



# FLOOD MITIGATION ON WATER RELATED ISSUES: CASE OF SAMARINDA CITY

By. ANDI HARUN

# SAMARINDA PROFILE



- **AREA : 716,9 Km<sup>2</sup>**  
**10 DISTRICT WITH 59 SUB-DISTRICTS,**  
**KUTAI KERTANEGARA REGENCY AS BORDER**
- **POPULATION: 861.878 PEOPLE**  
**MEN 438.477 PEOPLE**  
**WOMEN 423.401 PEOPLE**  
**POPULATION GROWTH RATE 1,43%%**
- **ECONOMIC GROWTH RATE 8,62%(2023)**
- **INFLATION RATE 3,20%**
- **CONSUMER PRICE INDEX 106,65**
- **THE MAJORITY ARE ENGAGED IN THE TRADE & SERVICES SECTOR**



# SAMARINDA CITY VISION AND MISSIONS



## SAMARINDA, THE CENTRAL OF CIVILIZATION

### Mission 1

Crafting urban residents who are devout, refined, and cultured.

### Mission 2

Developing a city economy that is progressive, self-sustaining, democratic, and equitable.

### Mission 3

Establishing a government characterized by professionalism, transparency, accountability, and freedom from corruption.

### Mission 4

Developing a stable and contemporary infrastructure.

### Mission 5

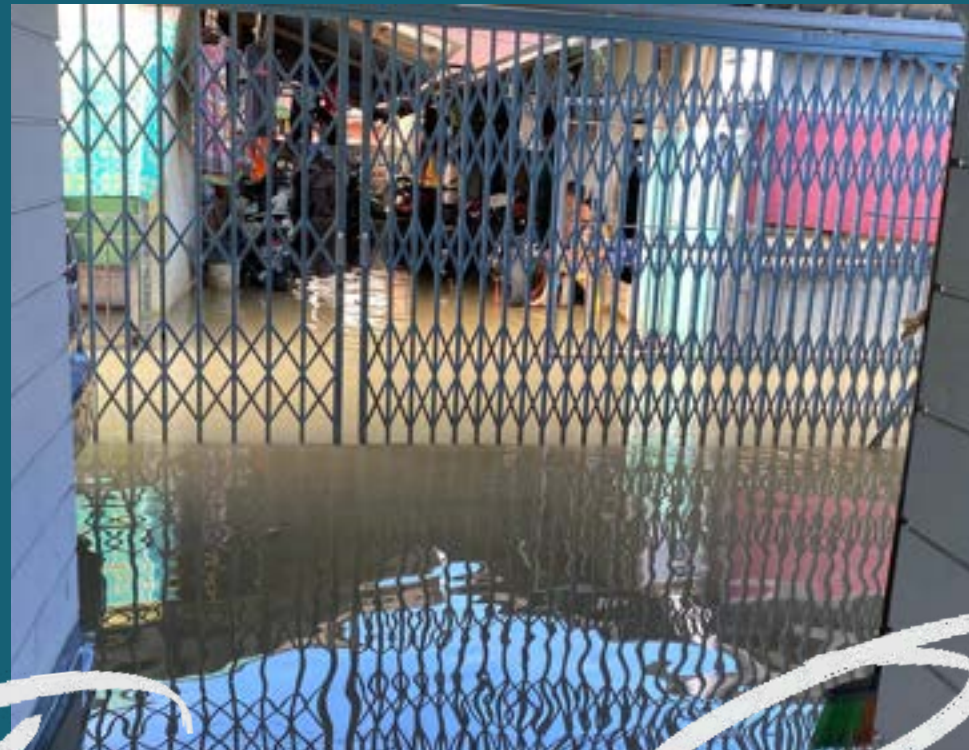
Creating a safe, comfortable, harmonious, and sustainable urban environment.

# STRATEGIC CITY ISSUES



1. Facilitating connectivity between urban areas to improve accessibility.
2. Increasing housing availability and establishing inviting residential communities.
3. Integrating resource facilities with water infrastructure.
4. Stimulating economic recovery efforts.
5. Enhancing public health initiatives.
6. Enhancing the accessibility and quality of education.





