



Tackling Urban Heat Challenges: The Action Plan of Indonesian Urban Heat Island (UHI) Mitigation and Adaptation

Indonesia's Delegations

Technical Deep Dive
Urban Heat Island (UHI)

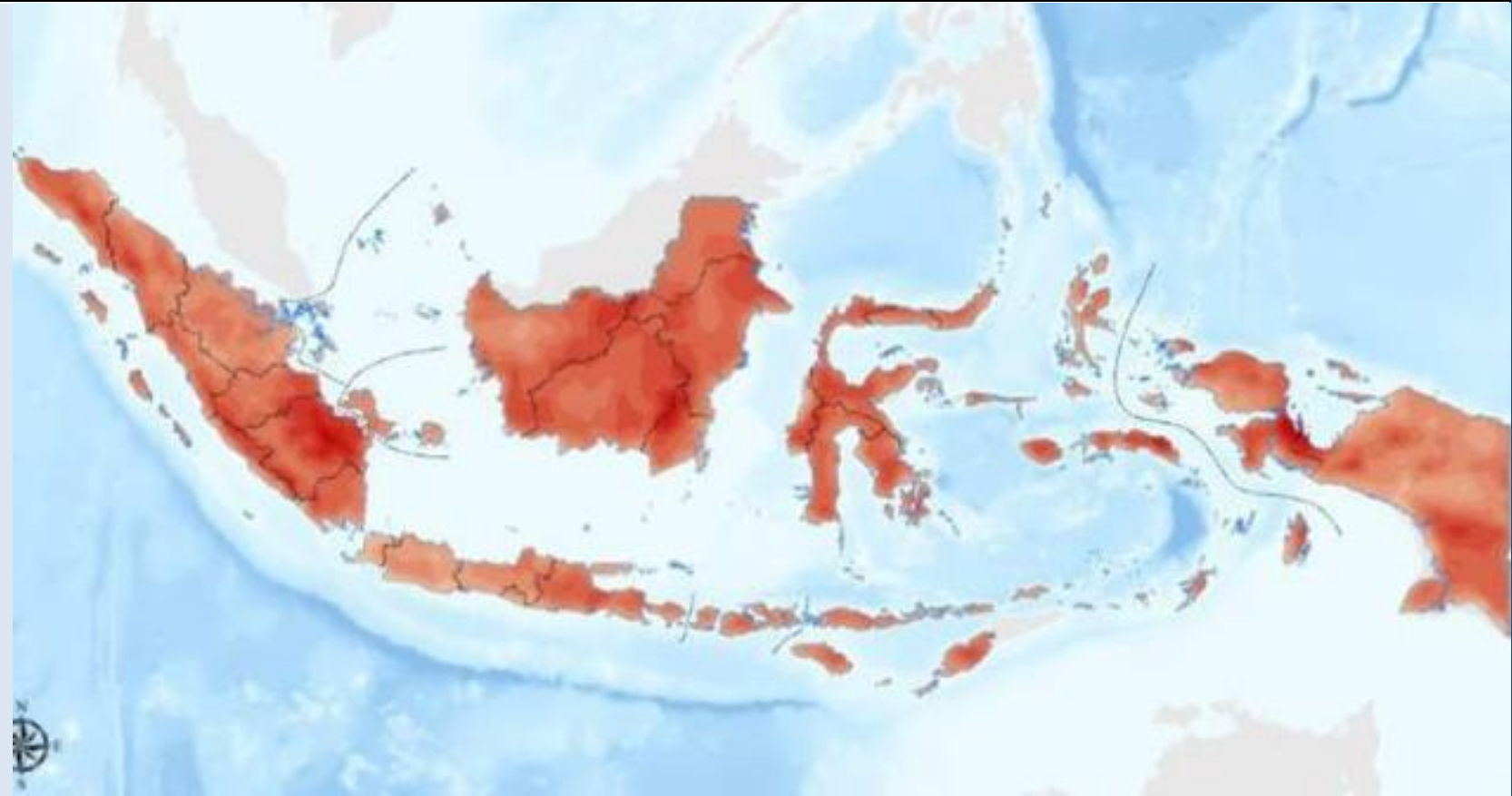
Singapore, April 28th 2023



Urban Heat Challenges (1/3)

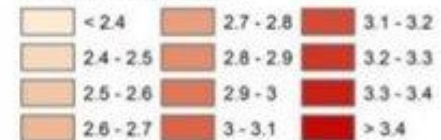
As a tropical country, Indonesia is also facing the threat of climate crisis, including the increasing temperature **on daily basis**.

