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Escalating Urban Heat: An Acute Challenge for the Sustainable Development Goals

Peili Pey

Urban areas are rapidly expanding; by 2050, 70% of the world's population is expected to live in cities. This rapid, dense development has created a vital environmental challenge for living: the Urban Heat Island (UHI) effect. The UHI effect describes the phenomenon where urban areas are significantly warmer than their surrounding rural landscapes. This occurs because vegetation is replaced with materials like pavement and concrete, which absorb and retain heat. Additionally, waste heat from air conditioning units, vehicles, and industrial processes further elevates temperatures.

Urban heat is a grave sustainability and health crisis that is deeply intertwined with several of the United Nations' Sustainable Development Goals (SDGs), particularly SDG 3 (Good Health and Well-being), SDG 11 (Sustainable Cities and Communities), and SDG 10 (Reduced Inequalities). This challenge is most acute in the Global South, where low- and middle-income countries face the highest risk. By 2050, studies predict a catastrophic 700% global increase in the number of urban poor living in extreme heat conditions, with the largest increases expected in West Africa and Southeast Asia.

Cascading Impacts on Health, Energy, and Equity

SDG 3 (Good Health and Well-being) & SDG 11 (Sustainable Cities): The most direct impact of UHI is on human health (SDG 3). Urban heat amplifies the duration and intensity of heatwaves. Prolonged exposure to extreme heat compromises human health, increasing the risk of heat exhaustion, heat

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stroke, and heat-related mortality. This health crisis is directly linked to the functionality of our cities (SDG 11). As temperatures rise, the demand for artificial cooling surges. This increased consumption strains energy grids, raises utility costs for residents, and drives up greenhouse gas emissions, creating a [dangerous feedback loop](#). This strain translates into massive economic losses due to reduced productivity. In Bangkok, an estimated baseline suggests heat-related labour production losses has reached [8.6 billion USD](#) (projected to hit 16 billion by 2050).

SDG 10 (Reduced Inequalities): The burden of urban heat is not distributed equally, making it directly connected to SDG 10. Within the same city, temperatures can vary drastically, and research has shown that lower-income neighbourhoods [are often hotter](#) than wealthier neighbourhoods. These communities often have [less tree canopy](#), denser pavement, while more reliant on public transportation, compounding their vulnerability. This vulnerability is acute for the labour force in the Global South. [Projections for 2030](#) show that Southern Asia (5.3%) and Southeast Asia (2.2%) will lose a percentage of working hours to heat stress significantly higher than the world average (1.4%). This disproportionately affects urban poor and informal workers who lack the flexibility to adjust working hours and conditions.

Strategies for Resilient and Cool Cities

To accelerate progress for SDGs amidst this challenge, urban stakeholders must deploy integrated strategies that treat cooling as critical infrastructure:

Invest in [Nature-based Solutions](#): This strategy focuses on green and blue infrastructure. Nature-based solutions are one of the most effective approaches to combatting UHI through evapotranspiration, including the planting of native trees, and expanding urban parks. Studies show that [large urban parks](#) can lower immediate surrounding temperatures by 2°C to 3°C. Blue infrastructure such as restoring urban streams also lowers ambient temperatures.

Redesign the Built Environment for Passive Cooling: Urban strategies must reduce heat absorbed by 'grey' infrastructure. Cities should move towards mandating high solar reflective (albedo) surfaces. This strategy also includes 'smart design', such as urban ventilation corridors, to disperse heat in dense '[urban canyons](#)'.

Implement Equitable Policies and Resilience Actions: Infrastructural changes must be supported by policy and social safety nets. Governments can encourage the adoption of solutions by creating financial incentives. For example, the [Green Building Initiative](#) in Quezon City, Philippines, offers up to 25% reduction in real property taxes for buildings that integrate sustainable practices. Importantly, investments in green infrastructure should be prioritised in [historically underserved and hotter](#) neighbourhoods. Equitable access to public cooling spaces (e.g. libraries or community centres) should be ensured.

Addressing the UHI effect is fundamental to achieving SDGs 3, 10, and 11. By implementing smart, equitable, and nature-based urban design, stakeholders can build cities that are not only resilient to climate change but are healthier and more equitable for all inhabitants.



SUGGESTED READINGS

UNEP. 2021. "Beating the Heat: A Sustainable Cooling Handbook for Cities." *United Nations Environment Programme*. November 3, 2021.

