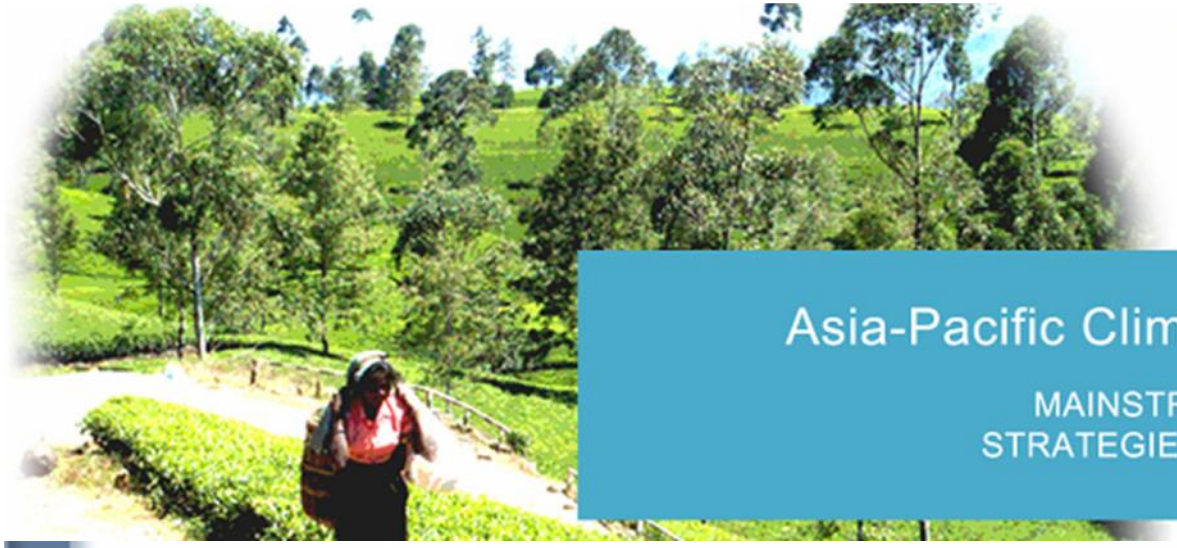

18-20 March 2013
Incheon, Republic of Korea

Asia-Pacific Climate Change Adaptation Forum

MAINSTREAMING ADAPTATION IN DEVELOPMENT:
STRATEGIES AND ACTIONS IN A CHANGING CLIMATE

MAINSTREAMING CLIMATE CHANGE ADAPTATION IN INDONESIAN CITIES

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KOBE UNIVERSITY – JAPAN

OUTLINE

- BACKGROUND
- OBJECTIVE
- CASE 1: SEMARANG CITY
- CASE 2: TARAKAN CITY
- CITIES COMPARIONS
- CONCLUSIONS
- REFERENCES

BACKGROUND (1)

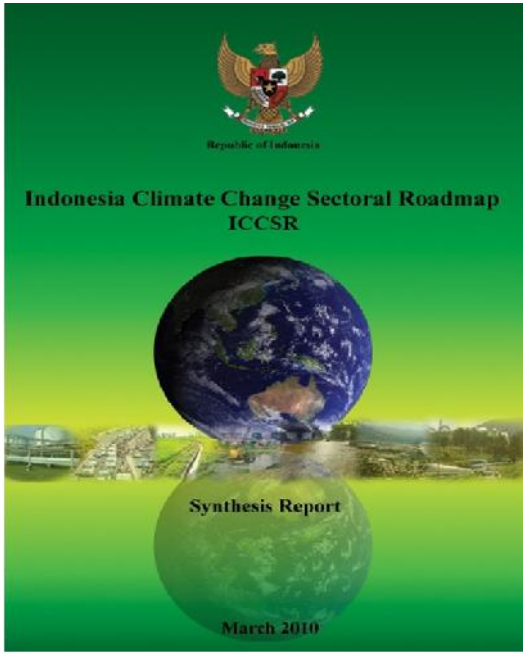
Global climate change discourse:
1)Highly-contested mitigation agreement and actions,
2) Pressing needs on climate change adaptation

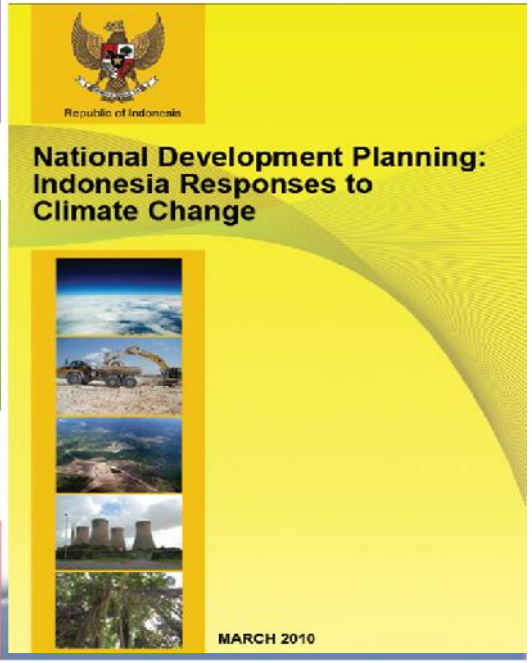
In Indonesia: National-level initiative on climate change adaptation policies catching up GHGs Reduction Commitment → Formulation of state-level responses

However, in adaptation to climate change, local (city) level risk assessment and adaptation planning is more urgent.

While several cases can be found (and scattered), its mainstreaming to development planning in Indonesia is still subject for debate in its effectiveness

Study question: how is the current practices of climate change adaptation in Indonesian cities?