By 2049, it is expected that the annual temperature across Indonesia will increase in the range of **2,4 – 3,4°C**.



PROJECTED CHANGE IN ANNUAL
MAXIMUM TEMPERATURE FOR THE
PERIOD 2020-2049 AGAINST 1976-2025
(SCENARIO RCP8.5)

Perubahan (derajat Celsius) :



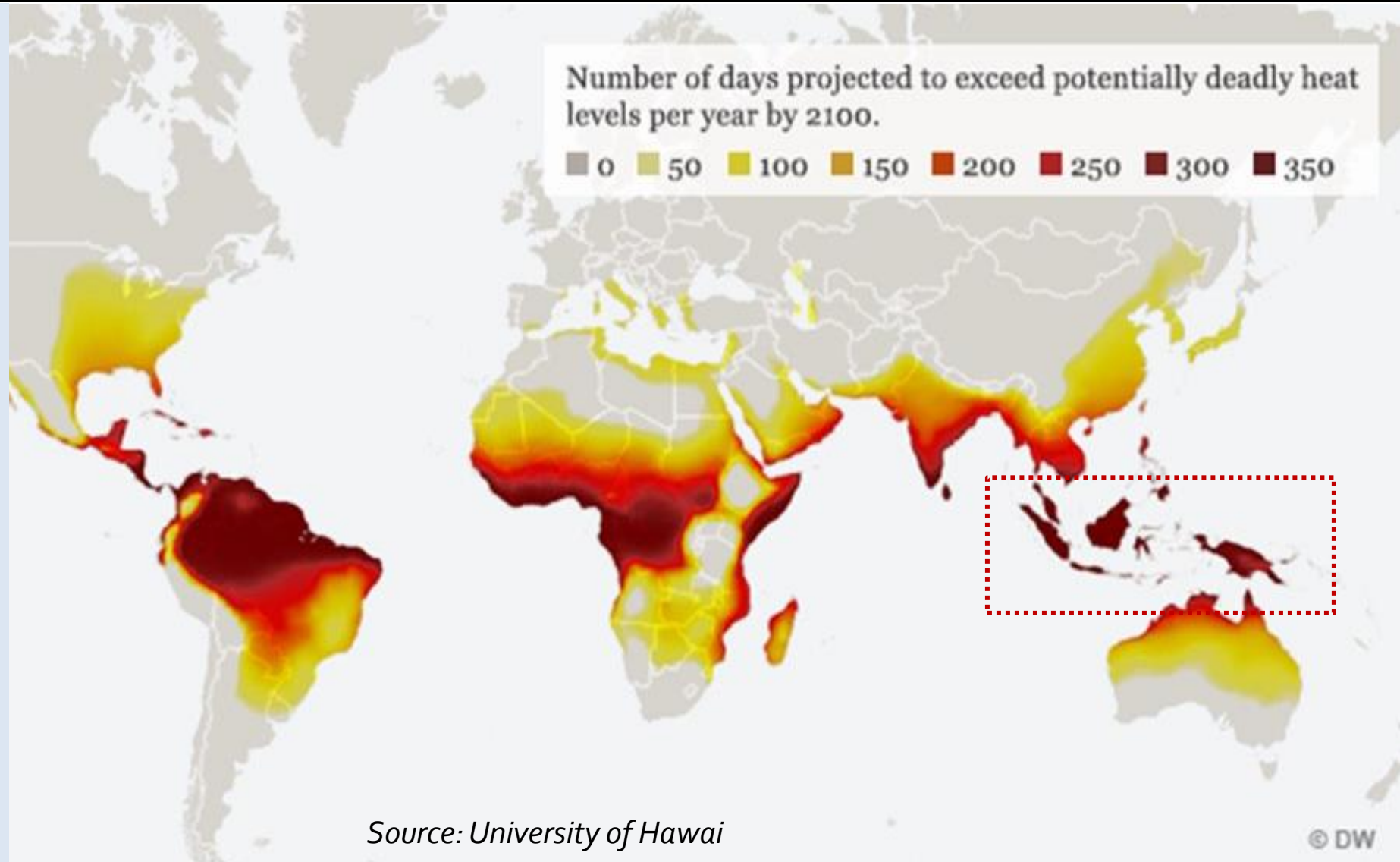
Keterangan :