Clancey, G., Chang, J. H., & Chee, L. P. (2024). "Heat and the City: Thermal Control, Governance and Health in Urban Asia." *Urban Studies*, 61(15), 2857-2867.

World Bank. (2025). "Handbook for Urban Heat Management in the Global South." *World Bank Group*. September 2, 2025.

CLIMATE CHANGE



Photo Credit: Freepik.com

NEWS & COMMENTARIES

UN pushes nations to submit overdue climate plans

The nearly 200 countries under the Paris Agreement were supposed to put forward updated policies in February, providing a tougher 2035 emissions reduction target and a detailed blueprint for achieving it. But only a handful made the deadline, and six months later, China, India and the European Union are among the biggest names still to submit their revised plans.

AFP/Idy

Channel News Asia | 3 September 2025

Over 85 scientists say Energy Dept. climate report lacks merit

Over 85 top climate scientists said that the Trump Energy Department's recent climate assessment used to justify an unwinding of federal greenhouse gas rules does not meet standards for scientific integrity. The group of scientists submitted a more-than 400 page review of the assessment written by five scientists handpicked by Energy Secretary Chris Wright who have a contrarian view of mainstream climate science.

Valerie Volcovici

Reuters | 3 September 2025

Climate-change-driven wildfires increasing air pollution across globe: UN

Wildfires made significant contributions to air pollution last year, likely to have been made more frequent by climate change, and are releasing a “witches’ brew” of pollutants that can end up wrecking air quality a continent away.

News Agencies

Al Jazeera | 5 September 2025

Artificial intelligence and energy transition in Southeast Asia

The transition to low-carbon energy sources in the region is facing opposition from local communities adversely affected by the infrastructure development projects. The use of digital technologies, especially Artificial Intelligence, in social mobilisation has complicated the milieu, presenting both opportunities and risks for the energy transition.

Margareth Sembiring and Danielle Lynn Goh

RSIS Commentaries | 12 September 2025

SELECTED PUBLICATIONS

A prudent planetary limit for geologic carbon storage

Geologically storing carbon is a key strategy for abating emissions from fossil fuels and durably removing carbon dioxide (CO₂) from the atmosphere. However, the storage potential is not unlimited. Treating carbon storage as a limited intergenerational resource has deep implications for national mitigation strategies and policy, and requires making explicit decisions on priorities for storage use.

Matthew J. Gidden, et al.

Nature, 645, 124-132 | 2025

Extreme fire weather conditions in Spain and Portugal now common due to climate change

The fires in Spain in 2025 were the worst in 30 years, almost quadrupling the average annual area burned during that period. Empirical weather data suggest that, in today's climate, which has warmed by 1.3°C since preindustrial times, the extreme conditions that drove the recent wildfires are expected to occur approximately once every 15 years. This means the event would be expected to occur less often than in current assessments.

Theodore Keeping, et al.

Imperial College London | 2025

EVENT & ANNOUNCEMENT

Regional Climate Change Conference (RCCC) 2025

With the theme of “The Intersection of Climate Science, Adaptation, and Climate Financing: Focus on the Global South and Inclusivity”, RCCC aims to foster future research through the use of state-of-the-art methods in climate modelling, regional/local climate impacts and risk assessment.

Colombo, Sri Lanka

13-15 October 2025

ENERGY SECURITY



Photo Credit: Adobe Firefly Generated Images

NEWS & COMMENTARIES

Russia says it will help China overtake the US on nuclear power

Russia will help China overtake the United States as the world's biggest producer of nuclear power, the chief of Russia's Rosatom state nuclear corporation said recently. Russia has already helped build four nuclear reactors in China and is building four more.

Reuters

The Straits Times | 3 September 2025

China's atomic energy law draft submitted for third reading, adds measures against illegal exports of nuclear and dual-use items

Third draft stipulates that China supports the peaceful use of atomic energy, promotes sharing of achievements in the peaceful use of atomic energy, and works to prevent and respond to the threat of nuclear terrorism while advancing the establishment of a fair, cooperative and win-win international nuclear security system.

The Global Times

5 September 2025

Singapore appoints UK firm Mott MacDonald to study nuclear energy technologies

The company will evaluate the safety performance and technical feasibility of advanced nuclear energy technologies, such as small modular reactors (SMR), based on their safety features, technology maturity and commercial readiness.