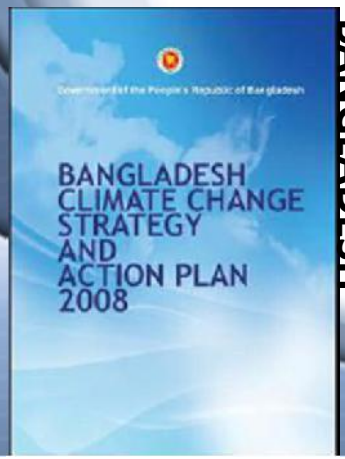
BACKGROUND (2)

INDONESIA

Scale	Scope	Outcome of Planning	Data and Analysis	Accuracy	Finance	Example
Macro	National	Adaptation Policy	Qualitative	Low	Low	Indonesian Climate Change Sectoral Roadmap (ICCSR)
Meso	Provincial	Adaptation Strategy	Qualitative - Quantitative	Medium	Medium	South Sumatra, Nusa Tenggara Barat, Greater Malang CRAAs
Micro	Local	Adaptation Actions	Quantitative	High	High	Semarang City, Bandar Lampung City, Tarakan City , Blitar City, Jakarta City CRAAs

Table 1 Level of Climate Risk and Adaptation Assessment [Source: modified from Suroso et al (2008), based on Massner (2005)]

REST OF THE WORLD



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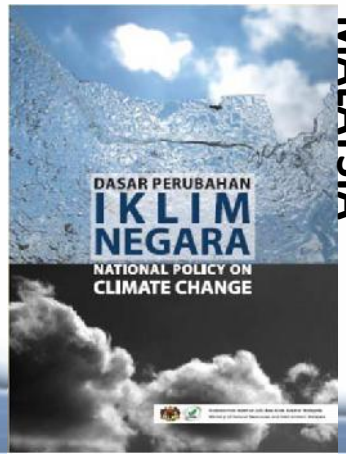
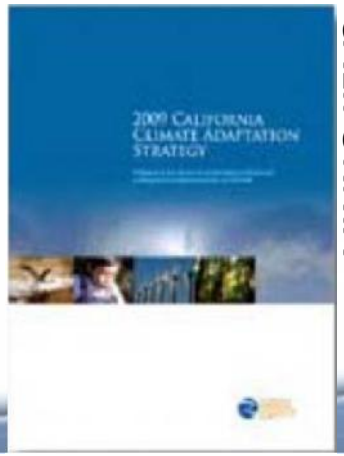


MALAYSIA



CALIFORNIA

LONDON

BACKGROUND: STUDY LOCATIONS

Semarang City

City size: 374 km^2

Pop. 1.48 million (2008)

Pop. Proj. 2 million (2030)

GDP 3,814 mil. USD (2008)

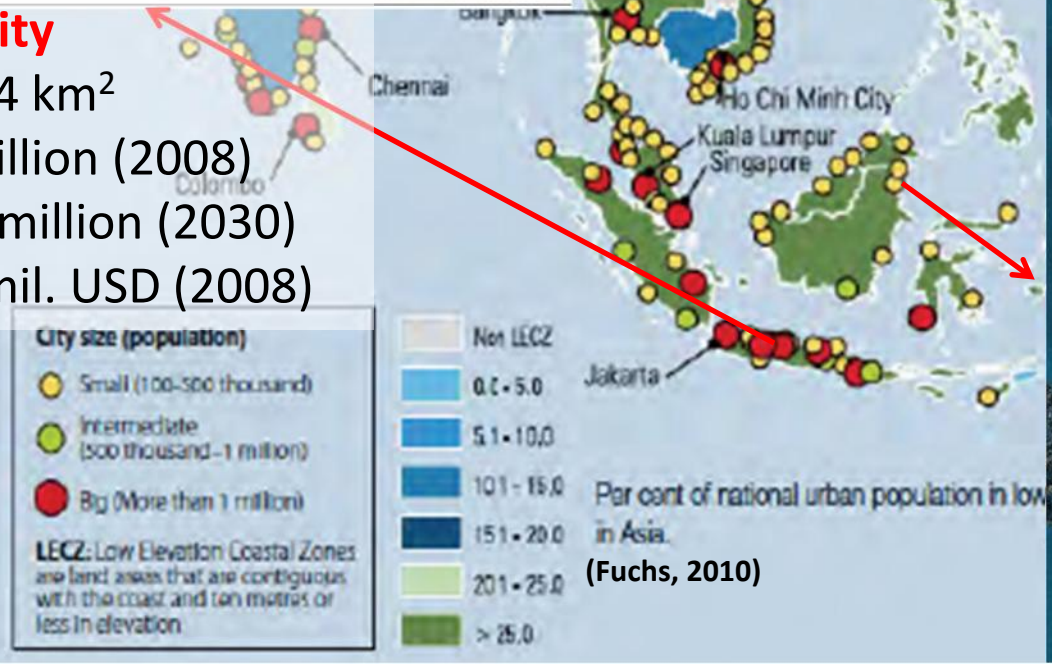
GDP 654.77 mil. USD (2008)

Pop. Proj. 404,346 (2030)

Pop. 193,069 (2010)

City size: 657.33 km^2

Tarakan City



(Fuchs, 2010)

OBJECTIVES

"Explore the current practice of climate change adaptation assessment in Indonesian cities; with examples from Semarang And Tarakan city"

Process tracing on climate-risk assessment on both cities.

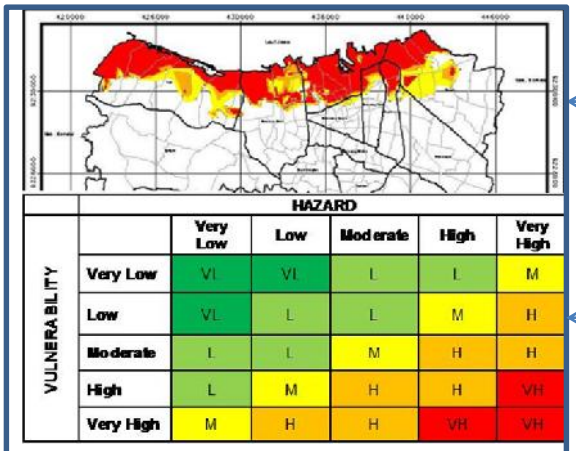
Identification of actors and their roles in both cities.

Identification on climate-adaptation outputs and outcomes.

Cities Comparisons:

Strong Points and Limitations → Lessons learnt

CRAA: THEORETICAL DISCOURSE



VULNERABILITY \ HAZARD	Very Low	Low	Moderate	High	Very High
Very Low	VL	VL	L	L	M
Low	VL	L	L	M	H
Moderate	L	L	M	H	H
High	L	M	H	H	VH
Very High	M	H	H	VH	VH

Who is at risk?
Where is the risk?
How is the magnitude of risk?

R = H x V

E x S / AC

Present Risk

Future Risk (e.g. +30 years)

reduce

ADAPTATION OPTIONS

Risk (R) = Hazards (H) x Vulnerability (V)
Affeltranger et al (2006)

Vulnerability (V) = Exposure (E) x Sensitivity (S) / Adaptive Capacity (AC)

IPCC (2001)

Questions for policy studies:

Who joined the risk assessment processes?
How the data being gathered? Who supplied?
What are the selected adaptations?
How and who decide the adaptation?
What are the outputs and outcome?
What is the status of mainstreaming?

