



Sustainable Cooling for All

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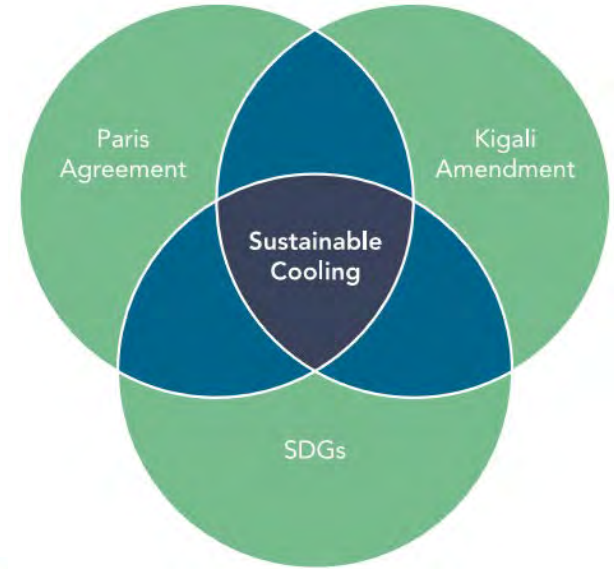
Why do we need Cooling for All?

Who is at risk?

Rural Poor – 470 million

Slum Dwellers – 630 million

Carbon Captives – 2.3 billion



The Rural Poor

Approximately 470 million people



The Slum Dweller

Approximately 630 million people



The Carbon Captive

Approximately 2.3 billion people

Recommendations | Define Risk-based Targets



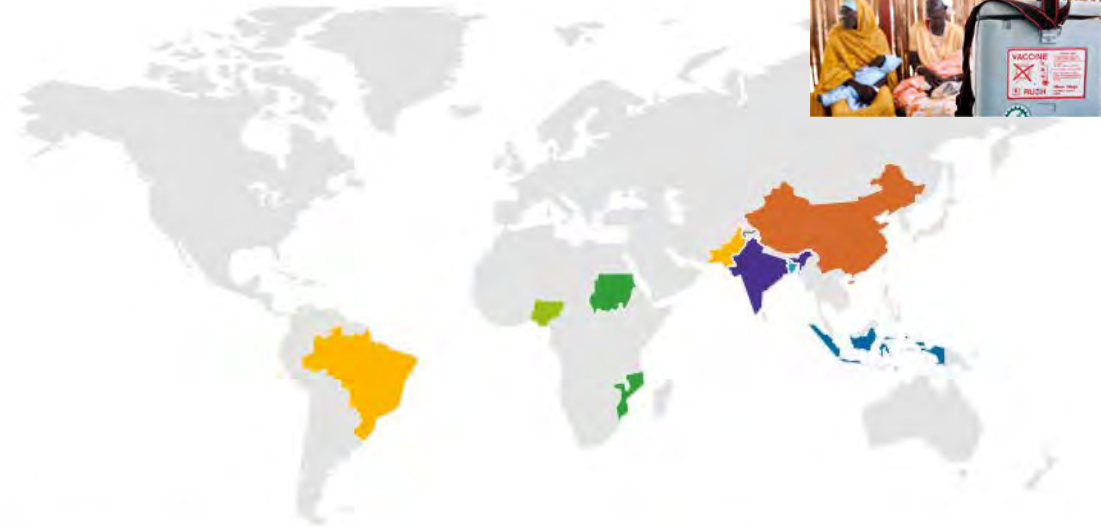
Countries must ...

Measure cooling access gaps

Integrate access measures into National Cooling Plans (or equivalent)

Begin with specific goals by:

- Sector
- Geographic location
- Timeline



1 RISK CATEGORY

- Rural Poor**
Mozambique, Sudan
- Slum Dwellers**
China
- Carbon Captives**
Indonesia

2 RISK CATEGORIES

- Rural Poor / Slum Dwellers**
Nigeria
- Slum Dwellers / Carbon Captives**
Brazil, Pakistan
- Carbon Captives / Rural Poor**
Bangladesh

3 RISK CATEGORIES

- Rural Poor / Slum Dwellers / Carbon Captives**
India

Recommendations | Cooler Cities



*Cities should prepare for heat extremes and develop **heat action plans***

*Utilize **simple solutions**, like cool roofs, to lower demand*

*Countries should accelerate development of **Minimum Energy Performance Standards (MEPS)***



CHILLING PROSPECTS:
PROVIDING SUSTAINABLE COOKING FOR ALL



Recommendations | Cooler Agriculture



Need to commercialize technological solutions for cold chain

Develop business models that make solutions affordable at the Base of the Pyramid

Utilize prizes, such as the Ashden awards, to recognize leadership and achievement



CHILLING PROSPECTS:
PROVIDING SUSTAINABLE COOKING FOR ALL



Development Outcomes | What should we focus on...