# FLOODS IN 2019 - 2020

# CAUSES

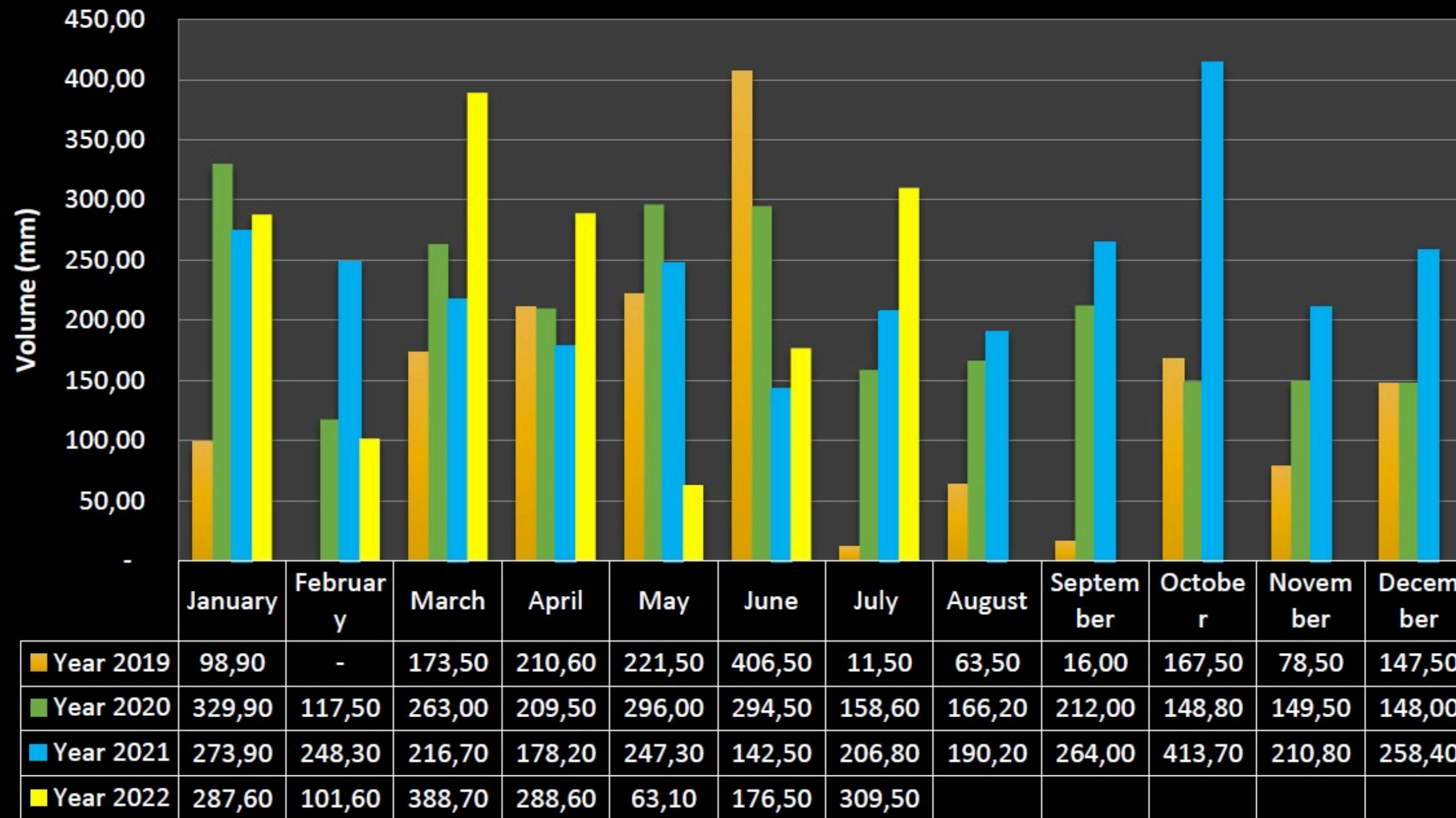
**High  
Rainfall**

**Shallowing and  
narrowing of  
rivers, even some  
natural rivers are  
covered by  
construction**

**Blocked  
drainage  
system**

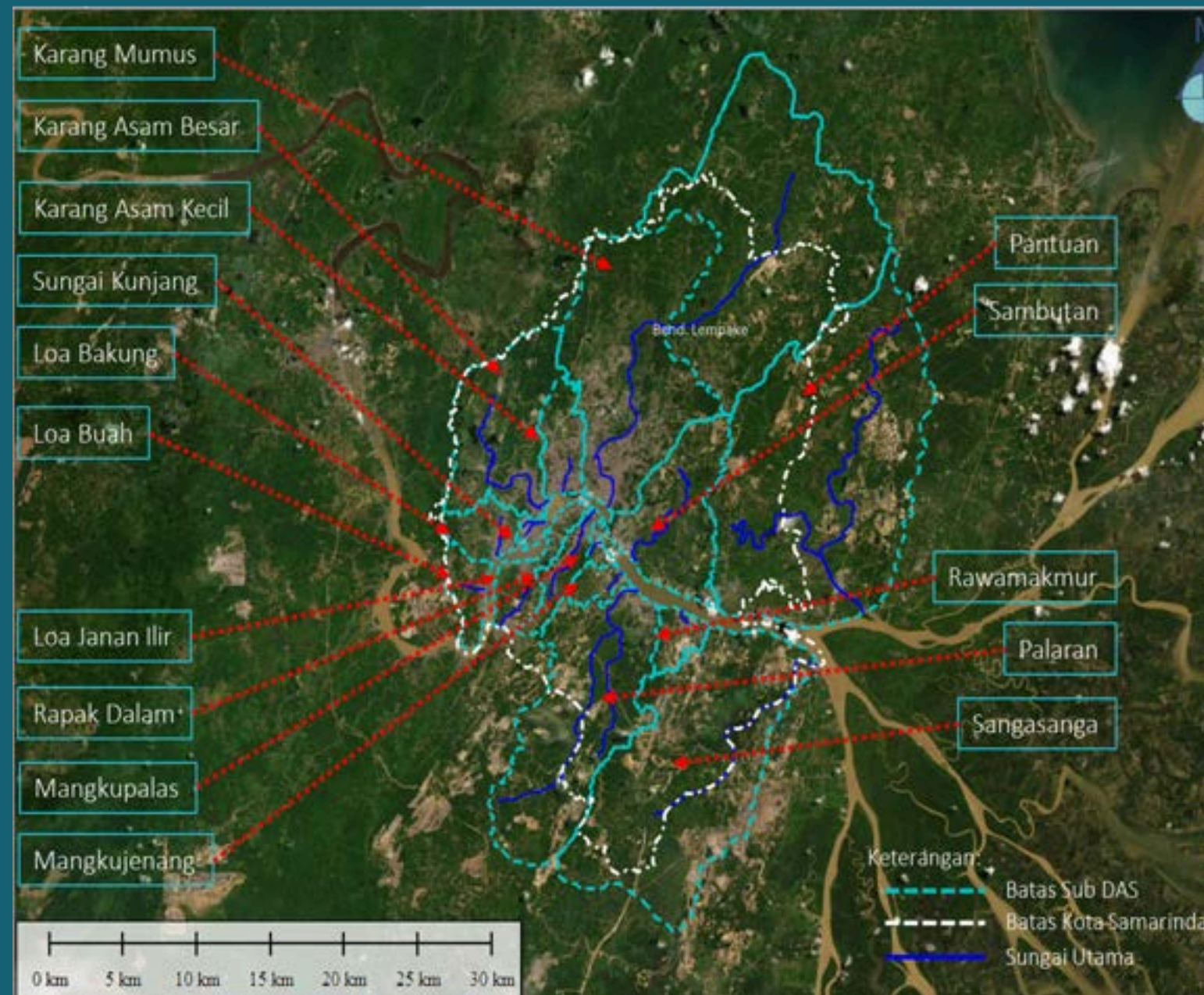
**Inappropriate  
land use**

## RAINFALL DATA Year 2002 - Year 2022



**High Rainfall (Climate Change Impact, the warm sea surface temperature acts as supplier of water vapor for the growth of rain clouds, duration of rain)**

# Shallowing and narrowing of rivers, even some natural rivers are covered by construction



No	Sub DAS	Luas (Km <sup>2</sup> )	Panjang (Km)	El Hulu	El Hilir	Kemiringan
<b>Utara Sungai Mahakam</b>						
1	Karang Mumus <sup>1)</sup>	320.16	34.08	33.031	3.110	0.000878
2	Karang Asam Kecil	18.19	2.68	4.264	1.352	0.001087
3	Karang Asam Besar	64.01	14.88	13.836	1.016	0.000862
4	Loa Bakung	14.77	2.64	3.324	2.195	0.000428
5	Loa Buah	12.59	1.80	10.673	0.982	0.005396
6	Sungai Kunjang	3.03	1.97	11.538	0.634	0.005535
7	Sambutan	54.59	10.07	6.618	1.136	0.000544
8	Pantuan <sup>2)</sup>	232.40	8.95	2.882	0.074	0.000314
<b>Selatan Sungai Mahakam (Samarinda Sebrang)</b>						
1	Loa Janan Ilir	17.47	3.51	10.845	2.607	0.002347
2	Rapak Dalam	13.28	7.47	11.244	0.229	0.001475
3	Mangkupalas	2.87	1.18	70.271	1.074	0.058791
4	Mangkujenang	7.49	1.55	1.210	0.667	0.000350
5	Palaran <sup>3)</sup>	111.06	20.56	40.968	0.018	0.001992
6	Rawamakmur	10.24	1.12	2.636	1.072	0.001396
7	Sangasanga <sup>4)</sup>	166.59	16.60	5.923	0.578	0.000322

<sup>1)</sup> Hanya 219.26 Km<sup>2</sup> (68.48%) yang masuk wilayah Kota Samarinda

<sup>2)</sup> Hanya 76.94 Km<sup>2</sup> (33.11%) yang masuk wilayah Kota Samarinda

<sup>3)</sup> Hanya 62.978 Km<sup>2</sup> (56.71%) yang masuk wilayah Kota Samarinda

<sup>4)</sup> Hanya 104.196 Km<sup>2</sup> (62.55%) yang masuk wilayah Kota Samarinda

Sumber:  
Peta RBI Skala 1:50.000;  
Peta Bappeda Kota Samarinda;  
Peta DEMNAS Badan Informasi Geospasial.





# WHAT WE DO

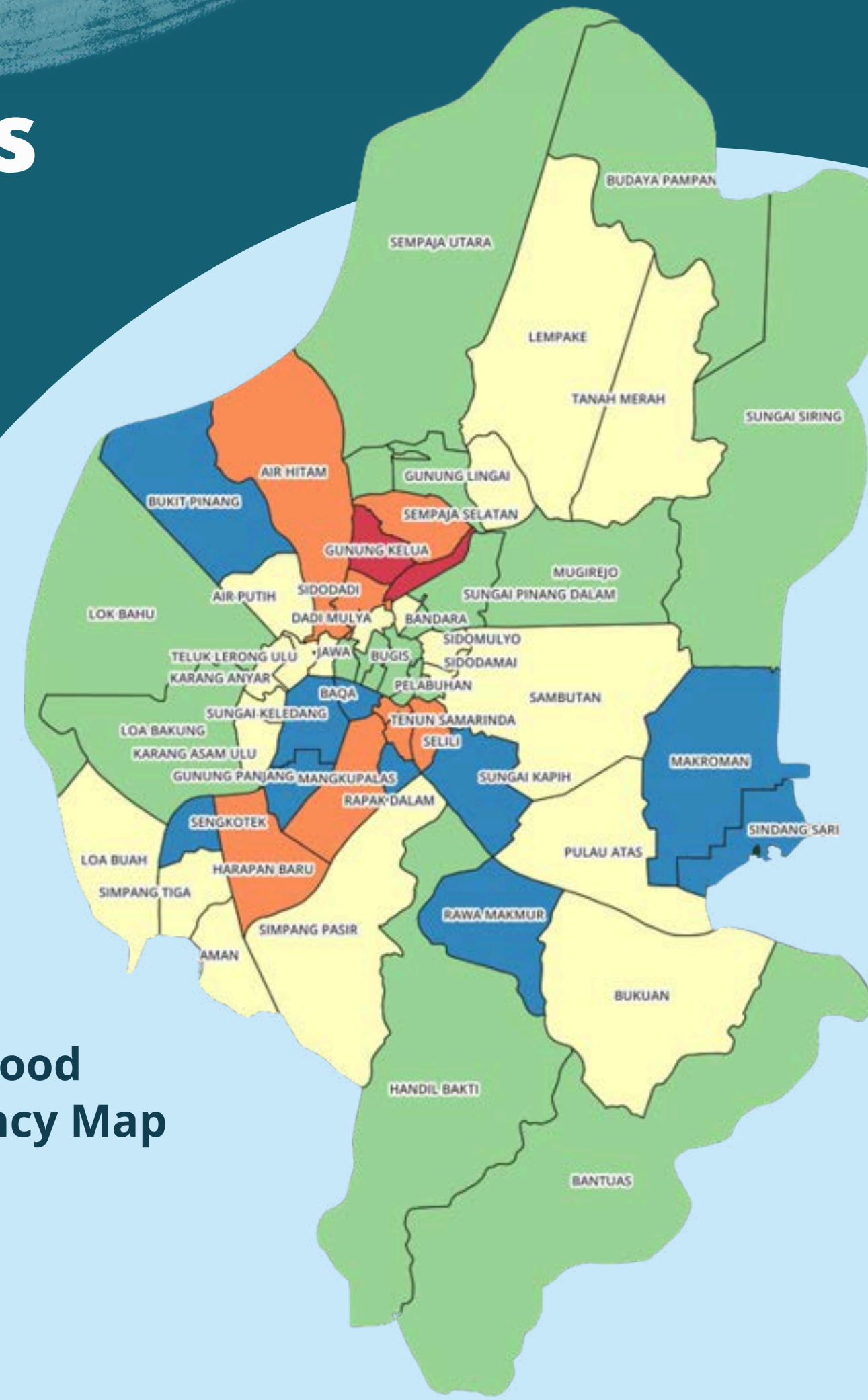
# Disaster Analysis Maps for Decision Making

