

MRV Practice in China: Domestic System and Inventory

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Outline

- ◆ Domestic Systems for MRV
- ◆ GHG inventory under UNFCCC
- ◆ Future Challenges



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 delegated to provinces and industries

Programs

- Administered at the provincial, local and industry level

Major Targets at 11th FYP

Indicators	Status In 2005	Target for 2010	Achievement in 2008 ¹
Share of service industry's contribution to GDP	40.3%	43.3%	40.1%
Urbanization rate	43%	47%	45.7%
R&D as a percentage of GDP	1.3%	2%	1.52%
Energy intensity (energy consumption per unit of GDP)		20% reduction from 2005 levels	10.08%
Rate of comprehensive use of solid industrial waste	55.8%	60%	
Forest coverage as a percent of total land cover	18.2%	20%	

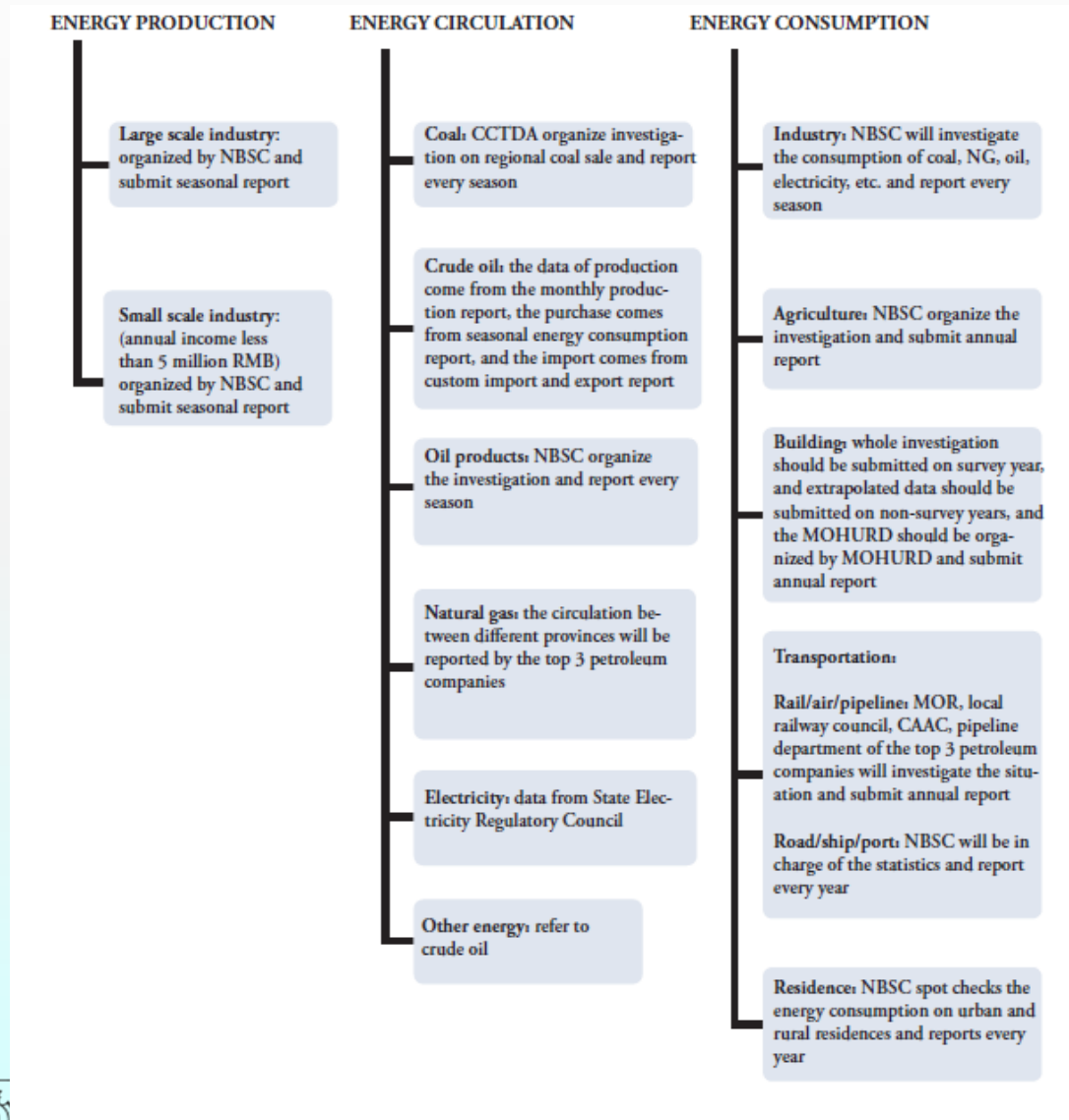


Target for Structure Change

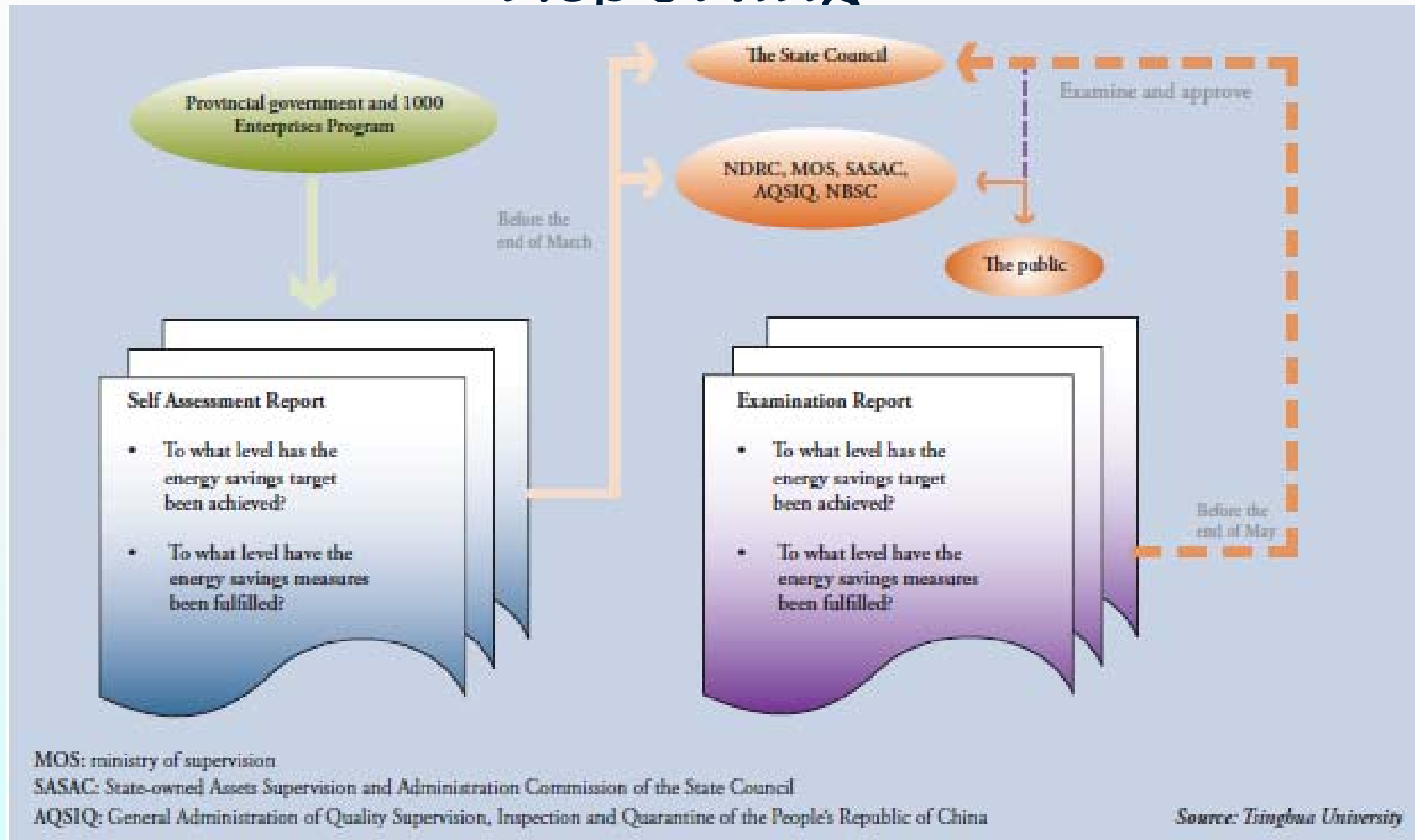


Target for Energy Efficiency

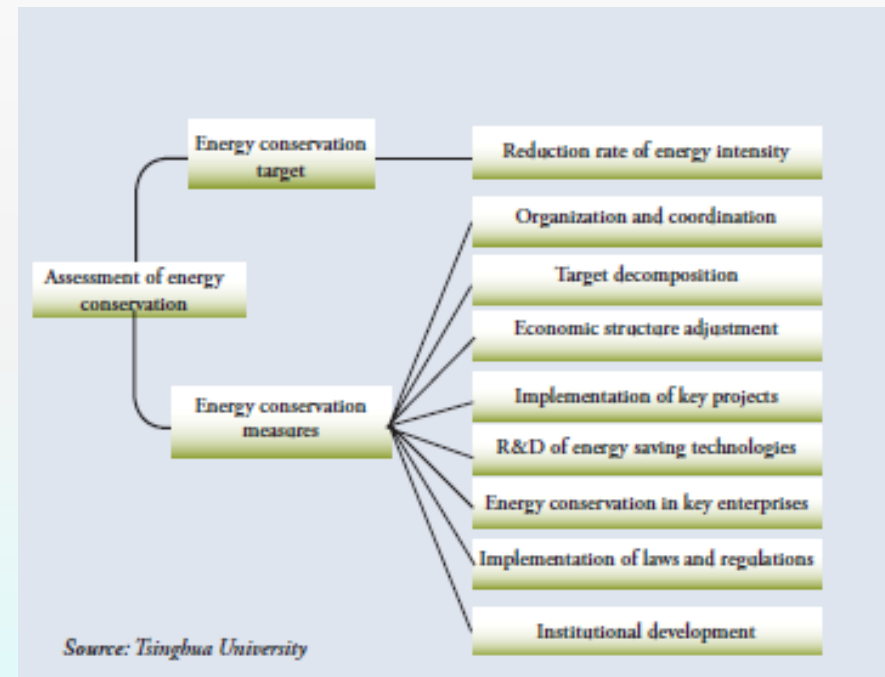
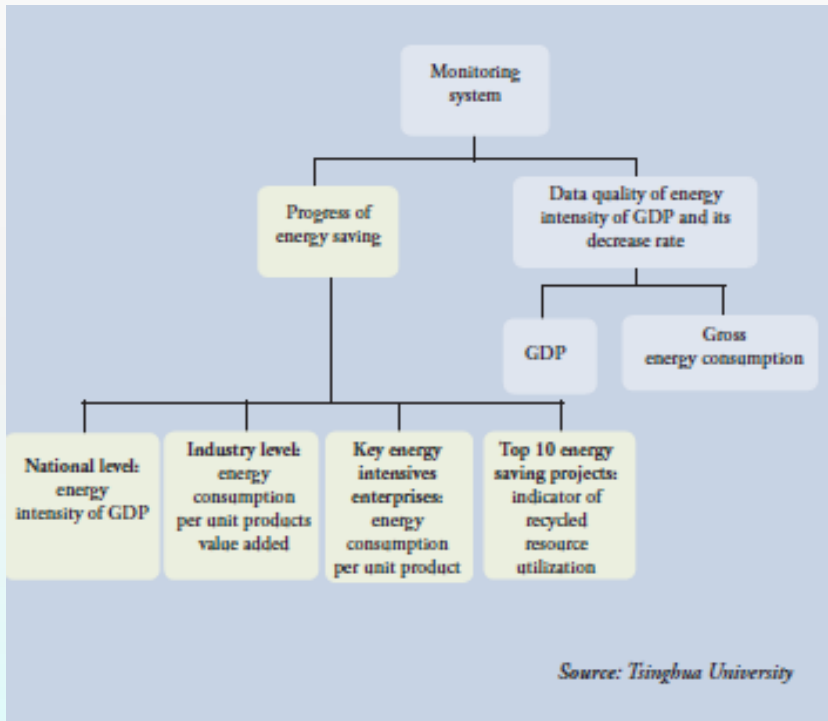
Compliance System for 20% Target



