

JAKSAFE

+ Jakarta

+ Safe

+ Future Focused

“Smart Urban Resilience Platform
for Jakarta Global City 2045”



1. Basic Understanding

Problem Formulation

Climate hazards

Significant climate-related disaster

Increased risk

Literacy

Limited climate literacy

Limited knowledge

Media/platform

Fragmented digital system

Absence of citizen-centric platforms to help citizen understand the risk and preparedness

Jakarta 2045 Vision

Jakarta Global City

Disaster resilience and increased awareness

Problem Statement



Jakarta's vision to become a global city by 2045 is challenged by significant climate-related disasters such as flooding and land subsidence. The challenges are intensified by fragmented digital system, limited climate literacy, and the absence of citizen-centric platforms to help citizens understand, mitigate, and adapt to climate risks. As a result, communities are increasingly vulnerable and unprepared when climate-related disaster occur. To achieve this vision, Jakarta needs integrated approach that combine digital system with community-centred design. The integrated approach includes platforms for real-time disaster monitoring, public awareness campaigns through accessible platform, and providing communities with adaptive tools and training. Addressing these gaps will help Jakarta to reduce risk and improve preparedness for urban and climate challenges.



Earthquake



Flooding



Urban heat



Tools

What to do? What solution could help?

An educational platform for all

An educational
platform

A program

Build
awareness

A kit for
preparedness

Risk mapping

Objective

To empower community with accessible and actionable climate-disaster information, enabling them to understand risk, adapt effectively, and take action when disaster occurs

Community knows about
what risks they are in

Community knows how to
adapt

Community knows what to
do when it happens

Community knows what to
do when it happens

Mitigate

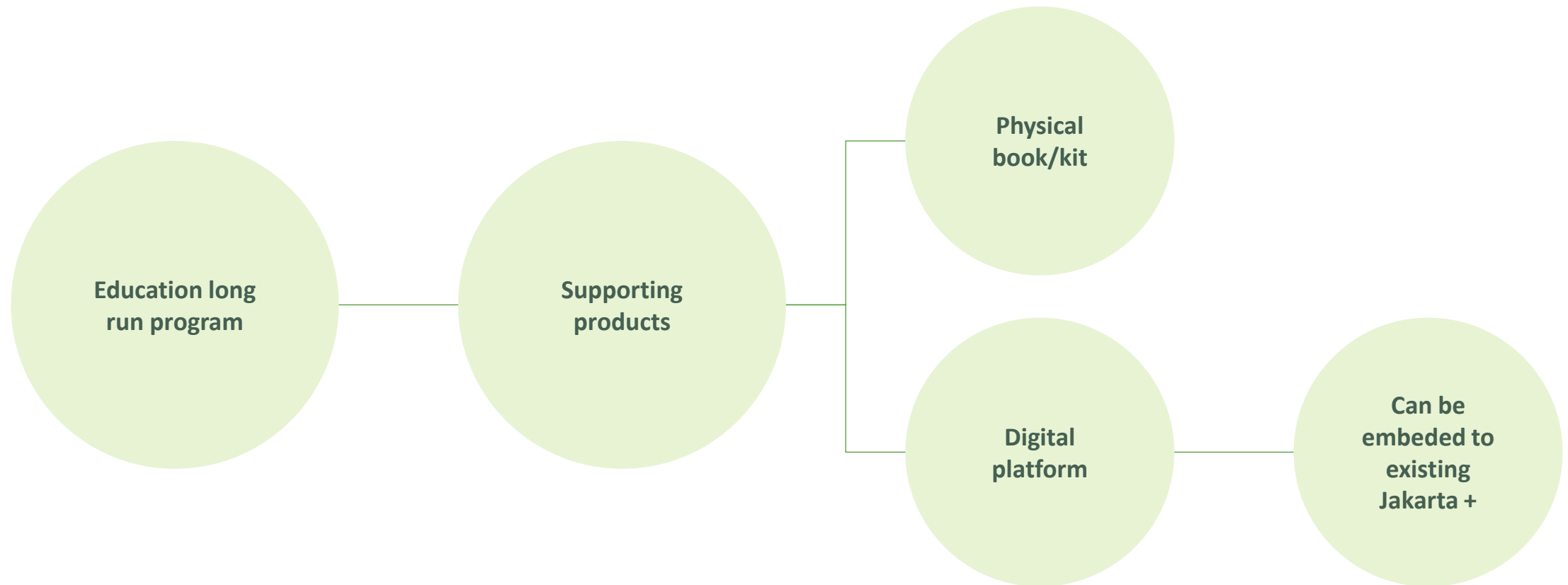
Adapt

Action

Reduce

Output

The output aims to be an education platform which can educate and be implemented in the long run to promote prevention, mitigation, and safety of Jakarta's residents



Who is going to use it?