Flood Urgency

Sub-district

Very Low	10
Low	19
Medium	20
High	8
Very High	2

Flood Urgency Map

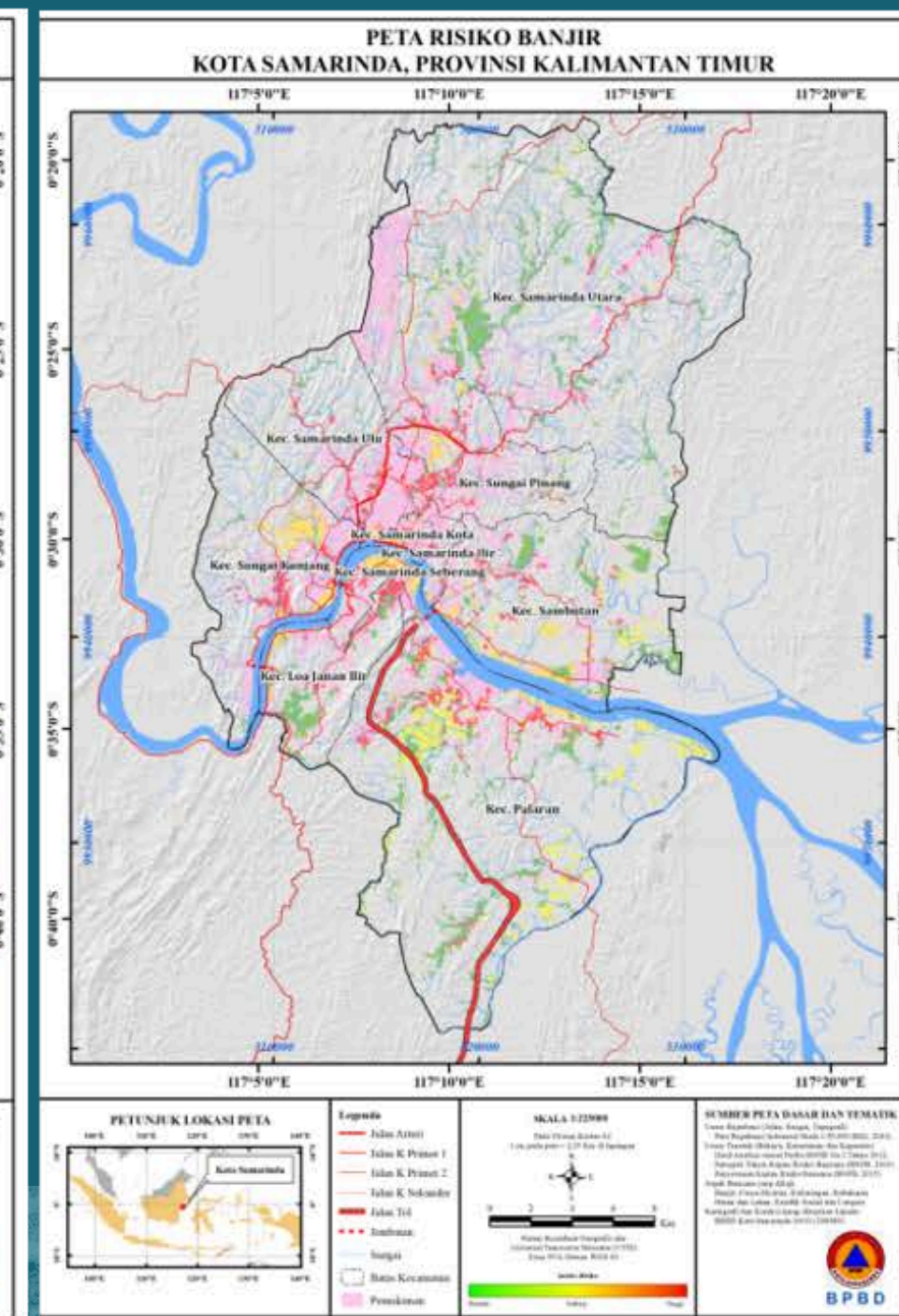