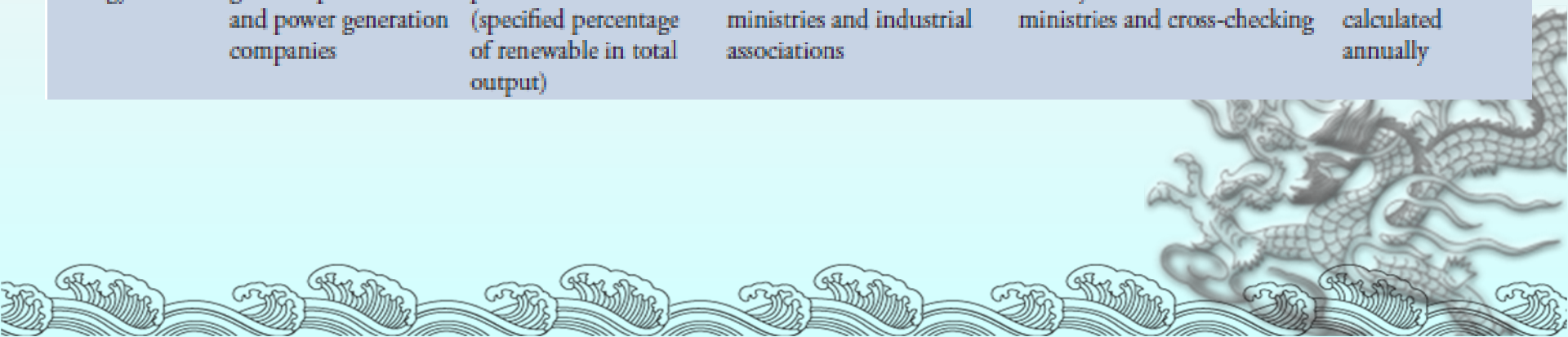
Compliance System for 20% Target: Reporting



Compliance System for 20% Target: Verification

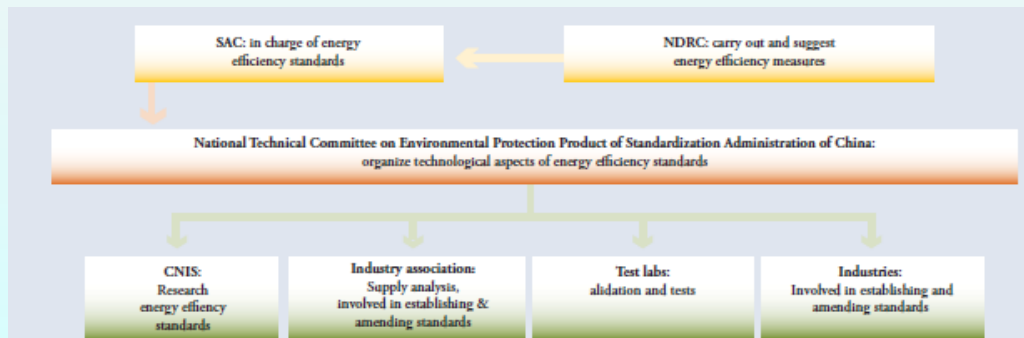


GDP Restructuring	National	Share of GDP represented by the service sector	NBS publishes a yearly statistics bulletin	Internal data quality assurance system within NBS	5 year goal, annual progress reports
Technology Development	National	Share of GDP represented by R&D spending	NBS, MOST and MOF jointly publish a yearly statistics bulletin	NBS and MOST collect enterprise-level data separately	5 year goal, annual progress reports
Energy Intensity	National, with targets given to each province, locality and State-owned enterprise	Energy used (MTCE/ Unit GDP)	Calculated by NBS and published in a semi-annual statistics bulletin	Collected from multiple sources to ensure cross-checking	Five year goal. Many data are tabulated monthly. Provinces are required to report semi-annually
Renewable Energy	National, with targets given to provinces and power generation companies	Renewable energy portfolio standard (specified percentage of renewable in total output)	Energy Bureau aggregates data from NBS, various ministries and industrial associations	Internal data quality assurance system within various ministries and cross-checking	Goals to year 2010 and 2020, calculated annually



