



Indonesia's Approach To Climate Adaptation: National Climate Change Adaptation Plan

**Directorate General of Climate Change
Ministry of Environment and Forestry
2019**

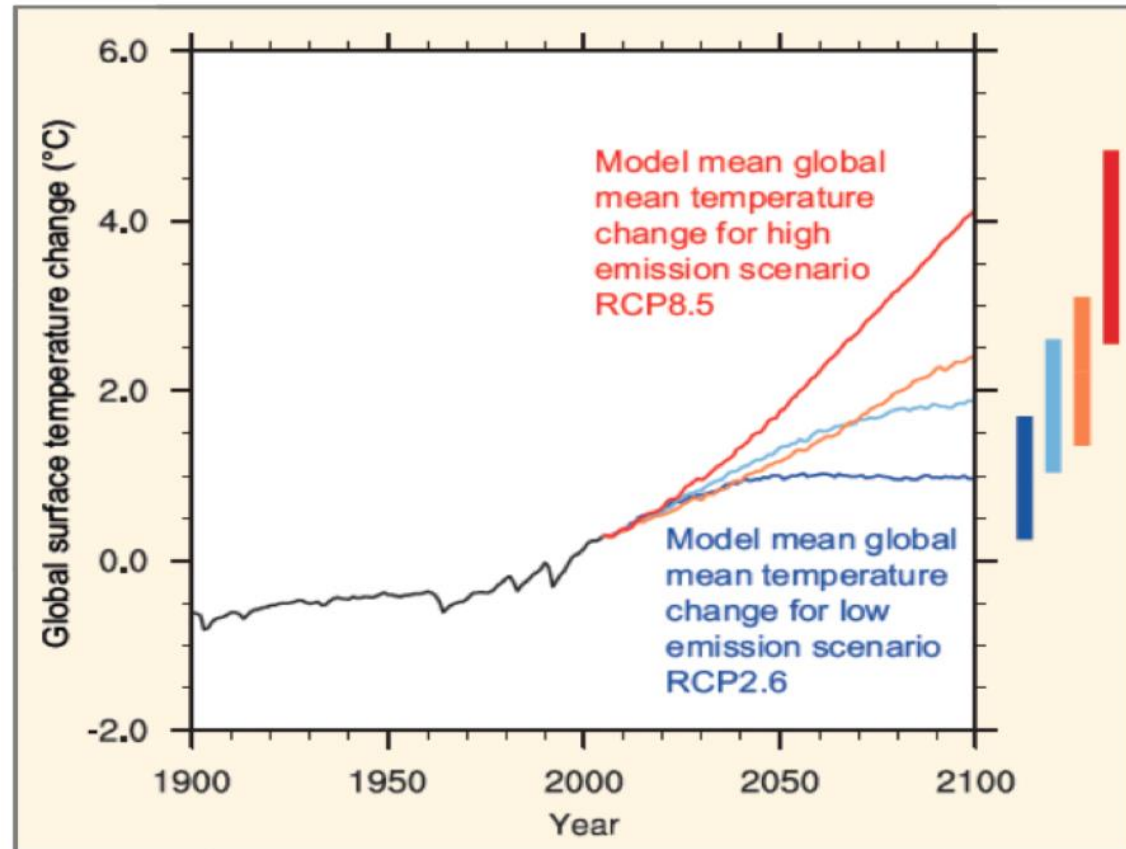
LONG TERM TEMPERATURE PROJECTION

Observation Mean	Scenario	The Changes of Temperature Annually (T, °C)								
		2026-2050			2051-2075			2076-2100		
		Min	Med	Max	Min	Med	Max	Min	Med	Max
26.2	RCP2.6	0.51	0.67	1.31	0.52	0.75	1.55	0.42	0.75	1.62
	RCP4.5	0.69	0.87	1.52	0.99	1.22	2.06	1.08	1.41	2.40
	RCP6.0	0.54	0.76	1.33	1.00	1.15	1.90	1.45	1.63	2.79
	RCP8.5	0.82	1.02	1.65	1.63	1.83	2.93	2.37	2.73	4.09

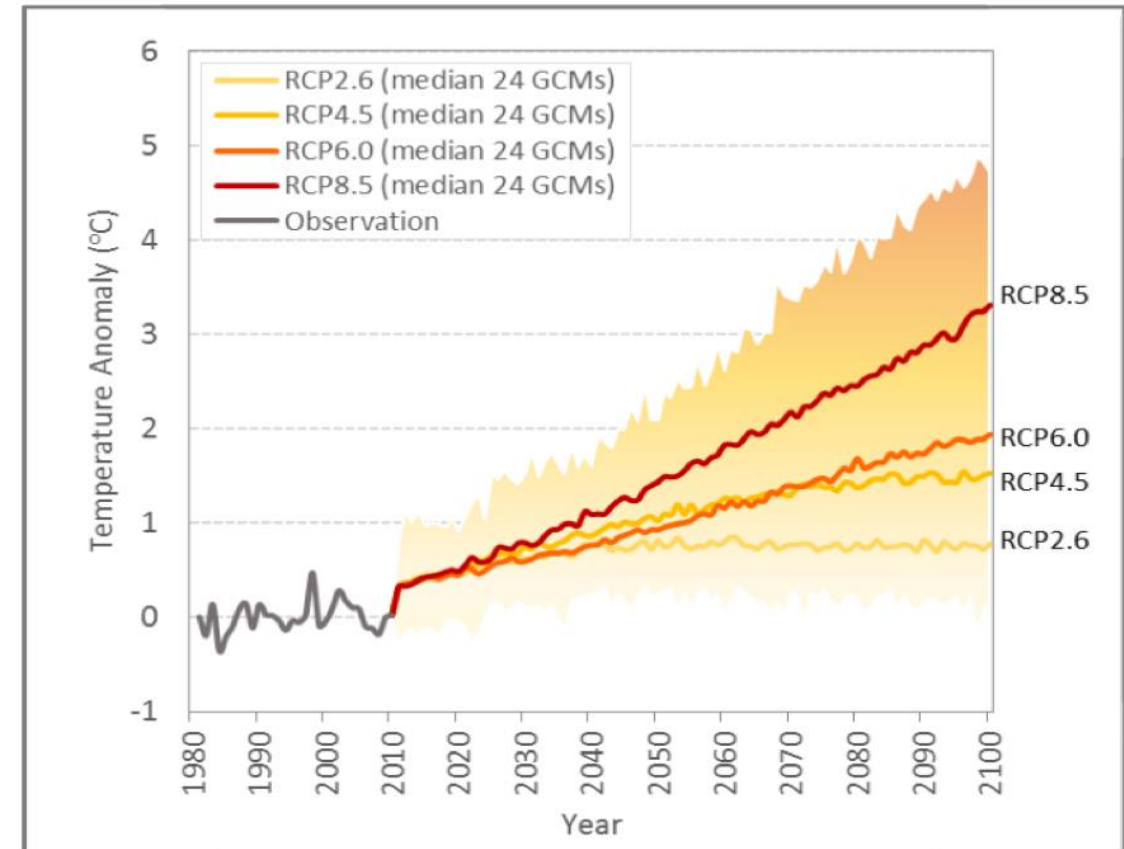
Sumber: Third National Communication, 2016

