



Addressing SLCPs from MSWM: *engagement of IGES-CCET in Asia*

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IGES webinar on Quantifying GHG emission from
Urban City Services Version #1, 07 December 2022

IGES Centre Collaborating with UNEP on Environmental Technologies (CCET)

- Established in 2014 under a memorandum of understanding (MOU) between UN Environment Programme (UNEP) and IGES.
- Aims to assist national/ local governments to establish science-based and integrated policies, strategies and actions to sound management of waste and chemical towards achieving resource efficiency, climate change, SDGs and other pollution free targets.



- Three priority action areas:

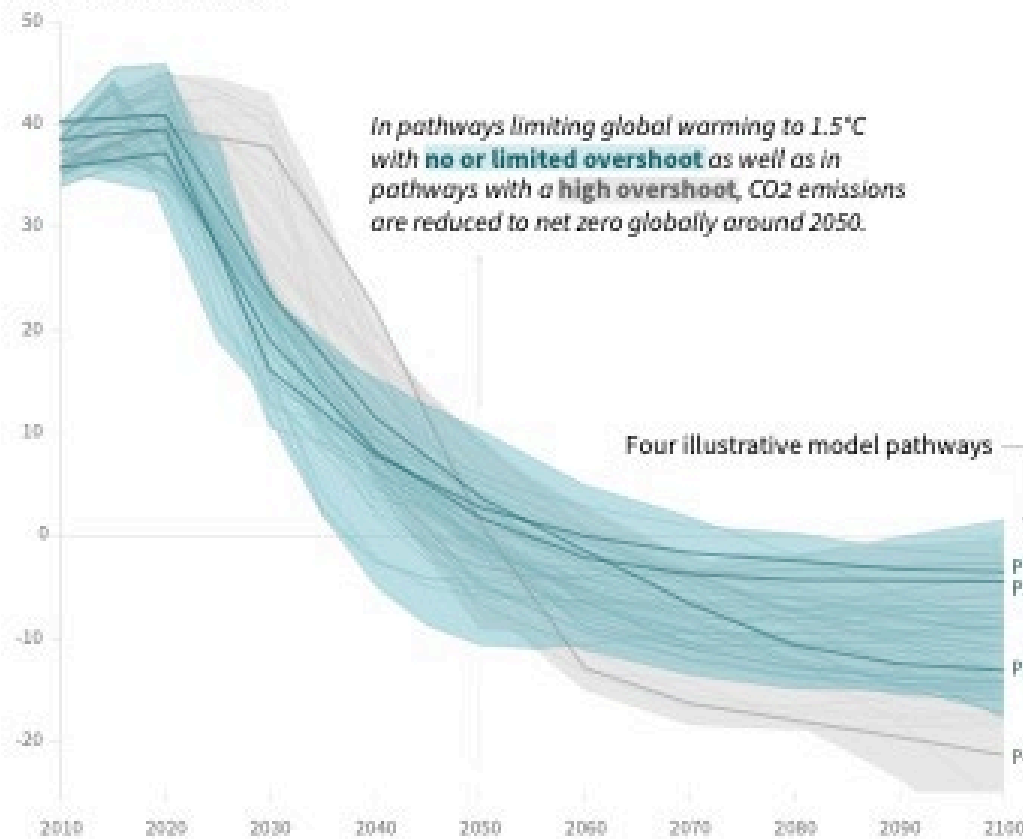
- Technical/ policy support (*develop and implement national and local waste management policies, strategies and action plans*)
- Knowledge development (*develop and disseminate the science-based knowledge products for decision makers and practitioners*)
- Advocacy (*partnership and networking to facilitate regional/ global policy dialogue and leadership*)



Reducing SLCPs must to achieve 1.5°C climate goal

Global total net CO₂ emissions

Billion tonnes of CO₂/yr



Timing of net zero CO₂

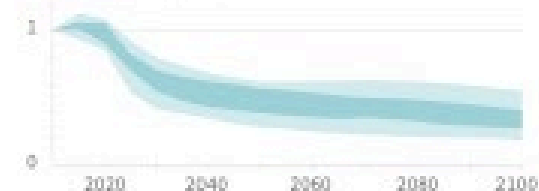
Line widths depict the 5-95th percentile and the 25-75th percentile of scenarios



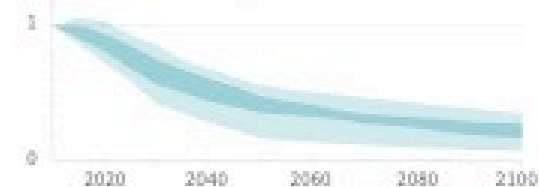
Non-CO₂ emissions relative to 2010

Emissions of non-CO₂ forcers are also reduced or limited in pathways limiting global warming to 1.5°C with **no or limited overshoot**, but they do not reach zero globally.