The output aims to be an education platform which can educate and be implemented in the long run to promote prevention, mitigation, and safety of Jakarta's residents



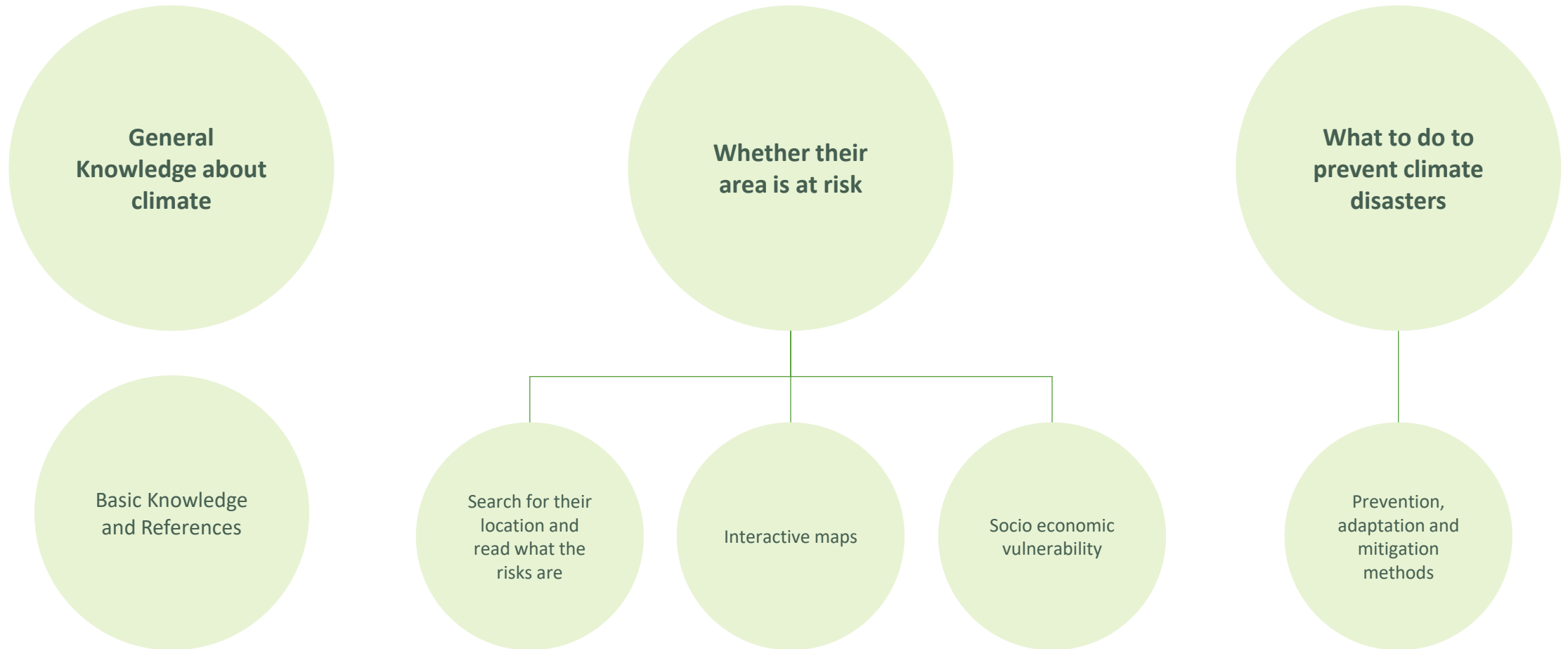
**Inhabitants of
Jakarta**

**Common
People**




**All educational
background**

Motivation

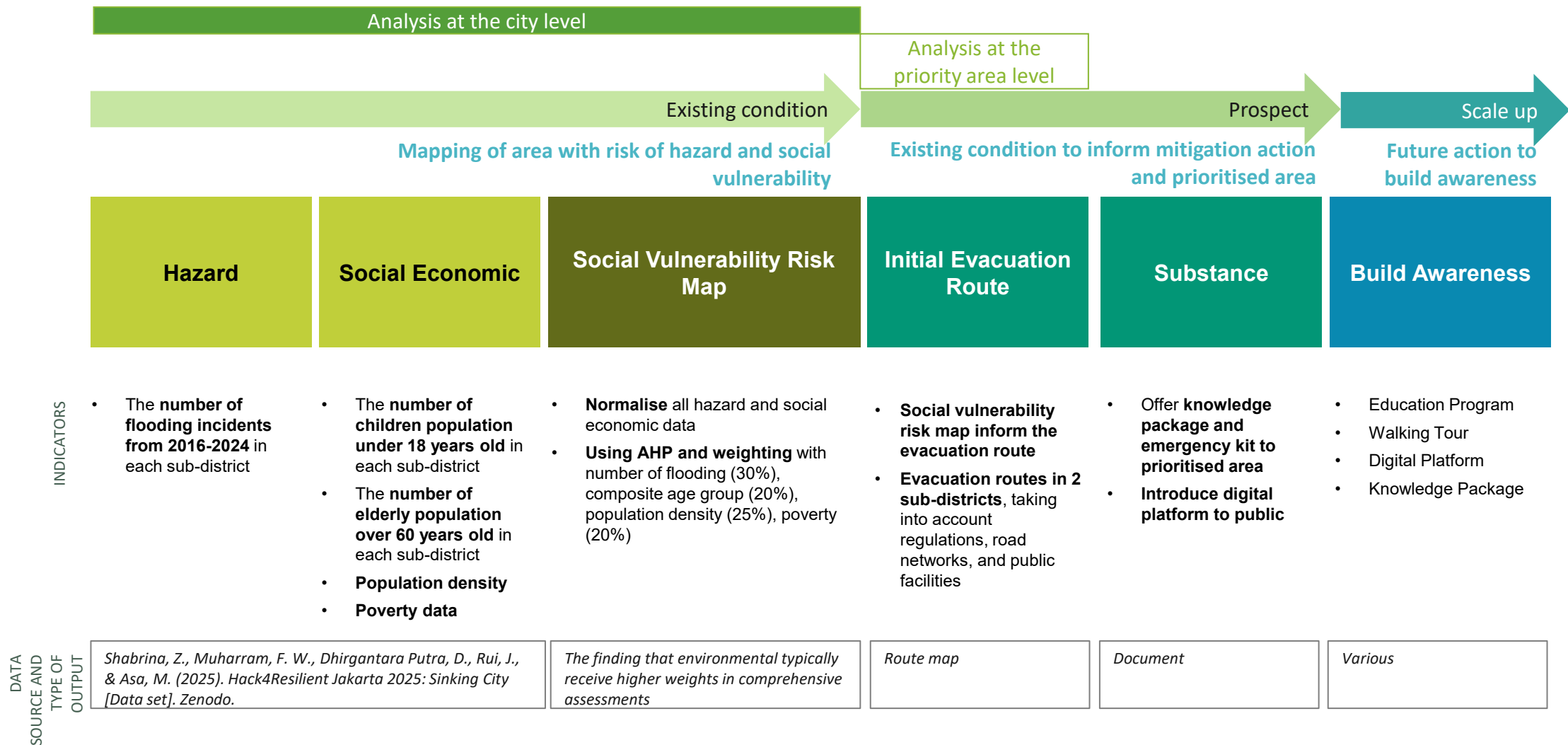
The output aims to be an education platform which can educate and be implemented in the long run to promote prevention, mitigation, and safety of Jakarta's residents



Potential Implementor and Funder

			
Who	Community, defined as a group of people with the same interest in tackling and approaching similar subject, i.e., vulnerability, resilience, and sustainability in Jakarta	The government of Jakarta and its sub-organisation related to disaster prevention and mitigation of selected topics	Non-government organisation with focus of disaster management, climate education
Opportunity	Community-centric approach – tailored to community needs, flexible, inclusive	Easy access to real-time data, can be embeded to existing platform, broad access	Innovative, community-centric, high quality analysis
Challenge	Limited access to real-time data, limited funding to maintain and operate	Bureaucracy, less community-centric	Depend on the aid/funder

Prioritisation Framework



Scale Up

How does climate-related information on this platform reach the public?



Introducing climate-related disaster and disaster preparedness to school children through interactive activities and curriculum integration



Walking tour with the community (i.e Sobat Air) to introduce disaster preparedness – including the evacuation route



Disaster preparedness or emergency toolkit that can be accessed physically or online. To be distributed to general public



Community-centric digital platform with interactive feature to understand risk and increase preparedness

2. Output – Digital Platform

About the Platform

JAKSAFE is a **integrated climate-knowledge platform** designed to enhance public understanding of climate-related disasters and support communities with adaptive resources and insights during such events. This platform utilises **spatial and demographic data** sourced from Hack4Resilient Jakarta 2025: Sinking City. This data supports the **development of a social economic risk mapping**, combining both hazard data and socio-economic factors, such as the number flood events, population density and age distribution.

JAKSAFE also features **educational component with community-centric approach**, using clear language and visuals to engage users from all age groups and education levels.

JakSafe

Change risk

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Emergency Pack

Education Materials

Call 112



Floods

How to Mitigate Floods

We should be prepared to face climate risks in this era of climate change

House Adaptation

Preperation

Prepare yourself, family, and friends!



Go!