- **Using 24 GCM CMIPS data with 4 RCP scenarios are RCP 2.6; RCP 4.5; RCP 6.0 and RCP 8.5**
- **25-year projected time: 2026-2050, 2051-2075 and 2076-2100**
- **Monthly temperatures in Indonesia show around 26 °C, with the highest average temperatures in April and May (26.5 °C), while the lowest in July (25.8 °C).**

a) Global [71]



b) Indonesia

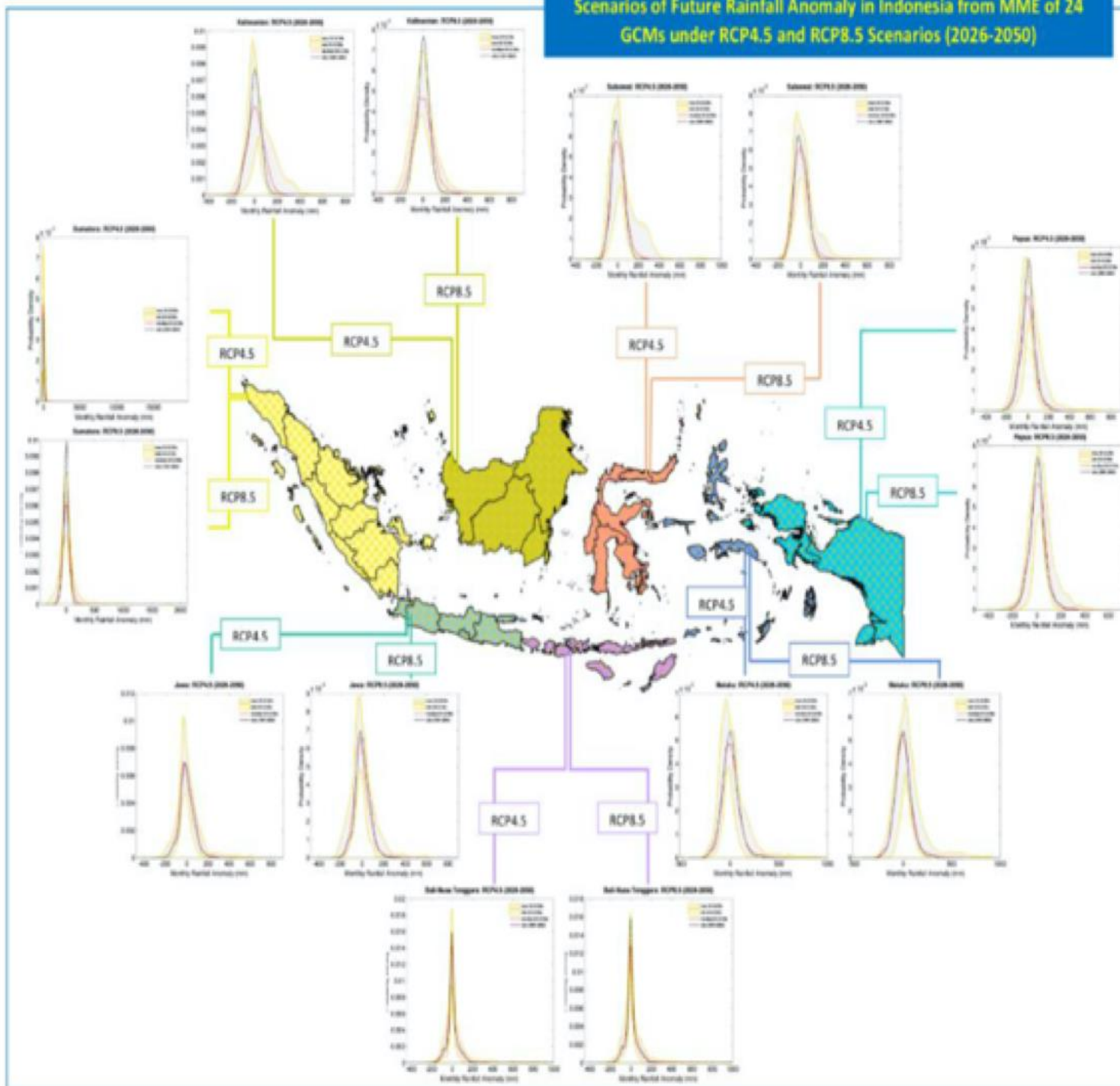


Sumber: Third National Communication, 2016

- The difference in temperature rise in 2100 as shown by RCP4.5 is almost 0.5 °C lower for Indonesia, which is around 1.5 °C in Indonesia and almost 2 °C in global.
- Globally, the average rise in surface temperature is estimated to reach almost 1 °C higher than the average temperature in Indonesia (RCP 8.5)
- The spread of the climate model contains uncertainty, therefore the highest increase in the projected average temperature in Indonesia has the potential to reach the same value as the global temperature range in 2100, which is more than 4 °C

LONG TERM RAINFALL PROJECTION

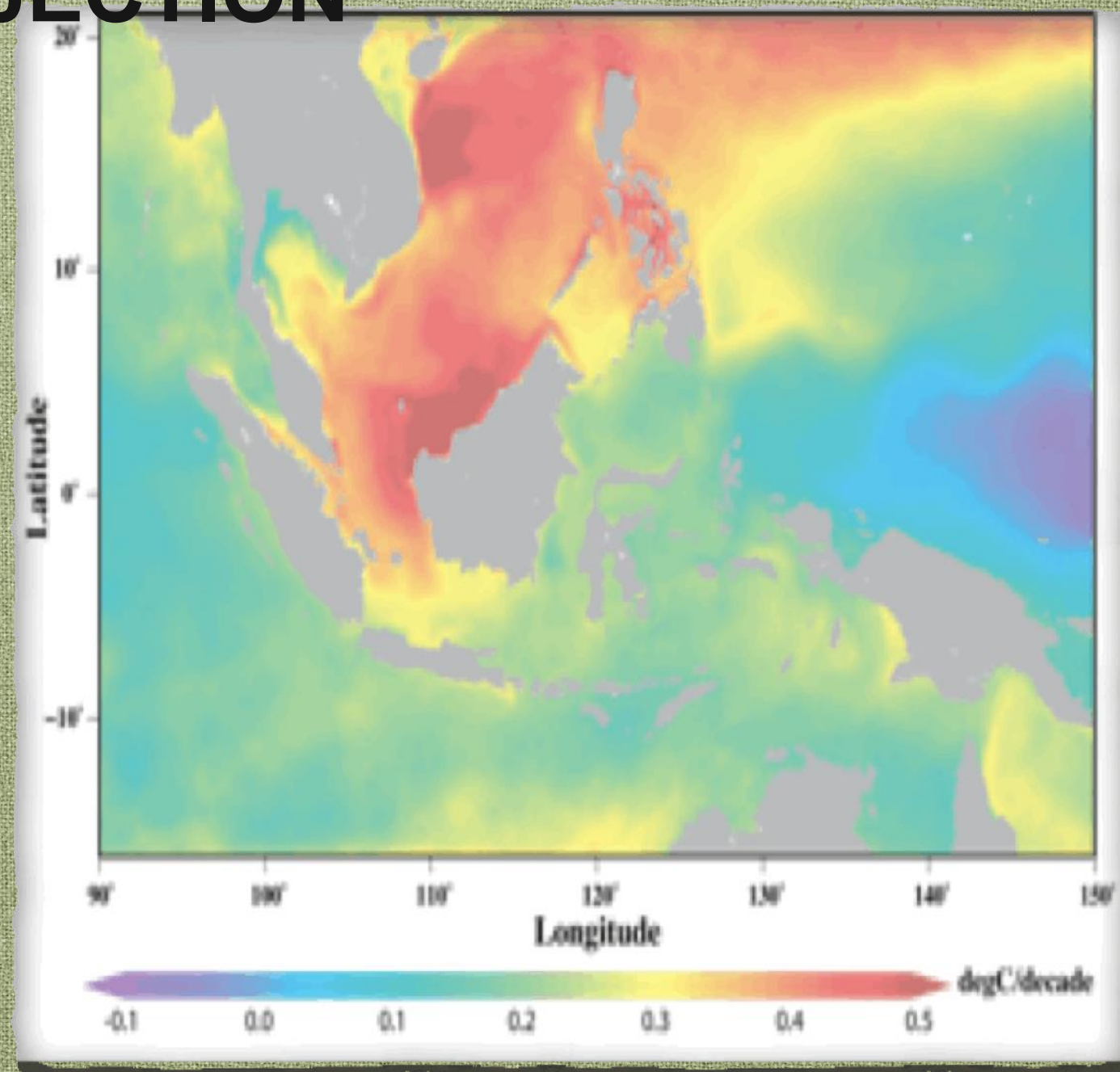
Scenarios of Future Rainfall Anomaly in Indonesia from MME of 24 GCMs under RCP4.5 and RCP8.5 Scenarios (2026-2050)



