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UNDERSTANDING RISK  
GLOBAL FORUM 2024

TRADITION • INNOVATION • RESILIENCE

## Engaging Communities in Watershed and Disaster Management

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Senior Vice President

Jasa Tirta I Public Corporation



**BUMN** UNTUK  
INDONESIA

# OUTLINE



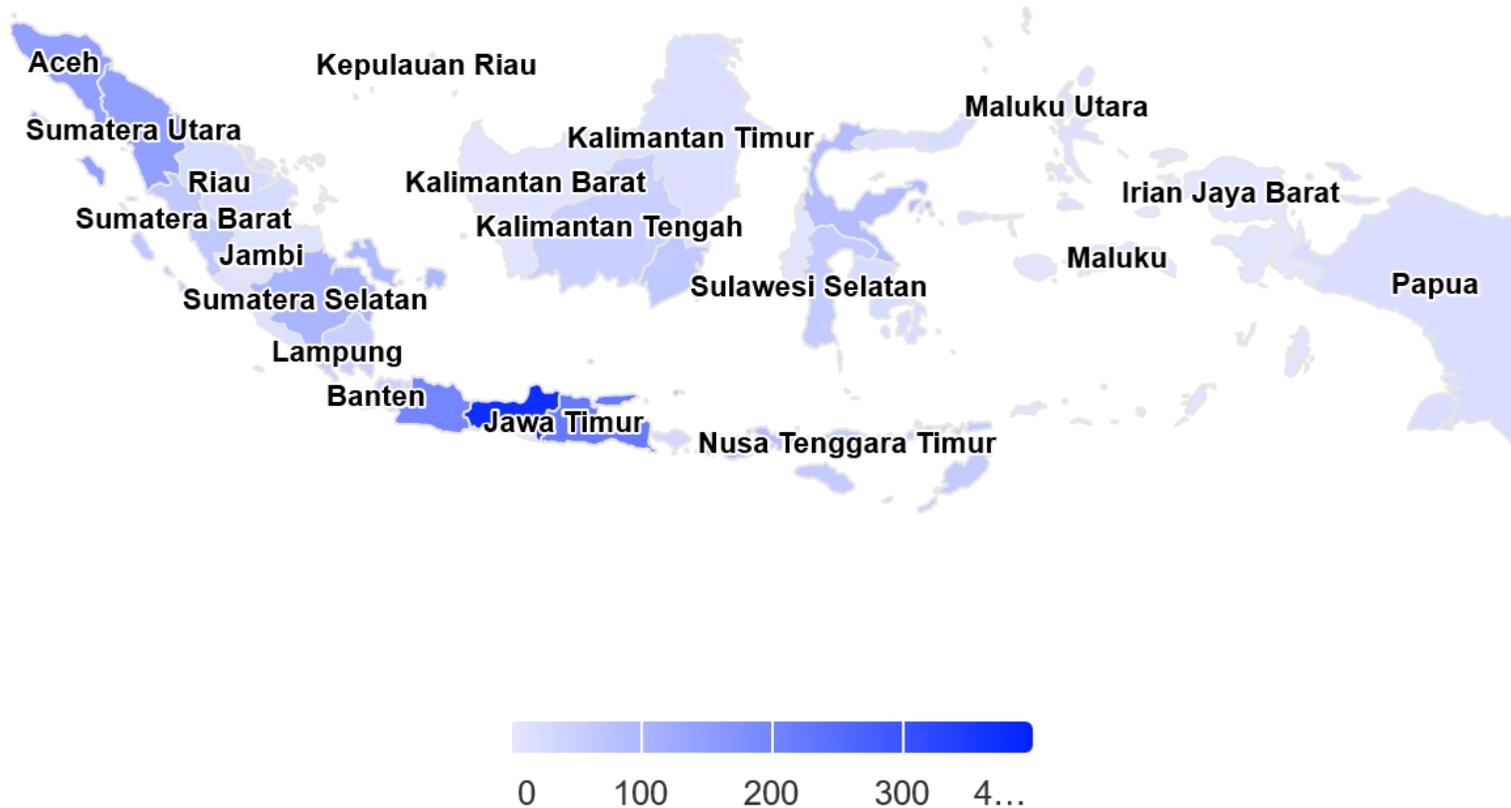
1. Introduction

2. Disaster readiness

3. Community Empowerment

4. Flood Disasters Event Case Study

# INTRODUCTION



PDSI, Pusdatinkom, BNPB © Natural Earth

The number flood disaster events during the last 5 years

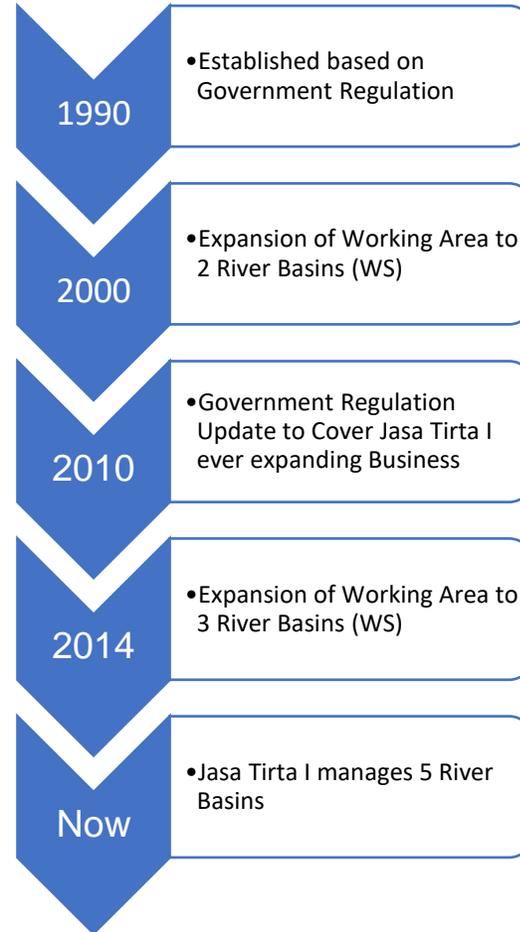
1. In the last 5 years almost all regions in Indonesia have experienced flood disasters.
2. Jasa Tirta I with the government and related stakeholders strive to build disaster resilience through synergy and collaboration with local communities.

### Company objective:

As SOC (State-Owned company) that's been assigned by the Government to carry out duties and responsibility for **Water Resources Management**

### Duties and responsibilities:

- Operation and maintenance of water resources infrastructures, water service exploitation and clean water supply development.
