:** Photo of Dennie Ramon, 2021





### STRATEGIC CONSIDERATION

**Potential Bottlenecks:**

- Organic wastes are mixed in the garbage
- Permission to use vacant land is not given by the owner
- Daily garden maintenance

### MITIGATION STRATEGIES

Table 18: **MITIGATION STRATEGIES FOR POSSIBLE BOTTLENECK IN DEVELOPMENT OF COMMUNITY GARDENS**

| Issues to Consider | Recommended Mitigation Strategies |
|---|---|
| Organic wastes are mixed in the garbage | • Small composting bin<br>• Organic waste collection point for BSF facility and composting facility in TMB |
| Permission to use vacant land is not given by the owner | • Utilizing the land that is currently owned by the government or residents<br>• Utilization of green walls and pots on sidewalks<br>• Utilization of empty space at government-owned public facilities |
| Daily garden maintenance | • Work closely with women and youth groups for activation of the public space: urban farming, knowledge sharing on edible & medicinal plants, and composting<br>• Allocation as testing facilities for fertilizer from green mussels shells and BSF facility.<br>• CSR to upscale Kampung Iklim Program |

**Collaboration Opportunities**

- Collaborate with CSR to upscale program Kampung Iklim
- Integrated program development with Waste Bank Program—Waste Bank
- Organic waste collection points to support the supply for BSF and composting facility organic waste needs.
- Utilization of green mussel shells derived materials as fertilizer and paving for garden bed
- Utilization of fertilizer made in the BSF facility

## CHENNAI URBAN HORTICULTURE AND ROOFTOP GARDENING INITIATIVE

The project is aimed at reducing the vulnerability to climate change through local food production on rooftops and in community spaces. This effort will yield a multitude of benefits such as food security, mitigating urban heat, delaying and holding rainwater run-off, as well as livelihood generation for vulnerable communities, especially women and community cohesion.

Some components included are:

- Citywide strategy involving stakeholders such as residential welfare associations.
- Pilots in three public schools and to be extended to students of 299 corporation schools to take up vegetable gardening and rooftop farming in order to promote a value-based education and supplement the Govt of Tamil Nadu's Nutritious Meal Program.
- Conduct training and awareness programs in Chennai's parks to educate citizens.

Facilitated by Chennai Resilience Centre, several parties including NGOs, state departments, universities, e-commerce companies, and other private companies participated as partners that provided guidance, training, and provision of tools.

**Box 6:** Chennai Urban Horticulture and Rooftop Gardening Initiative

• **Source:** https://resilientchennai.com/urban-horticulture/

## 3 Development of Shell Waste Facility

Figure 64: **ILLUSTRATION OF CLAM SHELL POWDER FOR HOME DECORATION ART**


### GENERAL INFORMATION

**Objective:**

Upcycling clam shell waste to reduce waste volume, create economic value and network, as well as create more jobs.

**Co-benefits:**

- Additional income for green-mussel shell workers
- Strengthen local identity and reputation
- Improve neighborhood condition

**Description**

Developing system and facilities to upcycle shell wastes:

- Identify existing value and process chain of the clam
- Collaborative research on potential derivative product from shell waste
- Identify business process and necessary stakeholder networks
- Consolidate internal business process and organization within the community
- Co-develop shell waste facility plan

**Timeframe:**

Short-medium term

**Potential Location:**

RW with green-mussel shell industries (RW 13, RW 01, RW 04)