- Batas Negara
- - - Batas Propinsi
- Garis Pantai



Urban Heat Challenges (2/3)

In 2100, Indonesia is projected to experience **350 days, in a year**, of extreme heat that potentially lead to death.





Urban Heat Challenges (3/3)

Other than the Health Risk, Urban Heat also Directly Linked to the Country's Prosperity Decline



Population (Sensus 2020) **270.20 mill** By 2045, **more than 70%** of population will **live in urban area** (around 220 mill). Meanwhile, at least **40% of GDP** contributed by Metropolitan Area.



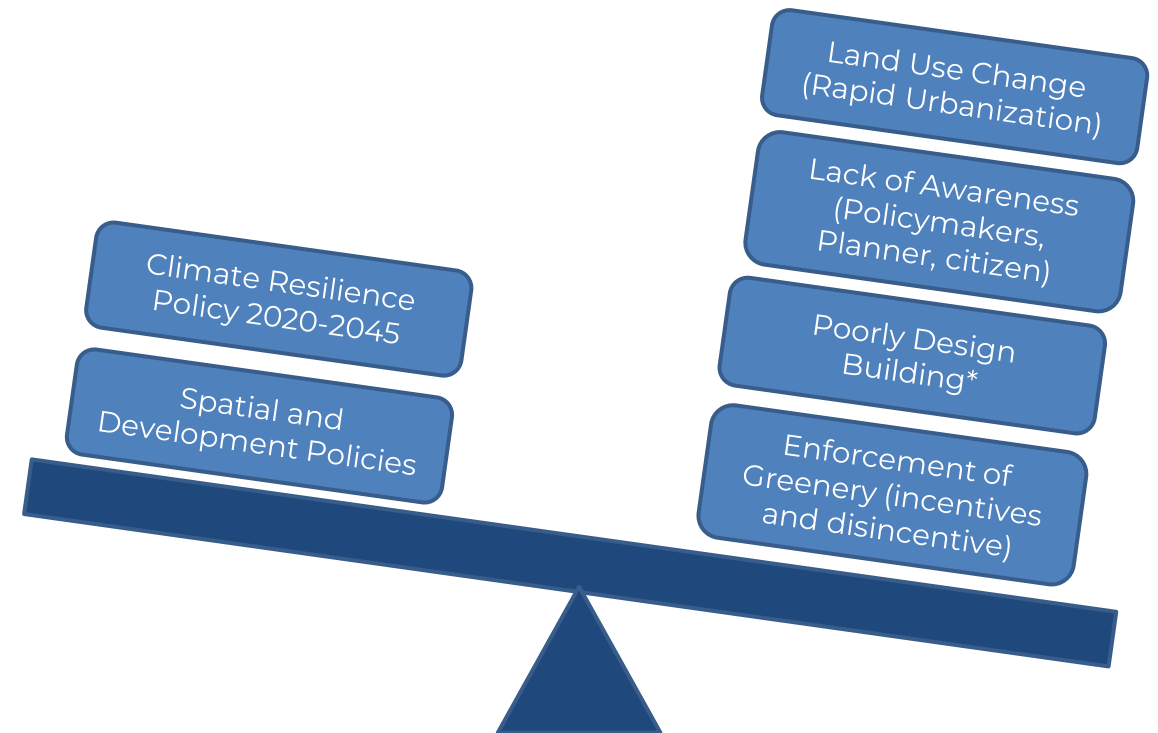
Globally, the effects of heat will strip approximately **1.5 to 2% of annual GDP** from local economies, due to reductions in labor productivity. (ILO, 2022)

On the other hand, the current policy and strategy for urban development **has not yet addressed** the challenges of urban heat.

