MRV Practice in China: Domestic System and future challenge

中国におけるMRVの実践 国内制度と将来の挑戦

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Outline

- Why MRV;
- How China MRV our actions;
- Future Challenges
Why focusing on MRV?

- Bali Action Plan
  - MRV for commitment and MRV for action;
- Achievement of Cancun Agreement
  - Call for improvements on current reporting;
- Key questions
  - Trust building and Transparency;

The importance of MAE system

- One of the most important and challenging aspects of the Cancun Agreement is to address the question of **transparency** to improve trust and cooperation among the Parties, this needs:
  - Focus on explaining and clarifying domestic systems among Parties to avoid misunderstanding and to improve confidence in other's action.
  - Identify capacity gaps at the domestic level and enhance robustness of domestic monitoring, assessment and evaluation systems through capacity building.
- A successful outcome of international climate negotiations will be dependent upon the accuracy and effectiveness of national MAE systems.
- **Starting point:** Understand incentives and practice of DCs to track mitigation actions domestically;
MAE system in China

- In China, MAE systems traditionally have been referred to as monitoring, assessment and evaluation (MAE).
- Data collection, policy goals setting and the transparency of data are the three pillars of MAE system.

The functions of MAE system

- **Measuring overall progress through national-level data.**
  - The national level is the level at which countries’ mitigation commitments can be compared and their commitment to an international climate regime evaluated.
  - Measurement at the national level is essential for the country’s own purposes in considering and prioritizing energy and climate policy in the context of overall macro-economic policy.

- **Measuring the impact of specific programs or players.**
  - A domestic MAE system provides the data needed for energy and climate policymakers to track progress toward specific policy goals. In China, this includes measuring at the sub-national level, sectoral or company-level reporting to enforcement bodies (to the extent that enforcement occurs at those levels), and programmatic data (metrics collected to assess the progress of specific energy or climate programs).

- **Providing data that can be disseminated (public transparency) and that can be used to promote accountability.**
  - The transparency and accountability functions can occur at all levels, from national to local.
Policies and Measures at National Level

5-Year Plan
- Set by State Council
- Approved by the National

Energy and Environmental Policy (Energy Conservation and Pollution Abatement)
National Climate Change Program
- Set by State Council
- Implemented by the ministries

National Level Programs (such as 1000 Enterprises, Priority Dispatch, Industry Specific Efficiency Standards, Renewable Energy Programs)
- Administered by the ministries and delegated to provinces and industries
- Administered at the provincial, local and industry level

Major Targets at 11th FYP

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Status In 2005</th>
<th>Target for 2010</th>
<th>Achievement in 2008</th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of service industry's contribution to GDP</td>
<td>40.3%</td>
<td>43.3%</td>
<td>40.1%</td>
</tr>
<tr>
<td>Urbanization rate</td>
<td>43%</td>
<td>47%</td>
<td>45.7%</td>
</tr>
<tr>
<td>R&amp;D as a percentage of GDP</td>
<td>1.3%</td>
<td>2%</td>
<td>1.52%</td>
</tr>
<tr>
<td>Energy intensity (energy consumption per unit of GDP)</td>
<td></td>
<td></td>
<td>10.08%</td>
</tr>
<tr>
<td>Rate of comprehensive use of solid industrial waste</td>
<td>55.8%</td>
<td>60%</td>
<td></td>
</tr>
<tr>
<td>Forest coverage as percent of total land cover</td>
<td>18.2%</td>
<td>20%</td>
<td></td>
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</tbody>
</table>
Compliance System for 20% Target:

**Energy Production**
- Large-scale industry organized by NBSC and submit seasonal report
- Small-scale industry: annual income less than 5 million RMB organized by NBSC and submit seasonal report

**Energy Circulation**
- Gas, CCTDA organizes investigation on regional end-use and report every season
- Create a database of production comes from the monthly production report, check the purchase comes from seasonal energy consumption report, and report the impacts from custom import and report report
- Oil producers: NBSC organizes the investigation and report every season
- Natural gas the circulation between different provinces will be reported by the top 3 petroleum companies
- Electricity data from State Electricity Regulatory Council
- Other energy refers to crude oil