• **Source:** https://resilientchennai.com/urban-horticulture/





**Shocks & Stresses Addressed**

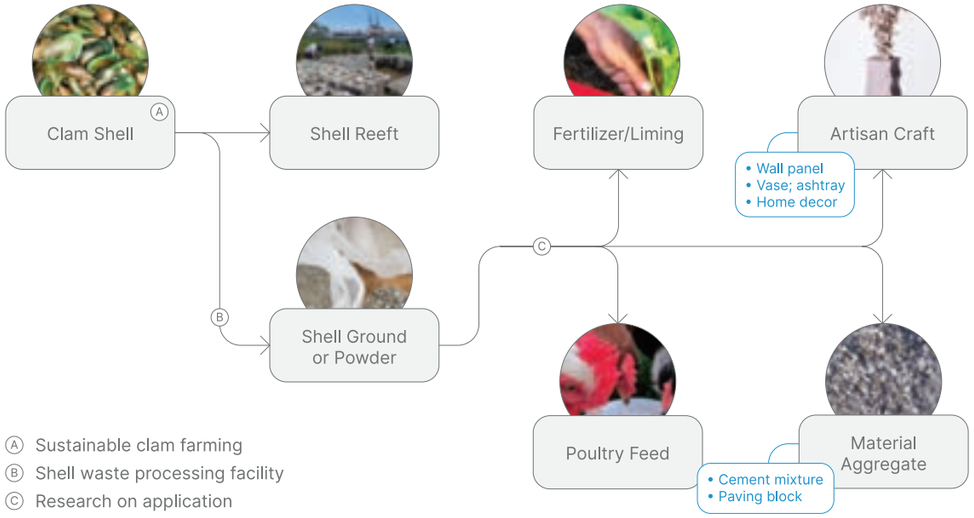
- Lack of waste infrastructure
- Environmental Degradation

### STRATEGIC CONSIDERATION

**Preliminary Identified Opportunities**

- Shell powder as a mix for building materials
- Shell powder as materials for modern craft / home art
- Shell waste for ecological use (breakwater)

Figure 65: **POTENTIAL APPLICATION OF SHELL WASTE**




**Potential Bottlenecks**

- Temporary waste shelter for the shells before it gets processed
- Options of location to develop the facility is quite limited in Kalibaru
- Land ownership might be an issue

**Collaboration Opportunities**

- R-Cities resilient recovery program to support SMEs and address waste
- Collaboration with university (UI) to identify innovative options of shell waste processing and the most viable business model.
- Collaboration with vocational schools to provide youth with shell waste management skills
- Improving the business model and upscaling of previous pilot on paving block materials and home decor by Poltekkes and SIL UI
- Collaboration with private sectors that explores alternative materials usage.

## 4 Mobilization of Kalibaru Hub

Figure 66: **PRELIMINARY SURVEY BY PIPP TEAM IN KALIBARU**


### GENERAL INFORMATION

**Objective:**

Promote multi-stakeholder collaboration and collective actions to accelerate the achievement of SDGs targets in Kalibaru.

**Co-benefits:**

Promote and manage multi-stakeholder collaboration

**Description**

Mobilization of Kalibaru Hub as the institutional arrangement to promote and manage multi-stakeholder collaboration.

**Timeframe:**

Short term

**Potential Location:**

Kelurahan Kalibaru; lurah office as the base

**Shocks & Stresses Addressed**

- Inadequate Infrastructure
- Inadequate Municipal Finances
- Uncontrolled Urban Development
- Population Growth

**Potential Program Components:**

- Legal basis: Formalization of Kalibaru Hub as a collaborative platform through governor decree
- Agreement of the institutional model (Platform vs consortia vs other model)

• **Source:** Documentation of SDG Team, 2019





- Set annual targets for program implementation
- Establishment of multi-stakeholder forum (involving private sector, NGOs, and CSOs)
- Integration with other existing funding platform (i.e. JDCN, etc)
- Set program implementation guideline to ensure sustainability of each initiatives

### STRATEGIC CONSIDERATION

**Preliminary Identified Opportunities**

- Kalibaru Hub as the collaboration platform needs to be strengthened and mobilized to push forward multi-stakeholder collaboration

**Collaboration Opportunities**

- R-Cities Kalibaru Profile and Prospectus as a starting point to promote multi-stakeholder collaboration
- Collaborate with CSR and NGOs in implementing collaborative projects in Kalibaru
- Collaboration with JDCN to integrate Kalibaru place-based initiatives into the platform

**Box 7:** Resilient Bospolder-Tussendijken 2028

RESILIENT BOSPOLDER-TUSSENDIJKEN 2028

Resilient Bospolder-Tussendijken (BoTu) 2028 is a programme started in 2019 for the coming 10 years. Aimed to make BoTu, one of the five poorest neighborhoods in The Netherlands, as the first resilient district in Rotterdam. The following shared values are applied in all components:

1. People come first.
2. Integral co-operation in and with the district.
3. Innovation with the market and society
4. Transition; change and experimentation.
5. Learning by doing

Multiple transformative infrastructure construction and social programs focused on access to education for both adults and children, better employment, improved housing quality and debt management support are directed under a joint programme of the various partners in the district. The shared goals and projects are expected to be supported through **collaborative place-based impact investing**. To ensure that the Resilient BoTu 2028 programme can be replicated for the entire city. The municipality has appointed a programme manager to oversee the daily running of the programme. All affiliated partners meet twice a year to monitor the programme's progress.