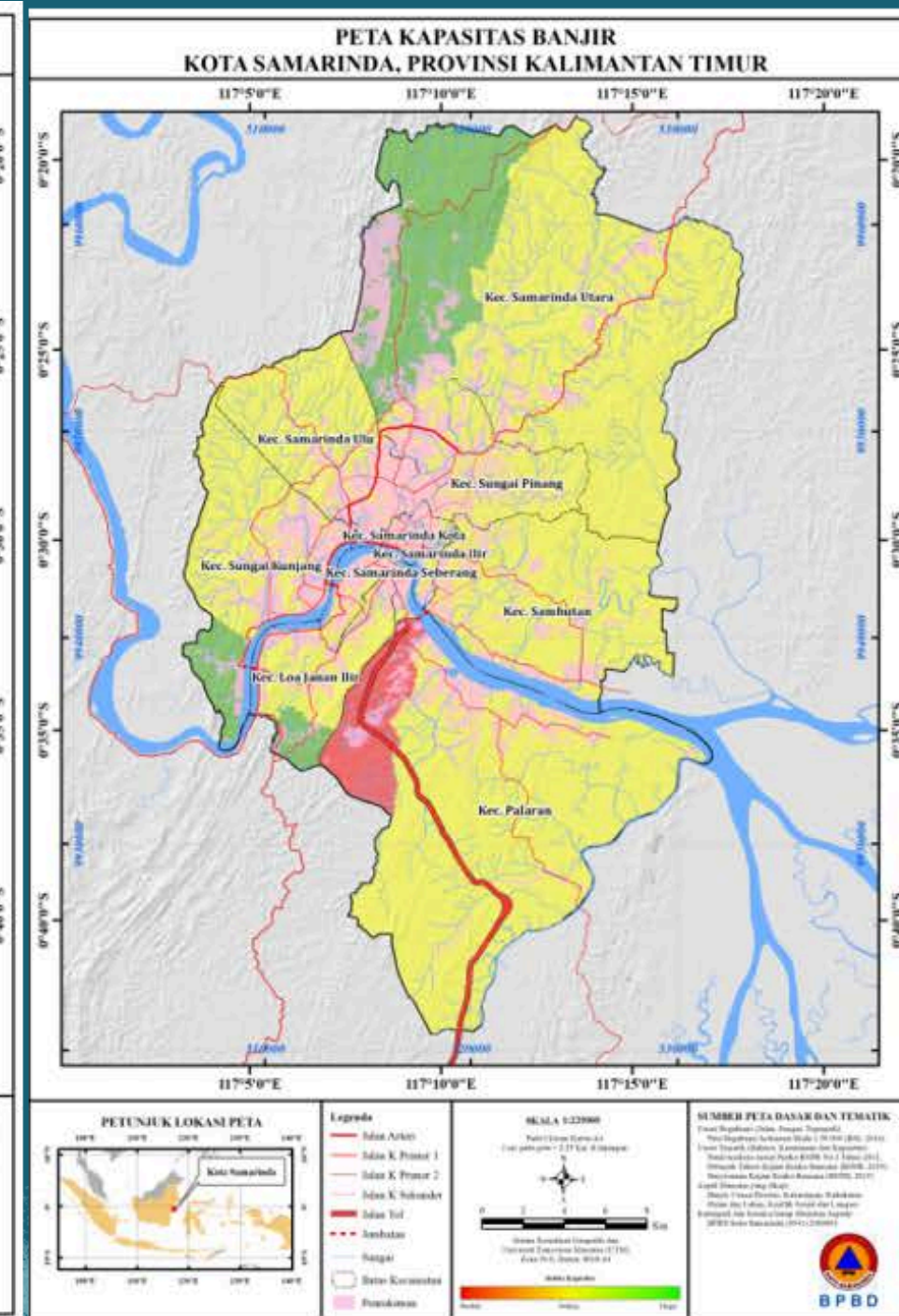
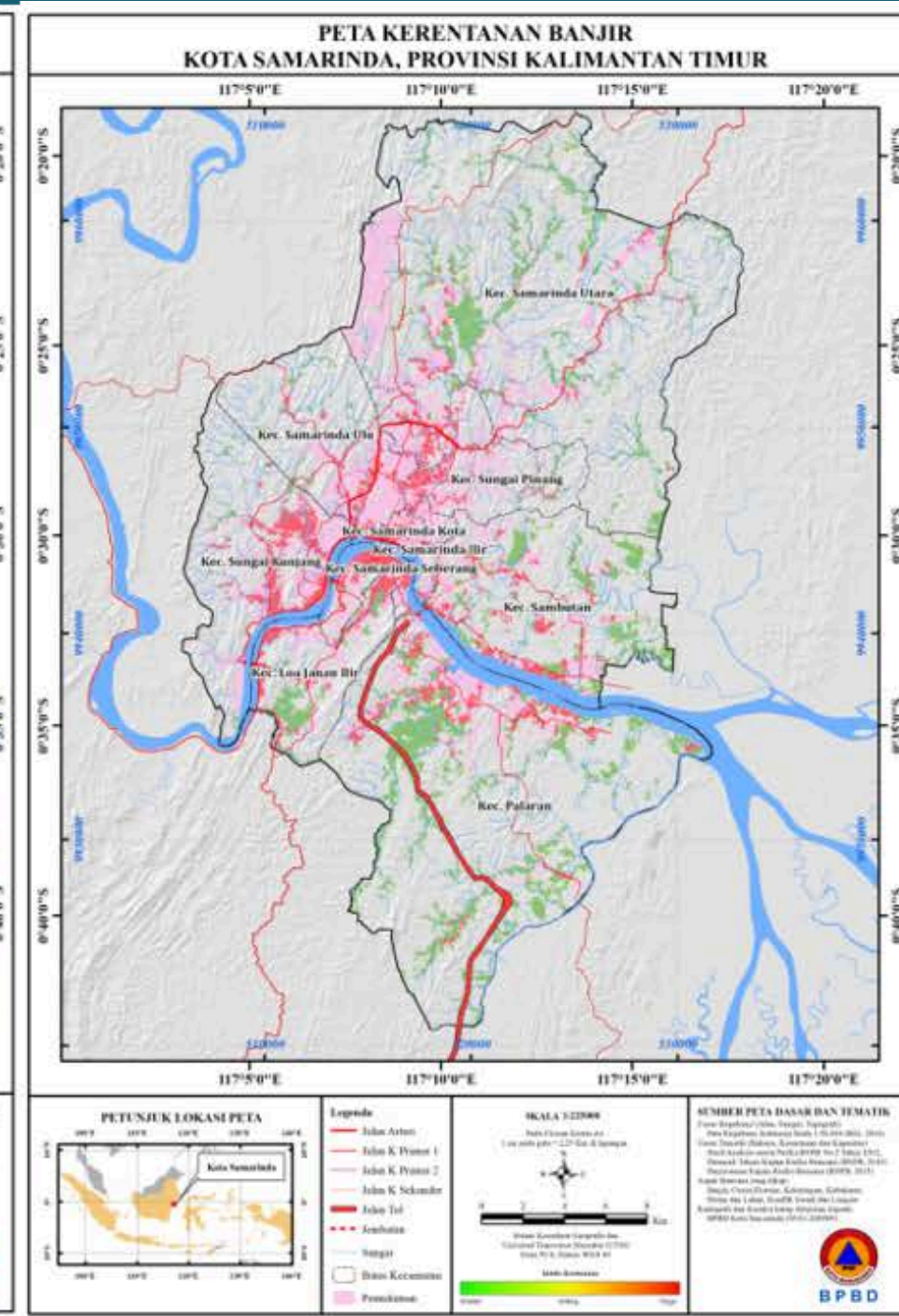
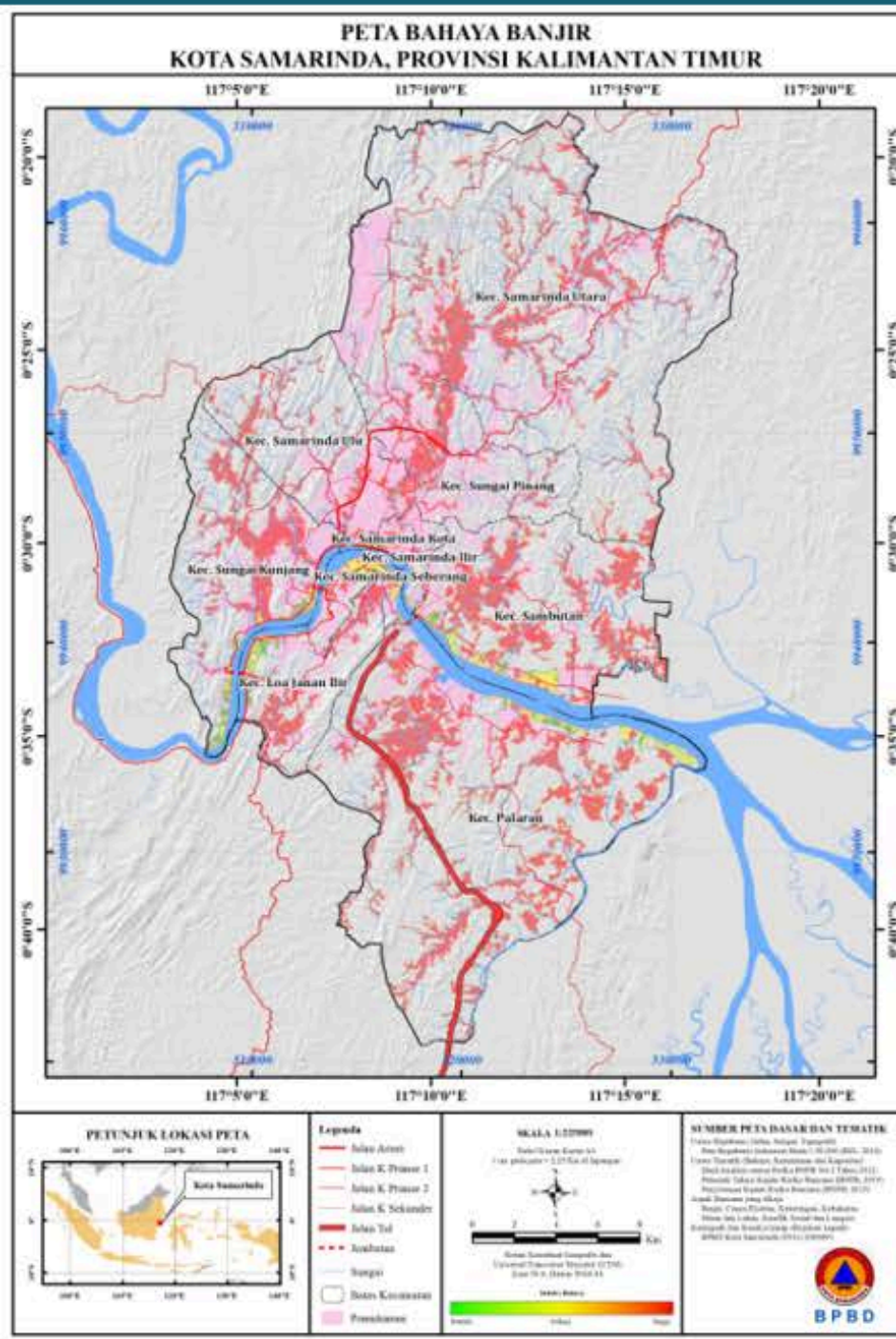