- As SOC, not just profit oriented, but also builds and guarantees prosperity.



## One River, One Plan, and One Integrated Management

5

Rivers Basins (WS)



Toba Asahan



Serayu Bogowonto



Jratunseluna



Bengawan Solo



Brantas

10

Large DAM



BENDUNGAN SUTAMI



BENDUNGAN WONOGIRI



BENDUNGAN WONOREJO



BENDUNGAN LAHOR



BENDUNGAN BENING



BENDUNGAN SELOREJO



BENDUNGAN WLINGI



BENDUNGAN SENCCURUH



BENDUNGAN KEDUNG OMBO  
\*Serah Operasi



BENDUNGAN JATIBARANG  
\*Serah Operasi



### Catchment Areas Management

Conduct reforestation, plan and construct sediment control structure (i.e. gully plug, infiltration well, eco sediment control structure) source water preservation.



### River Environmental Management

Maintain the diversity of aquatic biota, develop tourism area, water sports activity and Community empowerment and participation.



### Water Quality Management

Monitor, evaluate and report water quality in river basins worked area.



### Water Quantity Management

Provide water to all users in a fair and transparent manner based on reservoir operation and water allocation plan.



### Water Resources Infrastructure Management

Operation and Maintain water resources infrastructures for sustainability purposes.



