Key Findings and lessons learned from IGES MRV Capacity Building: How to make the Asia into Low Carbon Society?

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1. Outline of MRV Project at IGES

- **Highlights of major activities**
  - Organize MRV (measurement, reporting and verification) workshop
  - Country: China, India, Indonesia, Thailand, Cambodia, Lao PDR, Philippines, etc
  - Participants: Central government, local government, private sector, research institutes, non governmental organization

- **Major Research Area**
  a. **National level MRV:**
     Institutional framework development for NAMAs, National and Sub-national linkage, Existing mechanism in each country
  b. **City level MRV:**
     Institutional arrangement by the central Gov., City-to-city cooperation, Urban development challenges
  c. **Other approaches:**
     Case studies of Life Cycle Assessment(LCA), REDD+…etc.

- **Target Sector**
  - Renewable energy
  - Buildings
  - Wastewater
  - Waste Management
  - Energy efficiency
  - Transport
  - Composting
  - Forestry (REDD+)
2. Four types of MRV should be distinguished in view of their purpose and nature.

- MRV can be categorized into four levels, organizational, project, national and policies by its target, purpose and implementation bodies.
- MRV methodology should be developed and operated in accordance with purposes and targets of each level.

<table>
<thead>
<tr>
<th>Type I: MRV of GHG emissions at organisation level</th>
<th>Type II: MRV of GHG reductions at project level for crediting</th>
<th>Type III: MRV of GHG emissions at national level</th>
<th>Type IV: MRV of GHG reductions by policy/action</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Object</strong></td>
<td>GHG emissions at organisation level under GHG scheme</td>
<td>GHG reductions realized by individual project</td>
<td>GHG reductions by policy/action at national/sub-national level</td>
</tr>
<tr>
<td>Implementation body (M&amp;R)</td>
<td>Covered organisation under GHG scheme</td>
<td>Project participant of individual project</td>
<td>National government/sub-national government</td>
</tr>
<tr>
<td>Examples operated</td>
<td>• EU-ETS</td>
<td>• CDM</td>
<td>Submission and review of National GHG Inventory</td>
</tr>
<tr>
<td></td>
<td>• Climate Registry</td>
<td>• VCS</td>
<td></td>
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<tr>
<td></td>
<td>• California Climate Action Registry (US)</td>
<td>• J-VER (Japan)</td>
<td>Unavailable</td>
</tr>
<tr>
<td></td>
<td>• Tokyo Metropolitan Government ETS</td>
<td>• BOCM (Japan: under developing)</td>
<td></td>
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<td></td>
<td>• JVETS (Japan)</td>
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Source: Ninomiya 2012
3. Methodological simplification and optimal application are required to implement MRV at various situations and levels

- A trade-off between simplicity and stringency of MRV should be well recognized to adopt optimal MRV methodologies with purposes and capacity of implementation body.

- Data development (default value, etc.) is an important requirement in order to simplify MRV process.

- Toward NAMAs formulation or new mechanisms development, integrity of MRV should be enhanced with learning from lessens provided by existing mechanisms.
4. For promoting local level MRV, continuous human resource development and supportive policy implementation are key factors.

- City level MRV could be developed together with policy challenges or environmental visions of each city.
- The central government is required to support local efforts through incentive mechanism, institutional arrangement and city-to-city cooperation.
- Community can play a critical role for local level MRV.
- Capacity development of local government/community and ownership development would be a key factor for MRV at local level.

![Figure 3: Highlights of city level environmental actions](Source: Scheyvens, H. et al. 2013)

<table>
<thead>
<tr>
<th>Sector</th>
<th>Surabaya</th>
<th>Ho Chi Minh</th>
<th>Nonthaburi</th>
<th>Kitakyushu</th>
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</thead>
<tbody>
<tr>
<td>Waste</td>
<td>- Implement 3R policies - Composting in communities - Waste reduction at Landfill</td>
<td>- Implement 3R policies - Use of municipal waste for compost making materials - The land fill gas to energy project</td>
<td>- Reduce landfilled waste by maximising recycling - Reduce the landfilled waste</td>
<td>- Separate collection of waste; charge for garbage bag - Recycling of by-products</td>
</tr>
<tr>
<td>Water</td>
<td>- Sewage treatment plant - Communal wastewater treatment</td>
<td>- Recycle wastewater - Water leakage prevention - Rainwater harvest</td>
<td>- Reduce water use through awareness raising</td>
<td>- Reuse sludge - Improvement of water supply and sewerage - Decrease in the rate of leakage</td>
</tr>
<tr>
<td>Transport</td>
<td>- Bicycle lane - Intelligent transport system - Vehicle emission testing</td>
<td>- Develop metro rail routes - Use of CNG as fuel for urban public transport</td>
<td>- Promote mass transit use - Increase bicycle travelling</td>
<td>- Public transport and mobility management - Community bus</td>
</tr>
<tr>
<td>Energy</td>
<td>- Develop smart community - Combined heat &amp; power system - Biogas utilisation</td>
<td>- Energy audit - Green energy - Solar water heating</td>
<td>- High efficiency equipment - Change electric bulbs - Find more renewable energy source</td>
<td>- Introduction of CEMS, BEMS and HEMS - Promotion of small hydropower plants - Waste power generation</td>
</tr>
</tbody>
</table>

[Figure 4: Process of community involvement and ownership development (Example of REDD+)](Source: Scheyvens, H. et al. 2013)
5. Points at issues of MRV implementation towards “Low Carbon Society ” in Asia.

- How MRV methodology can be developed/implemented at each level, and establish comprehensive framework?

- What is the favorable cooperation between central Gov. and city Gov.? And what kind of supportive policy should be provided by the central Gov.?

- What is the expected role of MRV in the trend of NAMAs formulation or new mechanism development such as BOCM and REDD+?

- What lessens can be learned from existing mechanisms and how those lessens can be shared?