Standards, Regulations and Incentive Policies

Efficiency Standards	Multiple industries and consumer products	Energy use per physical unit of output	Industrial processors and product manufacturers report the energy efficiency of their products and processes when asking for approval and registration	Energy saving verified by Energy Conservation Technology Service Center at national and local level	
Efficiency Labeling	Multiple Products	Energy use during product operation	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)	Test results verified by Energy Labeling Management Center under NIS	New products will be added accordingly
Tax policy	National	Increased cost of fossil fuels (examples: fuel tax and VAT rebate change)	National Tax Bureau	Tax bureau has tax receipts	Change becomes permanent
Tax incentives	National	Tax breaks for renewable investments	National Tax Bureau for amount of tax, NDRC for actual investments	NDRC reports on new renewable power	Annual reports



SAC: National Standardization Administration Committee of China
 NDRC: National Development and Reform Commission
 CNIS: China National Institute of Standardization

Source: Tsinghua University



P&M at Sectoral Level

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

China's Initial National Communication

Submitted to COP10 in 2004;

Inventory year -1994;

Research years: 2001-2004;

Emission sectors included:

Energy activities--- energy (fossil fuel and biomass) combustion;
fugitive emission (coal-bed methane and GHG from oil/gas system)

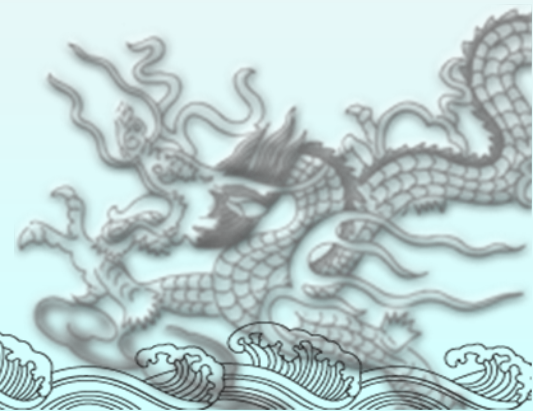
Industrial process: cement, lime, iron/steel, calcium carbide and
adipic acid production

Agriculture sector ;

Land-use change and forestry;

Municipal waste disposal

Gas included: CO₂, CH₄ and N₂O



China's Second National Communication

Inventory year: 2005

Started at the end of 2008; will be finished in 2010;

What's new ?

Two more regions: Hong kong, Macau

Gases: HFC, PFC and SF₆;

Projection up to 2020;

Database system;

In energy sector,

Coal consumption is always the key part;

Focusing on emission factors:

Carbon content of various coal and low calorific values from supply side and demand side;

Oxidation rate of industrial boilers and kilns;



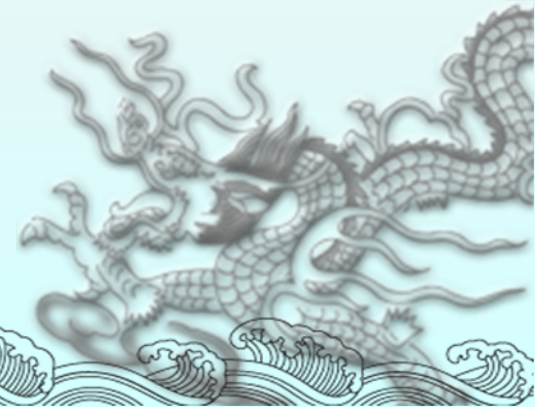
Barriers to obtain time-series GHG data

- Statistic barrier
 - Coal statistic;
 - Transport energy;
 - Energy recovered;
 - Coal-bed methane;
 - Biomass burned as fuel;
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- Big change in energy devices
- Institutional/coordination barrier



Future Challenges

- How to improve national communication?
 - May submit more frequently with the gradual removing of barriers;
 - Ideal NATCOM should report both voluntary actions and NAMAs with different intentions;
 - Report of NAMAs: guidelines? NATCOM and biannual report
- Link between NAMAs and national communication
 - What national inventory measured and reported is emission, not emission reduction!
 - Time-series inventory may reflect emission trend, however,
 - Possible mitigation effect comes from both voluntary actions and NAMAs;
- What to be ICA?
 - All NC or part of them?
 - Expert or peer ICA?
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THANKS!