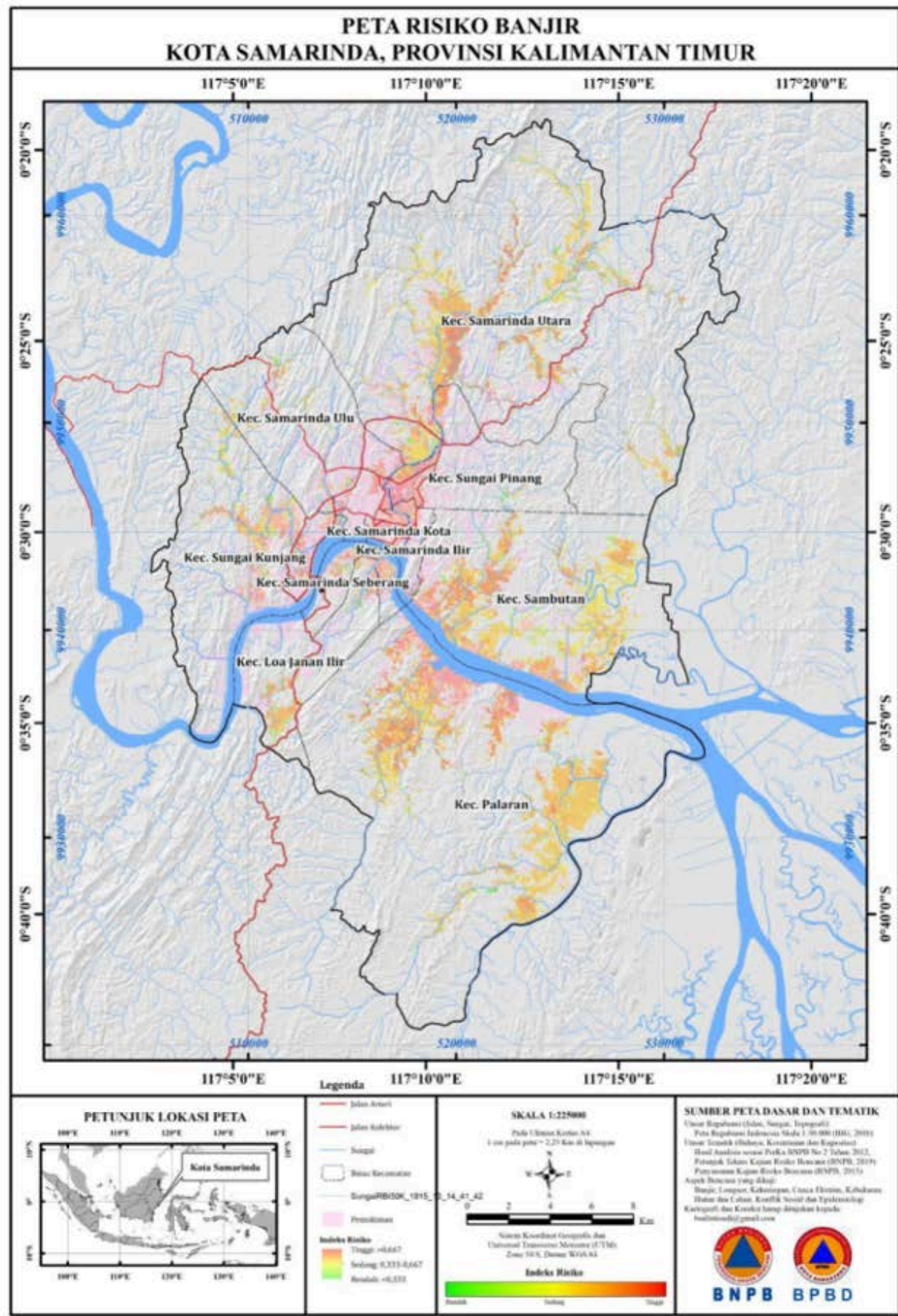
# Flood Hazard Map

# Flood Vulnerability Map

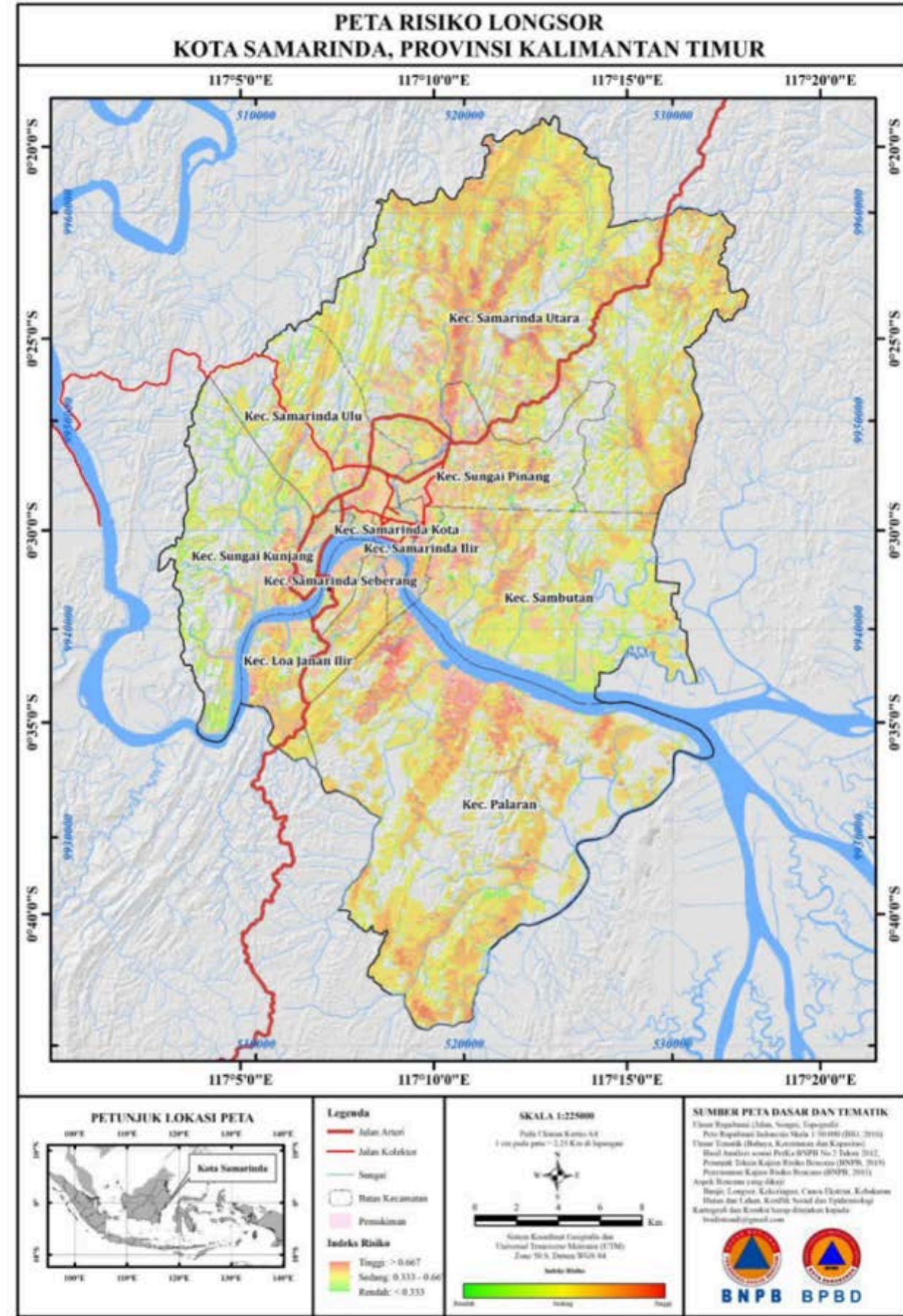
# Flood Capacity Map

# Flood Risk Map





Flood Risk Map



Landslide Risk Map

# River Normalization



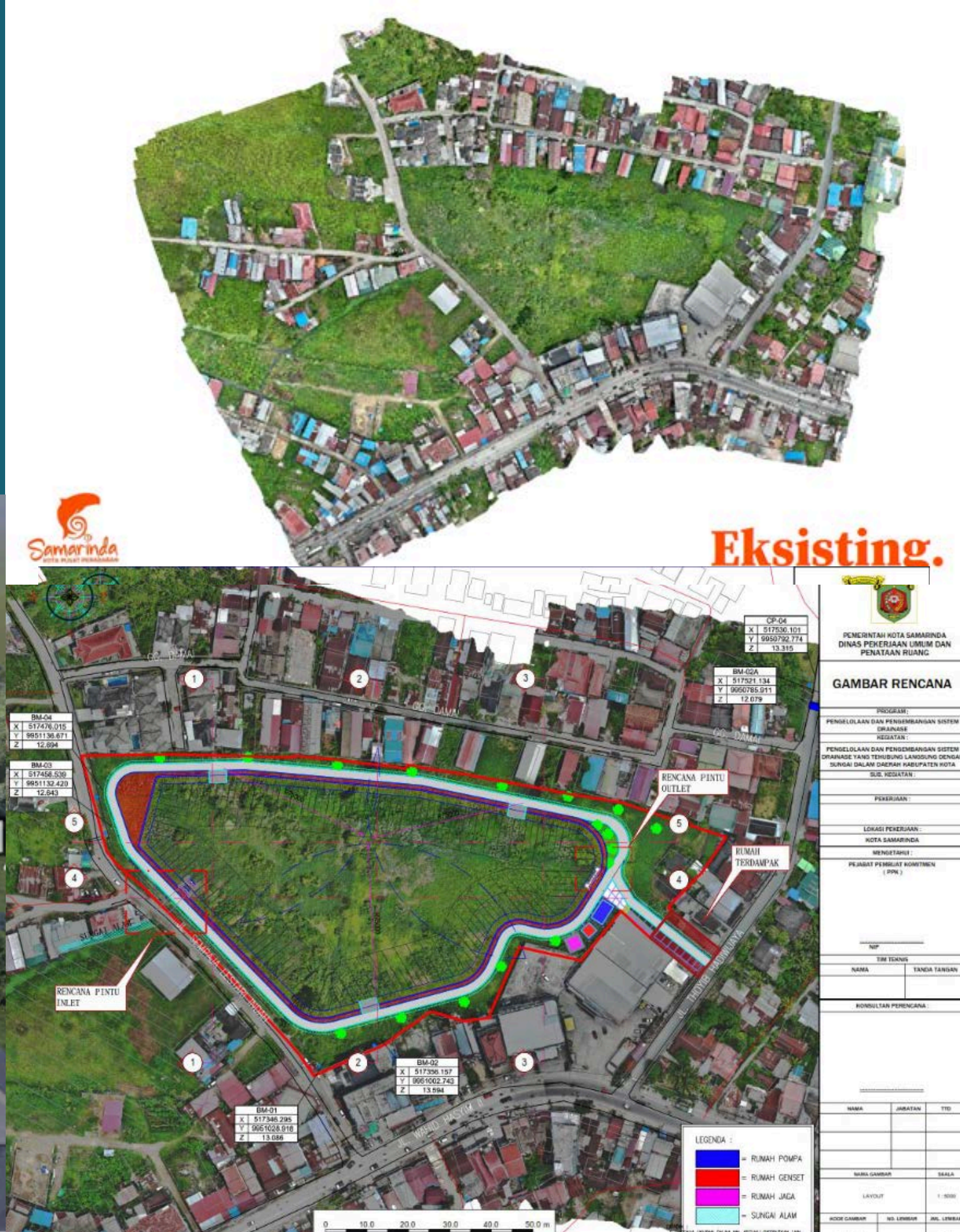
# River Normalization Program



# River Normalization (Death River at PM.Noor Street)



# Build the Retention Ponds with 100.000 m<sup>3</sup> capacity





# Flood Mitigation (Retention Pool Normalization)

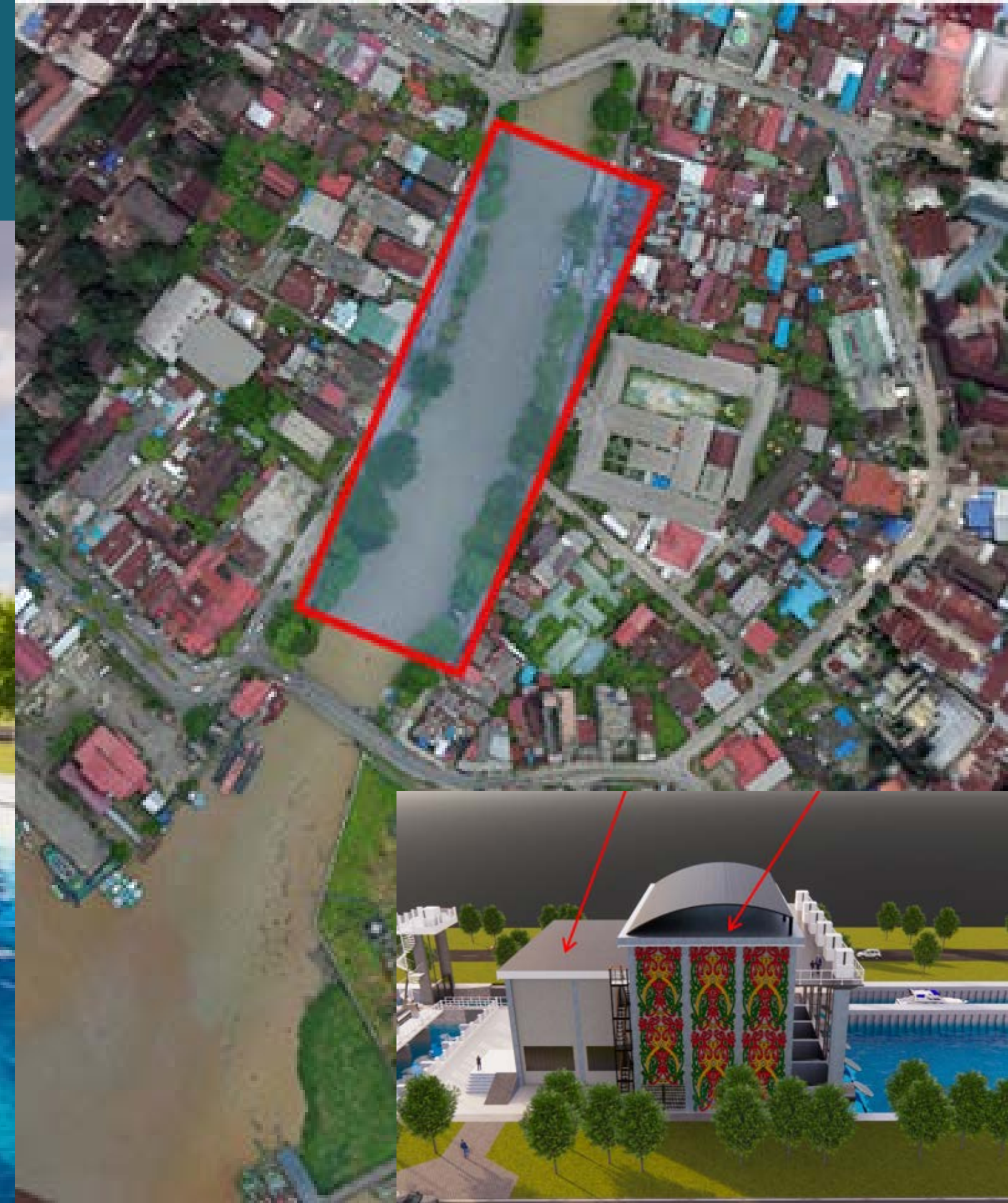


# Build Integrated & Modern Drainage System



# Installation of Sluice gate at Karang Mumus River

## Estuary of Karang Mumus River





# Law Enforcement



**FOKUS**  
DAERAH

**LUBANG TAMBANG YANG JEBOL DISASAR WALI KOTA**



# Law Enforcement



Coal Mining at Green Open Space Area




Riparian Area Breach




# Collaborate with Province and Central Government

Determining the Karang Mumus River Document support by National Government

KEMENTERIAN PEKERJAAN UMUM DAN PERUMAHAN RAKYAT  