- **Resilience Building**
- **Development Transition**
- **Social Transformation**
  (Beck's Risk Society)

(Pelling, 2011)

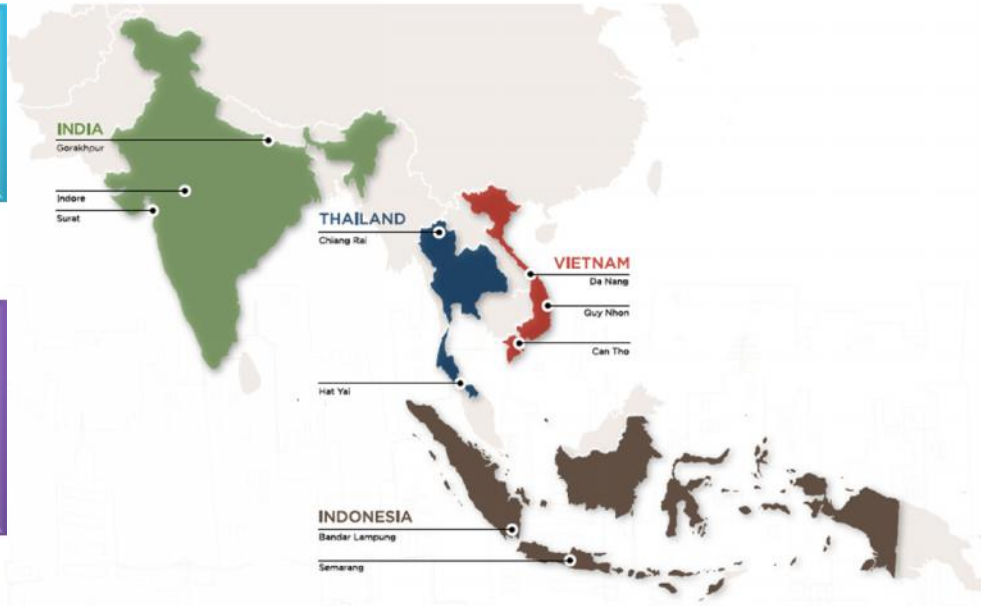
SEMARANG CITY: AT GLANCE

Semarang City as one of the most vulnerable coastal cities in Indonesia

Proposal to involve in Asian Cities Climate Change Resilience Network and Selection process by Donor

Climate-risk assessment (coastal, water, and health sectors) → City Working Group

List of proposed adaptation activities (City Resilience Strategy)



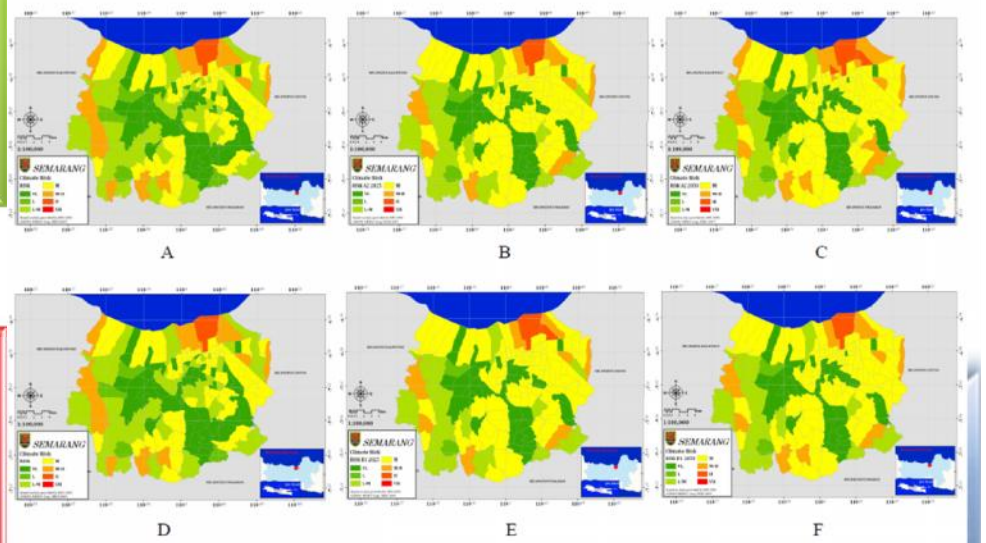
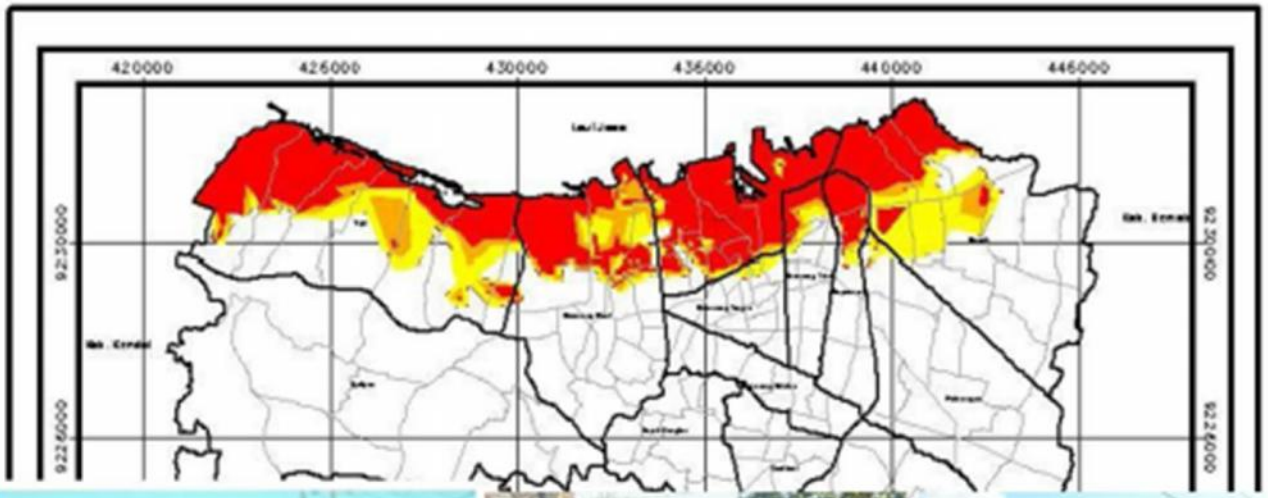