What We Have

VS

What We Face



*Green roof, green walls, energy efficiency system, cooling system, etc.

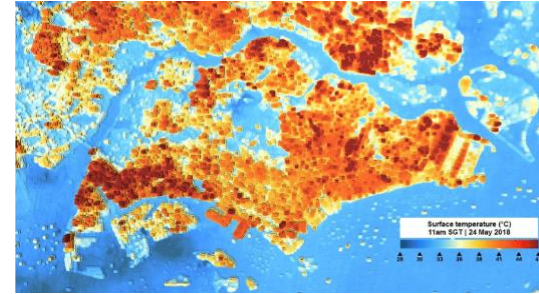
Learning Goals and Key Takeaways

- ✓ Challenges of Urban Heat Island
- ✓ Data Collection and Measurements
- ✓ Strategy and Policy to Address the UHI Challenges
- ✓ Initiatives from Various Countries/Cities to address UHI challenges
- ✓ Financial Schemes

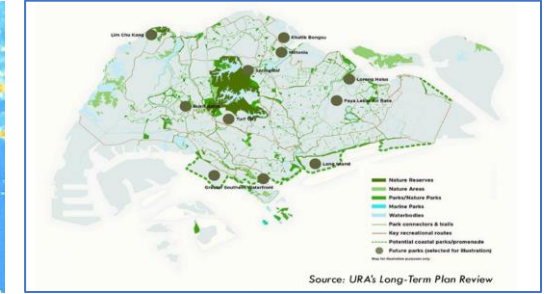
>> **Comprehensive strategy and actions** in tackling Urban Heat Island as part of Climate Resilient Initiatives that will be stipulated in **national and sub-national medium development plan**

How it is transferred to Indonesia's Context?

Data, Policy, Regulation:



Integrated Planning and Policy
(Spatial Plan, Climate Action)



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Passive Cooling Action:



Materials (cool paints, permeable surface)



District Cooling System (energy and water – chiller)

Active Cooling Action:



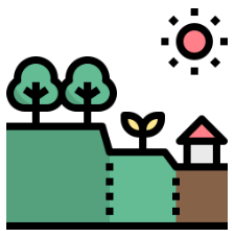
Ecological System (Park and Wetland)



Greenery (Green Wall, Green Roof, Tree Street)

Barriers to Implementation and Solution

1. Policy and Regulation



- Awareness of UHI effects that would inform policies development
- Availability and alignment of specific UHI policy in national and sub-national level

3. Stakeholders Arrangement



- Engagement of sub-national government
- Engagement of communities and private sectors

2. Data Availability



- Measurement (technology and sustainability) and standardization for UHI at sub-national level

4. Funding and Resources



- Funding priority of national and sub-national budget
- Development of alternative financing

Action Plan and Accountabilities

Short-Term Initiatives (by 2024)

- UHI mapping and identifying its impact for urban development (piloting in 10 Metropolitan Areas)
- Formulating UHI Action Strategy for Current Climate Resilience Policy 2020-2045
- Integrating UHI issues and strategy into National Medium-term Development Plan (2025-2029) and Long-term Development Plan (2025-2045)
- Identifying the actors in doing the planning, implementing, as well as monitoring and evaluation

Mid-Term Initiatives (by 2030)

- Developing UHI Tools (data collection, modelling and projection simulation)
- Formulating monitoring and evaluation mechanism for UHI implementation strategy
- Unlocking climate resilience financing opportunities (including UHI)
- Integrating National Climate Resilience Strategy and Policy into Sub-national plan and action implementation (piloting in 10 Metropolitan Areas)

Long-Term Initiatives (by 2045)

- Up-scaling and replicating UHI best-practices to other cities (varies from big, medium, and small cities)
- Outcome assessment of UHI policy and strategies implementation

Potential Cooperation with Singapore Partners



Joint-researched for
UHI Mapping and
Tools



Knowledge Transfer on
UHI for Sub-national
Government (city to city
partnership)



Technical Assistance on
Investment Prioritization
and Financing



Thank You!