Reduce cooling access gaps
by defining targets and designing specific solutions for those at risk

Finance and technical assistance for access to cooling initiatives, including through National Cooling Plans

Increase number of people with access to sustainable and affordable cooling



Focus on access to cooling where the opportunity for impact is greatest ...



Development Outcomes | Agriculture

2 ZERO HUNGER

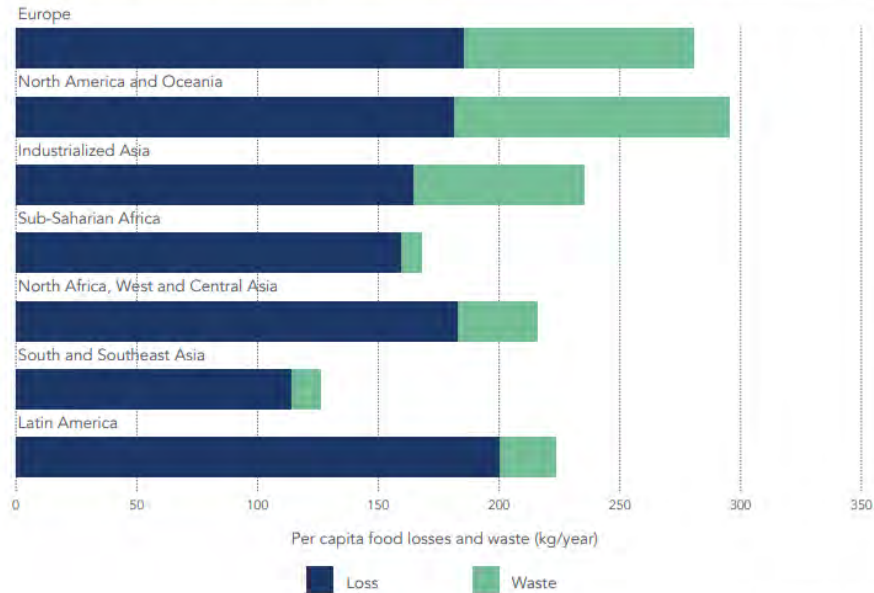


800 million people globally malnourished

\$750 billion per year in lost income to farmers due to food waste and loss

Halving food loss with refrigeration and food cold chains could feed 1 billion undernourished people.

FIGURE 5: 90% OF FOOD WASTE IN DEVELOPING COUNTRIES OCCURS IN THE SUPPLY CHAIN



Source: FAO, 2011

Potential partners: Global Cold Chain Alliance, FAO, University of Birmingham



Development Outcomes | Health



Heat extremes primarily impact the elderly, the young, and outdoor workers

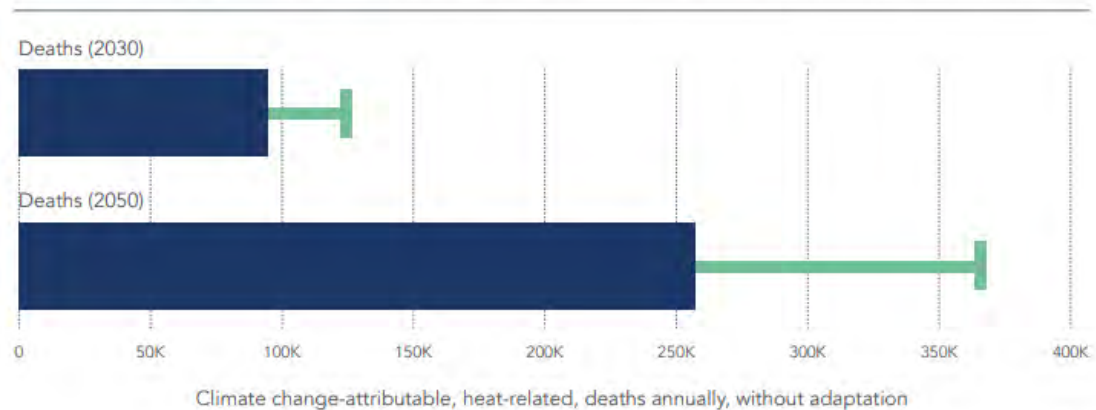
1.5 million people die from vaccine preventable diseases annually.

