Climate Resilient and Inclusive Cities (CRIC) Urban Analysis
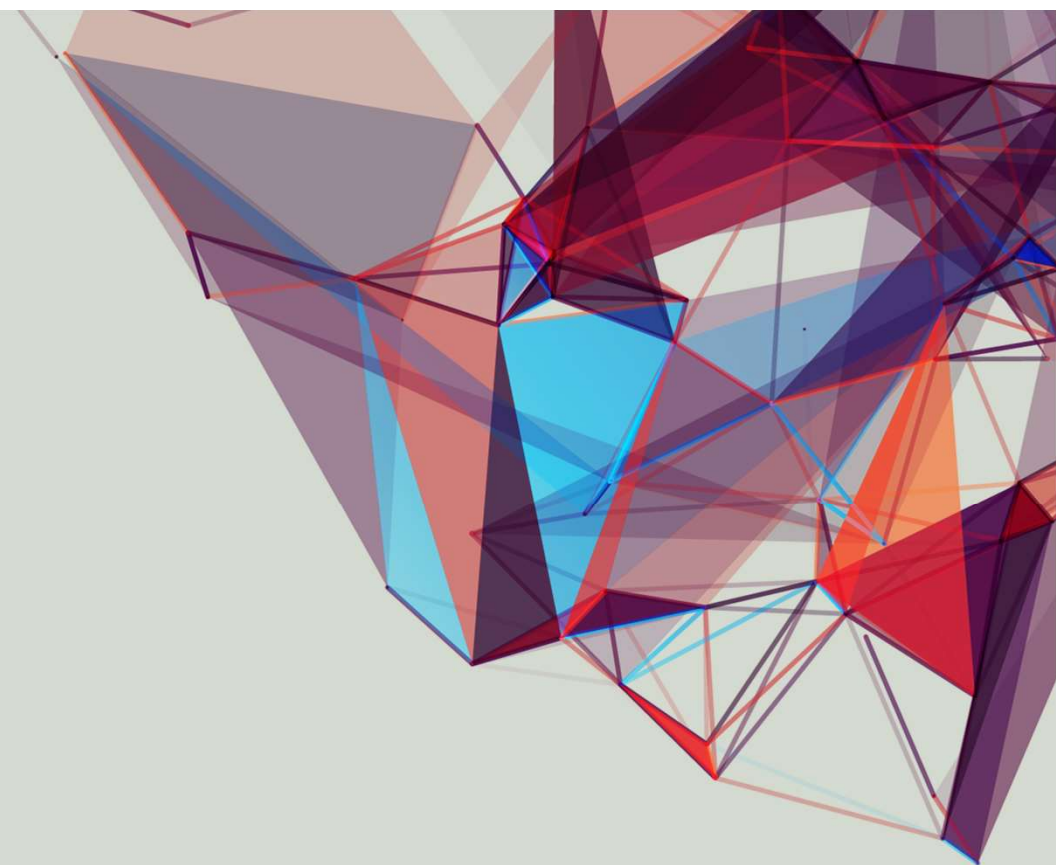
Progress Report