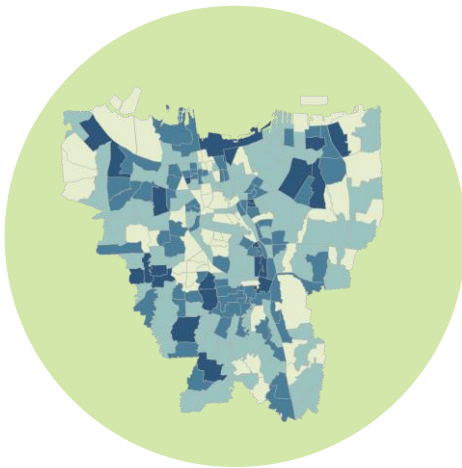


Prototype build for Hack4Resilient Sinking City

2025

About the Platform

Interactive feature with educational content on adaptation and mitigation



Risk Mapping and Evacuation Route

Access to flood trend data and evacuation routes during disasters to help residents aware with the risk in their area



Disaster Preparedness

Clear, visually engaging guidance on what to do during a flood, making it easy for everyone to understand and act



Adaptation and Mitigation

Introducing adaptation measures at the building level, enabling residents to take proactive steps in reducing their vulnerability to climate-related hazards



Knowledge and Emergency Kit

A downloadable emergency kit offering essential information on hazards, risks, and step-by-step action guidelines.

2. Output – Digital Platform

Risk Mapping and Evacuation Route Feature

Floods

Search address [...]