DIREKTORAT JENDERAL SUMBER DAYA AIR  
BALAI WILAYAH SUNGAI KALIMANTAN III  
SATKER OPERASI DAN PEMELIHARAAN SUMBER DAYA AIR  
OPERASI DAN PEMELIHARAAN SUMBER DAYA AIR I  
Alamat: Jl. MT. Haryono No.36, Samarinda, Provinsi Kalimantan Timur 75123, tel/fax : (0541) 1068390




LAPORAN AKHIR



PAKET PEKERJAAN :  
PENETAPAN SEMPADAN SUNGAI KARANG MUMUS KOTA SAMARINDA

Nomor Kontrak : 56.A/HK.02.01/Bws10/OP-SDA-I/2020  
Tanggal Kontrak : 19 Maret 2020  
Tahun Anggaran : 2020

 **PT. GLOBAL REKAYASA KONSULTAN**  
consulting services  
Office : Jalan Candana 8 No.40 Kelurahan Jember Tiga Kecamatan Sengkang Kota, Kota Bekasi Arah 23114  
Contact Person 082367093118 Email: globalrekyasa@gmail.com

KEMENTERIAN PEKERJAAN UMUM DAN PERUMAHAN RAKYAT  
DIREKTORAT JENDERAL SUMBER DAYA AIR  
SATKER BALAI WILAYAH SUNGAI KALIMANTAN III  
Alamat : Kantor BWS K III, Jln. MT. Haryono No. 36, Samarinda, Provinsi Kalimantan Timur 75123  
Tel/fax (0541) 2060390, E-mail : bws.kalimantan.iii@pu.go.id