In the case of Resilient BoTu 2028, residents are taking back control over their own life or neighborhood and are supported in their efforts by city officials. The residents play an essential part in the development of the programme through the power of informal network and local community combined with increased capacity.

Lesson learned:

- The importance of institutional arrangement to push forward multi-stakeholder collaboration in building neighborhood resilience.
- In order to achieve common goals of improving community resilience, involvement of multiple actors, including local communities, are essential.

• **Source:** Resilient BoTu 2028



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PT. Innerindo Dinamika. 2018. **Penyusunan Community Action Plan Peningkatan Kualitas Kawasan Permukiman TA. 2018 Kelurahan Kalibaru – Kecamatan Cilincing - Kota Administrasi Jakarta Utara**

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# Appendices

APPENDIX 1:
List of Stakeholders Interviewed

APPENDIX 2:
Stakeholder Meetings and Focus Group Discussions

# APPENDIX 1: List of Stakeholder Interviewed



Appendices

| No | Pekerjaan | Institution | Date |
|---|---|---|---|
| **Kelurahan Government** | | | |
| 1 | Jauhari | Kasie Pembangunan Kel. Kalibaru | 28 October 2021 |
| 2 | Yani | Kasie Kesra Kel. Kalibaru | 20 October 2021 |
| **RW leaders** | | | |
| 3 | Komarudin | Sekretaris RW 01 Kel. Kalibaru | 02 November 2021 |
| 4 | Bisrin | Ketua RW 02 Kel. Kalibaru | 04 November 2021 |
| 5 | Japilus | Ketua RW 03 Kel. Kalibaru | 04 November 2021 |
| 6 | Jumaedy | Sekretaris RW 04 Kel. Kalibaru | 09 November 2021 |
| 7 | Yoga | Ketua RW 05 Kel. Kalibaru | 29 Oktober 2021 |
| 8 | Abdul Karim | Ketua RW 06 Kel. Kalibaru 09 | 09 November 2021 |
| 9 | Caharudin | Ketua RW 07 Kel. Kalibaru | 29 Oktober 2021 |
| 10 | Abdul Karim Shabu | Ketua RW 08 Kel. Kalibaru | 09 November 2021 |
| 11 | Nurlina | Sekretaris RW 09 Kel. Kalibaru | 11 November 2021 |
| 12 | Diana Azassiana | Plt. Ketua RW 10 Kel. Kalibaru | 31 Oktober 2021 |
| 13 | Multiple | • LMK RW 12<br>• Ketua RT 01<br>• Ketua RT 02<br>• Ketua RT 03<br>• Ketua RT 04<br>• Ketua RT 14 | 18 November 2021 |
| 14 | Iwan Iryansyah Setiawan | Ketua RW 13 Kel. Kalibaru | 4 November 2021 |
| 15 | Anwar Kartawinata | Ketua RW 14 Kel. Kalibaru | 11 November 2021 |
| 16 | Selamat Alfarizy | Ketua RW 15 Kel. Kalibaru | 11 November 2021 |