**Energy Consumption**
- Industry: NBSC will investigate the consumption of coal, NG, oil, electricity, etc. and report every season
- Agriculture: NBSC organizes the investigation and submit annual report
- Buildings: while investigation should be completed on survey year, and reporting data should be submitted on an annual basis, and the MOF should be organized by MOF and submit annual report
- Transportation: Railways/pipelines: MOR, local railway authority, CAAC, pipeline department of the top 3 petroleum companies will investigate the situation and submit annual report.
- Real-time data: NBSC will be in charge of the statistics and report every year
- Residential: NBSC spot checks the energy consumption on urban and rural residential and report every year

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Compliance System for 20% Target: Reporting

- **Self Assessment Report**
  - To what level has the energy savings target been achieved?
  - To what level have the energy savings measures been fulfilled?

- **Examination Report**
  - To what level has the energy savings target been achieved?
  - To what level have the energy savings measures been fulfilled?

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MOS: Ministry of Supervision
AQSIQ: General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China

Source: Tsinghua University
## Compliance System for 20% Target: Verification

### Monitoring System

- **Progress of energy saving**: National level energy intensity of GDP
- **Data quality of energy intensity of GDP and its decrease rate**: Industry level energy consumption per unit added value
- **Key energy-intensive enterprises**: Energy consumption per unit product
- **Top 10 energy-saving projects**: Indicators of recycled resource utilization

### Energy Conservation Measures

- **Reduction rate of energy intensity**: Organization and coordination, target decomposition, economic structure adjustment, implementation of key projects, R&D of energy saving technologies
- **Energy conservation in key enterprises**: Implementation of laws and regulations, institutional development

### Examples of Monitoring Indicators

<table>
<thead>
<tr>
<th>Category</th>
<th>Indicator</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP Restructuring</td>
<td>Share of GDP represented by the service sector</td>
<td>5 year goal, annual progress reports</td>
</tr>
<tr>
<td>Technology Development</td>
<td>Share of GDP represented by R&amp;D spending</td>
<td>5 year goal, annual progress reports</td>
</tr>
<tr>
<td>Energy Intensity</td>
<td>Energy used (MTCE/Unit GDP)</td>
<td>Collected from multiple sources to ensure cross-checking, then published annually</td>
</tr>
<tr>
<td>Renewable Energy</td>
<td>Renewable energy portfolio standard (specified percentage of renewable in total output)</td>
<td>Goals to year 2010 and 2020, calculated annually</td>
</tr>
</tbody>
</table>

*Source: Tsinghua University*
Standards, Regulations and Incentive Policies

<table>
<thead>
<tr>
<th>Efficiency Standards</th>
<th>Multiple industries and consumer products</th>
<th>Energy use per physical unit of output</th>
<th>Industrial processors and product manufacturers report the energy efficiency of their products and processes when asking for approval and registration</th>
<th>Energy saving verified by Energy Conservation Technology Service Center at national and local level</th>
</tr>
</thead>
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<tr>
<td>Efficiency Labeling</td>
<td>Multiple Products</td>
<td>Energy use during product operations</td>
<td>All products in a given product category must be tested for energy efficiency and labeled accordingly, with test results reported to National Institute of Standardization (NIS)</td>
<td>Test results verified by Energy Labeling Management Center under NIS</td>
</tr>
<tr>
<td>Tax policy</td>
<td>National</td>
<td>Increased cost of fossil fuels (examples: fuel tax and VAT rebate change)</td>
<td>National Tax Bureau</td>
<td>Tax bureau has tax receipts</td>
</tr>
<tr>
<td>Tax incentives</td>
<td>National</td>
<td>Tax breaks for renewable investments</td>
<td>National Tax Bureau for amount of tax, NDRC for actual investments</td>
<td>NDRC reports on new renewable power</td>
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P&M at Sectoral Level