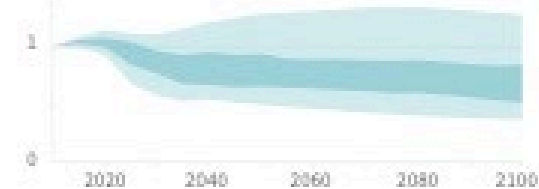
Methane emissions



Black carbon emissions



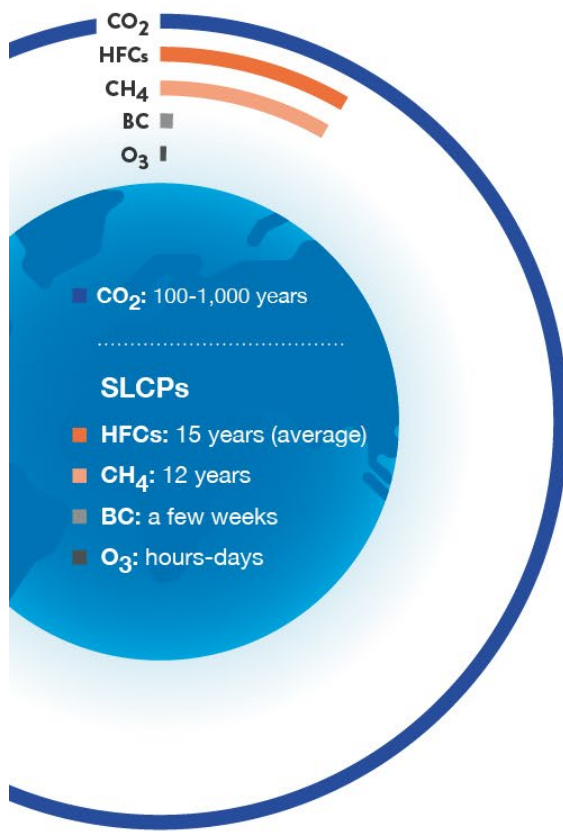
Nitrous oxide emissions



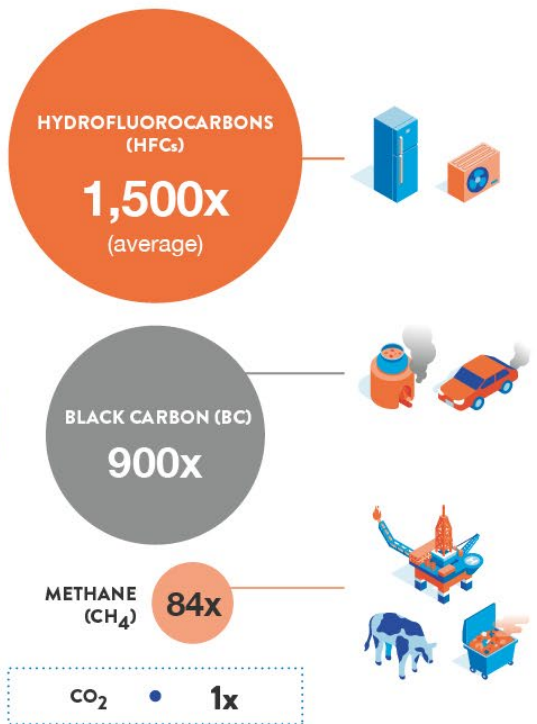
SLCPs are powerful climate pollutants

SHORT-LIVED CLIMATE POLLUTANTS

LIFETIME IN ATMOSPHERE



CLIMATE IMPACTS

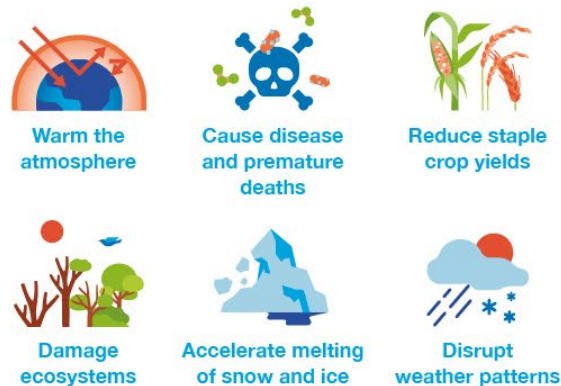


Over a 20-year period, SLCPs are many times more powerful than CO₂

SOURCES



SLCP IMPACTS



SLCP SOLUTIONS

Due to their relatively short lifetime in the atmosphere, reducing SLCPs can bring immediate climate and air quality benefits. Emissions can be cut quickly using cost-effective technologies and practices that exist today.