Figure 5. Classification of Kelurahan based on their level of their exposure to climate risk (A)& (D) Climate risk baseline, (B) Climate risk A2 2025, (C) Climate risk A2 2050, (E) Climate risk B1 2025, (F) Climate risk B1 2050

SEMARANG CITY: THE RISK

Groups at Risk	Direct Impacts	Indirect Impacts	Sectors Affected
• Urban poor living near coast • Fishpond farmers • Female-headed households • The elderly • Children • Those without land titles	• Salinization of arable land • Infiltration of drinking wells • Infiltration of fish ponds • Damage to businesses • Damage to and loss of housing/ property	• Increase in price of commodities • Unemployment • Migration • Health epidemics • Farmers shift to wage paying labor • Decrease in investment to city	• City drainage system • Public health system • Emergency services • Housing authority • Public water supply system • City social services



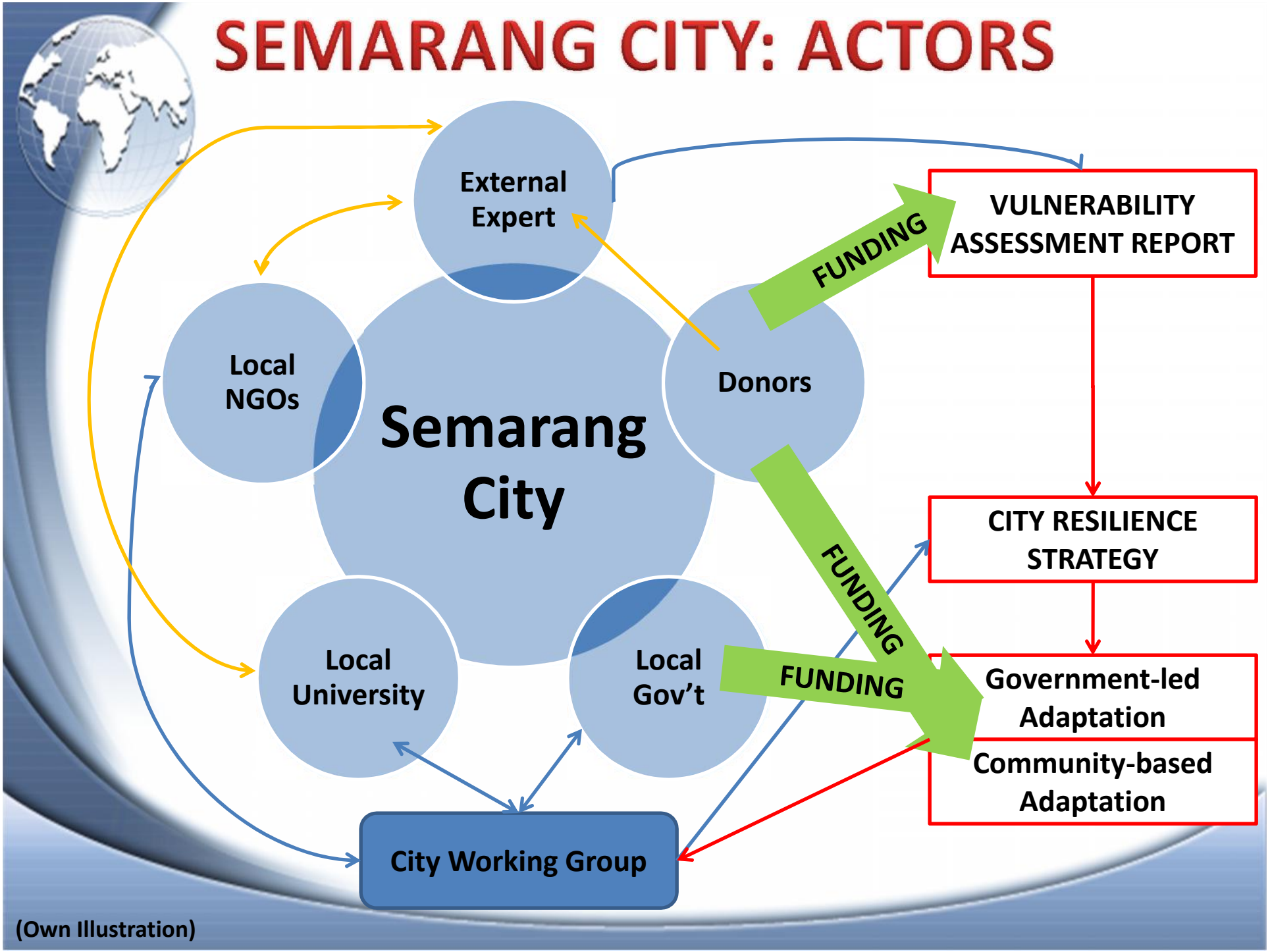
Impact of flood and SLR

ACTIVITY	IMPACT
Fishpond	2,889 ha
Farming	902 ha
Settlement	10,425 houses
Infrastructure	2,27 km

Economic Loss (IDR)/year

ACTIVITY	IMPACT
Mangrove	US $ 81,000
Fishpond	US $ 12,500
Farming	US $ 3,2 million
Settlement	US $ 23 million
Infrastructure	US $ 0,5 million

SEMARANG CITY: ACTORS



(Own Illustration)

SEMARANG CITY: PROCESS

SLD 1:
8/20 '09

- ✓ Kick-off meeting: Climate change context in Semarang
- ✓ Raising stakeholder awareness

SLD 2:
1/30 '10

- ✓ Vulnerability Assessment result –Dialogue
- ✓ Question of role from each stakeholder

Climate Task Force (City Team) Inauguration

SLD 3:
5/6 '10

- ✓ Presentation of 4 Pilot projects
- ✓ Draft of City Resilience Strategy Dissemination

SLD 4:
6/15 '10

- ✓ Working Plan City Resilience Strategy
- ✓ Rainwater harvesting concept introduction
- ✓ Mainstreaming City Resilience Strategy issues