Timeline

Basemap

District
Sub-district
Ward

Vulnerability

Age
Flood
Poverty

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City administrative

District

Sub-district

Ward

Vulnerability

District

Sub-district

Ward

Layer A

District

Sub-district

Ward

Layer B

District

Sub-district

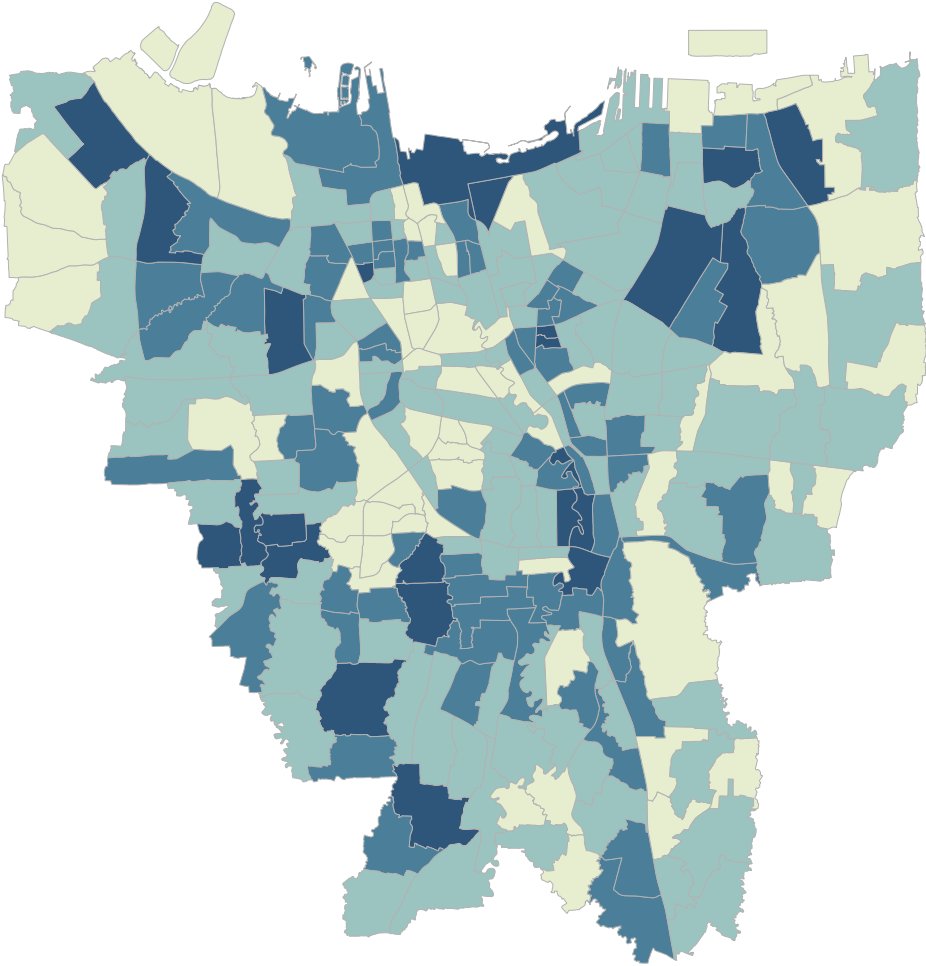
Ward

Layer C

District

Sub-district

Ward



Evacuation Points

Cipulir, South Jakarta

Nearest Evacuation Points



Gor SESCOAL



Leo Hall



SDN Ulujami 06



**Gedung Peremuan Masjid
Al-Muharam**



Kebayoran Lama Youth Centre



Masjid Jami Al-Ihsan



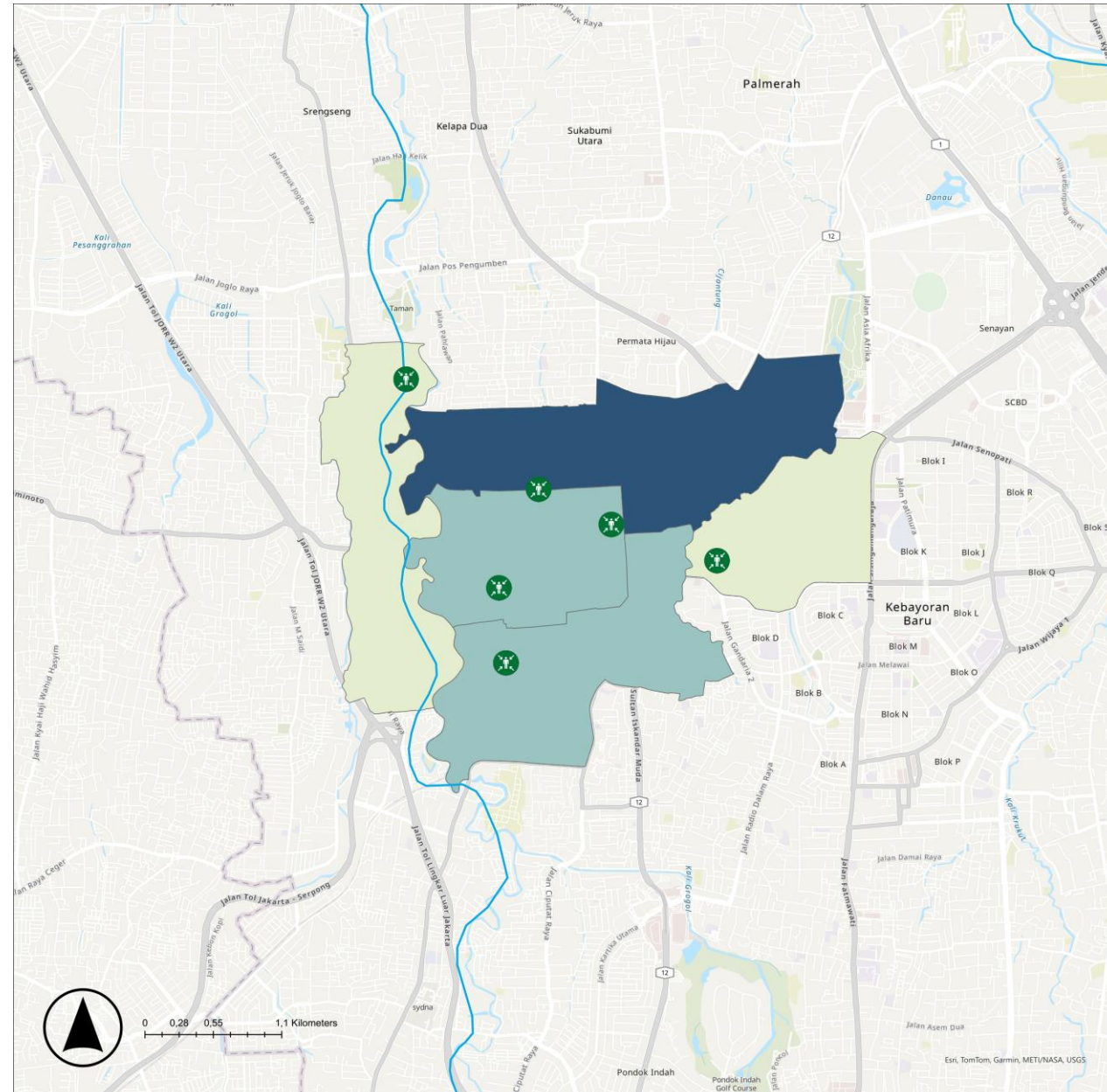
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Evacuation Route

Kebayoran Lama Youth Centre

Notice these things!



Narrowed area in certain points!
Don't be panic and don't push one another



Always check the update and report your condition. The point that you chose might be full by the time you arrived