### Flood Management

Monitor, mitigate and prevent flood disaster effect in collaboration with related agencies



**Water Supply for Energy**  
(Equal to 6.826,66 GWh/year)



**Raw Water for Industry**  
(Equal 541,75 million m<sup>3</sup>/year)



**Raw Water for Domestic**  
(equal to 518,97 million m<sup>3</sup>/year)



**Mineral Water's Brand**  
(equal to 2.667,02 m<sup>3</sup>/year)



**Clean Water Treatment Plant**  
At 3.821 WTP in Sekaran System  
And 81 WTP Brondong system  
(equal to 0,72 juta m<sup>3</sup>/tahun)

### Jasa Tirta I Line of Services



**SUBSIDIARY COMPANY - PT. JASA TIRTA ENERGI**  
(Energy and Construction)



**7 TOURISM LOCATION**  
(Sutami, Lahor, Wlingi, Selorejo,  
Mrican, Bening, Wonorejo)

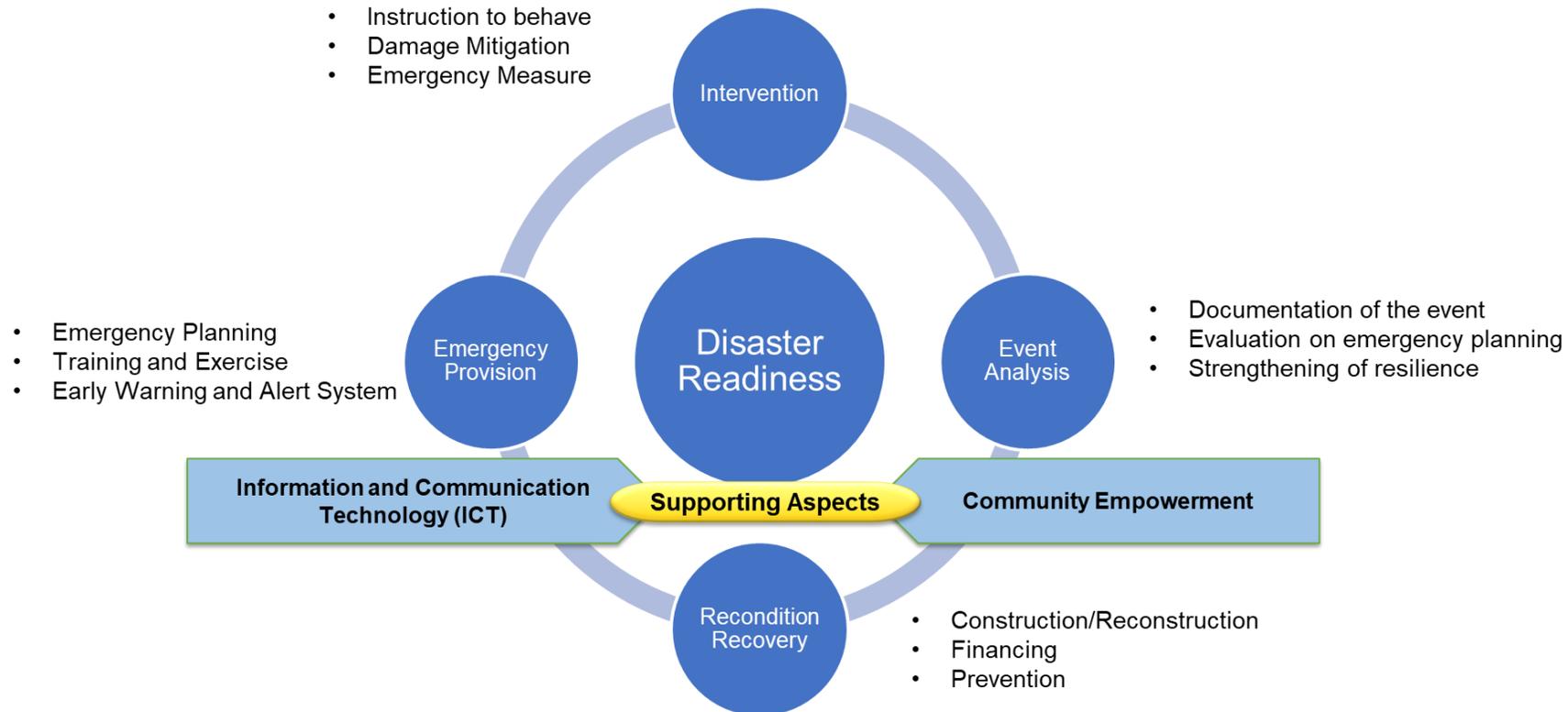


**ENVIRONMENTAL LABORATORY**  
(Malang, Mojokerto dan Solo)  
(On Going Project in Parapat,  
Danau Toba)



# Jasa Tirta I Disaster Readiness

**Jasa Tirta I Flood disaster readiness** refers to the comprehensive set of measures and activities designed to anticipate, respond to, and recover from flood events. This involves a multi-faceted approach that includes the following key:

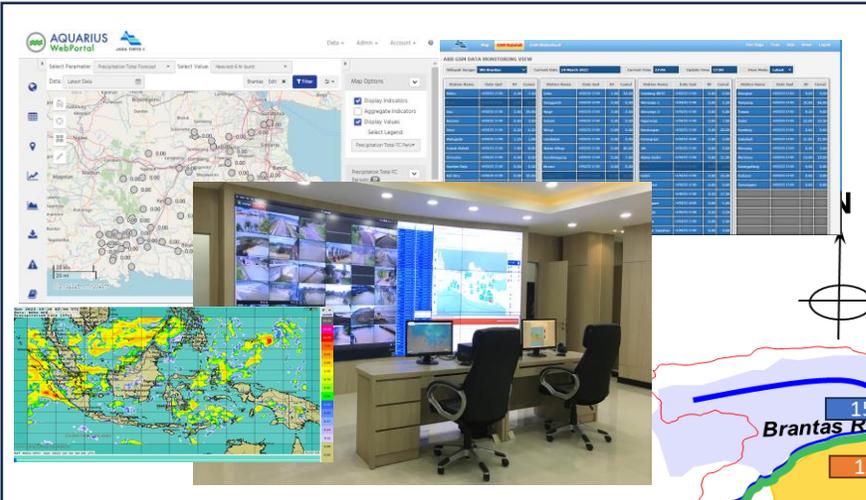


This concept **can not work effectively without collaboration** between government agencies, non-governmental organizations, community groups and the private sector.