SLD 5:
11/11 '10

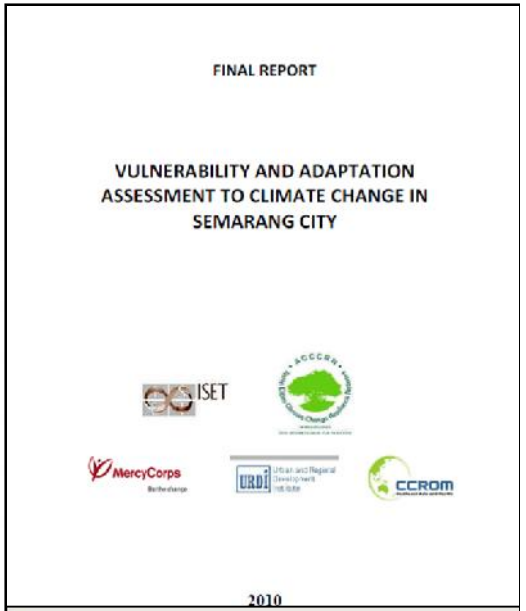
- ✓ Inauguration of City Resilience Strategy
- ✓ Ensure continuation of support for 4 Pilot Projects & Rainwater

(Own Illustration, based on SLDs Minutes of Meetings)

***SLD: Shared Learning Dialogue**

SEMARANG CITY: OUTPUT

- **Final Report – Vulnerability and Adaptation Assessment to Climate Change in Semarang City**
- **Government-Donor led projects (2011-now):**
  - Pre-feasibility Study for Expanding Rainwater Harvesting Systems
  - Flood Forecasting and Warning System
- **Pilot projects/*Community-based* (2011-now):**
  - Land Consolidation Project (Model) in Sukorejo Sub-District.
  - Micro Finance Program: Community-based Revolving Fund for Sanitation Improvement in Kemijen Sub-District.
  - Coastal Community Adaptation in Tapak Tugurejo Sub-district; *with focus on mangrove conservation.*
  - Community-based Adaptation to Climate Change Impacts (Landslide and Cyclone) in Tandang Sub-District



TARAKAN CITY: AT GLANCE

Donor communication with National Government: Policy Advice on Environment and Climate Change

Tarakan city selection through intensive and close network between Donor – National Government – University (expert) – Local Government

Study on Climate Risk and Adaptation Assessment for Tarakan City (micro level): Coastal, Water, and Health sector

Baseline for adaptation actions recommendation and its implementation

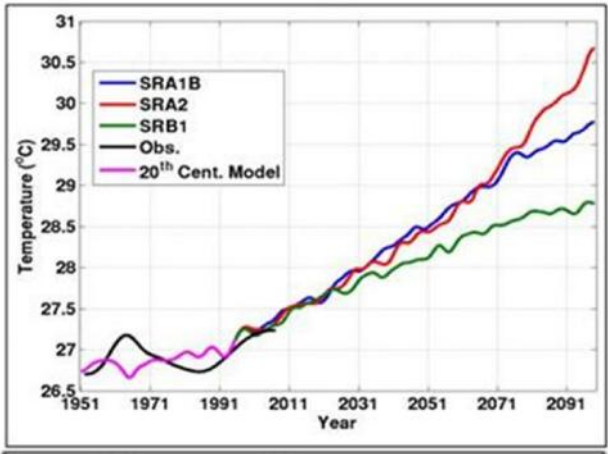
Area with Risk of Inundation in 2030

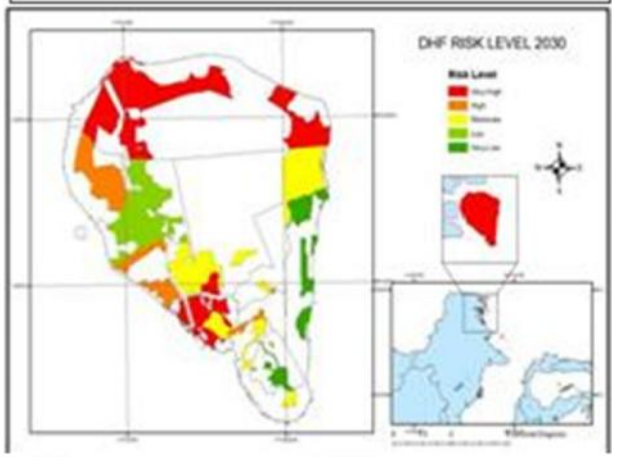
(Latief et al, 2011)

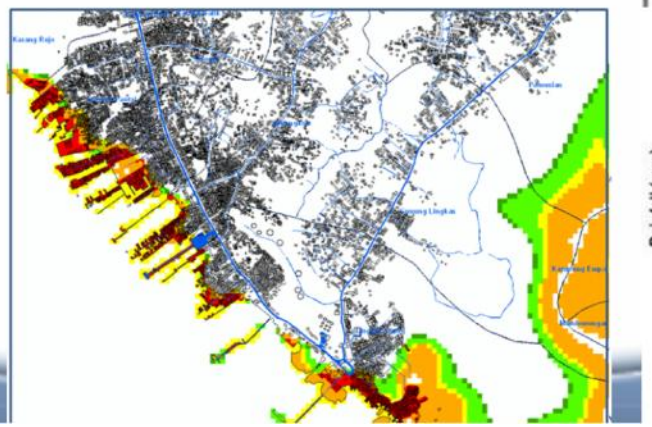
TARAKAN CITY: THE RISK

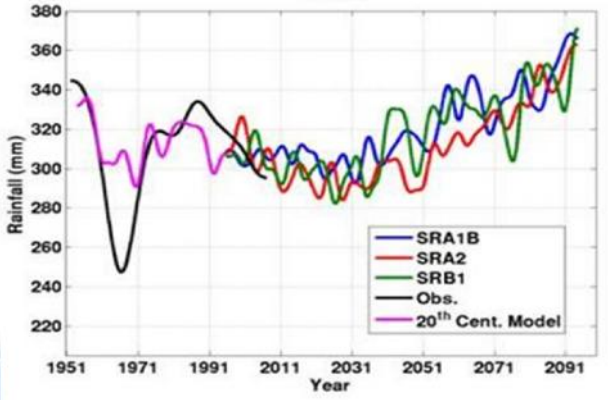
- **Confirmed trend of sea-level rise** → will continuously affect life of highly-dense coastal settlement, location for **80% of population and economic activities** → Population at risk to SLR: 117,747(2011) and rising to 263,005 (2030, approx.)
- **Increased temperature** (and continuous) trend for the last 25 years around 0.63^{o} C → **increased risk of DHF and malaria prevalence** for > 50% of population.
- **Confirmed increased extreme rainfalls** will leads to increased **risk of flood and landslide** in five major watersheds, passing highly-dense settlement.

(Suroso et al, 2012)









TARAKAN CITY: ACTORS

Donors

External Expert (Nat. univ)

Central Gov't

Local Gov't

Local Univ.

