Breakout Session 2
Low Carbon Society, Sustainable Consumption and Production, and Local Actions

Chair by: Dr. Yasuhiko Hotta, IGES
Rapporteur by: Ms. Cassandra Bong Phun chien (UTM)
Ms. Oulavanh Sinsamphanh, National University of Laos, Lao PDR
SCP and Low Carbon Society

• Highlighted the significant contribution of CO2 emission and GHG from household usage as compared to the more commonly acknowledged sectors such as from the industrial and transportation sectors.

• Rapid urbanization in Asia and the Pacific which brought along higher purchasing power towards more convenience products will intensify consumption of electricity and energy from household sector.

• SCP has become one of the 17 sustainable goals and has to be facilitated through education, economic incentives and strong policy actions.

• There are three different kinds of approaches to change the consumption behavior; changing attitude, facilitating certain behaviors by incentives, and providing right infrastructure.

• Some of the Japanese examples to facilitate such changes are coolbiz, green purchasing network, uchi-eco shindan (Eco Diagnosis), and the 3R policy promotion.
Baseline and projected GHG emission from food waste at household level, by regions

Source: Akenji, Chen and Bengtsson (2014) “Addressing climate change through actions targeting lifestyles”
Increasing Electricity Consumption from Household Sector in Rapidly Urbanizing Asia

- Highlighted patterns of increasing household electricity consumption and future estimate utilizing the case of Vientiane, Lao PDR.
- Despite of challenges of lack of data often mentioned, combination of survey and modeling analysis can provide useful information for decision makers.
- This study showed a 40% energy demand in Lao PDR is from the household sector in 2012.
- Introducing more efficient products such as energy-efficient air-conditioners and lighting equipment have a large potential in rapidly urbanizing society to reduce GHGs from household compared to BAU scenario.
Significance of the Problems (2)

Statistics of Electrical Consumption by Consumer Categories

- Residential sector is the most electricity-consuming sector in Lao PDR during the period 1995-2012.
- In 2012, the share of electricity consumption of residential sector is accounted for 40% of total demand.

Source: Electricité Du Laos (EDL), Statistic Year Book 2012
Figure 7. Scenarios of household electricity demand of Vientiane during the period 2013–2030. Source: Author’s own elaboration based on simulation results.
Waste management is also important

- Although energy-efficient products are to be introduced, it is not the end of story. There are issues related to waste from replaced products.
- Conventionally, linkages of climate issues and waste issues are about organic waste management and material recycling.
- In addition to MSW, some types of wasted home appliances and other industrial equipment have impacts in GHG emissions. For example, air-conditioners and refrigerator contain FCs, HCFCs, HFCs, which can significantly contribute to GHG emissions and ozone layer depletion potential and global warming potential.
- Although potential contribution to GHG emissions from these used products are quite high, proper management of used equipment containing FCs is not considered yet as a priority in many countries.
Climate Benefit from Waste Sector

- Increase Avoided Emission
  - Composting
  - Anaerobic Digestion
  - Bio-cover
  - In-situ Aeration

- Reduce Direct Emission
  - Methane Flaring
  - Methane Capture

Shifting to recycle/recover options for more climate benefits
Prevention of global warming by FCs management

Reduction of GHG
by destruction of FCs
during replacement of
used equipment
(t-CO2)

Amount of FCs
contained in used
equipment
(kg)

Global Warming
Potential

\[ \text{Reduction of GHG} = \frac{\text{Amount of FCs-contained in used equipment} \times \text{Global Warming Potential}}{1,000} \]

<table>
<thead>
<tr>
<th></th>
<th>CFC</th>
<th>HCFC</th>
<th>HFC</th>
<th>For CO2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ozone Depletion Potential</td>
<td>1 to 0.5</td>
<td>0.5 to 0.005</td>
<td>0</td>
<td></td>
</tr>
<tr>
<td>Global Warming Potential</td>
<td>380 to 8100 (R12=8100)</td>
<td>90 to 1800 (R22=1700)</td>
<td>140 to 11700 (R134=1300)</td>
<td>1</td>
</tr>
</tbody>
</table>
Role of Local Government and Improved Communication with Citizens

• Sapporo city highlighted their efforts to engage with citizens for energy saving activities and waste reduction activities as a smarter life style.

• This case strongly suggested that the role of active green initiative from the local government and the importance of effective communication to involve and inculcate the community.
  – **Visualizing tool of household energy consumption** based on which expert and consumers can interact how to reduce the household energy consumption
  – **Reducing amount of waste** by making new categories of separated collection as well as informing citizens how to reduce moisture contents of garbage.
  – Involving **school students** to be involved in energy saving and resource saving activities **during their summer vacation**
Sapporo Smart City Project (2015～)

◆ Concept ~ “From Saving to Enjoying”

The objective is that the City of Sapporo will become a “smart city”, where everyone has a “smart life”, meaning conserving energy smartly, enjoyably and without waste.

We used Mr. Akimoto, Mayor of Sapporo and Ms. Tanaka, the Japanese popular model living in Sapporo as the messengers to make energy conservation appealing.
the situation of “Uchi-eco Shindan”

Effect of “Uchi-eco Shindan”

• So far, more than 500 households have used “Uchi-eco Shindan” (2011-2014FY).
• The average amount of energy reduction through “Uchi-eco Shindan” is estimated an average of 13.7% per year per a household.
Thank you!