Chelsea Ong

Channel News Asia | 5 September 2025

Beyond green data centres: Leaner, smarter AI for Southeast Asia's sustainable digital future

With rapid growth in e-commerce, fintech, and AI services, the region is seeing a surge in electricity demand – particularly from data centres. These facilities run 24/7 and require intensive cooling, placing large, round-the-clock loads on national power grids.

Muyi Yang, Xiwei Xu and David Lo

Eco-Business | 9 September 2025

SELECTED PUBLICATIONS

Liberalizing the nuclear energy sector: Small modular reactors, net-zeros, and perceptions in India

This article analyses the efficacy of incorporating SMRs into India's energy mix and if it would be more advantageous to allow private investments into the nuclear energy sector.

Hely Desai

International Journal of Nuclear Security, Vol. 9, No. 3 | 2025

Assessing emissions from LNG supply and abatement options

This report provides a comprehensive estimate of greenhouse gas (GHG) emissions across the global liquefied natural gas (LNG) supply chain, including from upstream production, processing, and pipeline transmission to liquefaction, shipping, and regasification.

International Energy Agency

2025

EVENT & ANNOUNCEMENT

Developing National Nuclear Infrastructure – Tools, Milestones, and Practical Support

In this second webinar of the Southeast Asia Nuclear Dialogue Series, John Haddad, Representative for Nuclear Infrastructure Development at the IAEA, presented on how newcomer countries can develop the necessary infrastructure to consider nuclear energy.

Recorded Webinar

14 August 2025

FOOD SECURITY



Photo Credit: Adobe Firefly Generated Images

NEWS & COMMENTARIES

Explainer: What role do farm products have in US-China trade deal?

Farm products are the biggest U.S. export to China and a commitment by Beijing to increase purchases is likely to feature in a broad trade deal. U.S. soybean farmers wrote to the US President this month pleading for a deal with Beijing and warning of dire economic consequences if China continues to shun American crops.

Ella Cao, Naveen Thukral and Lewis Jackson

Reuters | 28 August 2025

AU, Ethiopian officials highlight Africa-China cooperation in agriculture, food security

The Africa-China relationship is evolving into one of the most strategic, as their partnership in agriculture and food security offers significant opportunities to promote sustainable development on the continent, including the transfer of modern technologies from China.

Hua Xia

Xinhua News | 1 September 2025

Indonesia commits US\$2.5 billion to agriculture and food security

Amid the protests, the 2026 budget ceiling for Indonesia's Ministry of Agriculture was raised to US\$2.5 billion, underlining the importance placed on strengthening the sector amid global uncertainty. Much of this focuses on building agricultural capacity such as through irrigation and land rehabilitation.

Vietnam News Agency

TV BRICS | 4 September 2025

Gaza: The weaponisation of food

Gaza faces a famine due to multiple factors: the convergence of conflict-driven hunger, the collapse of the agri-food system, soaring food prices, and the dangers faced in accessing aid. Given the already devastating humanitarian impact of war in Gaza, unless safe corridors for humanitarian aid are established, the food crisis risks spiralling into a famine and turning food into a weapon of war.

Kayven Tan and Keith Paolo

RSIS Commentary | 10 September 2025

SELECTED PUBLICATIONS

Collateral effects of the tariff war on ASEAN food security

This policy report examines the potential collateral effects of the US-China tariff war on the food security of the Association of Southeast Asia Nations (ASEAN) member states, who are third parties to the conflict. It argues, regional policymakers should prioritise providing sufficient income support to consumers, and helping ASEAN farmers and traders to raise regional production levels, to benefit from higher prices and incomes.

Jose Ma. Luis Montesclaros and Kayven Tan

RSIS Policy Report | 19 August 2025

Sustainable intensification strategies: Balancing productivity, quality, and profitability in agri-food systems with resource optimization

This publication explores the System of Crop Intensification (SCI), an adaptive agricultural methodology derived from the System of Rice Intensification (SRI). Against the backdrop of global population growth, resource scarcity and climate change, it positions SCI as a critical innovation for securing food and nutrition needs while preserving ecological balance.

Anchal Das et al.

