Mapping Climate Risks, Financing Health Resilience:
Indonesia's Approach to Climate Financing

28 Oktober 2026

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Ministry of Health Indonesia

National Countdown Dialogue on Health and Climate Action toward COP31:
From Indonesian Evidence and Experience to Global Climate Action

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Outline

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Climate Change Management in Indonesia

The national-to-global adaptation framework and institutional architecture

02

Climate Change in Health Sector

Climate hazards, health impacts, and proposed adaptation actions

03

Financing the Climate Change

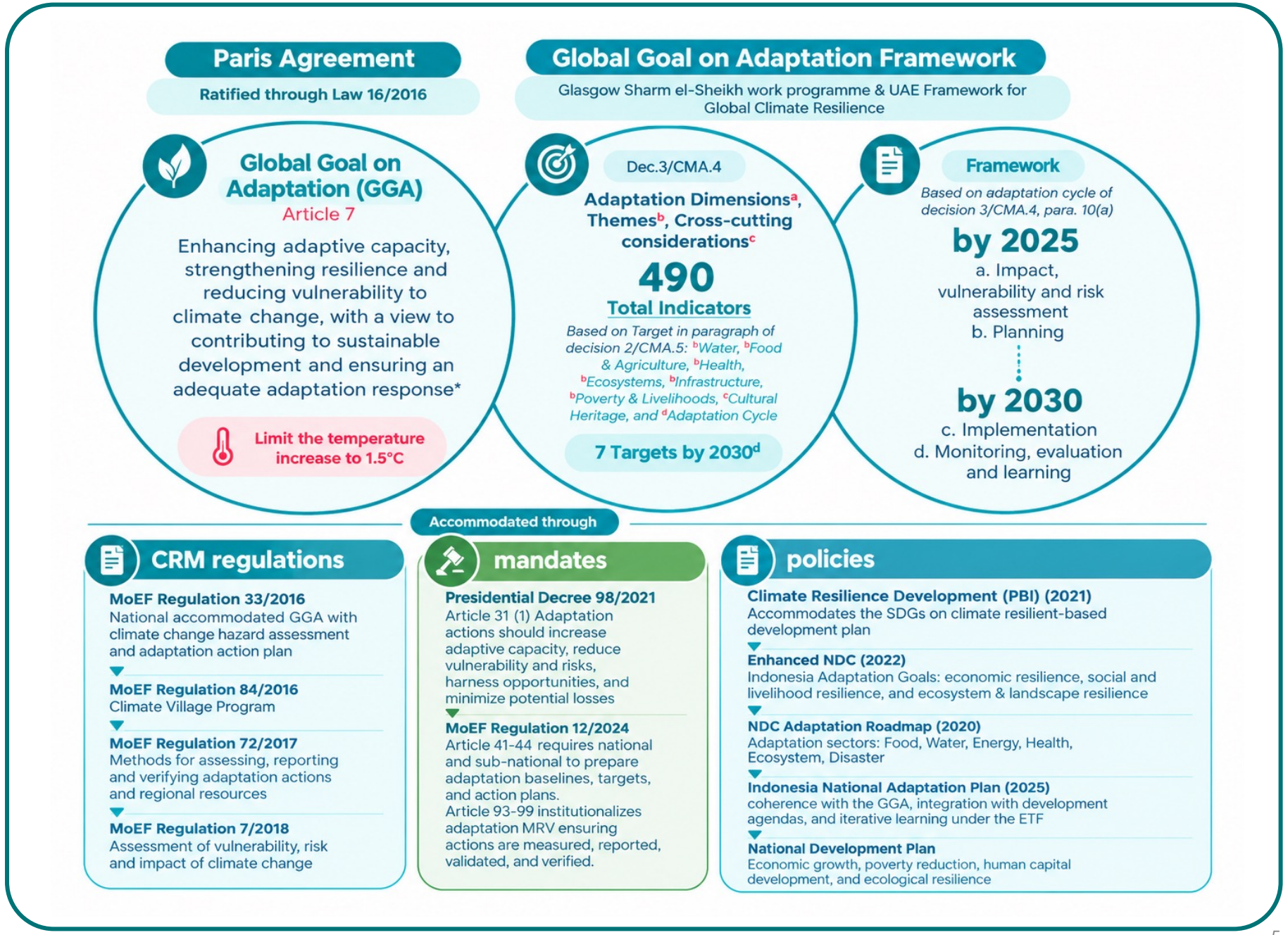
De-risking and leveraging mechanisms for adaptation finance