In the period 2026-2050, anomalies of monthly rainfall exceeding 200 mm/month are projected to increase in several regions, such as Kalimantan and Sulawesi. Opportunities are projected to continue to increase in 2051-2075 and 2076-2100 during the same period as increasing uncertainty about changes in rainfall anomalies in the future

LONG TERM SEA TEMPERATURE PROJECTION

- ROMS modeling results for 2006 to 2040 show that sea surface temperature is changing rapidly with regional averages rising more than $0.25^{\circ}\text{C} / \text{decade}$.
- The results of this projection are relatively consistent with observations using satellite data and reconstruction data.
- The highest level of sea surface temperature rise is likely to occur in the South China Sea, and the Karimata strait reaches $0.5^{\circ}\text{C} / \text{decade}$.
- The level of sea level temperature rise in the Java Sea, Banda Sea, Sulawesi Sea and the surrounding sea is between 0.2°C to $0.3^{\circ}\text{C} / \text{decade}$. While the rising trend in the Pacific, northern Papua may be the lowest compared to the rate of increase in other regions



CLIMATE RELATED DISASTER IN INDONESIA

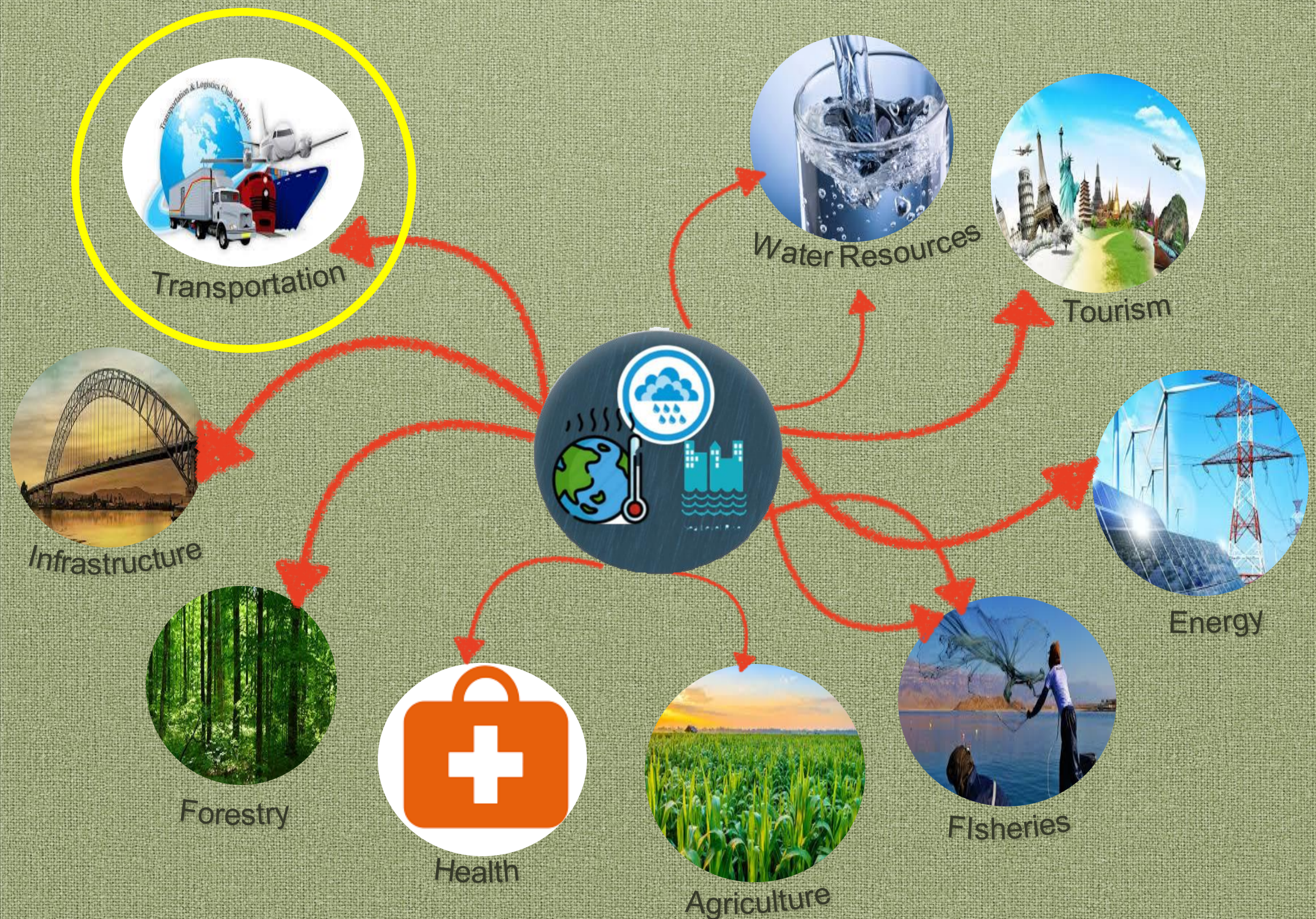


SECTOR	YEAR				
	2020	2021	2022	2023	2024
 Marine & Coastal	81.30	81.43	81.57	81.69	81.82
 Water	3.83	4.74	5.61	6.45	7.29
 Agriculture	11.20	13.40	15.59	17.77	19.94
 Health	6.03	6.15	6.26	6.37	6.48
TOTAL	102.36	105.72	109.03	112.29	115.53