Frontiers in Agronomy | 4 September 2025

EVENT & ANNOUNCEMENT

Singapore International Agri-Food week

The Singapore International Agri-Food Week (SIAW) brings together global leaders, policymakers, and innovators to advance agri-food technology across Asia. The event covers themes from regenerative agriculture and aquaculture to protein diversification and nutrition, it serves as a key platform for collaboration and knowledge exchange, driving the shift toward a sustainable, resilient, and healthy food system.

Singapore

3-6 November 2025

HEALTH SECURITY



Photo Credit: Adobe Firefly Generated Images

NEWS & COMMENTARIES

A decade of Planetary Health: Learning from the past and securing earth's future

Planetary Health links human and Earth's well-being, urging systemic, equitable solutions over exploitative trade-offs. It demands integrated assessments, indigenous inclusion, circular economies, and reformed governance to avoid repeating ecological and social injustices like bison slaughter or deep-sea mining.

Peili Pey

RSIS Commentaries | 26 August 2025

Singapore researchers looking to harness 'nature's pharmacy' for cancer treatment

Singapore researchers study tropical plants like bandicoot berry for anti-cancer properties, using genomics and AI. They aim to identify active compounds, validate effects, and develop therapies, alongside food-security aquaponics research.

Joyce Teo

The Straits Times | 8 September 2025

Massive study shows where gout comes from, and it's not what we thought

Gout is largely genetic, not lifestyle-caused. New research identifies 377 DNA links, urging better treatments and stigma reduction. Genetics affects uric acid processing and immune response, challenging outdated myths.

David Nield

ScienceAlert | 9 September 2025

How oral health affects Alzheimer's: Inflammation, pathogens, and prevention

Periodontitis may heighten Alzheimer's risk via inflammation and oral pathogens like *Porphyromonas gingivalis* reaching the brain. Good oral hygiene and early treatment are vital, modifiable strategies for dementia prevention amid ongoing causal research.

Vijay Kumar Malesu

News Medical Life Sciences | 10 September 2025

SELECTED PUBLICATION

Urban effects of climate change on elderly population and the need for implementing urban policies

Urban heat demands integrated climate-health policies, especially for vulnerable elderly. Current siloed research on physiological and cognitive health impacts risks inequitable outcomes. Interdisciplinary, equity-focused urban planning via nature-based solutions and the 15-minute city model is urgently needed for equitable health security and resilience.

Letizia Cremonini and Teodoro Georgiadis

MDPI Encyclopedia, Vol. 5, No. 3 | 2025

Spatial and seasonal elemental distribution in groundwater in Sweden: Potential correlations to neurodegenerative disease distribution

Swedish study links groundwater metals (Copper Cu, Zinc Zn) and mineral content (Electrical Conductivity EC) to regional multiple sclerosis and Parkinson's disease prevalence, suggesting environmental exposure may influence neurodegenerative disease risk. Findings urge deeper research into multi-element exposure, water sourcing, and high-resolution health data for causal insights.

Katelyn M.A. Mellgren, et al.

Journal of Hydrology: Regional Studies | 2025

EVENT & ANNOUNCEMENT

Webinar on Ensuring Safe Care for Every Newborn and Child: A Radiation Protection Perspective, 2025

World Health Organization's 2025 World Patient Safety Day webinar highlights radiation safety in paediatric imaging. Experts from global bodies will discuss collaborative, multidisciplinary strategies to protect newborns and children, ensuring safe, quality care.

Webinar

17 September 2025

BIOSECURITY



Photo Credit: Adobe Firefly Generated Images

NEWS & COMMENTARIES

Strengthening transparency at the AI-Biotech nexus

Rapid advancements in Artificial Intelligence increasingly shape rising biosecurity concerns. To prevent the misuse of emerging biotechnologies and AI for hostile purposes, greater transparency in both life sciences and AI development is essential.

Julius C. Trajano and Jeselyn

RSIS Commentary | 21 August 2025

Indonesia strengthens ASF biosecurity for small-scale pig farmers

The Ministry of Agriculture and the Food and Agriculture Organization (FAO) celebrated the successful implementation of the Community African Swine Fever Biosecurity Intervention (CABI) Programme in West Kalimantan. The programme focuses on protecting small-scale pig farmers by raising awareness and implementing biosecurity measures in areas vulnerable to ASF.