01

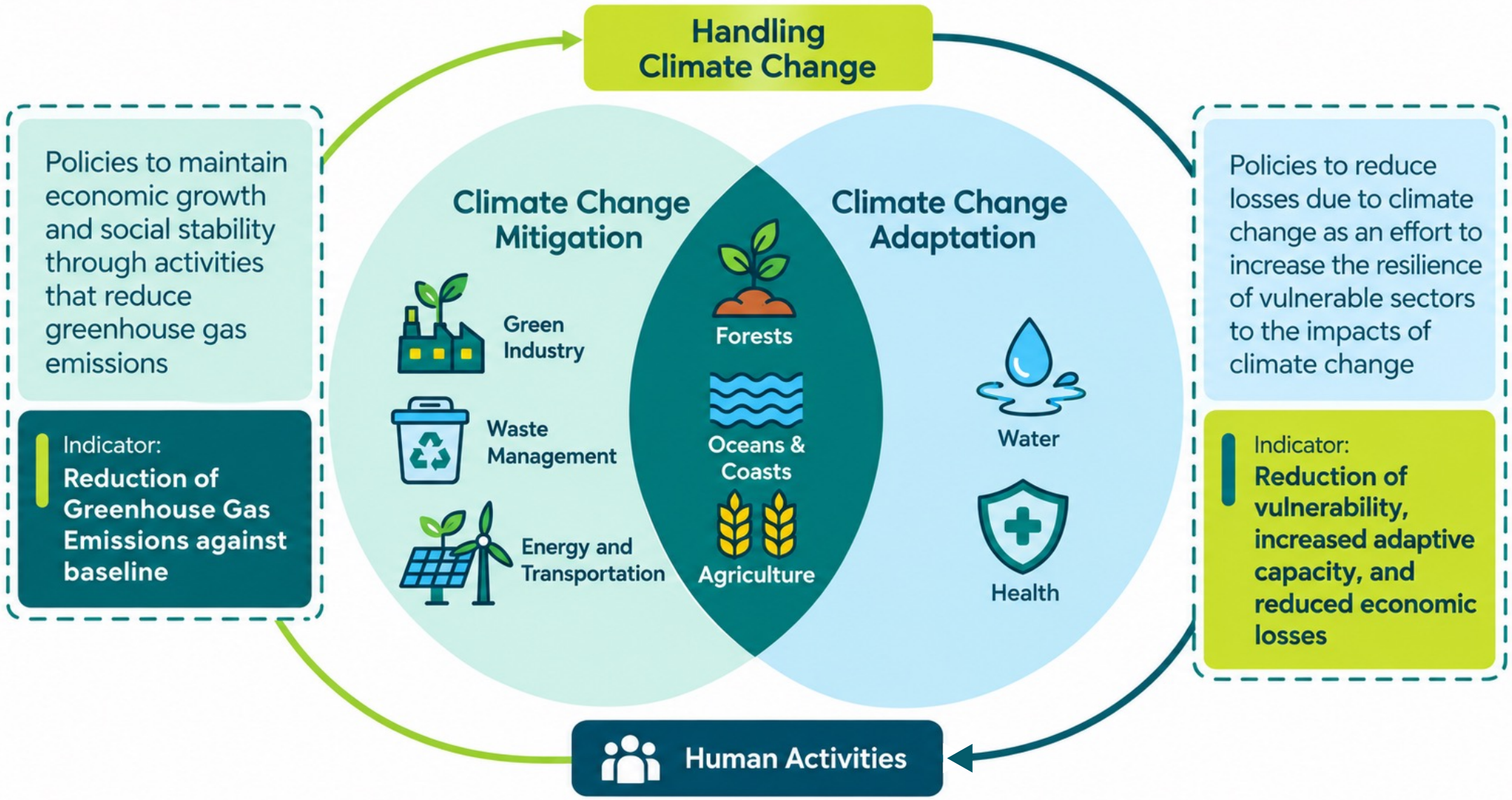
Climate Change Management in Indonesia

The national-to-global adaptation framework and institutional architecture

Global to National Framework on Adaptation



Identifying Climate Change Mitigation and Adaptation Actions



Climate Impact on Children and Youth

CLAC's human-capital perspective: Children face disproportionate exposure and sensitivity.

28 million
children exposed to coastal flooding

15 million
children exposed to heatwaves

74 million
children exposed to high air-pollution levels

21 million
children living in flood-prone zones

Health burdens

Climate shocks worsen child nutrition and health.
Stunting in Indonesia: **21.6% (2022).**

Floods increase diarrhoea; **droughts** reduce food security; **haze** increases respiratory morbidity.