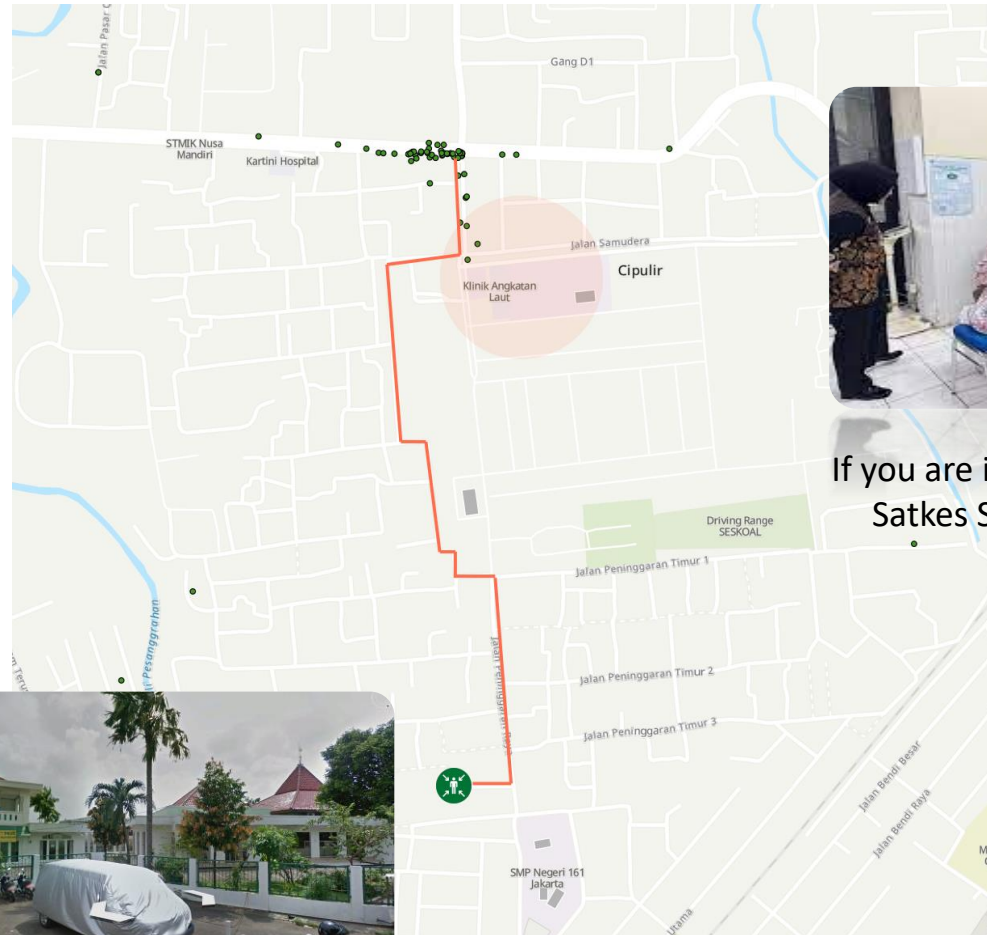
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Route information



If you are injured, make a stop at Satkes Seskoal Health Clinic



Enter the building from the communal area, do not enter from the mosque!

2. Output – Digital Platform

Disaster Preparedness, Mitigation, and Adaptation Feature

Floods

What to do when it floods

Stay informed

Turn off electricity

Move to higher ground

Protect Important Items

Follow Evacuation Instructions

Download mitigation
and adaptation checklist

During a flood in Jakarta, staying informed is vital. Track updates from trusted sources like BMKG, BPBD Jakarta, and Jakarta Smart City. Use apps like Google Maps or Waze to check road conditions and enable emergency notifications for real-time alerts.



Floods

What to do when it floods

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During a flood, immediately switch off the electricity at the main breaker to prevent short circuits, fires, or electrocution—especially if water starts entering your home. This simple action can save lives and protect your property from further damage.



Floods

What to do when it floods

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If floodwaters rise, move to higher ground like upper floors or evacuation shelters. Avoid walking or driving through floodwaters, as they may be deeper and more dangerous than they seem. Staying elevated ensures your safety from strong currents and hidden hazards.



Floods

What to do when it floods

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Before floodwaters rise, secure your valuables—store important documents, electronics, and personal items in waterproof containers or sealed plastic bags. If possible, move furniture and appliances to higher levels to minimize damage and make cleanup easier afterward.



Floods

What to do when it floods

Stay informed

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Protect Important Items

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When authorities issue evacuation orders, follow them promptly and calmly. Head to designated shelters or safe zones, and bring essential items like ID, medicine, clean water, and dry clothes. Cooperating with rescue teams ensures your safety and helps emergency efforts run smoothly.



Floods

House adaptation in Jakarta

Elevate the building

Install flood barrier

Improve Drainage System

Use Water Resistant Materials

Create a Safe Storage Zone

Download mitigation
and adaptation checklist

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Concrete columns



Amphibious columns



Wooden stilts

Raise the house foundation above known flood levels using stilts or elevated platforms. This is especially effective in low-lying areas like North Jakarta.



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Sandbags



Metal panels



Water-inflated dams

Use removable or permanent flood barriers (e.g., sandbags, metal panels, or water-inflated dams) at doors and windows to block water entry during heavy rains.



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Concrete



Ceramic tiles



Marine-grade plywood

Replace vulnerable materials (like wood or gypsum) with water-resistant options such as concrete, ceramic tiles, or marine-grade plywood for walls and floors.



Floods

House adaptation in Jakarta

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Storage area



Document storage box



Waterproof containers

Designate a high, dry area inside the house for storing important documents, electronics, and emergency supplies in waterproof containers.



Floods

Preventive measure for Jakarta!

Clean and maintain drainage channels

Dispose of waste properly

Plant vegetation and create green spaces

Install backflow preventers and
rainwater harvesting systems

Prepare for emergencies

Download mitigation
and adaptation checklist

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Regularly clean gutters, ditches, and storm drains to prevent blockages. This ensures water flows freely during heavy rains and reduces the risk of localized flooding



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Dispose of waste properly

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Avoid littering, especially near waterways. Trash can clog drainage systems and cause water to overflow. Even small items like plastic wrappers can accumulate and block water flow



Floods

Preventive measure for Jakarta!