Lead Expert: Mulya Amri, PhD
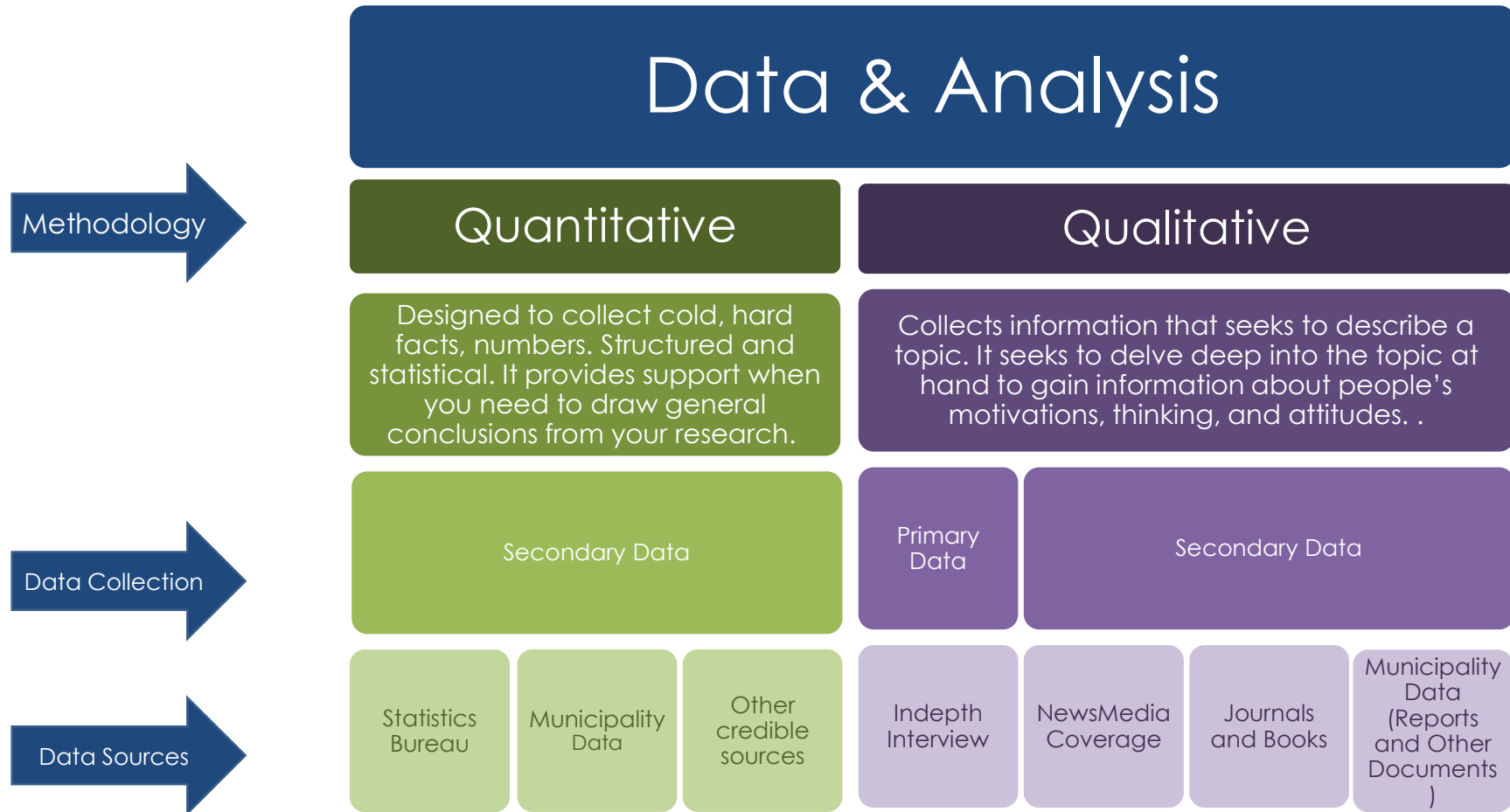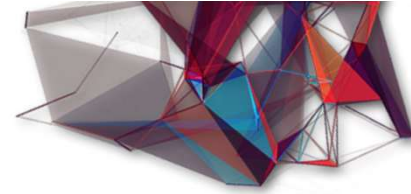Team Member:
Jamalianuri
Risanti Delphia

Katadata
Insight
Center

Methodology

Data & Analysis

Quantitative	Qualitative
Designed to collect cold, hard facts, numbers. Structured and statistical. It provides support when you need to draw general conclusions from your research.	Collects information that seeks to describe a topic. It seeks to delve deep into the topic at hand to gain information about people's motivations, thinking, and attitudes. .

Methodology →

Data Collection →

Secondary Data	Primary Data	Secondary Data

Data Sources →

| Statistics Bureau	Municipality Data	Other credible sources	Indepth Interview	NewsMedia Coverage	Journals and Books	Municipality Data (Reports and Other Documents)