FUNDING

EXPERTISE

RISK ASSESSMENT REPORT

Workshop & Capacity Building

CITY ADAPTATION ACTIONS PLAN

Government-led Adaptation

National Guideline (Provisional draft)

(Own Illustration, based on involvement in the project)

TARAKAN CITY: PROCESS

CRAA PROCES

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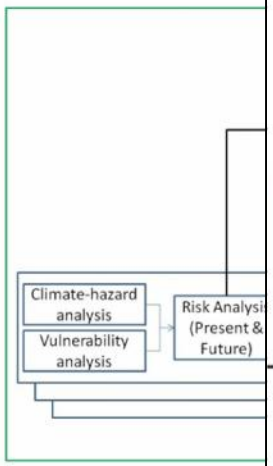

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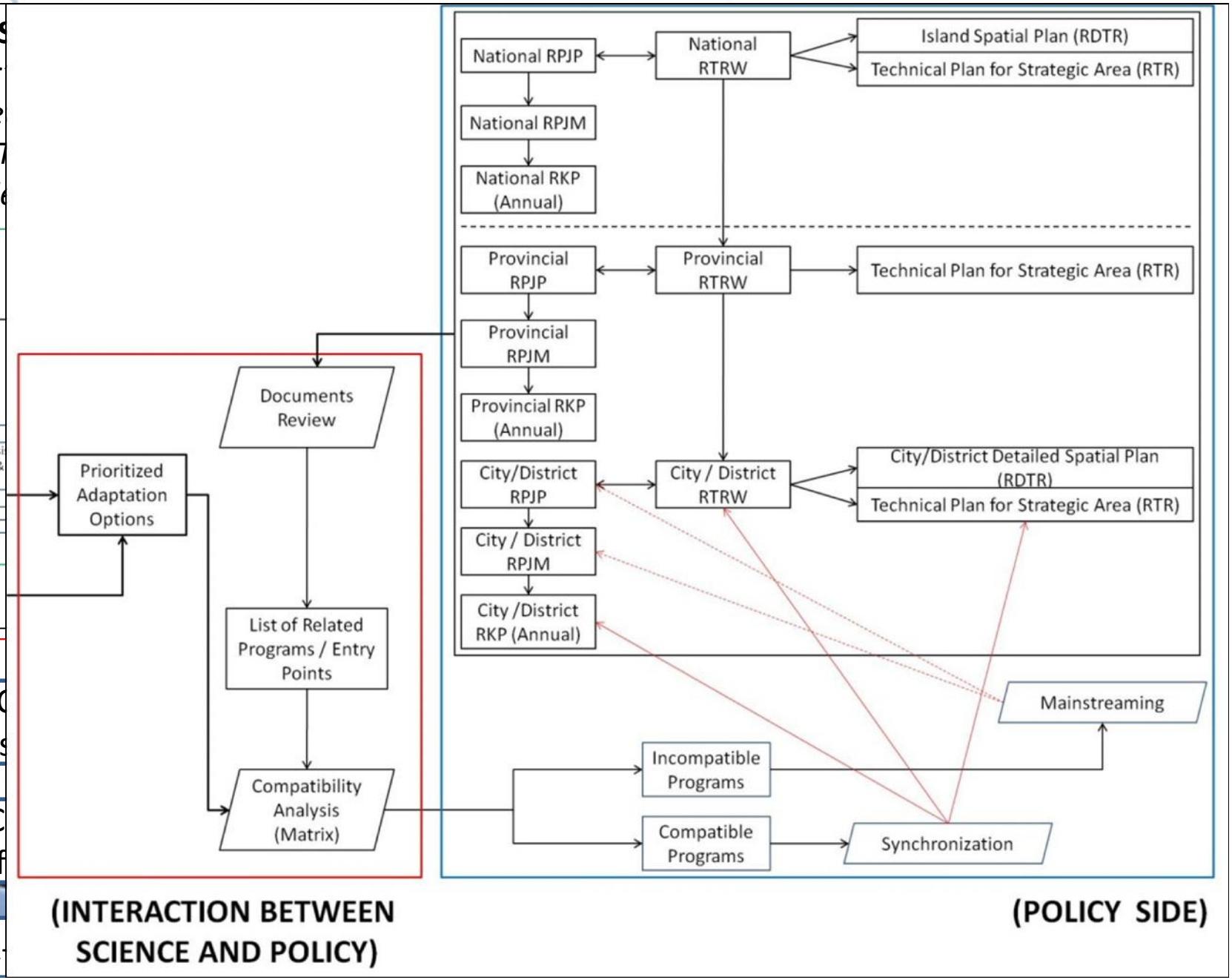
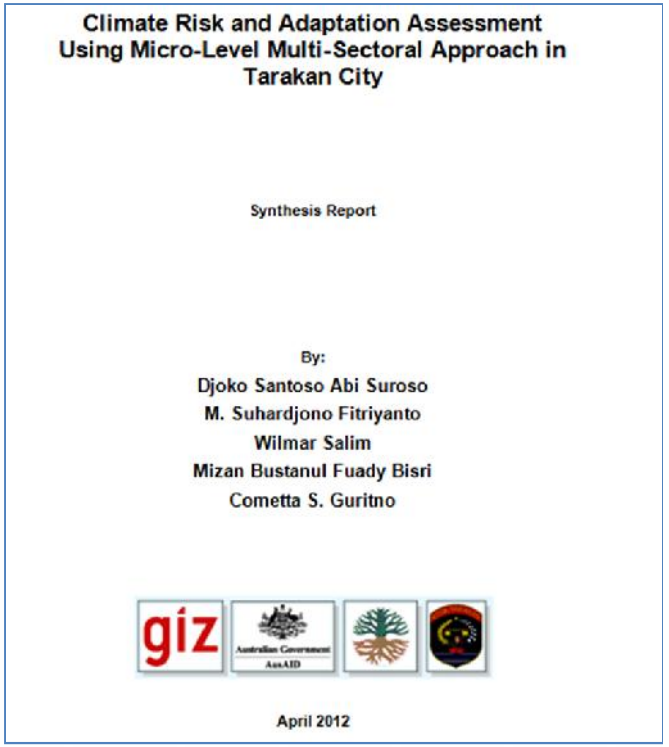