25% of liquid vaccines are lost each year

420,000 die every year from eating contaminated food

125,000 children under five die from foodborne disease per year

FIGURE 4: CLIMATE CHANGE-ATTRIBUTABLE, HEAT-RELATED DEATHS ANNUALLY, WITHOUT ADAPTATION



Source: WHO, 2014

Potential partners: WHO, GAVI, University of Birmingham, UNICEF



Development Outcomes | Work and Growth

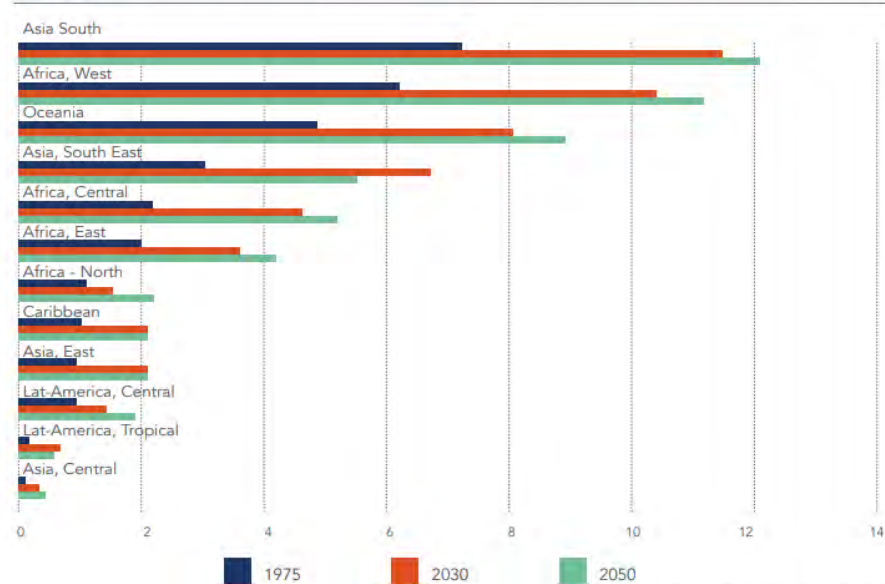
8 DECENT WORK AND ECONOMIC GROWTH



By 2050, work-hour losses as high as 12% in South Asia

For severely impacted countries, losses up to 6% of GDP/capita

FIGURE 6: ESTIMATES OF DAYLIGHT WORK HOURS LOST DUE TO EXCESSIVE HEAT BY REGION IN 1975, 2030 AND 2050



Source: Kjellstrom and Lemke, 2013

Potential partners: RMI, Global Cool Cities Alliance, UN Environment, KCEP



Development Outcomes | Sustainable Cities

11 SUSTAINABLE CITIES AND COMMUNITIES

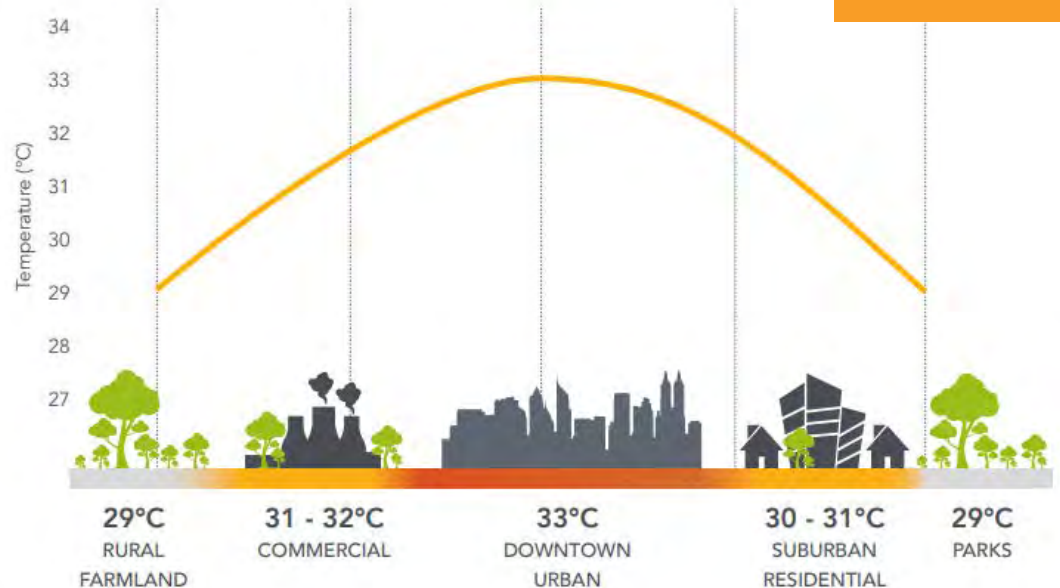


2.5 billion expected to join world's urban population by 2050 – mainly in Asia and Africa

Urban Heat Island Effect will expose growing urban populations to risks of heat extremes

Creates need to prepare heat action plans to protect vulnerable groups

FIGURE 7: THE URBAN HEAT ISLAND EFFECT



Potential partners: Global Cool Cities Alliance, KCEP, Danfoss, UN Environment



Four key messages to achieve Cooling for All

It's about outcomes. *What are the services people require, and how do we provide them in the most efficient and climate friendly way?*

Think holistically. *Include simple solutions – whitewashing roofs or using solar power to drive fans and fridges*

Harness innovations. *Especially in refrigeration that keep vaccines stable and preserve food*

Affordable solutions. *Address people's specific needs –meeting them within a clean energy transition – that can be afforded in the village*



In service of the SDGs



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