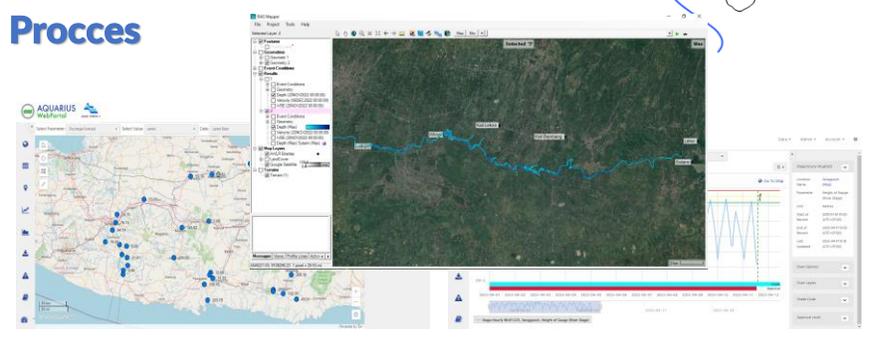
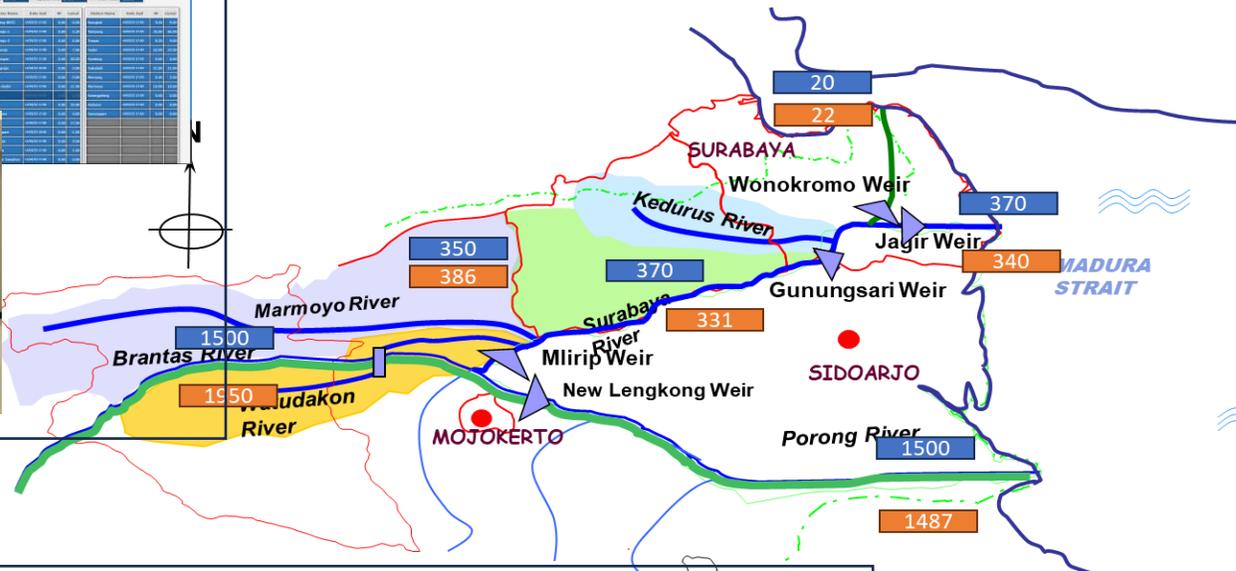
# Flood Emergency Provision

## Mitigation and Adaptation Flood Disaster

### Input



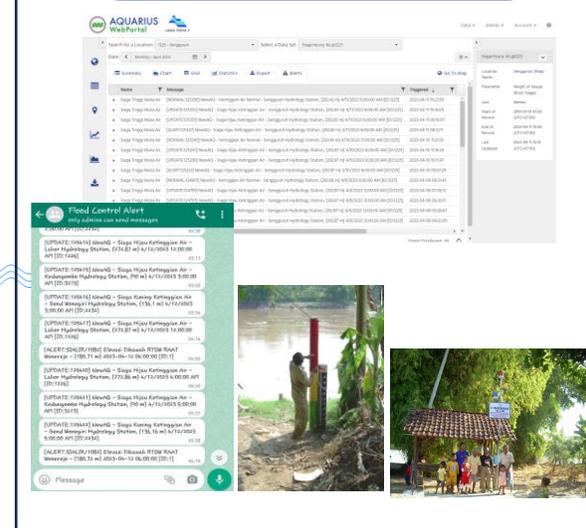
by utilizing existing data such as rainfall predictions, historical and real time hydrological conditions



We provide Information about flood discharge prediction analysis, predicted flood area and parameter warning alerts

### Output

**EARLY WARNING + EMERGENCY RESPONSE**



Those This information will be used as a reference for operational activities and submitted to Stakeholders and Communities through Website and Social Media



# Community Empowerment



# Community Empowerment

## “We Balance Nature and Community Along the River”

Community empowerment is vital for disaster readiness because it harnesses local knowledge and resources, enhances resilience, fosters trust, promotes sustainability, ensures self-reliance, and supports rapid recovery. Empowered communities are better equipped to face disasters and contribute significantly to reducing their overall impact. As a water resources management company, we will work more effectively by involving the communities through routine activities

1. **Education and Training**, routinely outreach communities' activities regarding disasters and environmental sustainability. Conduct awareness campaigns about disaster risks and safety measures to be taken before, during, and after a disaster.
2. **Community Involvement**, Jasa Tirta I form disaster Response Teams such as
  - “Jogo Tanggul” , is a collaborative program between Regional Government, Jasa Tirta I, Central River Region Brantas Community Empowerment Board and Village Government in addressing environmental problems in the Brantas River by empowering the former sand miners
  - Women empowerment to support and protect the environment through conservation and fertilizer processing programs from PJT I
3. **Utilizing Technology**, PJT I Early warning system to cover remote areas with support from the local community



# Community Empowerment

Community Empowerment, especially women, in conservation activities PJT 1 in carrying out water resources management, one of which is through reforestation activities and water hyacinth processing.