Heat and poor air quality harm development and cognition.

Education disruption

50,666 schools

affected by climate-related disasters (2009–2018).

Climate shocks disrupt schooling.

Social vulnerability

Climate-sensitive livelihoods compound risks for poor and rural households. Urban heat stress and air pollution increasingly harm youth's physical and cognitive development.

Intergenerational impacts

Without action, shocks entrench poverty and inequality, eroding Indonesia's demographic dividend and SDG progress.

NAP Relevance

Protect children and youth

CLAC calls for child-sensitive **health**, **education**, **WASH** and **social protection** policies.

Indonesia **recognises** children as a key vulnerable group, supporting explicit inclusion in NAP design and investment.

CLAC: Climate Landscape Analysis for Children (UNICEF, 2023a).
Sources cited in the original: UNICEF (2023a); Kemenkes (2022); Cissé et al. (2022); Birkmann, Liwenga, et al. (2022); Government of Indonesia (2022b).

Institutional Architecture for NAP Implementation (2026–2035)

The Ministry of Environment / Environmental Control Agency

National Focus Adaptation Point Climate Change (MoE)

NAP Planning and Financing (MoF)

Implementing the NAP Process to Regional and Local Governments (MoHA)

The NAP guidelines align with the 8 Strategies of the NDC Roadmap

Technical Forum and Public Consultation

Priority Ministries / Institutions (Presidential Decree 98/2021 Article 31 para. 2)

The implementation of Climate Change Adaptation is carried out in the following sectors:

a. **Food;**
b. **Water;**
c. **Energy;**
d. **Health;**
e. **Ecosystems; and/or**
f. **Others, according to the development of knowledge, technology, resilience needs, and national capacity.**

Coordination of stakeholder implementation in developing climate resilience within the SPPN and SDGs framework (Nat'l Board of Planning/Bappenas)

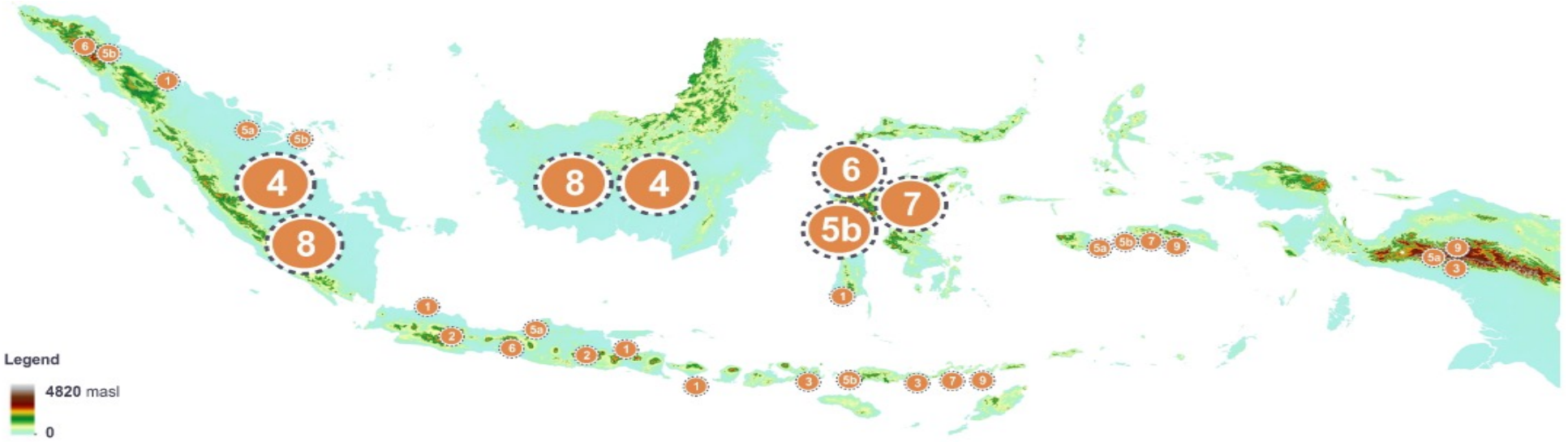
- **Sub-National Governments (Provinces and Regencies / Cities)**
- **Private Sector**
- **NGO / Community**
- **Academics**
- **Development Partners**

02

Climate Change in the Health Sector

Climate hazards, health impacts, and proposed adaptation actions

Climate Change Adaptation Action on the Health Sector



H-01

Impact: Rising temperatures & heatwaves → heat stress, mortality, reduced labour productivity.
Adaptation: Passive cooling, green roofs, shaded waiting areas, heat-health action plans.