**POTENTIALLY
ECONOMIC LOSSES
DUE TO CLIMATE
DISASTER**

Sources: BNPB in RAN
API, 2019

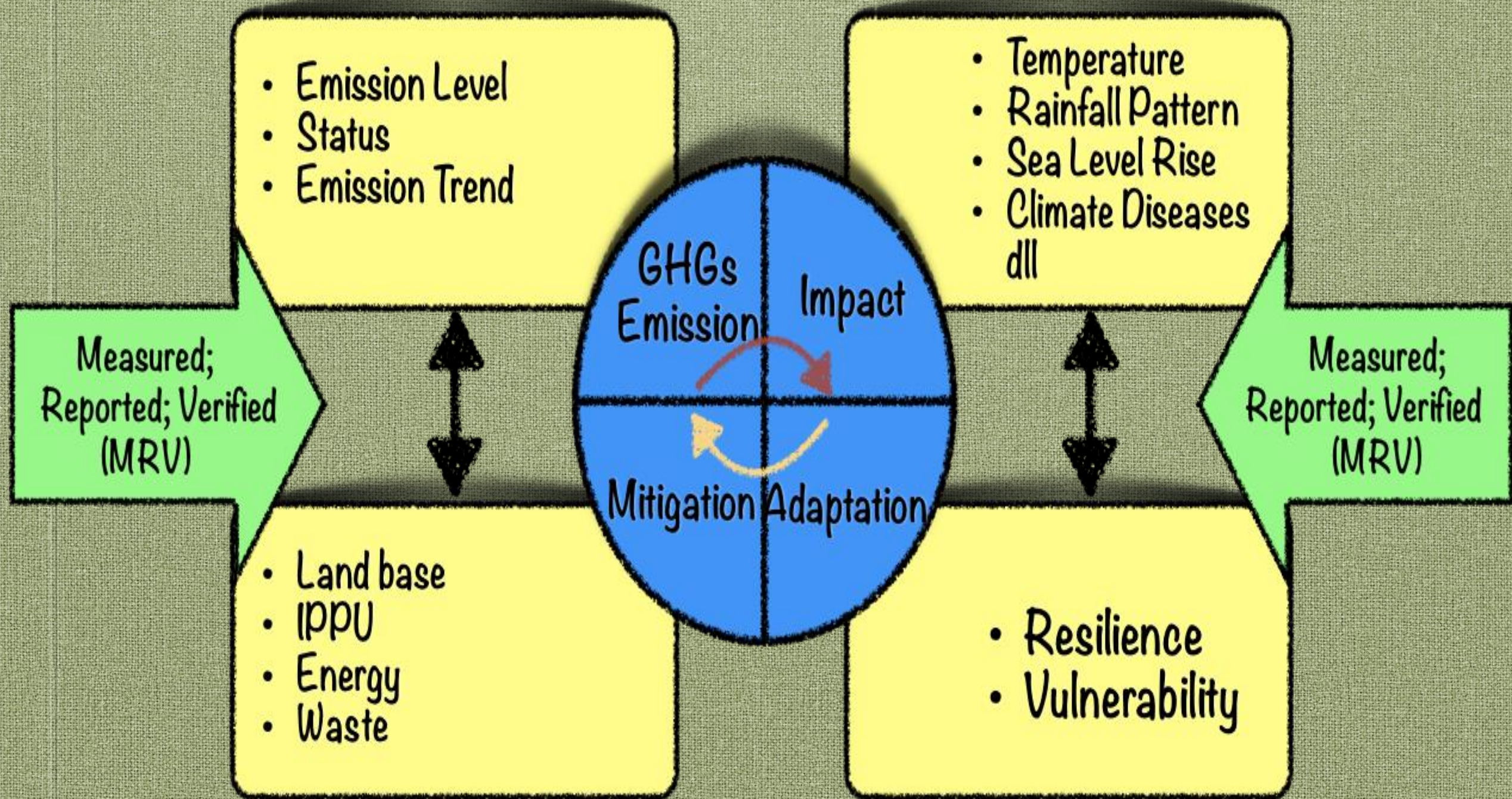
KEY SECTORS IMPACTED



CLIMATE IMPACT TO AIR TRANSPORTATION IN INDONESIA

1. Three climate variables related to air transportation as well as airport infrastructure stability include sea level rise, temperature rise, changes in rainfall
2. Temperature rise to the extreme temperatures can disrupt some components in the aircraft.
3. Sea level rise makes airport infrastructure very potential to be affected by the increase in sea level, namely erosion in coastal areas, flooding and sea water intrusion.
4. In February 2009, the Adisucipto airport was closed due to flooding on the runway which made flight impossible, due to high rainfall (Purwanta & Aldrin, 2017)
5. In June 2014, at the Djuanda airport in Surabaya, there was flooding along the road to terminal 1 and terminal 2. Flooding that occurred was due to heavy rains that occurred for two days causing terminal 2 to be submerged in water as high as ± 50 cm
6. The ITB research team projected that in the next 37 years, the Soekarno-Hatta airport will be sink under the water, because the rise in sea level in the coast of Jakarta averages 0.57 cm per year accompanied by a declining land surface (Purwanta & Aldrin, 2017)
7. Due to high intensity rain, it also caused the slip of an Indonesian airline plane at Balikpapan Sepinggan Airport in October 2011 (Purwanta & Aldrin, 2017)

CLIMATE CHANGE MANAGEMENT IN INDONESIA



INDONESIA'S COMMITMENT TO CLIMATE CHANGE

**Law No. 16/2016 regarding the
Ratification of the Paris
Agreement**

NDC

**Low Carbon
Development**

**Climate Adaptive
Development**

**Medium Target Goals on
2020**

**Adaptive
Technology
Applied**

**Capacity
Building**

**Convergence
policy between
CCA & DRR**

**Promote
knowledge
management**

**Reducing risk in all development
sectors (agriculture, water
resources, energy security,
forestry, maritime & fisheries,
health, public services,
infrastructure and urban
systems, through:**

STRUCTURE OF INDONESIA's NDCs



FIRST NATIONALLY DETERMINED CONTRIBUTION
REPUBLIC OF INDONESIA

November 2016

IMPLEMENTATION STRATEGY OF NDCs

DEVELOPING OWNERSHIP & COMMITMENT

- 1** Ministry; Local Government; Private Sector; Civil Society; Financial Unit

DEVELOPING FRAMEWORK AND COMMUNICATION NETWORKING

- 4** Coordination and Sinergy between sectors, and region, as well the relevant actors

DEVELOPING NDC IMPLEMENTATION GUIDANCE

- 7** Guidance for the national and local government (planning, implementation, MRV, and NDC Review

CAPACITY BUILDING

- 2** Institution and Human Resources Strengthening (Elaborates a Sectoral and Region NDCs; Policy, Plan and programme, GHGs Inventory, MRV, Registry System and NDCs Implementation

ONE DATA POLICY ON GHGs

- 5** SIGN SMART: National GHGs Inventory Database
National Registry System (SRN): registry on Mitigation (M); Adaptation (A); Joint MA; Financial; Technology and Capacity Building

IMPLEMENTATION OF NDC

- 8** Based on the results of the development of policy, and programmes planning, and also the NDC implementation plan. It is coordinated by MoE (related to emission reduction and climate policies) and BAPPENAS (related to national development)

ENABLING ENVIRONMENT

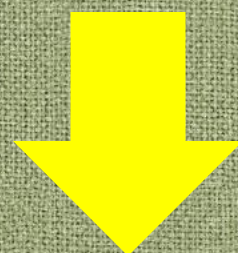
- 3** Relevant Regulation and Policies (Law UU No. 16/2016 on the Ratification of Paris Agreement; Government Regulation (PP) No, 46/2016 On KLHS, etc

DEVELOPING OF POLICY, PLANNING & PROGRAMMES

- 6** Alignment of NDCs with development planning in 5 categories of sectoral and regional mitigation and adaptation> to ensure budgeting (APBN-APBD) and resource mobilization both domestically and internationally

MONITORING & REVIEW OF NDC

- 9** Monitoring the progress of NDC implementation NDC will be reviewed and adjusted if necessary (no backsliding) by 2020



STRATEGY APPROACH OF NDC

Landscape Approach

Highlight the best practices

Mainstreaming the climate agenda to the development planning

Promote climate resilience on food, water as well energy

ADAPTATION IN NDC

Goals :

- ☐ Economic resilience
- ☐ Social and Livelihood Resilience
- ☐ Ecosystem and Landscape Resilience.