<table>
<thead>
<tr>
<th>The Thousand Enterprise Program</th>
<th>National, targeted at 1000 largest enterprises</th>
<th>Energy Intensity per unit output</th>
<th>Enterprise to local DRC to NDRC</th>
<th>NDRC verification team</th>
<th>5 year program with several targets, progress reports every year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual Industrial Sector Targets</td>
<td>Set by Sector</td>
<td>Energy Intensity per unit physical output or value added</td>
<td>Industrial association to NIS/NDRC</td>
<td>Aggregated data from individual companies</td>
<td>Annual and 5 year reporting</td>
</tr>
<tr>
<td>Program to Close Small Enterprises</td>
<td>National</td>
<td>Percent of total land formed</td>
<td>State Forestry Administration</td>
<td>Energy Bureau of NDRC conducts on-site verification</td>
<td>5 year targets, annual progress reports</td>
</tr>
<tr>
<td>Energy Conservation Power Generation Dispatch</td>
<td>Currently piloted in five provinces, but planned to be national within the electric power system</td>
<td>Currently a complex metric, but no energy metric</td>
<td>Power plant performance determined by NDRC at local levels, which then sets the dispatch priority</td>
<td>Local technical bureau verify efficiency and performance</td>
<td></td>
</tr>
<tr>
<td>Coal-fired industrial boilers (hot) retrofit projects</td>
<td>Coal-fired industrial boilers nation-wide</td>
<td>Average efficiency and energy saving of industrial coal-fired boilers</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
</tr>
<tr>
<td>District cogeneration projects</td>
<td>District heating, especially in northern China</td>
<td>Share of cogeneration in district heating and cogeneration capacity</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
</tr>
<tr>
<td>Residual heat and pressure utilization projects</td>
<td>Iron and steel, construction material, and other industries with saving potential</td>
<td>Energy saving from residual heat and pressure utilization</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
</tr>
<tr>
<td>Petroleum saving and substituting projects</td>
<td>Metal, construction material, and other industries with saving potential</td>
<td>Quantity of petroleum saved and substitution</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
</tr>
<tr>
<td>Motor system energy saving projects</td>
<td>Major electricity consuming sectors</td>
<td>Motor efficiency improvement and electricity saving</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
</tr>
<tr>
<td>Energy system optimization projects</td>
<td>Refinery, chemical, iron, and steel industries</td>
<td>Energy improvement per unit product and quantity of energy saved</td>
<td>Energy saving reported by enterprises to government</td>
<td>Energy saving projects verified by third parties</td>
<td>2010 Goal</td>
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The four fundamental elements in Chinese MAE system

1. A centralized administration at the National Bureau of Statistics and a strong legislative framework to guide their work;

2. A data reporting, and information disclosure, system that is flexible but emphasizes frequent reporting; This takes place at the enterprise, national and international level;

3. A system for quality control and assurance of energy and climate data;

4. The necessary infrastructure to support the MAE system at all levels.

Current Status and Capacity Building Needs for MAE Systems in China

<table>
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<th>Capacity Building Needs</th>
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<tr>
<td>Legislation</td>
<td>Energy Conservation Law (amended in 2008) and other related guidelines have established the basic framework for energy monitoring and measurement. A centralized National Bureau of Statistics has an important role in the legislative framework to support the MAE system.</td>
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<tr>
<td>Infrastructure</td>
<td>Lack of capacity exists in small enterprises in both monitoring instruments and human capital.</td>
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<tr>
<td>Quality Control</td>
<td>Mandatory energy auditing now required for large enterprises, but voluntary energy auditing still permitted for small enterprises. Local energy conservation centers are responsible for the review of energy auditing reports.</td>
</tr>
<tr>
<td>Information Disclosure</td>
<td>Three tier reporting process now being used to prepare the country’s second National Communication and progress report on the national action plan.</td>
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Conclusions

- A cooperative approach is the best way to enhance trust among Parties to the UNFCCC and provide meaningful assurance they will undertake mitigation actions.
- The experience in China suggests that mitigation assurance should be based on robust domestic MAE systems that are aligned with the underlying interests of the countries employing them.
- Key factors in the Chinese MAE system are a legislative framework, a process for data collection and information disclosure, a quality control system and the necessary infrastructure.
- The major functions of a MAE system at the domestic level include data collection and transparency, the setting of policy goals, and the prioritization of mitigation actions.
- As in China, national MAE systems in developing countries may face significant capacity gaps that need to be filled.
- Opportunities exist for the international community to engage in filling these capacity gaps.

Future Challenge

- MRV and transparency is only part of the solution, we need comparable progress in KP and 1bi in LCA to be a package;
- Provide positive incentive for developing countries to participate;
- A step in strategy: Short-term focus on M and R; long-term focus on V;
THANKS!

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