Salient Features of Banjarmasin City

Banjarmasin is the **capital city** of South Kalimantan

Area: 98.46 km2
Population (2019): 708,606

Part of Banjarkula Metropolitan Area (total population 1.9 million, equivalent to 52% of South Kalimantan Population)
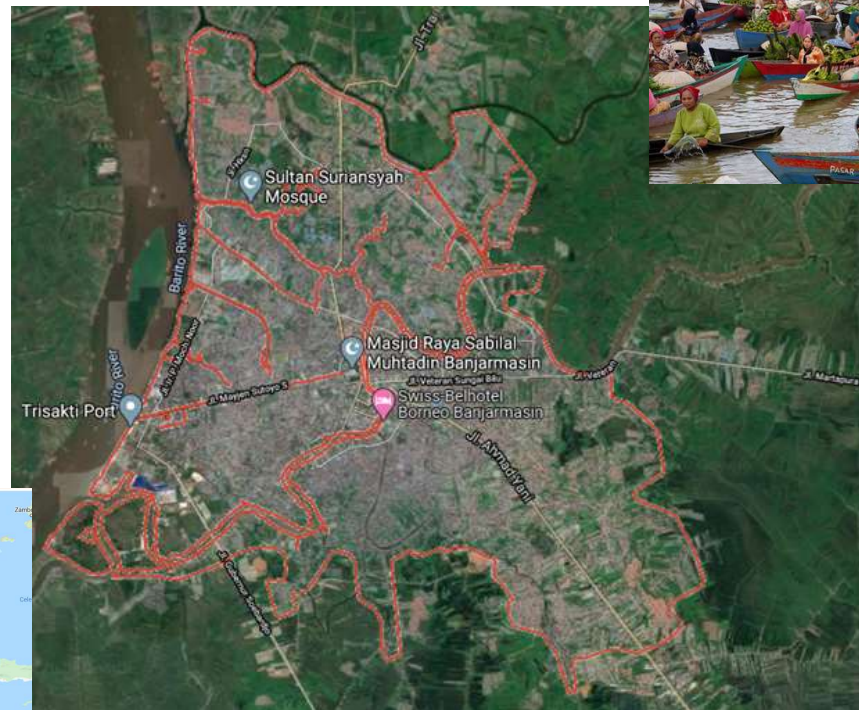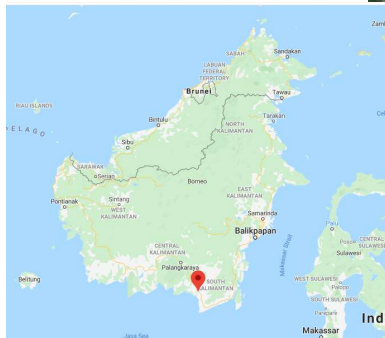
A **"city of a thousand rivers"**: There are 102 rivers with a total length of 184 km. The largest one, Barito, is about 700 m wide.

Banjarmasin land is **16 cm below sea level** and relatively flat with an average slope of 13%.

Surrounded by forests, oil palm plantations, and mineral resources (coal mines). Often causing upstream pollution of rivers

Disaster Preparedness, Prevention, and Resilience
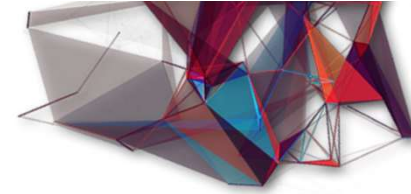
Three main issues of disaster resilience & climate change in Banjarmasin

Tidal Floods

Residential & Forest Fires

Greenhouse Gas Emissions

MITIGATION (Initiative & Regulation)

- Data collection on tide points
- River normalization (concrete embankment)
- Clearing from riverbank settlements
- Mandatory requirement for stilt houses

- Strengthening Disaster Resilience Campaign/ Dissemination
- Study of the areas most at risk
- 279 fire fighting units
- Disaster and fire alert posts

- Increasing the area of Green Open Space
- Improve public transportation
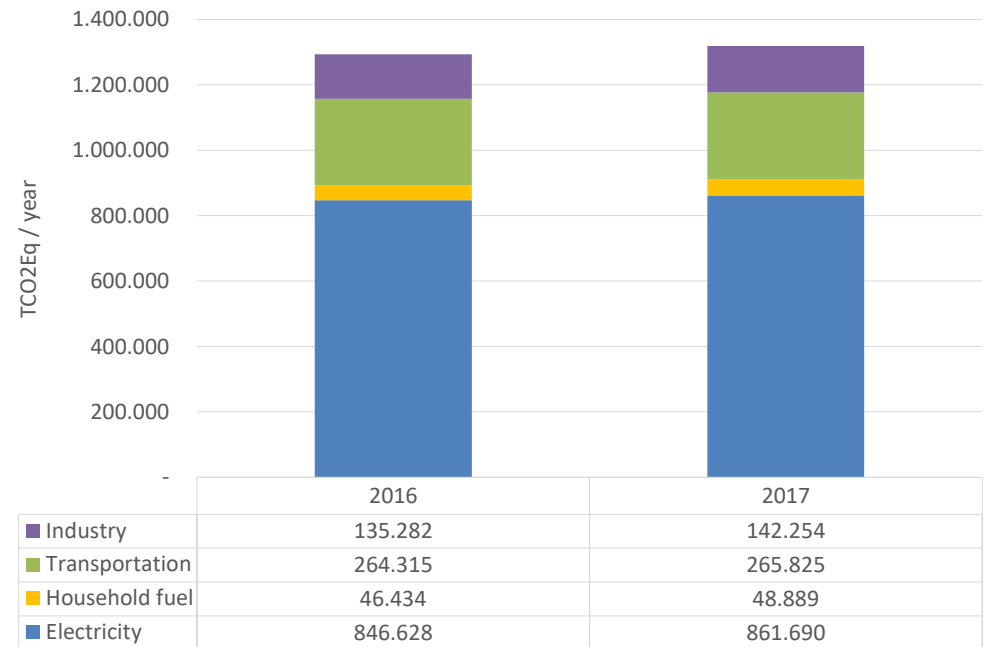- Tree plantings & public parks