ASLI



LAPORAN AKHIR

Masterplan Drainase Utama Kota Samarinda

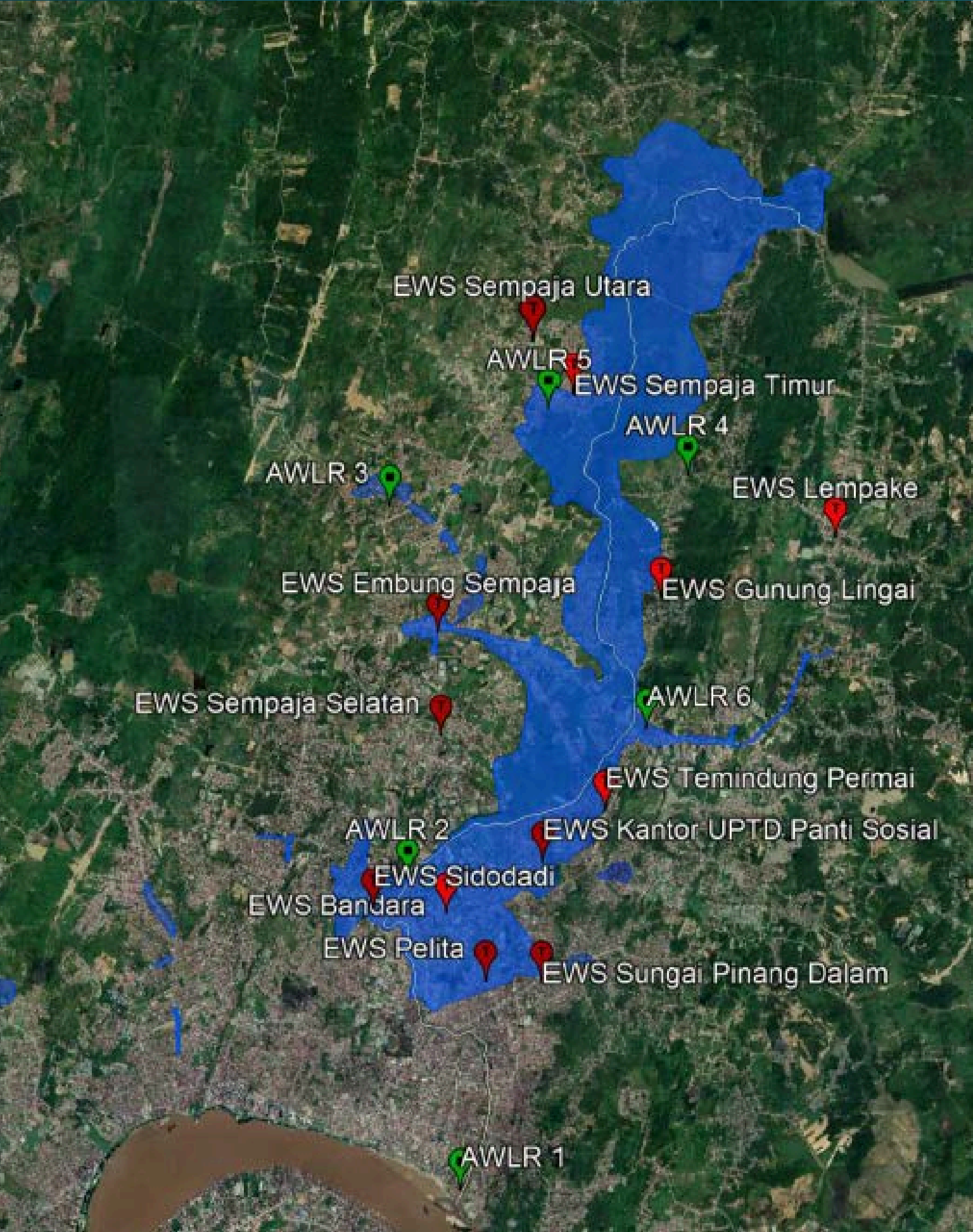


No. Kontrak : 47.4/HK0201/SatkerBws10/PP/2020  
Tanggal : 6 Maret 2020  
No. Kontrak ADD - I : 81.2/HK0201/ADD-I/SatkerBws10/PP/2020  
Tanggal ADD - I : 27 April 2020  
Tahun Anggaran : 2020

 **PT. SARANA BAGIA BUMI**  
Jl. Sigalkh No.1 Bandung Telp.022-528341 Fax.022-474000  
Email : pt.saranabagiabumi.com 48.p111@gmail.com

Samarinda City Main Drainage Master Plan support by National Government

# EARLY WARNING SYSTEM (EWS) & AUTOMATIC WATER LEVEL RECORDER (AWLR) AT KARANG MUMUS RIVER



No	Nama	Koordinat	
		Garis Lintang	Garis Bujur
1	AWLR 1 Muara SKM	-0.508	117.1567
2	AWLR 2 Ruhui Rahayu	-0.47626	117.1508
3	AWLR 3 Sempaja	-0.43869	117.1489
4	AWLR 4 S Lingai	-0.46052	117.175
5	AWLR 5 Bengkuring	-0.42748	117.1645
6	AWLR 6 TI Sari	-0.43413	117.1789
7	AWLR 7 S Siring	-0.39372	117.2583
8	AWLR 8 Pampang Dalam	-0.37423	117.2316
9	AWLR 9 SKM Hulu	-0.36356	117.266
10	AWLR 10 Griya Mukti	-0.44718	117.1702
11	AWLR 11 Pondok Surya Indah	-0.46242	117.1714
12	AWLR 12 Muang Dalam	-0.38263	117.1993
13	AWLR 13 Badak Mekar	-0.31785	117.2383

No	Nama	Koordinat
		Garis Lintang
1	EWS 1 Budaya Pampang	-0.38842
2	EWS 2 Kel. Sempaja Utara	-0.42046
3	EWS 3 Kel. Sempaja Timur	-0.42699
4	EWS 4 Kel. Lempake	-0.44037
5	EWS 5 Kel. Gunung Lingai	-0.44671
6	EWS 6 Embung Sempaja	-0.45069
7	EWS 7 Kel. Sempaja Selatan	-0.46147
8	EWS 8 Kel. Temindung Permai	-0.46899
9	EWS 9 Asrama Polisi Gelatik	-0.47361
10	EWS 10 Ruhuy Rahayu	-0.47621
11	EWS 11 Pasar Segiri	-0.48296
12	EWS 12 Kel. Pelita	-0.48661
13	EWS 13 Kel. Sungai Pinang Dalam	-0.48279



# Community participation: Clean Up the Karang Mumus River



**Before**

**After**



# Collaboration and Synergy for Tree Plantation (Gerakan Menanam Pohon)



# Community participation: River School as an instrument to increase awareness



**AIM**

***“Samarinda as a Sustainable  
and Climate-Resilience City”***

# A Sustainable and Climate-Resilience City

Strategy 1: The new visions of Samarinda City in the Long-Term Development Plan

Objective 6 In Realising a Resilient and Sustainable City

1. Disaster Risk Index

2. Percentage of flooded areas that are handled

In collaboration with UCLG ASPAC through CRIC Project - **Samarinda Climate Action Plan** (GHG analysis, reducing GHG emission target, risk and vulnerability index, and integrated climate mitigation and adaptation plan)



# River Normalization Program for Climate Resilient Public Space & the arrangement of the riparian area



# A Sustainable and Climate-Resilience City

## Strategy 2: Climate Resilient Public Space and the arrangement of the riparian area



Embracing The Sun Project: Redefining public space as a solution to address the impacts of global climate change in Samarinda

On going and will be finish on October 2024

Adaptation Fund (USA)-Kemitraan Partnership (Republic of Indonesia)-Cecur-Samarinda City