| **Other Community Representatives** | | | |
|---|---|---|---|
| 17 | n.n. | Fishermen | 30 October 2021 |
| 18 | Eli | Green mussel industry | 10 November 2021 |
| 19 | Ibu Icha | Pengelola Hidran RW 07 | 18 November 2021 |
| 20 | Henri | Green mussel industry | 18 November 2021 |
| 21 | Martha | Women worker - green mussel industry | 18 November 2021 |
| 22 | LMK RW 13<br>Ketua RT 14/RW 13 | LMK RW 13<br>Ketua RT 14/RW 13 | 18 November 2021 |
| 23 | Hasniati Sastradiana | Health Workers: Doctor in YAKRI clinic RT 06 RW 06 | 14 December 2021 |
| 24 | Sanny Mointa Br Se-bayang | Health Workers: Doctor in YAKRI clinic RT 04 RW 07 | 14 December 2021 |
| 25 | Nurhasanah | Waste Workers: PPSU | 15 December 2021 |
| 26 | Sutisna | Waste Workers: Petugas RT | 15 December 2021 |
| 27 | Maspupah | Local community member: on the use of water | 16 December 2021 |
| 28 | Yati | Local community member: on the use of water | 16 December 2021 |
| 29 | Komarudin | Yayasan HOPE | 18 December 2021 |

# APPENDIX 2: Stakeholder Meetings



| No | Stakeholder Meeting | Location | Number of Participants | Participating Institution | Date |
|---|---|---|---|---|---|
| 1 | Introductory Meeting - to PIPP | Bappeda DKI Jakarta | 9 participants | PIPP, SDG Jakarta Team, Kota Kita | 21 October 2021 |
| 2 | Introductory Meeting to WaKa Bappeda | Bappeda DKI Jakarta | 8 participants | Bappeda, PIPP Bappeda, SDG Jakarta Team, Kota Kita | 22 October 2021 |
| 3 | Introductory Meeting to Kelurahan Kalibaru + Interview | Kantor Kelurahan Kalibaru | 12 participants | Bappeda, PIPP Bappeda, SDG Jakarta Team, Kota Kita, Kelurahan Government, SPRI | 26 October 2021 |
| 4 | Progress Meeting: Key Findings | Bappeda DKI Jakarta | 9 participants | Bappeda, PPIP Bappeda, SDG Jakarta Team, Kota Kita | 9 November 2021 |
| 5 | FGD1 RW15,04, 05: Waste and Water | Kelurahan Kalibaru | 18 participants | RW 15, RW 04, RW 05, Fishermen community, Kota Kita, SPRI | 12 December 2021 |
| 6 | FGD 2 RW 01 and 13: Waste and Water | Kelurahan Kalibaru | 10 participants | RW 01, Represen-tative from green mussel industry, Fishermen community, Kota Kita, SPRI | 18 December 2021 |

## Participants of FGD 1 (RW 15, 04, 05)

| No | Pekerjaan | Institution |
|---|---|---|
| 1 | H. Mansyur | Ketua RW 04 Kalibaru |
| 2 | Jumaedy | Ketua RT di RW 04 Kalibaru |
| 3 | Iip Nurjaroh | Ketua Dawis RW 04 Kalibaru |
| 4 | Asis | Ketua Kelompok Nelayan RW 04 Kalibaru |
| 5 | Slamet / Ani | Ketua RW 15 Kalibaru |
| 6 | Tolah | LMK RW 15 Kalibaru |
| 7 | Amalia D | Ketua Dawis RW 15 Kalibaru |
| 8 | Komsatun | RT 14 / RW 15 Kalibaru |
| 9 | Elis Rohani | RT 14 / RW 15 Kalibaru |
| 10 | Yoga Sumarsono | Ketua RW 05 Kalibaru |
| 11 | Junaidi | LMK RW 05 Kalibaru |
| 12 | Sukardi | Ketua RT 05/ RW 005 Kalibaru |
| 13 | Dhika Muhammad | SPRI |
| 14 | Dewi S. | SPRI / RW 07 Kalibaru |
| 15 | Wahid | SPRI |





## Participants of FGD 2 (RW 01 and RW 13)

| No | Pekerjaan | Institution |
|---|---|---|
| 1 | Komarudin | Sekretaris RW 01 / Yayasan HOPE |
| 2 | Eliyani | Dasawisma RW 01 |
| 3 | Solichin | Representative of Salted Fish Industry |
| 4 | M. Thohir | Representative of Green Mussels Industry |
| 5 | Dhika Muhammad | SPRI |
| 6 | Dewi S. | SPRI / RW 07 Kalibaru |
| 7 | Wahid | SPRI |