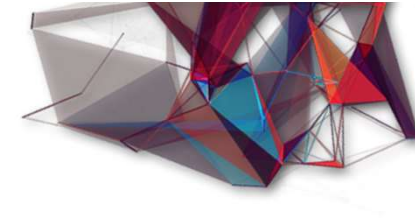# Air Pollution and GreenHouse Gas (GHG) Mapping
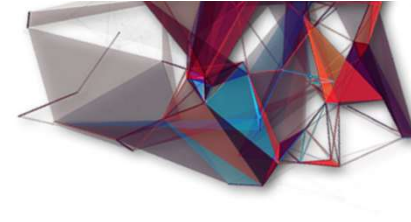
Air Quality Index:

Score: **17** (relatively good)

Main source of pollution:

Land transportation (**75%**) and industrial activities.
Private vehicles are pervasive

GHG Emissions from Energy Usage in Banjarmasin (2016-2018)

TCO2Eq / year

	2016	2017
Industry	135.282	142.254
Transportation	264.315	265.825
Household fuel	46.434	48.889
Electricity	846.628	861.690

Water Pollution and Waste Management

Water Pollution

PDAM (Municipal Water Agency) supplies clean water to 172,000 customers (99% of residents). Main source: rivers and reservoirs
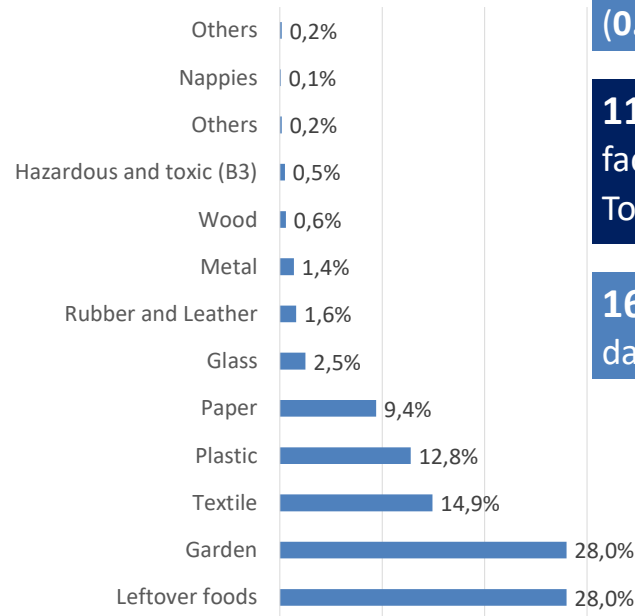
Declining water quality: affected by pollution from both upstream activities (mining and deforestation) and local pollution

River conditions: silting and damage due to pollution by residents and businesses.

Drinking Water Quality from river: moderate to heavily polluted (parameters: DO, BOD, COD, and e-coli)

Waste Management

**Waste Composition in Banjarmasin is Dominated by Organic Wate**

Category	Percentage
Others	0,2%
Nappies	0,1%
Others	0,2%
Hazardous and toxic (B3)	0,5%
Wood	0,6%
Metal	1,4%
Rubber and Leather	1,6%
Glass	2,5%
Paper	9,4%
Plastic	12,8%
Textile	14,9%
Garden	28,0%
Leftover foods	28,0%

Source: Banjarmasin City Environmental Agency, 2019

About 500 tons of solid waste per day (**0.7 kg**/person per day).

113 waste disposal facilities (TPS) Total Capacity: 1,000 m3.