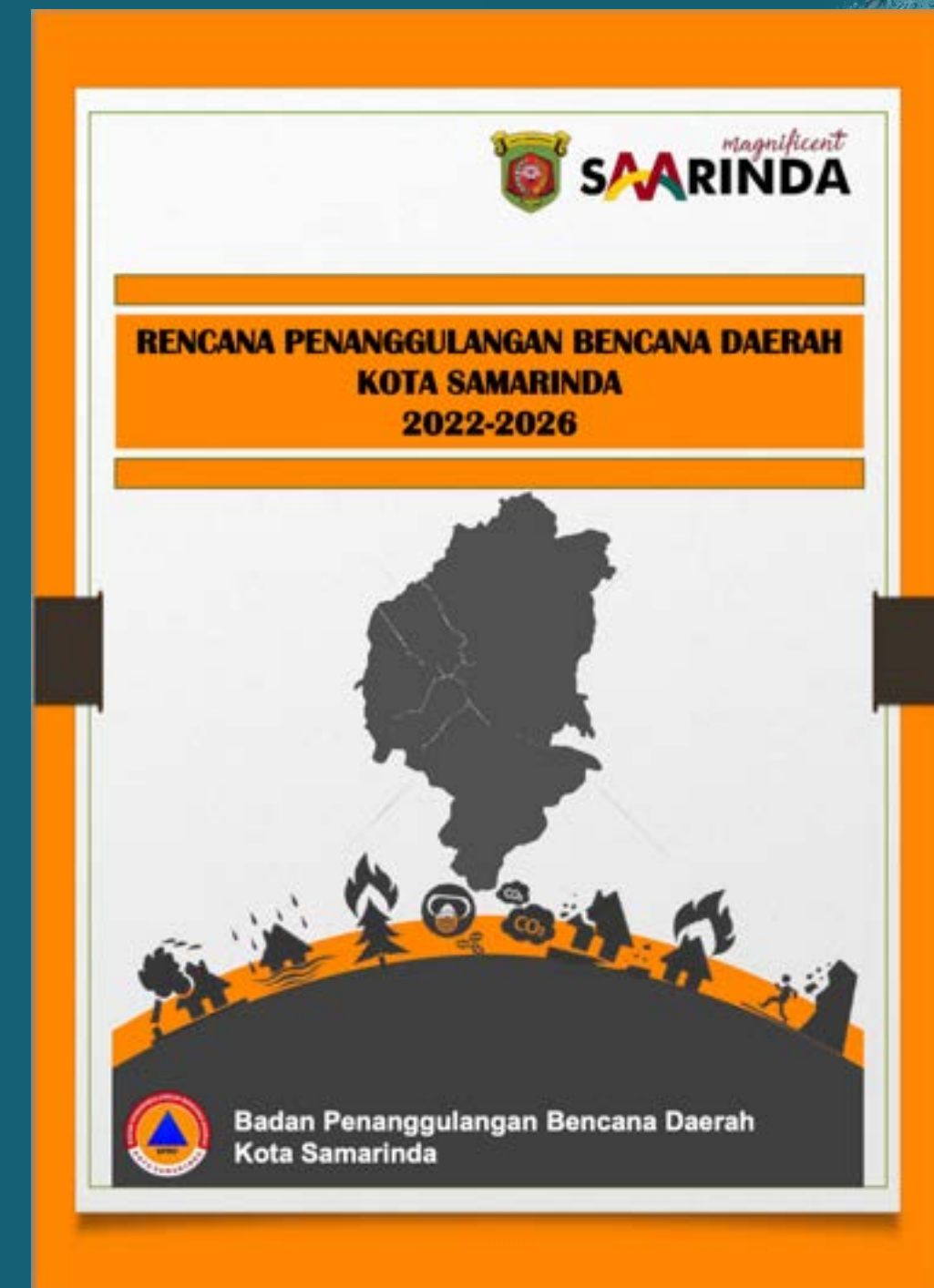
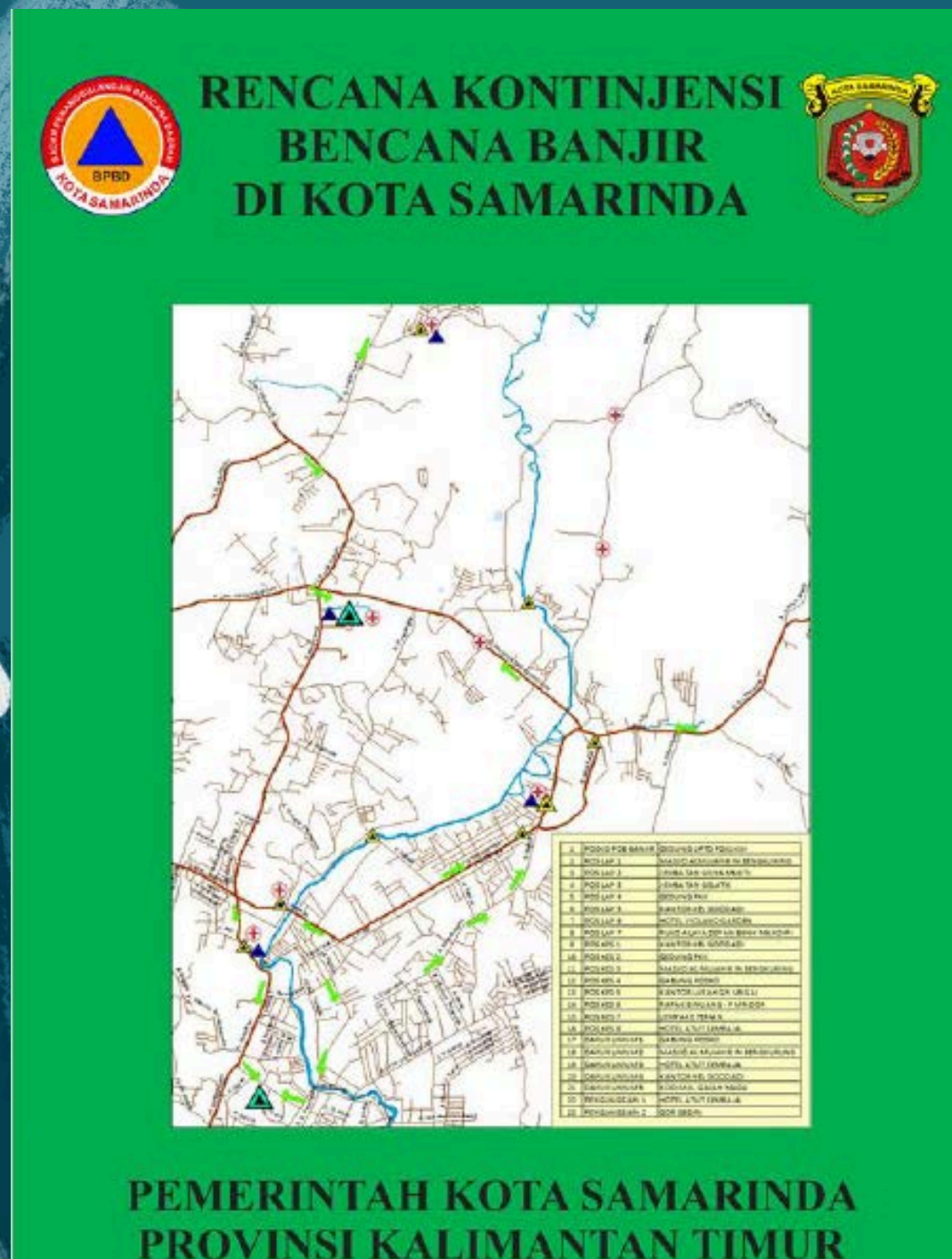
## Parameter Desain

1. Community-Centric Design
2. Cultural Integration and Education
3. Fostering Entrepreneurship
4. Health and Well-Being in Public Spaces
5. Environmental Sustainability
6. Accessibility and Inclusivity
7. Connection to Natural Systems
8. Materiality and Local Craftsmanship
9. Movement and Connectivity
10. Ecosystem and Biodiversity
11. Local Climate Adaptation
12. Place operating (dynamic urban life)

## Design Parameters

# A Sustainable and Climate-Resilience City

## Strategy 3: Disaster Management & Contingency Document





# A Sustainable and Climate-Resilience City

## Strategy 4: Climate Change Action Working Group



WALI KOTA SAMARINDA  
PROVINSI KALIMANTAN TIMUR

KEPUTUSAN WALI KOTA SAMARINDA  
NOMOR: 000.9-05/033/HK-KS/I/2024

TENTANG

KELOMPOK KERJA AKSI PERUBAHAN IKLIM KOTA SAMARINDA

WALI KOTA SAMARINDA

- Menimbang :
- a. bahwa kota tangguh iklim dan inklusif merupakan target dari aksi-aksi perubahan iklim yang menjadi upaya daerah dalam pembangunan berkelanjutan.
  - b. bahwa dalam penyusunan strategi khusus dalam menaggulangi perubahan iklim global perlu dilakukan sinkronisasi program pada Pemerintah Kota Samarinda sehingga dapat mendukung ketahanan iklim dalam mengantisipasi dampak negatif perubahan iklim.
  - c. bahwa berdasarkan pertimbangan sebagaimana dimaksud pada huruf a dan huruf b, perlu ditetapkan dalam keputusan Wali kota;

- Mengingat :
- 1. Undang-Undang Darurat Nomor 3 Tahun 1953 tentang Perpanjangan Pembentukan Daerah Tingkat II di Kalimantan sebagai Undang-



# A Sustainable and Climate-Resilience City

## Strategy 5: Commitment to climate change through regulation and multi-stakeholder collaboration

- Regional Regulation No. 5 of 2021 concerning Amendments to Regional Regulation No.02 of 2011 concerning **Waste Management**
- Regional Regulation no. 6 of 2021 concerning **Protection of Sustainable Food Agricultural Land**
- **Regional Regulation No.7 of 2023** concerning **Samarinda City Regional Spatial Plan for 2023-2042 : including coal mining activities in Samarinda**, There is no permit renewal or permit extension, only the existing concession period can be completed.
- Samarinda Mayor Regulation No.18 of 2022 concerning Supervision and Implementation of Administrative Sanctions for Waste Management : **socialization is ongoing**
- Samarinda Mayor Regulation No.63 of 2022 concerning **Regional Disaster Management Plans** for 2022-2026
- **14 Climate Villages** in Samarinda and **75 units waste bank**
- **Pentahelix Collaboration** with non state actor: **Movement to Pick Up a Piece of Trash** on the Karang Mumus River (GMSSSKM), World Clean Up Day Organization, and so on.
- Collaboration to create **green space** and support climate-village program with private sectors



**THANK YOU**

**Andi Harun  
Mayor of Samarinda**