Enabling conditions for climate resilience :

- ☐ Certainty in spatial planning and land use
- ☐ Land tenure security
- ☐ Food security
- ☐ Water security
- ☐ Renewable energy

ADAPTATION IN NDCs

ECONOMIC RESILIENCE

- Sustainable agriculture and plantations
- Integrated watershed management
- Reduction of deforestation and forest degradation
- Land conservation
- Use of degraded land for renewable energy
- Improved energy efficiency and consumption patterns

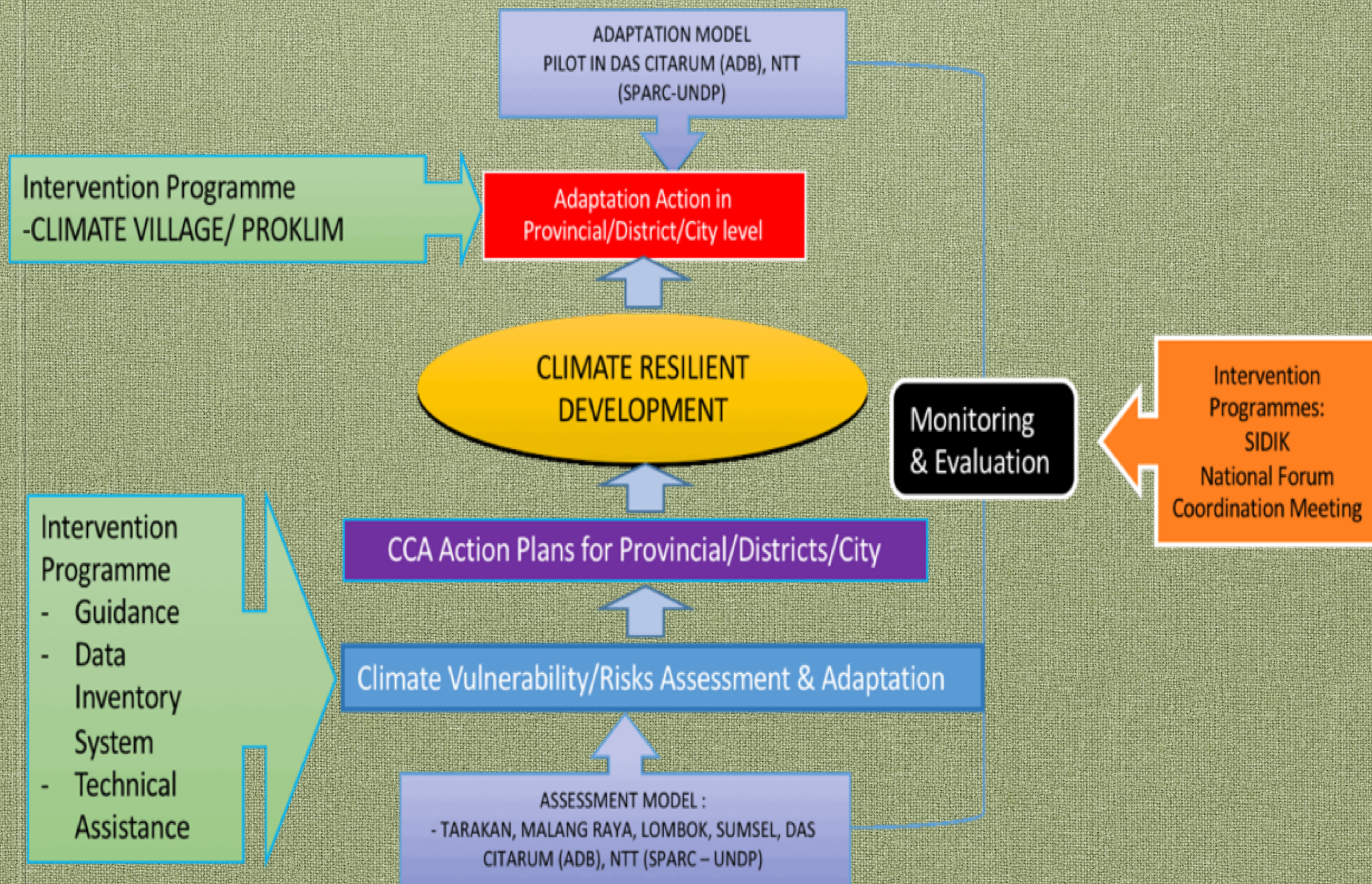
ECOSYSTEM & LANDSCAPE RESILIENCE

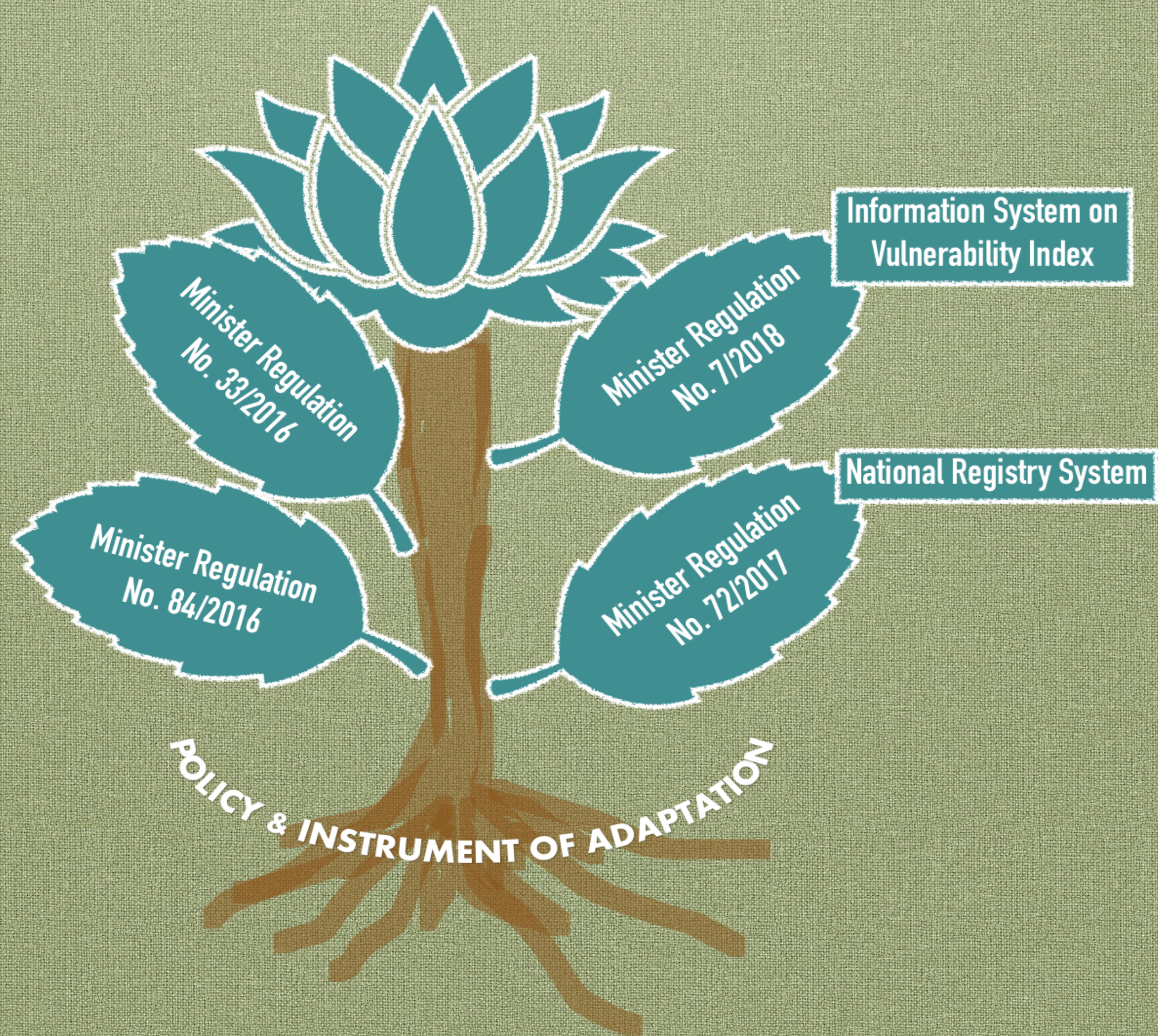
- Ecosystem conservation and restoration
- Social forestry
- Coastal protection
- Integrated watershed management
- Climate resilient city