166 tons of waste per day was not managed
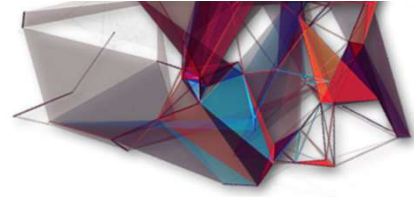
Land use, spatial planning, housing and green open spaces

Current Green Open Space Ratio:
**5-6% of city's land area**

- Ultimate target, as mandated by spatial planning law: 30%
- **Short-term target: 9.5% (2020)** Budget allocation in 2020: IDR 13.8 billion

Problems

- Clearing privately owned areas for green open space is not feasible; only government land can be utilized
- The initial budget is cut due to Covid-19 pandemic
- Revised spatial plan: Additional 1% of green space to be added per year until 2032.

Housing and informal settlements

- "River culture": dependency on river for physical, social, and economic life
- Living above water is an identity of the city
- But buildings on the riverbank create environmental problems, especially on the floodplain and green belt
- Many riverbank dwellings are informal settlements
- Poor people living in vulnerable areas are targeted to be relocated to rusunawa (low-income rental apartments)
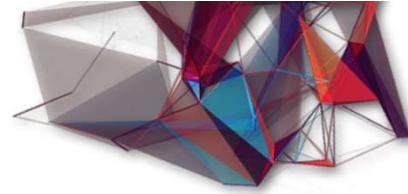
Participation of civil society and governance

| Minimal Participation of the Private Sector	Low Engagement with Civil Society
Entrepreneurs do not play a substantial role in environmental protection	Community and civil society participation is accommodated in annual development planning meetings (Musrenbang) & othe government forums. However, the level of participation is tokenism (formality).
Awareness to reduce GHG emission is minimal	
Many companies do not have clear Standard Operating Procedures in environmental management	Some NGOs are actively advocating environment and disability issues.
Only **25%** of entrepreneurs have controlled their waste	Local government argues that lack of understanding, low level of education, and lack of interaction with people are reasons of why civil society engagement is low
The municipality lacks regulatory enforcement capacity	

Source: Interview with APINDO, 2020

Articulation of national policies by local government
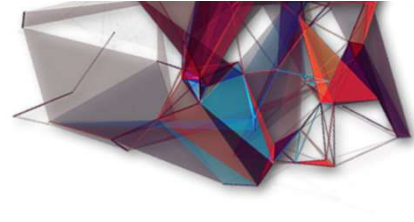
- Local government is obliged to issue regional regulations based on national laws
- National Policy for Managing Slum Settlement 2015-2019: Banjarmasin has adopted Zero Slum agenda as stated in Mayor Decree No. 488A/DPU-CK/ VII/2009 regarding the priority of handling squatter areas and traditional settlements)
- Other policy documents: Master Plan for Smart City, for GHG emission
- Several national level initiatives have not been implemented at the local level (e.g. Local Action Plan for GHG emissions)

Best practices (initiatives) and challenges of the municipality

| Best Practice |
|---|
| • **Increase public transportasion use**
Until 2020, Banjarmasin has 9 Bus Rapid Transit fleets in 2 corridors. This is far from the ideal condition of having 13 corridors.

• **Stilt building as local wisdom**
The government issued Regional Regulation No. 14 of 2009 to make Stilt Buildings mandatory. This policy is related to the process of adaptation to tidal conditions as one of the impacts of climate change. |

Challenges
• Development of green open space constrained by land acquisition issues • Difficulty in changing the behavior of communities living along the riverbanks • Difficulty in coordinating with nearby regions • GHG Emission is not well managed, no coordination to conduct GHG inventory • Limited budget and not enough collaboration in creative financing

Recommendations
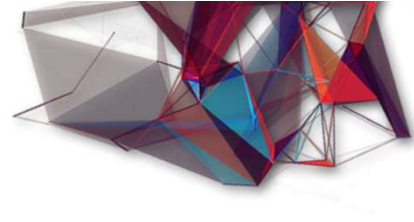
- Adopt a City-level Action Plan for GHG emissions reduction
- Conduct comprehensive environmental assessment related to climate change mitigation to improve water quality and GHG emissions
- Conduct large-scale climate awareness campaign
- Build regional collaboration with nearby districts (kabupaten and kota) to deal collectively on watershed, pollution, forest fires, etc., which are cross-jurisdiction
- Explore non-state funding (e.g. PPP, impact investing) to fund sustainable programs