1. Planting trees on communities' land, especially Toba Regency, Samosir Regency, Humbang Hasundutan Regency and North Tapanuli Regency.
2. PJT I Reforestation activities are carried out by providing seeds, fertilizer and other things where we collaborate with the community to plant on their land, some of which is owned by women.
3. Implementation includes outreach community by educating, land clearing, tree planting, fertilizer application and plant maintenance.
4. Contribute to processing water hyacinth into fertilizer.



# Women Involvement

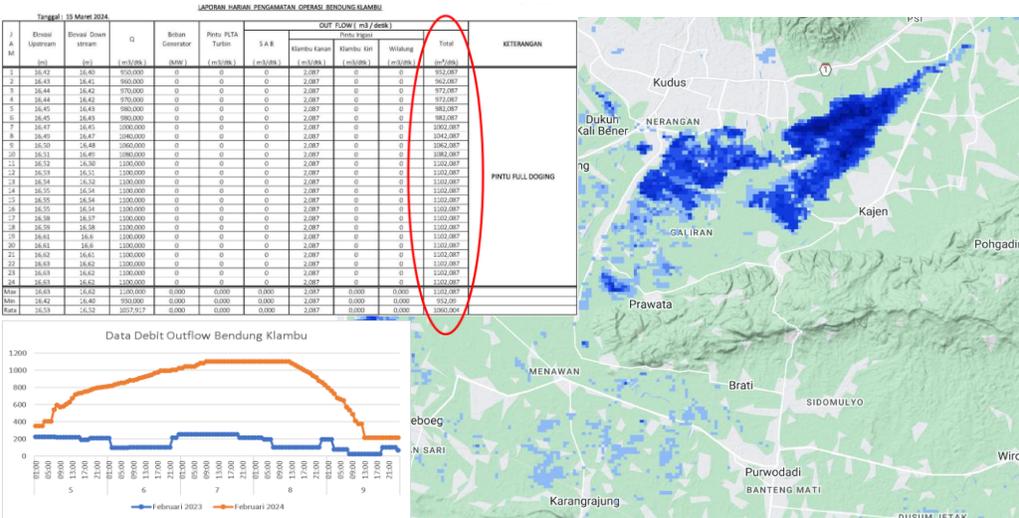
Empowering women in various aspects of community life leadership, education, resource management, economic activities, social networks, and health—significantly contributes to building flood resilience and sustainable water resources management. By leveraging their unique roles and strengths, women can enhance the capacity of their communities to prepare for, respond to, and recover from flood events, ultimately leading to more resilient and sustainable communities.

1. The involvement of women in reforestation activities increases community knowledge of the importance of environmental conditions. Women can become environmental educators because women are mothers who are the first media of education for children, where knowledge of the importance of maintaining environmental conditions can be implemented from an early age.
2. Involving women in environmental activities plays an important role in developing environmentally friendly production and consumption patterns.





# Flood Disasters Event Case Study



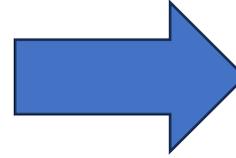
- The flood discharge in the Lusi River which was observed at Klambe Dam was 1200 m<sup>3</sup>/sec, which was the main factor Seluna River overflowing. 1200 m<sup>3</sup>/sec is a flood discharge with a return period of 200 years.
- The Lusi River's flood discharge contribution to the Seluna River System approximately are 96 %



- With this high discharge, the Seluna River cannot accommodate the water discharge and causes the dike to break down in several river sections

