Sustainable Cooling in Asia: An ADB perspective

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Benefits of Sustainable Cooling

Sustainable cooling technologies can help alleviate poverty, reduce food loss, improve health outcomes, manage energy demand, and combat climate change. By transitioning from traditional refrigeration to more energy-efficient and eco-friendly solutions, sustainable cooling can significantly reduce emissions and environmental impact in a cost-effective manner.

Increased Equality
Sustainable cooling can alleviate poverty by improving health and safety, boosting economic productivity, enhancing food security, and reducing energy costs, helping empower communities and contribute to sustainable development.

Health Benefits
Cooling solutions that regulate indoor temperatures can mitigate the health risks associated with extreme heat, such as heat-related illnesses and the exacerbation of chronic conditions, particularly crucial in regions prone to heatwaves.

Food and Medicine Preservation
Sustainable cooling also extends to the preservation of food and medicine, ensuring their quality and safety. Proper temperature control and storage can prevent spoilage, prolong shelf life, and maintain the efficacy of medications.

Climate Change Mitigation
By adopting climate-friendly cooling technologies and promoting energy efficiency devices, sustainable cooling can play a significant role in reducing greenhouse gas emissions and protecting the ozone layer.
Impact of Cooling Technologies

Cooling is necessary in modern societies, not only to provide comfort but to ensure a safe distribution of food and medicines. However, cooling technologies do have negative impacts, as they are power-hungry and contribute to global warming.

Sources:
Challenges for a Sustainable Cooling Transition

Despite the clear benefits of sustainable cooling, there are several barriers hindering the widespread adoption of these solutions. Lack of awareness and low technical capacity, as well as misaligned financial and regulatory incentives to end users, policy makers and manufacturers hinders the adoption of cost-effective climate-friendly cooling solutions.

**Policy and Regulatory Gaps**

Building policies and standards often fail to adequately address the need for efficient cooling services, creating a barrier to the integration of sustainable cooling solutions during the design and operation.

**Affordability and Short-Term Focus**

Upfront costs over long-term savings is often main decision factor due to affordability limitations for lower income households or a short-term focus of business, hindering the adoption of more cost-efficient cooling systems.

**Lack of Awareness**

End users and policy makers lack enough understanding of the benefits and impacts of cooling technologies, reducing the demand for sustainable options and discouraging manufacturers to innovate beyond the incumbent technologies.

**Business Barriers and Technical Capacity**

Shortage of skilled professionals to design and install efficient cooling systems, and businesses focused on product sales rather than the life-cycle performance create a challenge for the transition to sustainable cooling.
ADB Support to Sustainable Cooling

**Technical Assistance**
PRC: Developing a Climate-friendly Cooling Sector through Market and Financing Innovation

**Regional TA**
Promoting Life Cycle Management of Fluorocarbons

**Sovereign Loan**
PRC: Air Quality Improvement in the Greater BTH Region—Shandong Clean Heating and Cooling Project

**Sovereign Loan**
PRC: Ningbo Urban Green and Low Carbon Development Project
Joint ADB-ADBI book

Sustainable Cooling: How to Cool the World Without Warming the Planet

Discover the impact, opportunities and challenges of cooling technologies and their potential to shape a sustainable future. This insightful book explores key aspects of low carbon cooling technologies, policies and financial instruments, offering a comprehensive guide for policymakers.

Available for download at:
Contents

Part I: CONTEXT
   1. The Cold Economy
   2. Cooling Demand and its Associated Impact

Part II: SUSTAINABLE COOLING SOLUTIONS
   3. Passive Solutions to Reduce the Need for Cooling in Buildings
   4. Cooling Efficiency Improvement
   5. Thermal Energy Storage and Cooling Load Response
   6. Climate-safe Refrigerants
   7. District Cooling Systems
   8. Digital Solutions for Low Carbon Cooling

Part III: POLICIES AND FINANCING
   9. International Agreements and Global Initiatives for Low Carbon Cooling
   10. Policy Solutions to Enable Climate-Friendly Cooling
   11. Financial Solutions to Invest in Sustainable Cooling
ADB Institute E-Training: Low Carbon Cooling

Course Objectives

This course examines some low-carbon cooling solutions and highlights innovative policy and financial measures for enabling low-carbon cooling and investment.

Course Structure

- Unit 1: The Need for Low-Carbon Cooling
- Unit 2: Solutions for Low-Carbon Cooling: Green Buildings and Green Bonds
- Unit 3: Financing Low-Carbon Cooling
- Unit 4: The Role of Government Policies

https://elearning-adbi.org/courses/low-carbon-cooling/
Thank You!

Thank you for joining us today on this journey towards sustainable heating and cooling.

Stay tuned for more updates!

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