TARAKAN CITY: OUTPUT

- Sectoral Reports and Action Plan
  - Climate Risk and Adaptation Assessment Report for Tarakan City in Coastal Sector, Health Sector, and Water Sector (3 documents)
- Synthesis Report of Climate Risk and Adaptation Assessment in Tarakan City
- Summary for Policy Maker (SPM) Document of "Climate Risk and Adaptation Assessment in Tarakan City"
- Champion Program (Government-led, Donor support)
  - Integrated Community Settlement Improvement Program
  - Climate-related Data Inventory and Standardization Program


Climate Risk and Adaptation Assessment
Using Micro-Level Multi-Sectoral Approach in
Tarakan City

Synthesis Report

By:
Djoko Santoso Abi Suroso
M. Suhardjono Fitriyanto
Wilmar Salim
Mizan Bustanul Fuady Bisri
Cometta S. Guritno

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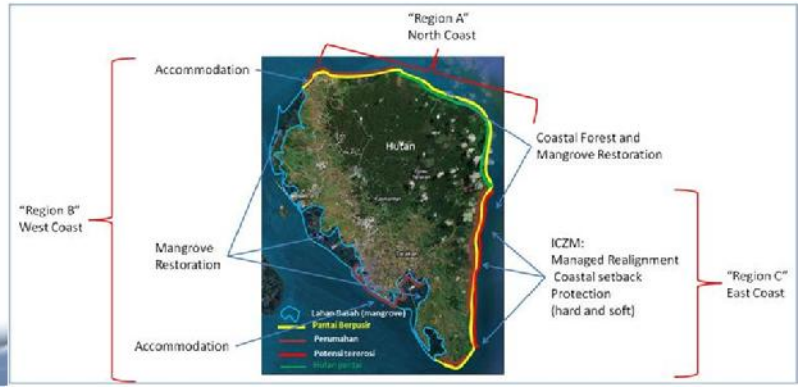
April 2012

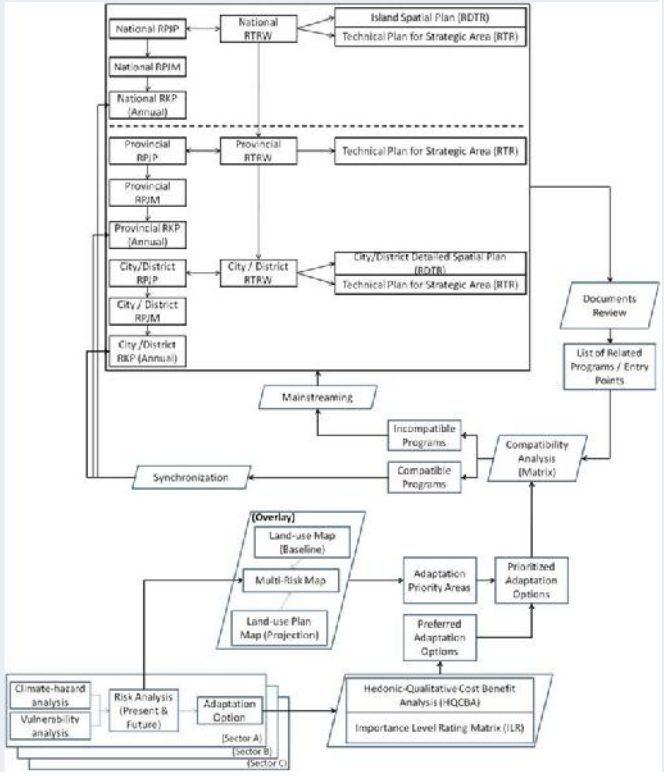


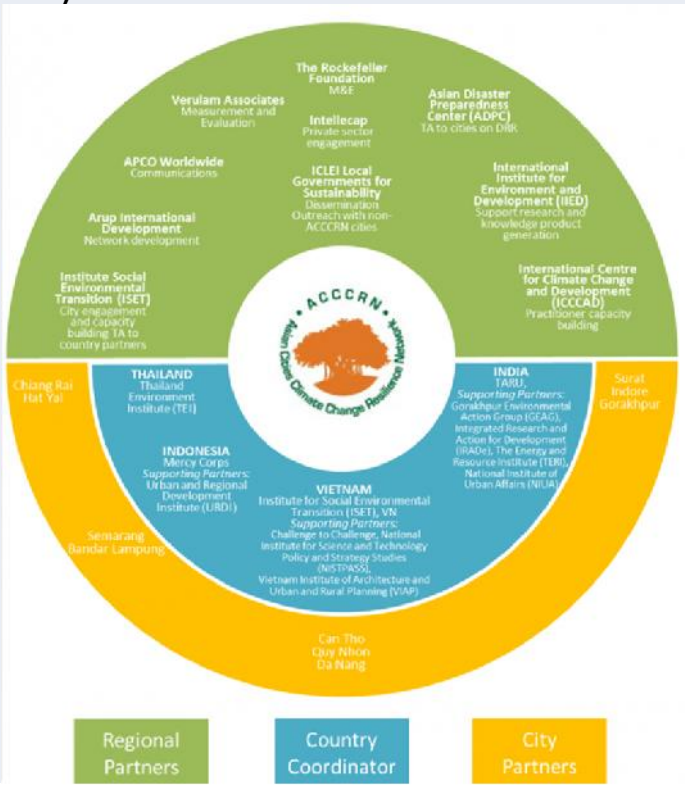
COMPARISON (1)

COMPONENT	TARAKAN	SEMARANG
Origin of climate adaptation	Offer from Central Gov't-Donor-Expert network	Initiative from City Gov't to capture opportunity from Donors
Local Government Involvement	Lead by Bappeda (Planning Agency), followed by other agencies	Lead by Bappeda Planning Agency), Developed City Working Group, Actively Participated by other Agencies
Local University Involvement	Weak, act as recipient of capacity building on climate-adaptation	Strong involvement on scientific and engineering studies as well as in City Working Group
Donor Involvement	Two International Donors, working closely with Experts	One International Donors, working closely with International NGO for the project, Linked to international network
Local NGO and Public participation	No NGO participation. "Public voice" only represented by attendance of "District-chief" during Public Consultation	Yes, during City Resilience Strategy enactment and "Community-based adaptation projects" implementation.
Resource / Financial Mobilization	Central Government and donors for risk assessment. Central Government, Local Government, and Donors for Adaptation Actions	Donors for risk assessment. Donors and Local Gov't for Adaptation actions.