	Emissions reduction potential	
Black carbon	70%	by 2030
Methane	45%	
Hydrofluorocarbons	56%	

Municipal Solid Waste is a significant source of SLCPs

70%

- Global waste could grow by 2050 (BAU)

33%

- All food produced lost or goes to waste

20%

- Global methane emissions from waste sector

40%

- Waste is openly burned releasing black carbon

REDUCING SHORT-LIVED CLIMATE POLLUTANT EMISSIONS FROM WASTE

Many common waste disposal methods generate short-lived climate pollutants like methane and black carbon - powerful climate forcers that damage our environment and health. Changing our consumption habits and managing waste differently are important steps in the fight against climate change and air pollution.

Without action, global waste could grow by **70%** by 2050



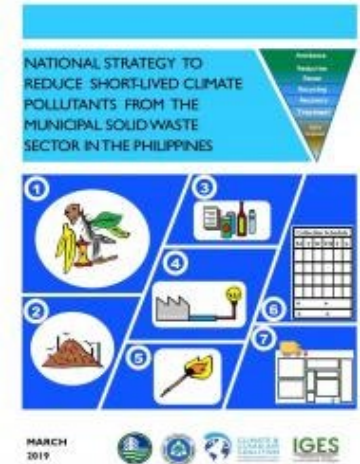
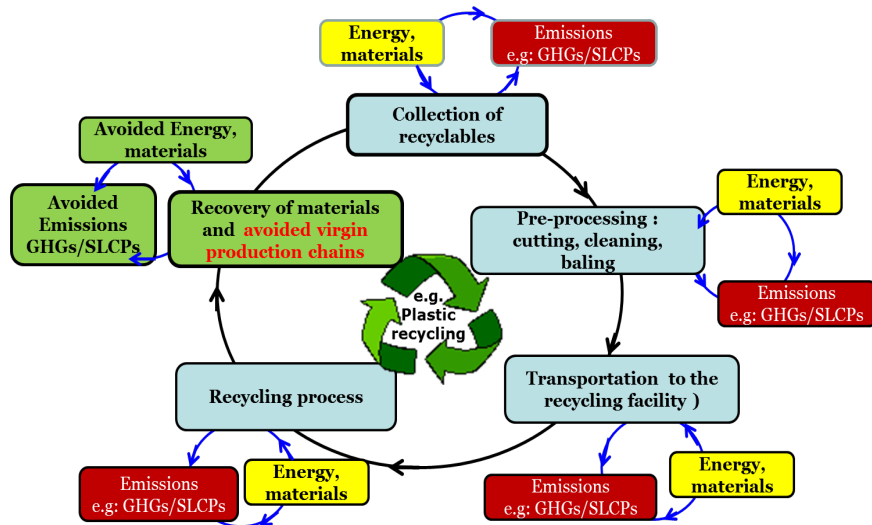
WE CAN STOP EMISSIONS WITH

OPEN BURNING ALTERNATIVES
Improved waste management services reduce the need to burn waste

WASTE PREVENTION AND SEPARATION
Diverting organic waste from landfills prevents emissions

LANDFILL GAS CAPTURE
Existing technology can cut emissions **by +60% by 2030**

Integrated Solid Waste Management based on Life-cycle Assessment



**SHORT-LIVED CLIMATE POLLUTANT
RESEARCH DIGEST**

September – October
2018

Waste and Waste Management

Description: This section includes articles primarily addressing SLCP measures and innovations related to the solid waste initiative and SLCP emissions in relevant sectors

Reduction of greenhouse gases (GHGs) and short-lived climate pollutants (SLCPs) from municipal solid waste management (MSWM) in the Philippines: Rapid review and assessment

Municipal solid waste management (MSWM) is considered one of the serious environmental issues in the Philippines, with corresponding linkages to the climate change and Sustainable Development Goals (SDGs). However, methane (CH₄) linked with indiscriminate dumping of municipal solid waste has received the much attention with regard to public health and climate change. The impacts of black carbon (BC) are less documented and understood. This paper aims to review the status of MSWM in the Philippines and makes efforts to assess the scale of short-lived climate pollutants (SLCPs), including both CH₄, and BC, associated with the country's waste sector. Utilising available national level data and following a life-cycle assessment (LCA) approach, the paper offers preliminary projections of SLCP emissions resulting from present MSWM practices. In addition, it examines model mitigation scenarios based on priority actions identified within the country's national policy on waste management, Republic Act 2003 (RA 9003). Data analysis was conducted using an Emission Quantification Tool (EQT) developed by the Institute for Global Environmental Strategies (IGES) through its work under the Climate and Clean Air Coalition (CCAC) – Municipal Solid Waste Initiative (MSWI). Following a summary of key findings, the paper affirms that control of methane from disposal practices and of BC from waste collection and open burning requires urgent attention in the Philippines. Continued awareness raising, institutionalising regulatory policies on SLCPs, and further enhancing data collection and capacity building on waste-related BC emissions remain key priorities for the country.