Antara News

21 August 2025

Vietnam issues national technical regulation on livestock wastewater

Vietnam's government will issue Circular No. 04/2025/TT-BTNMT, accompanied by the National Technical regulation on Livestock Wastewater. This is an important step toward strictly managing discharge activities in the agricultural sector, particularly in livestock and poultry farming.

Valerie Nguyen

aviNews Asia | 26 August 2025

US concerns over China's bio-chemical security and implications for India

Over the past few years, the US has begun to view China as a persistent and systematic threat. This rings true even in the domain of biosecurity. For India, the threat of a changing dynamic between the US poses risks in biosecurity, given its shared borders with a country that has been highly controversial in this area. However, this also presents opportunities for interaction with the US to achieve significant global influence in biotechnology.

Raisina Debates

Observer Research Foundation | 9 September 2025

SELECTED PUBLICATIONS

Editorial: Biosecurity of infectious diseases in veterinary medicine

This research explores various aspects of biosecurity in veterinary medicine, focusing on new approaches, critical evaluations, and the complex interplay among human behaviour and technologies. The contributing articles collectively aim to improve the management of infectious disease risks, thereby protecting animal health, food security, and public health under the "One Health" approach.

Joel Fernando Soares Filipe, et al.

Frontiers in Veterinary Science, Vol. 12 | 2025

One Biosecurity is essential to implement One Health

One Health has yet to fully integrate environmental perspectives into its workplan, whereas biosecurity lacks an effective inclusion of the social and health sciences. By unifying these two efforts, One Biosecurity will engage a broader group of multilateral organisations, bring together stakeholders, and implement balanced strategies that better safeguard health, agriculture, and the natural environment.

Philip E Hulme, et al.

BioScience, biof110 | 2025

EVENT & ANNOUNCEMENT

EBSA Conference 2026 and Preconference courses

The conference brings together experts from all around the world with different background in human health, animal health, biotechnologies, and social sciences.

Bruges, Belgium

2-5 June 2026

MIGRATION



Photo Credit: Wikimedia Commons

NEWS & COMMENTARIES

Monthlong crackdown targets wage theft and abuse of foreign workers

South Korea's Ministry of Employment and Labor will conduct intensive inspections targeting businesses that employ large numbers of migrant workers, in a bid to protect vulnerable migrant workers. The inspections will cover rights abuse cases such as workplace bullying and sexual violence.

Jung Min-ho

The Korea Times | 3 September 2025

Migrant crisis: How Europe went from Merkel's 'We can do it' to pulling up the drawbridge

Concerns over migration have become a major political issue in many European countries. Issues around security, struggling economies and disillusionment with governing parties have all had a major role in shaping attitudes towards asylum seekers.

Fergal Keane

BBC | 4 September 2025

Study finds extreme weather changes who migrates, not just how many

A study published in *Nature Communications* found that the impact of weather and climate on migration depends strongly on age and education.

Josie Garthwaite

Stanford University | 4 September 2025

'Unprecedented exodus' of Cambodian workers from Thailand leaves both countries reeling

With more than a million people leaving Thailand to Cambodia, both countries have been left with labour issues. Before the conflict began, over 520,000 Cambodians worked in Thailand, accounting for 12 per cent of the country's foreign workforce.

Jack Board and Phoung Vantha

Channel News Asia | 5 September 2025

SELECTED PUBLICATIONS

The elusive climate migrant: Symbolic geographies in migration studies

Climate migration has emerged as one of the fastest-growing lines of inquiry within migration studies. However, there is a lack of a definition that clearly distinguishes a climate migrant from a labour migrant. This study aims to examine how climate migration is situated in the literature and discourse.

Victor Pérez-Segura, Raquel Caro-Carretero and Antonio Rua

Comparative Migration Studies | 2025

Climate change, migration and adaptation in the Republic of Moldova: A case study on the contributions of migration to climate-resilient development

This study examines how migration and remittances support climate adaptation in the Republic of Moldova. The country is one of the most climate-vulnerable in Europe, with increased risks of natural hazards.

International Organization for Migration
2025

EVENT & ANNOUNCEMENT

Making Migrant Return and Reintegration Sustainable: Lessons from Two Continents

This webinar by the Migration Policy Institute (MPI) explores emerging models, policy shifts and lessons learned from the European and Latin American approaches to reintegration and support for returning migrants.

Recorded Webinar

25 June 2025