COMPARISON (2)

COMPONENT	TARAKAN	SEMARANG
Mainstreaming to City Development Planning	Yes. Mainstreamed to RPJM (mid-term plan) and RTRW (spatial plan). Adaptation plan synchronized to RKP (annual plan) starting from 2012.	Yes, through synchronization to several annual programs; but unclear on mainstreaming to RPJM or RTRW.
Knowledge Dissemination and Outcome	Methods recognized by Ministry of Environment as baseline for "National Guideline on Climate-risk and Adaptation Assessment" (Salim et al, 2012)	Lessons learnt and City innovation linked to the regional network of Asian Cities Climate Change Resilience Network (ACCCRN).

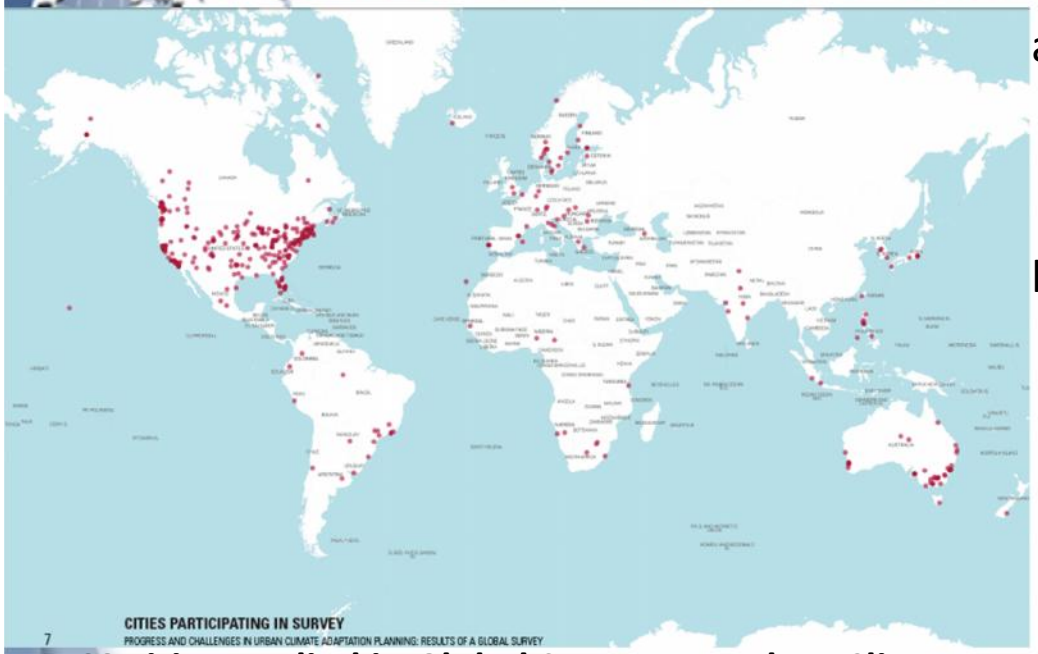




CONCLUSIONS: LESSONS LEARNED

1. In mainstreaming climate adaptations, identification of entry points should starts with scientist understanding to the different development planning system may take place in particular country or localities and that policy-maker must clearly convey the level of adaptation needed;
2. For cities in developing countries, sub-national based network of universities, NGOs, private, and government must be nurtured in terms of climate-sense making to support effective mainstreaming;
3. To ensure accountability of mainstreaming process, formulation of adaptation strategies must be based on a risk assessment supported by both strong technocratic and participatory processes;
4. Deliverables of climate-adaptation actions can be done in two ways, i.e. mainstreaming for long-term actions and synchronization for readily-implemented adaptations.
5. Further mainstreaming effectiveness measurement is currently in the process by investigating recent years annual plans and development budget of both cities.

CONCLUSIONS: FURTHER DISCUSSIONS



468 cities studied in Global Survey on Urban Climate Adaptation Planning (Carmin et al, 2012)

a) As an emerging inter-disciplinary field, international comparisons is deemed necessary for defining mainstreaming effectiveness of adaptation at city level.

b) Although did not selected as Indonesian cities studied by Carmin et al (2012) (they chosed Jakarta and Lampung), Tarakan can be categorized as integrated into sector plans adaptation while Semarang is integrated into community plan; however both can be categorized as cities with **plan acceptance**.

FIGURE 9 | STATUS OF ADAPTATION PLANNING

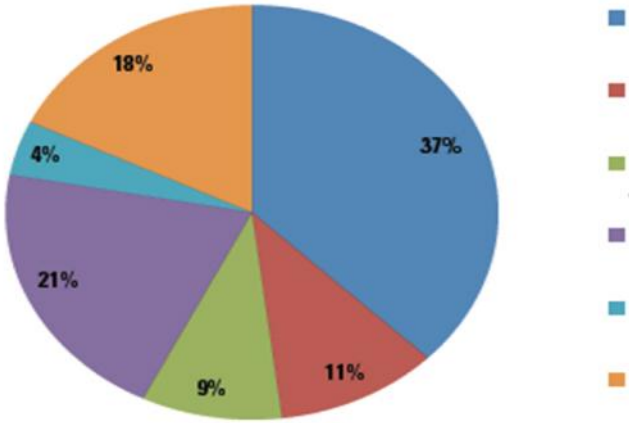
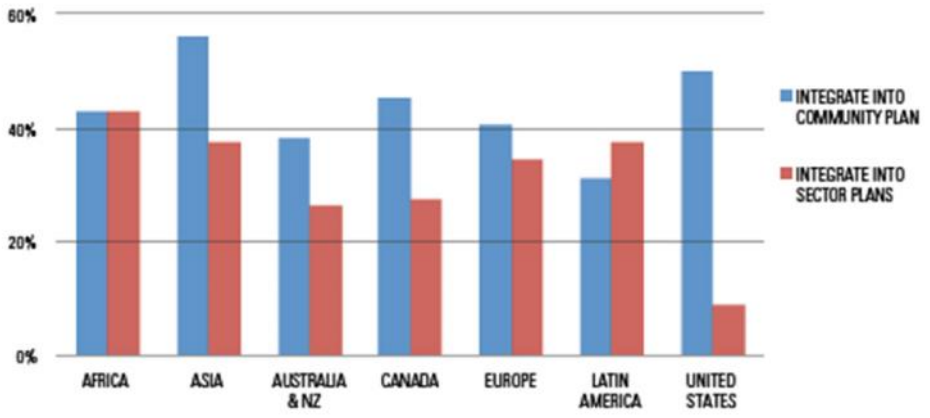


FIGURE 11 | INTEGRATION OF ADAPTATION INTO COMMUNITY AND SECTOR PLANS



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