# Flood Control Management

## Flood Disaster Management Process

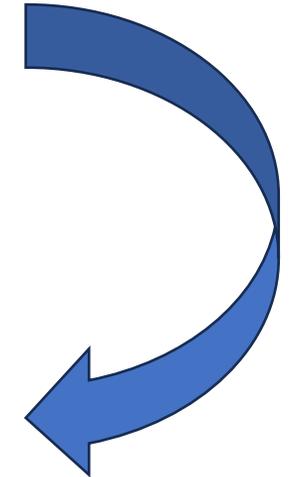


Flood caused the dike in the river to broke and flooding the residential area

The flood disaster management is carried out by the communities and stakeholders (Central and Local Government, SOCs, National and Local Disaster Agency)

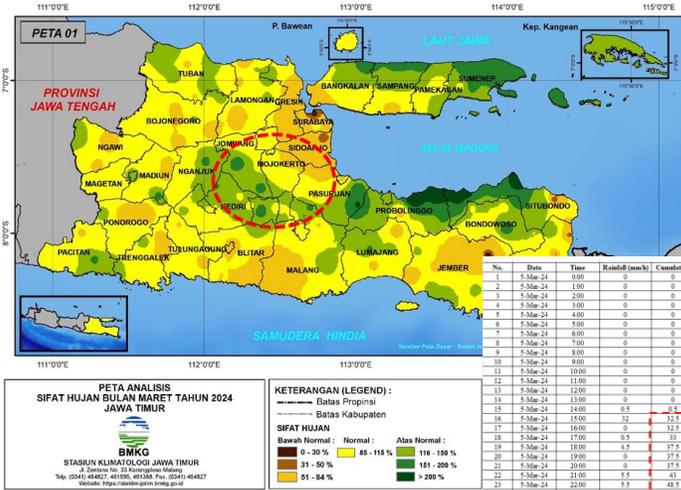


Recovery and Repairing

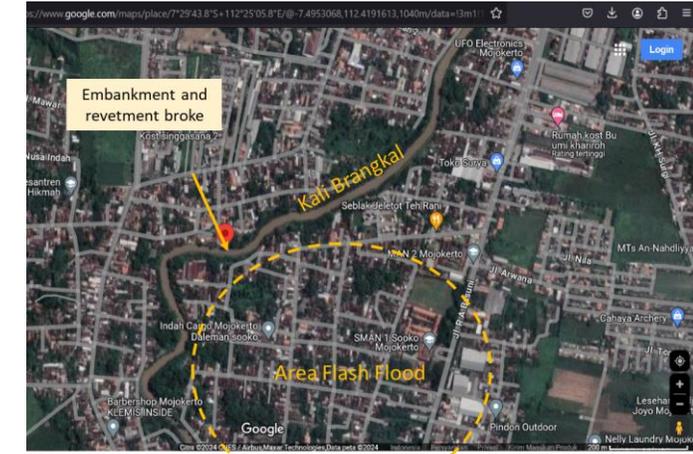
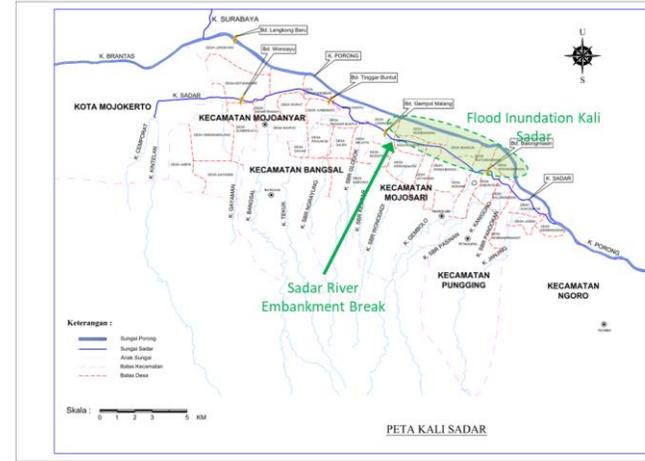