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Trees and plants absorb rainwater and reduce runoff. Creating small gardens or planting trees in your yard or community helps increase water infiltration and reduce flood intensity



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Backflow preventers stop water from re-entering homes through drains during floods. Rainwater harvesting systems help reduce runoff and provide water for reuse



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Preventive measure for Jakarta!

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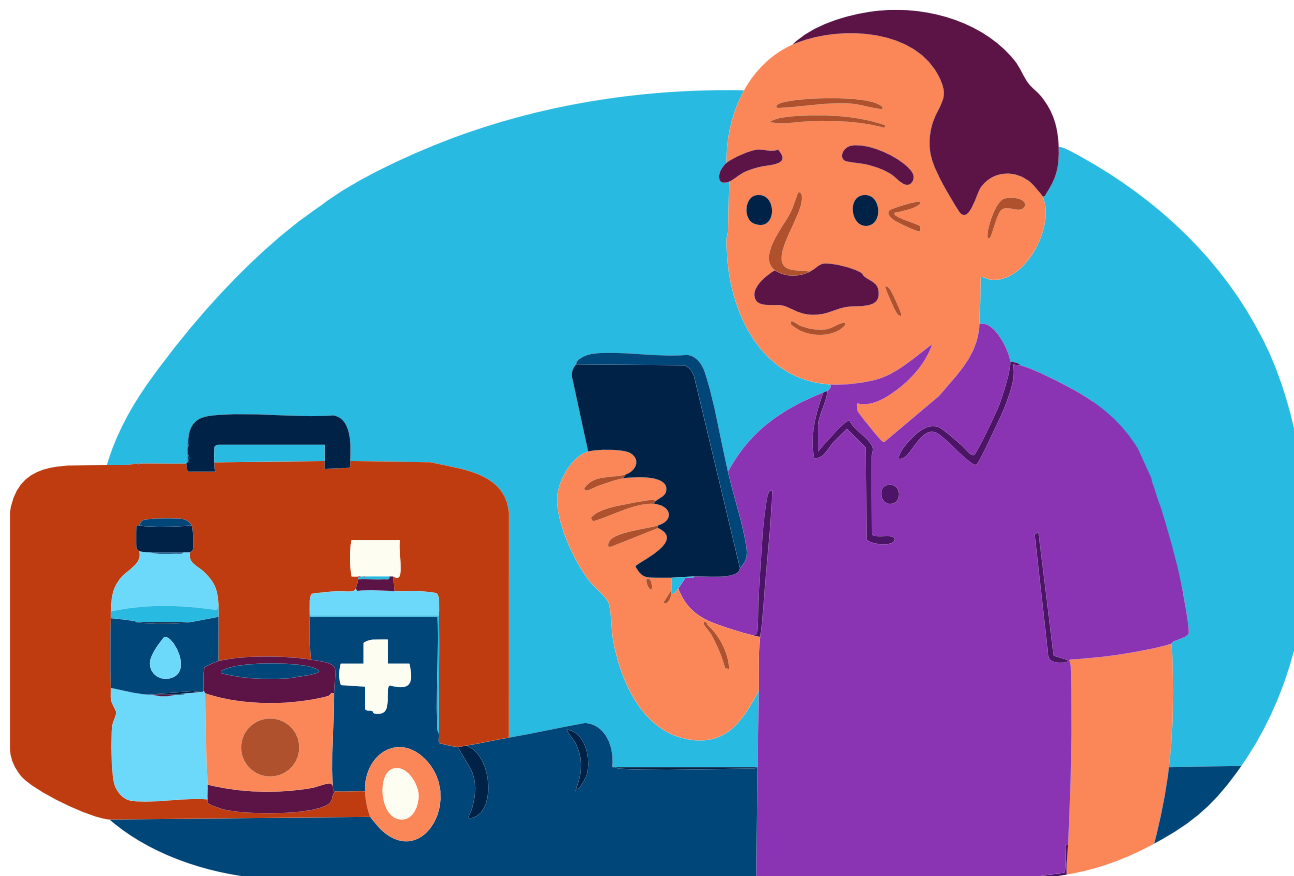
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Keep an emergency kit ready with food, water, and medical supplies. Use apps like JAKI (Jakarta Smart City) for real-time flood alerts. Know evacuation routes and turn off electricity during floods to prevent accidents



3. Output – Knowledge Package and Emergency Kit

Preparation and Actions for Typhoons, Heavy Rain, and Flooding

In this section, we will explore essential preparation and actions to take in the event of typhoons, heavy rain, and flooding. Understanding these measures is crucial for ensuring safety and minimizing damage during such natural disasters. We will cover key steps to stay informed, evacuate safely, and protect your property and loved ones.