H-02

Impact: Floods & rainfall extremes → water-borne outbreaks (diarrhea, cholera, leptospirosis); injuries and drowning; trauma.
Adaptation: Expand SIKELIM with hydro-meteorological triggers; BMKG data integration; mobile alerts.

H-03

Impact: Droughts & food insecurity → reduced access to safe water; increased hygiene-related disease; malnutrition & stunting.
Adaptation: School feeding with climate-resilient crops; kitchen gardens; drought-resilient WASH.

H-04

Impact: Peat/forest fire haze → respiratory illness (ARI, asthma).
Adaptation: Facility air filtration; mobile respiratory clinics; mask distribution & air-purifiers; deploy air-quality early warning.

H-05a

Impact: Coastal flooding & saline intrusion → unsafe water & sanitation.
Adaptation: Raised/relocated latrines; small desalination units; elevated water tanks.

H-05b

Impact: Rising SST & ocean change → expansion of vector-borne disease zones.
Adaptation: Mosquito monitoring in new coastal zones; awareness campaigns.

H-06

Impact: Climate disasters (floods, droughts, cyclones) → psychosocial trauma, healthcare service disruption.
Adaptation: Counselling services; school-based trauma programs; telehealth platforms.

H-07

Impact: Windstorms & tropical cyclones → trauma injuries, facility damage, service disruption.
Adaptation: Cyclone-resistant health posts & hospitals; trauma units; stockpiling medical-supply.

H-08

Impact: High humidity → fungal & respiratory disease, mould, degraded indoor air, equipment/medicine damage.
Adaptation: Ventilation & humidity monitoring; mould remediation; waterproofing/drainage; anti-mould materials.

H-09

Impact: Energy/power outages → disruption of medicine/vaccine cold chains.
Adaptation: Solar-powered refrigerators; decentralised cold hubs; backup energy storage for health centers.

Source: ENDC (2022); VAA (2025); Strategic Plan of the Ministry of Health 2025–2029; World Bank 2025; WHO (2015); SSGI (2025); AdCom (2022); BTR (2024).

Detail of Adaptation Action on the Health Sector

Code	Climate Parameter / Pressure	Specific Data	Climate Hazards	Data Type & Unit	Impacts on Health Systems	Geographic Hotspots
H-01	Temperature rise	+0.8–1.2 °C since 1991; +1.9 °C by 2100	High temperature	°C anomaly / heat index	Heat stress, cardio-respiratory illness, occupational injury ↑ 3–6 %	Urban Java, Bali, Sumatra
H-02	Heat stress / apparent temperature	Apparent T > 40 °C (El Niño 2023–2024)	Prolonged heat days	Heat-index / days > threshold	Increased hospitalisation; labour-productivity loss	Jakarta, Surabaya, Medan
H-03	Rainfall extremes / floods	+15–20 % extreme rain (BMKG 2025)	Floods / stagnant water	% anomaly / mm day^{-1}	Vector range expansion; dengue & leptospirosis ↑ 20–30 %	Sumatra, Kalimantan, Java
H-04	Water contamination / drainage failure	High turbidity & pathogen load in floods	Floods	mg L^{-1} pollutant / NTU	Diarrhoeal & cholera outbreaks ↑ 5–8 %	Jakarta, Bekasi, Banjarmasin
H-05	Drought & air pollution	2015–2016 El Niño; 2019 fires	Drought / haze	µg m^{-3} $PM_{2.5}$	Respiratory infections; premature deaths ≈ 36 000 / decade	Sumatra, Kalimantan, NTT
H-06	Health-facility exposure	2 000+ facilities in flood zones (Kemenkes 2025)	Floods / sea-level rise	% facilities at risk	Equipment damage; service disruption; cold-chain failure	Java North Coast, Sulawesi, Papua
H-07	Food and nutrition stress	Yield loss +5–30 % (Section 5.2)	Food insecurity	% stunting / nutrition deficit	Stunting ↑ 3–6 %; micronutrient deficiency	NTT, Papua
H-08	Disaster-related trauma & mental health	Post-disaster exposure > 5 million people / yr	Floods, droughts / displacement	cases yr^{-1}	PTSD, anxiety, psychosocial distress ↑	Java, Sulawesi, Papua