SOCIAL & LIVELIHOOD RESILIENCE

- Increased adaptation capacity by building early warning systems, public awareness campaigns and public health programs
- Capacity building and community participation in the regional planning process, to secure access to key natural resources
- rapidly increasing disaster preparedness programs in the context of disaster risk reduction
- Identification of the area is very vulnerable in the planning and land use
- Increasing community settlements, providing basic necessities and building climate resistant facilities
- Conflict prevention and resolution

SCHEME OF ADAPTATION PROGRAM IN INDONESIA

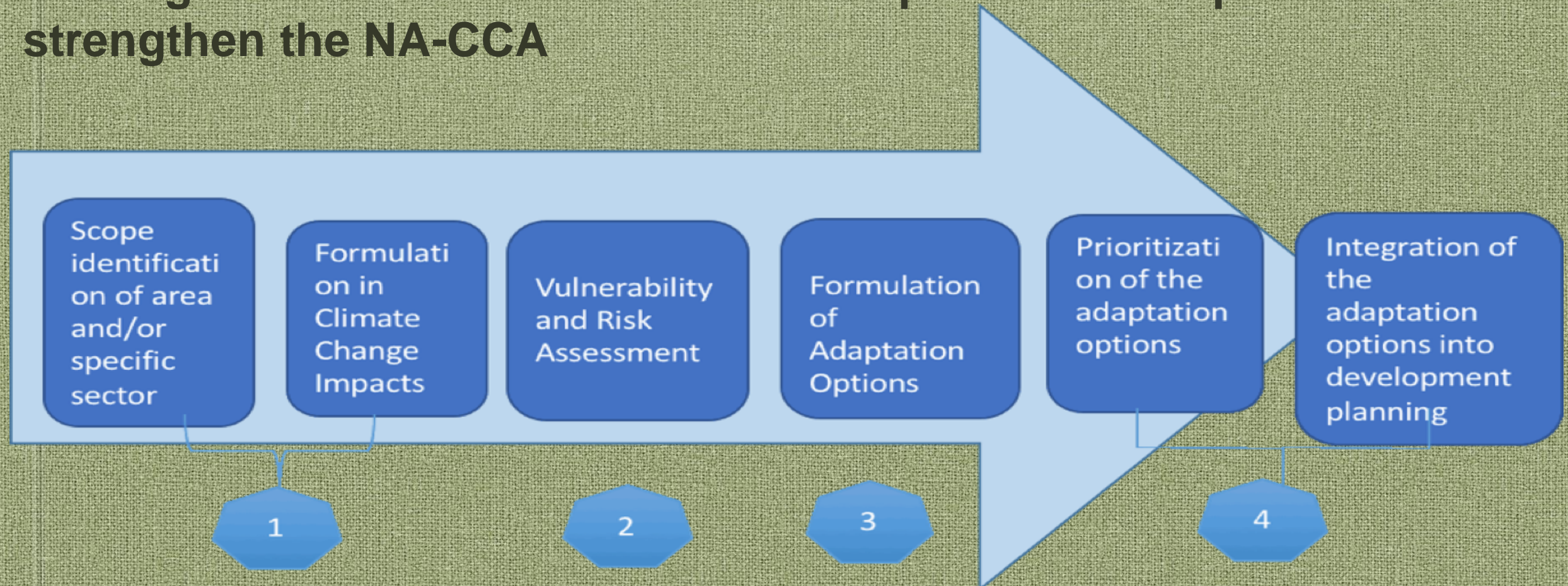




MINISTER REGULATION ON GUIDELINE TO DEVELOP ADAPTATION ACTION PLAN (MoEF Regulation No 33/2016)

The Regulation as guideline for the sectors, ministry, non-governmental organization, and local government in order to develop adaptation action and also it mainstreaming into development planning in the region as well as specific area

The regulation will be a basis to develop local action plans and to strengthen the NA-CCA