I think having a book about flood preparation is a great idea! It would help us understand what to do and how to stay safe. Plus, it could be a useful resource for school projects.

(Budi, 16 years old)



A book would be very helpful for people like me who are not very tech-savvy. It would provide clear instructions and be easy to refer to during emergencies. I believe it would be a valuable addition to our household.

(Ahmad, 65 years old)

I'm not sure if a book is the best solution. Most people my age prefer using digital platforms. An app or website might be more effective and accessible for everyone.

(Siti, 28 years old)



Why flood mitigation matters in Jakarta

Jakarta faces one of the most severe flooding challenges among global megacities, driven by a combination of heavy rainfall, rapid urbanization, land subsidence, and rising sea levels. The city's low-lying geography and dense population make it highly vulnerable to both riverine and coastal floods, with North Jakarta projected to be largely submerged by mid-century if no significant action is taken. To address these risks, flood mitigation in Jakarta involves a multi-pronged approach that integrates large-scale infrastructure projects such as coastal embankments and pumping stations, nature-based solutions like infiltration wells and urban greening, and robust policy frameworks for disaster preparedness and community engagement. These strategies aim not only to reduce immediate flood impacts but also to build long-term resilience against climate change and urban growth pressures.

Flood mitigation strategies for Landed Houses in Jakarta

1. Elevation and Structural Design

- Raise the house floor level at least 50-100cm above the highest recorded flood level
- Use reinforced concrete foundation and waterproof materials for walls and floors
- Apply sloped landscaping to direct water away from building

2. Drainage and Water Management

- Install perimeter drains connected to soak pits or municipal drainage
- Use vertical drainage (*sumur resapan*) or infiltration wells to absorb rainwater. Jakarta has promoted this approach citywide.
- Add rain gardens or permeable paving to reduce runoff

3. Barriers and Protection

- Build flood barriers or removable flood gates at doorways
- Use backflow preventors on drains to stop water from entering during heavy rains

4. Nature-Based Solutions

- Plant vegetation buffers and small green areas to slow water flow
- Combine with rainwater harvesting systems for reuse and reduced runoff

5. Emergency Preparedness

- Prepare an elevated storage area for valuables
- Keep emergency kit (food, water, medical supplies) and evacuation plans ready
- Use Jakarta Smart City apps (JAKI) for real-time flood alerts

Weather-related Disaster Risks Due to Climate Change

Climate change is becoming more serious as the world's average temperature rises due to greenhouse emissions and other factors



Jakarta faces frequent flooding, with major events occurring nearly every year. In 2007 alone, damages were estimated at up to IDR 5.2 trillion, displacing more than 90,000 people. With climate change driving heavier rainfall, both mitigation and adaptation efforts are urgently needed.

Types of flooding

Fluvial (river) flooding



Fluvial flooding happens when a river overflows its banks due to too much rain. The extra water spills into nearby areas, which can damage homes, roads, farms, and even cause injuries or loss of life.

One example is when widespread river flooding hit 67 RTs in Jakarta, with water reaching 160 cm in Cililitan and 80 cm in West Jakarta, caused by heavy rain and river overflow.

Pluvial (surface water/rainfall) flooding



Pluvial flooding happens when rainwater builds up on the ground because it can't drain away fast enough. This type of flooding can occur anywhere, even far from rivers or the sea.

One example is when heavy rain and poor drainage caused flooding in 49 RTs across South and East Jakarta, with water reaching up to 2.5 meters in areas like Kampung Melayu and Cililitan.

Coastal flooding



Coastal flooding happens when sea water flows onto land, usually in areas near the coast. It's caused by high tides, storm surges, or heavy rainfall, especially during extreme weather events.

One example is when coastal flooding affected 5 RTs in Pluit and Penjaringan due to a supermoon and high tide, with water depths reaching 20–60 cm and lasting several days

To do Now!



List of things to do before, during, and after a disaster!

Before a disaster!

Prepare an emergency kit



Include water, non-perishable food, flashlight, batteries, first aid supplies, medications, power bank, and important documents

Know Your Evacuation Routes



Familiarize yourself with local evacuation plans and safe zones.

Secure Important Contacts



Save emergency numbers (family, local authorities, medical services) in your phone and on paper.

Backup Critical Data



Store essential files and documents in the cloud or on a secure external drive.

Create a Communication Plan



Decide how you'll contact family or colleagues if networks are down.

During a disaster!

Prepare an emergency kit



Include water, non-perishable food, flashlight, batteries, first aid supplies, medications, power bank, and important documents

Know Your Evacuation Routes



Familiarize yourself with local evacuation plans and safe zones.

Secure Important Contacts



Save emergency numbers (family, local authorities, medical services) in your phone and on paper.

Backup Critical Data



Store essential files and documents in the cloud or on a secure external drive.

Create a Communication Plan



Decide how you'll contact family or colleagues if networks are down.

Thank you!