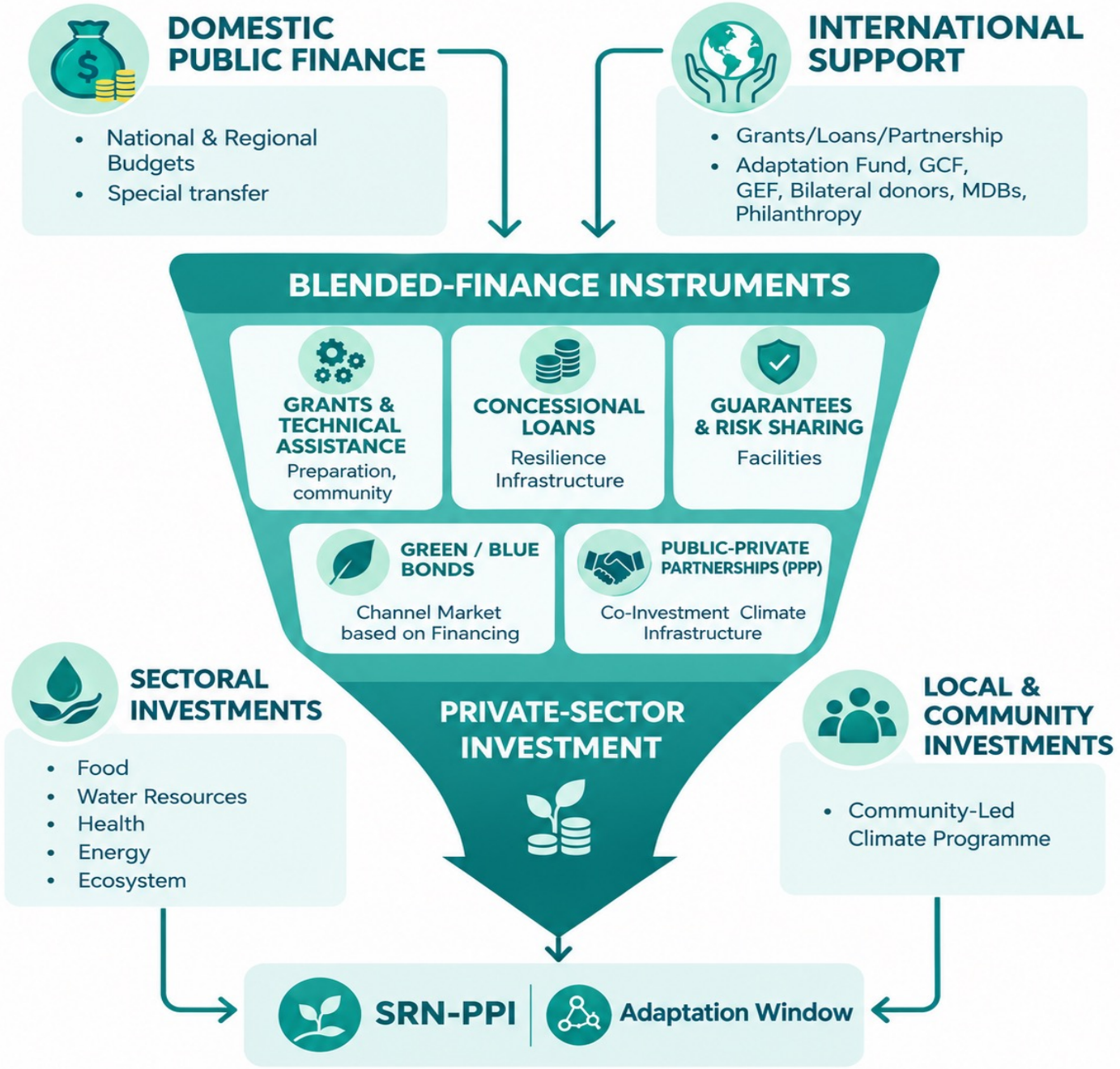
Source: BSIP, 2023; RPJMN 2025–2029; Wihardjaka et al., 2020; Enescu et al., 2025; Suryana et al., 2024; Lubis et al., 2024.



03 Financing the Climate Change

De-risking and leveraging mechanisms for adaptation finance

De-risking and Leveraging Mechanisms for Adaptation Finance



Key Messages

01

Integrate climate risk into health planning

Climate change is already reshaping health risks and infectious disease patterns. Climate risk must therefore be incorporated into health planning.

02

Target adaptation financing to risk and need

Adaptation financing must follow risk maps, geographical hotspots and health-system needs—not merely fund generic activities.

03

No single financing source is sufficient

Indonesia needs a mix of public financing, international support, blended-finance instruments, private-sector financing and community investment.

Thank You