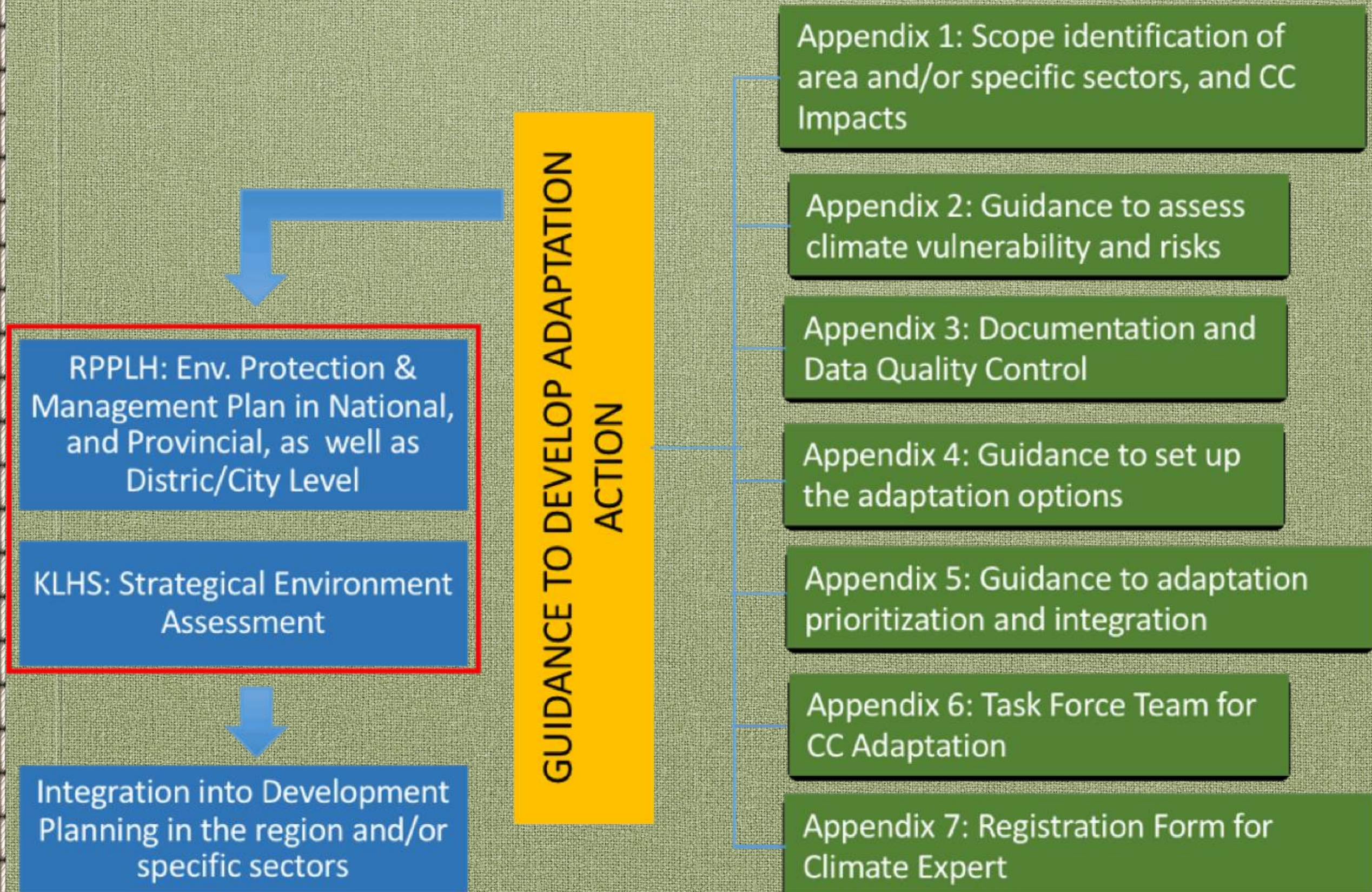


FLOWCHART OF DEVELOPMENT ADAPTATION ACTION PLAN

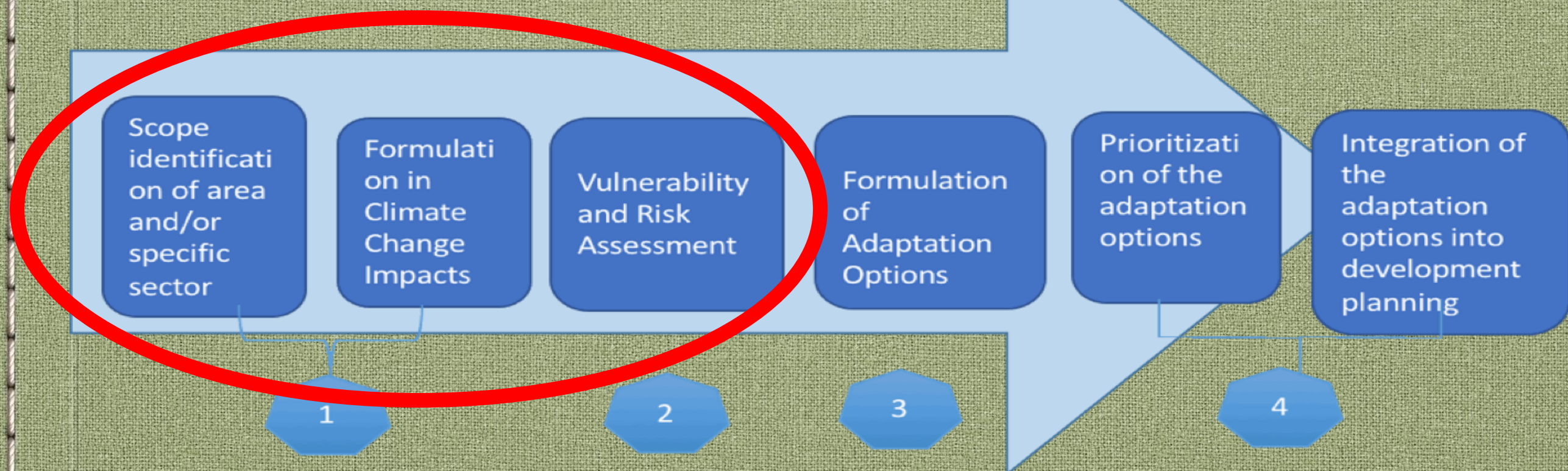
(MINISTER REGULATION NO. P33/2016)



HOW TO DEVELOP AN ADAPTATION PLAN



MINISTER REGULATION ON CLIMATE VULNERABILITY, RISK, AND IMPACT ASSESSMENT (MoEF Regulation No. 7/2018)



MoEF Regulation No. 7 / 2018 is developed to complement the needs of climate assessment due to the guidelines for developing an adaptation action plan to Minister Regulation No. 33/2016

MINISTER REGULATION ON CLIMATE VULNERABILITY, RISK, AND IMPACT ASSESSMENT (MoEF Regulation No 7/2018)

- 1. General provisions;**
- 2.Scopes;**
- 3.Metodology;**
- 4.Indicators**
- 5.Data**
- 6.Verification**




Objectives

**Determine the scope of the analysis,
the selection of methods, indicators,
indicator data and data sources in the
assess of the Climate ulnerability, Risk
and Impact**

**Determine verification criteria for the
results of studies of vulnerability,
risks and impacts of climate change**

INFORMATION SYSTEM ON VULNERABILITY INDEX (SIDIK)



KEMENTERIAN LINGKUNGAN HIDUP DAN KEHUTANAN

SIDIK

Sistem Informasi Data Indeks Kerentanan

Username

Password



Pilih Tahun Data

Sign in as Guest

Sign In

Disarankan Menggunakan Browser Google Chrome

Sistem Informasi Data Indeks Kerentanan (2018)

Server  Administrator 

DASHBOARD

MASTER DATA

DATA HITUNG

INDIKATOR

PERHITUNGAN

PERHITUNGAN INTEGRASI

Indikator:

Indikator Nasional

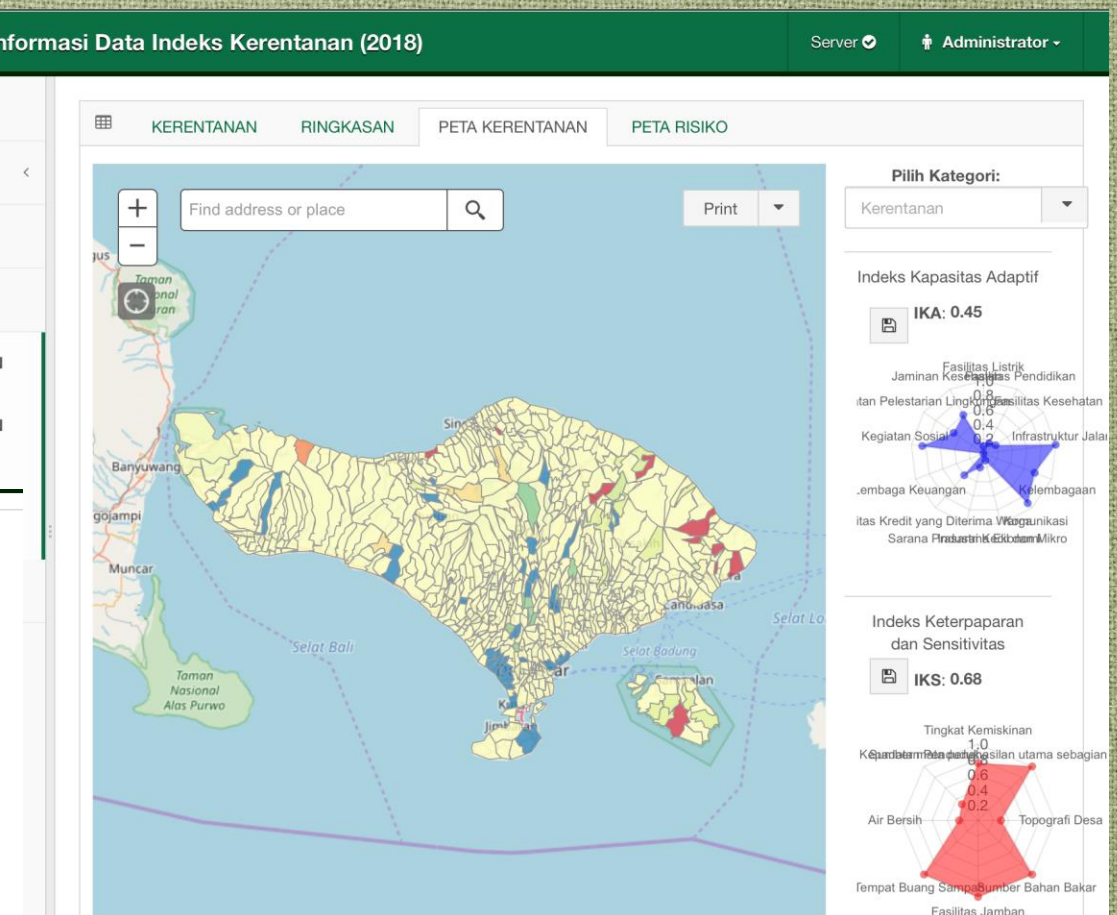
Detail:

Indikator IKA:

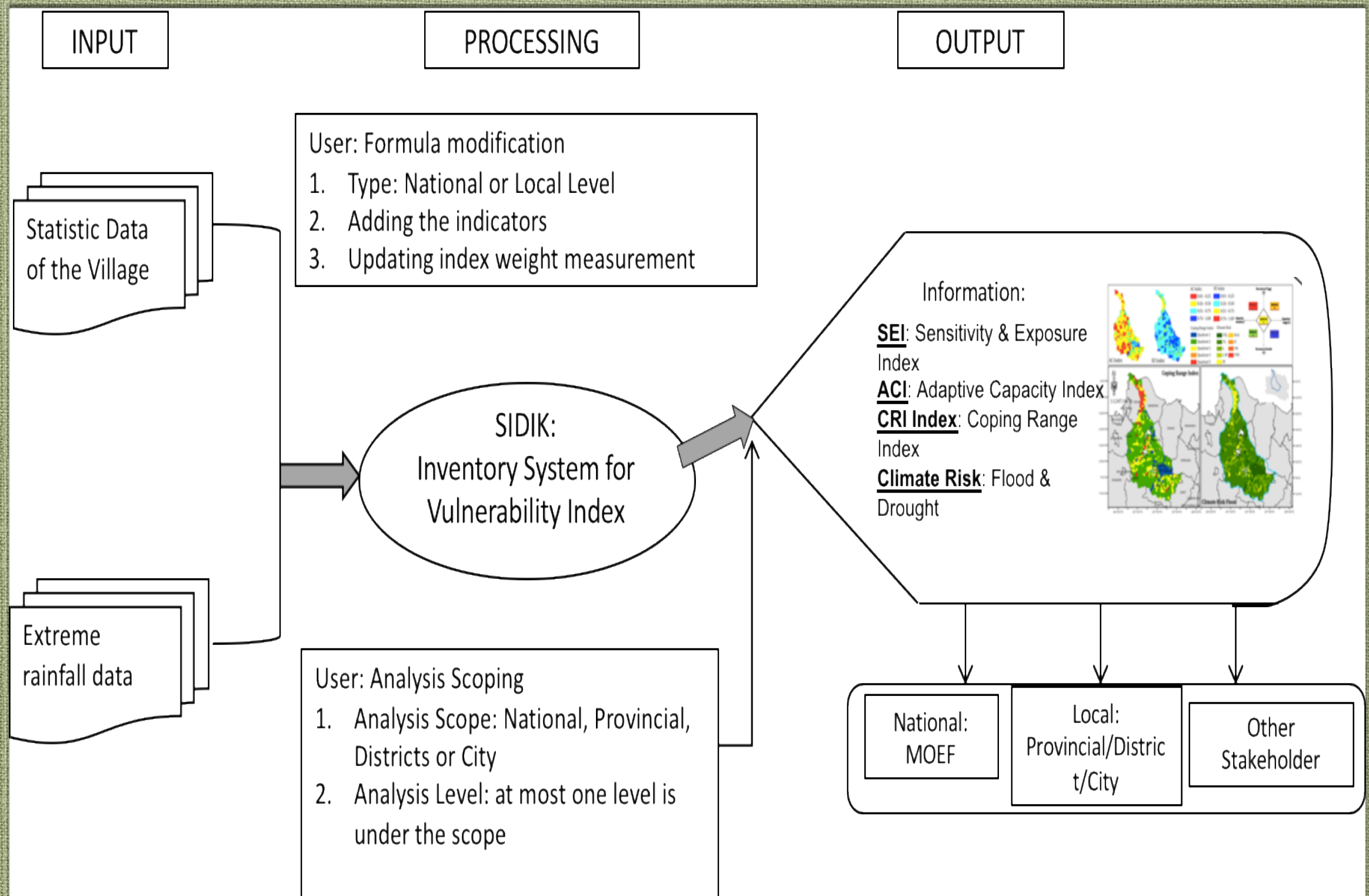
- Fasilitas Listrik (1 komp.)
- Fasilitas Pendidikan (6 komp.)
- Fasilitas Kesehatan (5 komp.)
- Infrastruktur Jalan (2 komp.)
- Kelembagaan (2 komp.)
- Komunikasi (9 komp.)
- Industri Kecil dan Mikro (1 komp.)
- Sarana Prasarana Ekonomi (1 komp.)
- Fasilitas Kredit yang Diterima Warga (3 komp.)
- Lembaga Keuangan (1 komp.)
- Kegiatan Sosial (3 komp.)
- Kegiatan Pelestarian Lingkungan (2 komp.)
- Jaminan Kesehatan (1 komp.)

Indikator IKS:

- Tingkat Kemiskinan (1 komp.)
- Sumber mata penghasilan utama sebagian penduduk (1 komp.)
- Topografi Desa (1 komp.)
- Sumber Bahan Bakar (1 komp.)
- Fasilitas Jamban (1 komp.)
- Tempat Buang Sampah (1 komp.)
- Air Bersih (2 komp.)
- Kepadatan Penduduk (1 komp.)



FLOWCHART OF INFORMATION SYSTEM ON CLIMATE VULNERABILITY INDEX



HOW TO INTEGRATE NATIONAL/LOCAL ADAPTATION PLAN INTO DEVELOPMENT PLAN

Steps for integrating adaptation into development planning:

1. Measure compatibility between adaptation priority recommendations and development planning that have been produced which results:
 - Identification of adaptations that are appropriate to development planning.
 - Identification of adaptations that are not in accordance with development planning.
2. The adaptation compatibility measurement results which suitable with the development planning could be integrated and directly implemented in the current development period.
 - The results of adaptation compatibility measurements that are not yet in line with development planning are used as material for the preparation and/or review of development planning in the current development period and/or integrated for the next period.

THANK YOU

TERIMA KASIH