# Flood Disaster Event Analysis

## Sadar And Brangkal Rivers Flood Event



| Jam              | EL. MA Waduk (m) | Total Debit |               |
|------------------|------------------|-------------|---------------|
|                  |                  | Hilir       | Rusak         |
| 1.00             | 17.83            | 478.20      |               |
| 2.00             | 17.80            | 646.33      |               |
| 3.00             | 17.80            | 779.17      |               |
| 4.00             | 17.75            | 923.18      |               |
| 5.00             | 17.75            | 971.65      |               |
| 6.00             | 17.75            | 971.65      |               |
| 7.00             | 17.75            | 971.65      |               |
| 8.00             | 17.75            | 906.97      |               |
| 9.00             | 17.75            | 906.97      |               |
| 10.00            | 17.75            | 906.97      |               |
| 11.00            | 17.75            | 890.74      |               |
| 12.00            | 17.75            | 874.49      |               |
| 13.00            | 17.75            | 874.49      |               |
| 14.00            | 17.75            | 874.49      |               |
| 15.00            | 17.75            | 874.49      |               |
| 16.00            | 17.75            | 874.49      |               |
| 17.00            | 17.75            | 841.91      |               |
| 18.00            | 17.75            | 776.44      |               |
| 19.00            | 17.75            | 776.44      |               |
| 20.00            | 17.75            | 760.00      |               |
| 21.00            | 17.75            | 760.00      |               |
| 22.00            | 17.75            | 760.00      |               |
| 23.00            | 17.75            | 760.00      |               |
| 24.00            | 17.75            | 743.54      |               |
| <b>Jumlah</b>    |                  |             | <b>17,83</b>  |
| <b>Max.</b>      |                  |             | <b>17,75</b>  |
| <b>Min.</b>      |                  |             | <b>17,75</b>  |
| <b>Rata-rata</b> |                  |             | <b>829,35</b> |



- Heavy rainfall conditions were observed from the Kali Sadar ARR station, which showed a heavy amount of rain that occurred in a short duration. This resulted in a significant increase in discharge in the Sadar River and Brangkal River
- Kali Brangkal and Kali Sadar flow into the main rivers, namely Kali Brantas and Kali Porong, where the flow conditions in the main river at the time of the flood were in high discharge conditions, so water could not enter quickly into the Main River.

The high discharge the Sadar and Brangkal rivers resulted to brake the dike and water flooding into residential areas



Flood caused the dike in the river to broke



Joint Response to control flood disaster



The flood disaster management is carried out by the community and related stakeholders



Repairing Process



Emergency Dike Constructions

- Flood event predictions have been monitored in the **PJTI SWMS** system which collaborates with hydrological data from other stakeholders so that disaster losses are minimized.
- This Disaster information will be forwarded and calibrated to local communities to ensures that **disaster readiness plans** are inclusive, considering the needs of all community members.
- Communities that are **empowered and prepared** can recover more quickly. Local involvement in recovery efforts ensures that rebuilding and rehabilitation are aligned with community needs and priorities

During *Sadar and Brangkal river flooding*, recovery action was actively led by the *female Regent of Mojokerto Regency*



### Community Leadership and Participation

1. Vital role in planning, decision-making, and implementation of flood resilience strategies
2. Ensures diverse perspectives and needs, including those of vulnerable groups, are addressed.



### Adaptation and Resources Management.

Skills in managing resources of emergency supply like food and water, become particularly critical during flood disasters. Coordination of public kitchen is vital contribution



## Inclusive Disaster Risk Management

Involvement of whole stakeholders

rising importance of **Leadership** and

**Coordination.**



### Jasa Tirta I Contribution

1. Construction of emergency dikes
2. Reparation of broken embankment
3. Support other instance for social countermeasure action to the affected disaster victim



### Social network and Community Support

Maintaining of strong social networks are crucial during disaster response and recovery to helping communities coordinate and respond more effectively to flood disasters.



*Unfortunately disaster may happen to anybody, any age, any gender.*

*Let's hold hand together, no discrimination, with full understanding  
for more disaster resilient community*



# Thank you !