The Scientific Advisory Panel
of the

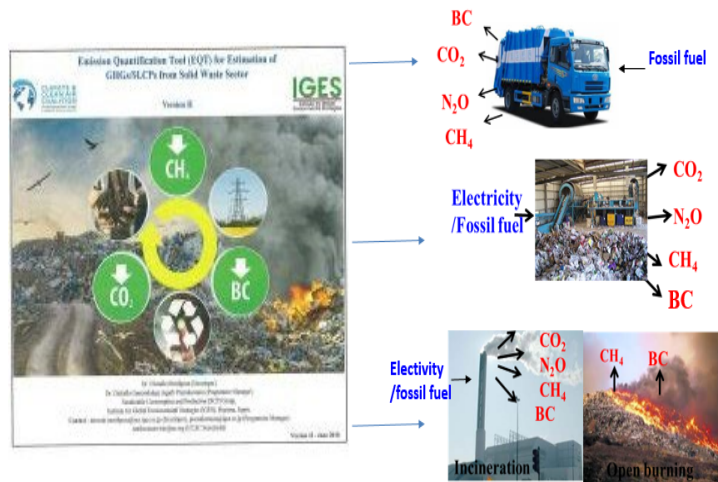


Premakumara, Dickella Gamaralalage Jagath, et al. "Reduction of greenhouse gases (GHGs) and short-lived climate pollutants (SLCPs) from municipal solid waste management (MSWM) in the Philippines: Rapid review and assessment." Waste Management 80 (2018): 397-405.

IGES-CCET engagement in reducing SLCPs from waste sector

SLCPs and GHGs Emissions from MSW Management

☐ All the activities in waste management emit GHGs and SLCPs



CLIMATE AND CLEAN AIR COALITION TO REDUCE SHORT LIVED CLIMATE POLLUTANTS MUNICIPAL SOLID WASTE MANAGEMENT INITIATIVE

What is the Coalition?
 The Climate and Clean Air Coalition is the only global effort that unites governments, civil society and private sector, committed to improving air quality and protecting the climate in next few decades by reducing short-lived climate pollutants across sectors.

Complementary to mitigating CO₂ emissions, the Coalition acts as a catalyst to create, implement and share innovative solutions addressing near-term climate change to improve people's lives rapidly, and to ensure sustainable development for future generations.

Starting in February 2011 with 6 Countries and 1 International Organization, the coalition has rapidly expanded to 49 Countries, 44 NGOs, 16 International Organizations (as of September 2015).

The Municipal Solid Waste Management Initiative is one of 11 initiatives currently being undertaken by the coalition.

Short List of Climate Pollutants from the Solid Waste Management Sector
Methane (CH₄)

- Landfill gas comprises ~60% methane and ~40% CO₂
- Global warming potential of 25 (100-year time horizon), relative to CO₂
- Anthropogenic – formed as a result of management of waste from humans

Black Carbon (fine particles in aerosol form)

- Most strongly light-absorbing component of particulate matter
- Formed by the incomplete combustion of fossil fuels, biofuels, and biomass
- Emission patterns and trends vary significantly across regions, countries and sources
- An aerosol sink a greenhouse gas

How Cities Participate in the MSW Initiative

- Undertake City Waste Assessments
- Quantify SLCF emissions and identify suitable sustainable alternatives for waste management - Emissions Quantification Tool
- Develop Work Plans
- Prioritizing and rapidly building workplans targeting specific waste related themes
- Participate in city-to-city collaboration
- Obtain technical and financial analysis support in developing sustainable waste management projects
- Get access to resources and information on best practices on the CCAC MSW Initiative Knowledge Platform
- Get access to a world-wide network of experts

