

6. UN ESCAP 2025 Asia-Pacific Disaster Report – Report

The UN ESCAP 2025 Asia-Pacific Disaster Report warns that Asian megacities like Delhi, Karachi, Dhaka, Manila, Seoul, and Shanghai could experience 2–7°C additional warming due to the urban heat island effect.

Asia-Pacific Disaster Report (APDR) –

South Asia's Rising Vulnerability to Extreme Heat – Consistently High-Risk Zone – India is one of the five Asia-Pacific countries where agriculture and labour-intensive sectors face persistently high climate risk. Risk Drivers – Rising temperature extremes, high humidity, weakening monsoon stability, and rapid urbanisation create multiple heat-related stress pathways. Diverse Exposure – Both densely populated megacities and rural agrarian belts experience long heat seasons, compounding socio-economic vulnerabilities.

Urban Heat Island (UHI) Intensification – Heat Amplification – Dense built-up areas, concrete surfaces, asphalt roads, and low vegetation trap and re-radiate heat. This can add 2–7°C on top of global mean warming by 2100. Spatial Inequality – Wealthier localities with tree cover and open spaces remain cooler; poorer settlements with tin roofs, high density, and limited ventilation record the highest heat load. High-Risk Cities – Delhi, Karachi, Dhaka, Manila, Shanghai, Seoul are projected to experience severe localised heat stress, pushing heat levels beyond human physiological tolerance.

Escalating Heat Index Exposure – Heat Index Definition – A more accurate measure of perceived heat because it combines air temperature with relative humidity. Extended Hot Days – India, Pakistan, Bangladesh projected to face 300+ days annually above 35°C heat index – the danger threshold for outdoor work. Extreme Danger Days – Over 200+ days above 41°C heat index likely in South and Southwest Asia, dramatically increasing heatstroke probability. Category 3 & 4 Exposure – These are the highest Alert Categories under APDR, representing prolonged, life-threatening heat stress.

Sharp Rise in Extreme Heat Events – week, persistent heatwaves – Changing Disaster Patterns – Historically dominated by cyclones, floods, and droughts, Asia-Pacific now sees extreme heat as the fastest-growing disaster category. Record Year 2024 – Declared the hottest year ever; many regions saw multi es without night-time cooling.

Major Disasters –

1. Bangladesh (Apr–May 2024) – Heat disaster affecting 33 million people.
2. India (2024) – Second-deadliest heatwave, claiming nearly 700 lives, with hospitalisation surges and urban heat stress emergencies.

Intensifying Health and Livelihood Impacts – Population Exposure – Over 40% of South and Southwest Asia's population will consistently face >35°C & >41°C heat index levels in medium-long term scenarios. Heat-Related Mortality – Projected to double by 2050, with heatwaves becoming the deadliest extreme weather events.

Vulnerable Groups –

1. Urban poor living in congested, poorly ventilated settlements
2. Elderly and young children
3. Outdoor workers – farmers, construction workers, street vendors
4. Low-income communities lacking trees and cooling infrastructure

Physiological Stress – Extreme heat disrupts thermoregulation, leading to –

1. Cardiovascular strain
2. Kidney injury & dehydration
3. Respiratory complications
4. Reduced cognitive function and productivity

5. Heatstroke and mortality

Inequality Worsening – Example – Bandung (Indonesia) recorded a 7°C temperature gap between richest and poorest neighbourhoods – reflecting spatial injustice.

Heat–Pollution Feedback Loop – Air Quality Deterioration – Heat triggers droughts and wildfires, raising PM10, PM2.5, CO₂, CO, NO_x, VOCs (including toxic compounds like acrolein and formaldehyde).

Compound Hazards –

1. Heat + Smog = amplified cardio-respiratory stress
2. Elevated ozone formation due to sunlight and heat
3. Reduced visibility affecting transport safety

Long-term Climate Impact – Persistent pollution layers trap more heat, increasing localized warming – a self-reinforcing loop.

Economic Losses Under High Heat Stress – Reduced Labour Productivity – Working hours lost due to heat stress expected to rise from 3.75 million to 8.1 million full-time job equivalents (1995–2030).

Sectoral Losses –

1. Agriculture – Reduced field hours, scorching of crops.
2. Construction – Site closures during peak heat hours.
3. Manufacturing – Worker fatigue reduces throughput.

Macroeconomic Impact – Annual climate-induced economic losses projected to approach \$498 billion under high-emission scenarios, disproportionately impacting developing economies.

Impact on Agriculture and Food Security

Falling Crop Yields –

1. Heat stress accelerates crop maturation, leading to lower grain-filling.
2. Example – India's 2022 heatwave devastated wheat production, triggering domestic price spikes.

Livestock Productivity Decline –

1. Reduced feed intake
2. Lower reproductive efficiency
3. Decreased milk and meat output

Labour Productivity Loss –

1. Farmworkers face up to 27% reduction in physical work capacity under extreme heat.
2. Dehydration, heat cramps, and exhaustion worsen daily output.

Rural Poverty Deepens –

1. Failed harvests + rising medical costs = increased indebtedness, migration pressures, and poverty traps.
2. Regions with limited irrigation and weak early-warning systems suffer the most.

Gaps in Heat Early-Warning and Public Health Systems – Limited Coverage – Only 54% of national meteorological services globally issue extreme heat warnings. Life-Saving Potential – Expanding heat-health warning systems in 57 vulnerable countries could save ~100,000 lives every year.

Preparedness Gap –

1. Insufficient public cooling centres
2. Lack of heat-safe work guidelines
3. Weak public communication systems
4. Underdeveloped risk-mapping and heat action plans in many regions

Asia-Pacific Disaster Report (APDR) – About the Report

Publisher – UN ESCAP's Information and Communications Technology & Disaster Risk Reduction Division.

Frequency – Released once every two years; considered a flagship document for disaster risk assessment in Asia-Pacific.

Core Objectives –

1. Provide scientific evaluation of climate and disaster risks
2. Identify socio-economic vulnerabilities
3. Inform policymaking to strengthen resilience and sustainable development
4. Map future climate hazards and project region-wide risk scenarios

Scope – Covers cyclones, floods, droughts, extreme heat, landslides, earthquakes, tsunamis, and emerging compound hazards.

APDR Matters for India

India is home to the largest number of people exposed to chronic heat stress in Asia-Pacific.

APDR offers evidence necessary for –

1. Designing Heat Action Plans
2. Building climate-resilient agriculture
3. Prioritising urban cooling (green roofs, urban forests, reflective surfaces)
4. Protecting vulnerable livelihoods
5. Strengthening public health and early-warning systems

It highlights the urgency of preparing India for a hotter, more humid, and more hazardous climate future.

Source – <https://www.downtoearth.org.in/climate-change/asias-megacities-face-deadly-heatwave-risk-un-report>