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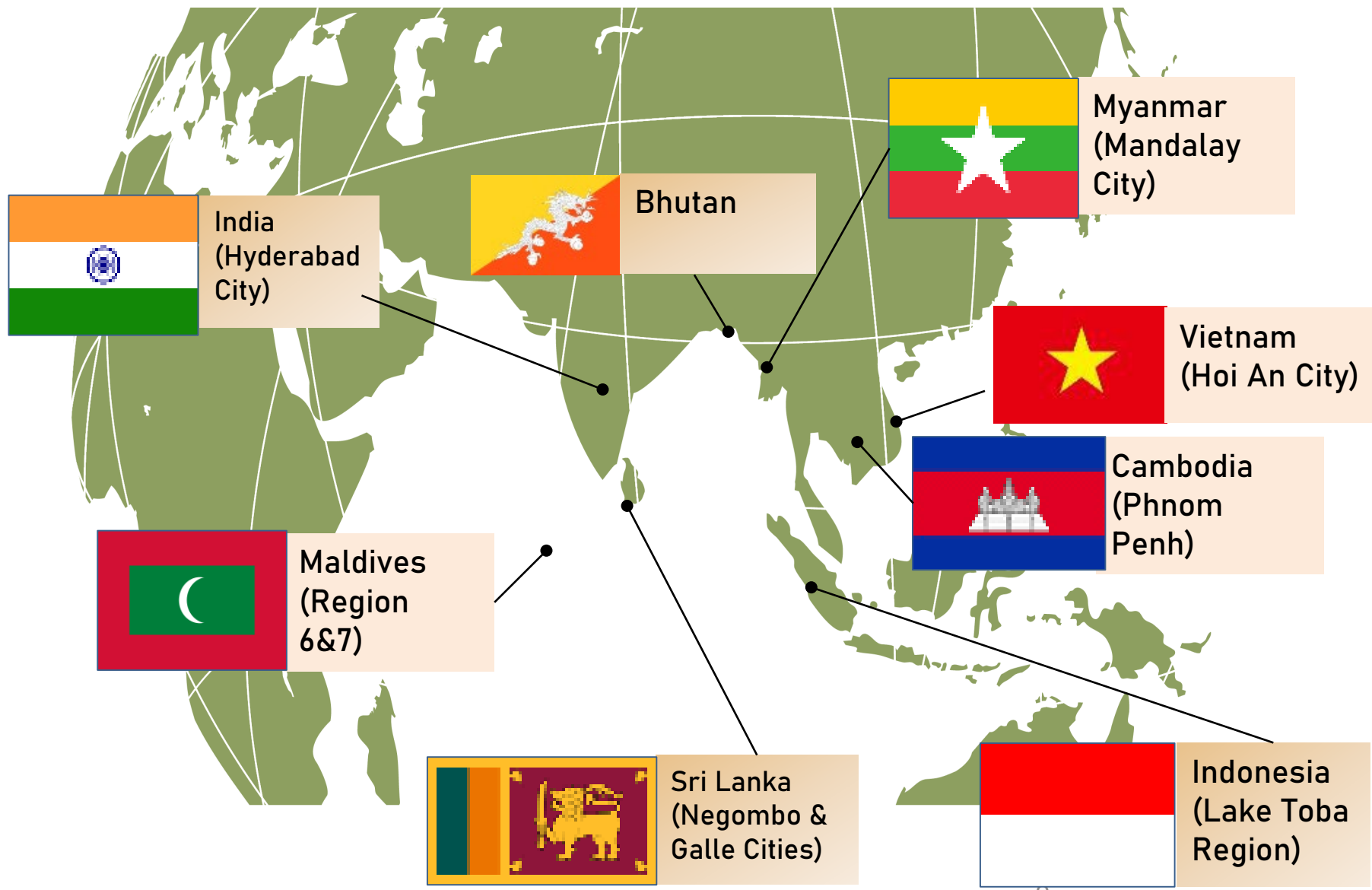
IGES Institute for Global Environmental Studies
 CLIMATE & CLEAN AIR COALITION

Advocate for integrated solid waste management planning and practice

Training, capacity building, and networking

Enhance scientific knowledge and know-how

Countries developed National and City Waste Management Plans with the support of IETC and CCET



Key Lesson Learned

- Identify clear (legally binding) targets and priorities considering existing national and global targets and priorities
- Better evidence (studies and learning from good practices) to inform decision-makers and practitioners
- Integrated approach based on life cycle assessment and 3Rs
- Monitoring mechanisms to review the progress at regular intervals, adjust and make any revisions
- Strong institutions and strengthened policies that are harmonised, monitored and enforced actions
- Appropriate and inclusive technologies with allocation of sufficient investment
- Improved awareness and strengthened capacity (institutional and individual)
- Get everyone involved (informal sector and vulnerable groups), good communication and active partnerships

ご清聴ありがとうございました。

Thank you for your attention.

You can find more information:
<https://www.ccet.jp/publications>

IGES Institute for Global Environmental Strategies
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