

Lessons learned from the design of MRV system in China: Target Responsibility System

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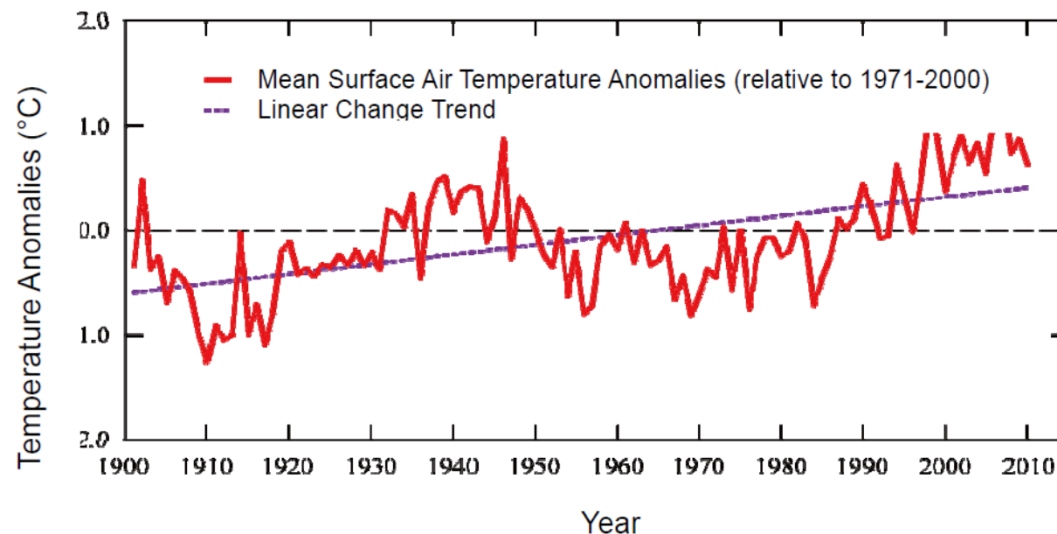
IGES

1. Awareness of Chinese government on Climate Change impact

◆ Certainly and serious damage with the natural environment

- **Temperature Change:** Since 1901, the annual mean surface air temperature increased by 0.98°C ; a warming rate of $0.25^{\circ}\text{C}/\text{decade}$ in the last 6 decades.
- **Precipitation Change:** after 1990s, the precipitation in springs and autumns decreased significantly (3.2 mm/decade and 3.6 mm/decade respectively), decreased in the western, and increased in the Northeast.
- **Changes of Extreme Climate Events:** In the last 60 years, the extreme warm events have increased and the extreme cold events have decreased; increasing of both droughts and Floods.
- **Agriculture:** after 1950s, the area affected by droughts increased fourfold to 14.5 million ha in 2000-2008.
- **Sea Level:** In the last 30 years, the coastal sea level has rising with rate of 2.6 mm/year, higher than the global rate (1.7 mm/year).

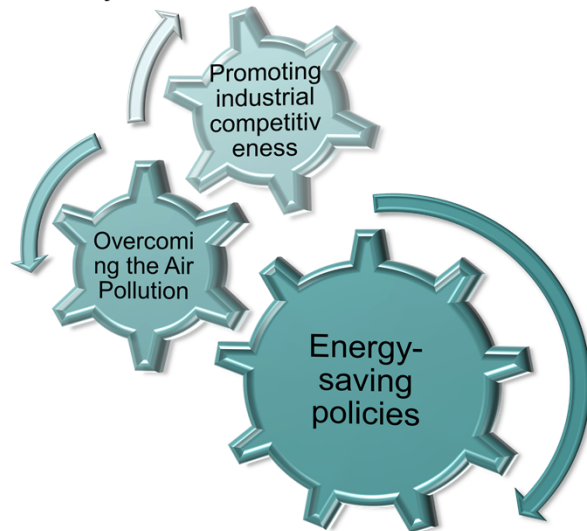
Figure 1. Changes of annual mean surface temperature in mainland China in the past 100 years.
source: *Second National Communication on Climate Change of The People's Republic of China*



2. Stance of Chinese government on Climate Change policies

◆ Climate Change policies = Energy-saving policies

- ✓ reduce the CO2 intensity by 17%; cut the energy intensity by 16% over the period 2011 to 2015.
- ✓ Increase the proportion of non-fossil fuels in energy consumption to 11.4 per cent by 2015.



◆ Benefits of Overcoming the Air Pollution

- ✓ High dependency on coal production in china (77.6% of the total primary energy production in 2010); coal burning is a major source of SO2 and particulates which are the contributor to acid rain, photochemical smog.
- ✓ In 2011, More than 90% of the SO2 emissions form the industrial sector (power plant, steel, etc.), and 51.7% of that from the power sector.
- ✓ In 2011, 12.9% of the total land area damaged by acid rain. Out of 468 monitored cities and towns, 227 was suffered damage.
- ✓ In 2011, 82% of key air pollution control zones (including 19 rejoinings such as BeiJing, TianJin, ShangHai, etc., which covers 14% of the total land area and hosts 48% of national population) did not meet the National Air standard.

◆ Benefits of Promoting the industrial competitiveness

- ✓ To facilitate optimization of industrial structure, phase out the backward production capacity, and restrain excessive production capacity and redundant construction
- ✓ Development of the renewable energy and environmental industry.

3. Policies Taken in the 11th FYP Period and its results

- Cut the energy intensity by 20% ⇒19.1% (almost accomplished), reduced 1.49billion CO²

11次5カ年計画期間における部門別目標、達成状況 (2005年比、2010年まで)				
	部門	省エネ目標	達成状況	
工業	原単位規制	2010年、鉄鋼、セメントなど13の製品のエネルギー原単レベルを今世紀初頭の国際先進レベルに到達	基本達成	✓
		千社企業プログラムによる1億tce省エネ目標	1.5億tce	✓
	プロジェクト	10の省エネ重点プロジェクトによる2.4tce省エネ目標	3.4億tce	✓
		非効率生産設備の淘汰	1.1億tce	✓
建築	省エネ建築	省エネ1.01億tce、省エネ建築面積21.5億㎡	40.8億㎡(2009年まで)	✓
交通	道路	陸運サービス車輛の百トン・kmあたりエネルギー原単位の-10%	データなし	△
	水運	水運サービス船舶の百トン・kmあたりエネルギー原単位-20%	データなし	△
	鉄道	営業収益あたりのエネルギー原単位-20%	-23.80%	✓
	航空	トン・kmあたりエネルギー原単位の-10%	-11.3%	✓
農業	エネルギー	太陽光、バイオマス、風力、小型水力等に発電支援事業による5000万tce省エネ能力の開発	データなし	△
第三産業	サービス産業	サービス産業を40.3%から43.3%まで引き上げる(3%目標)	43.10%	×

- Non-fossil fuel, renewable energy

11次5カ年計画期間における非化石エネルギー目標 単位:10,000Kw			
	11次5カ年目標	達成状況	
水力発電	19000	21000	✓
原子力発電	1252	1082	×
風力発電	1000	4473	✓
太陽光発電	30	90	✓
バイオマス発電	550	500	×

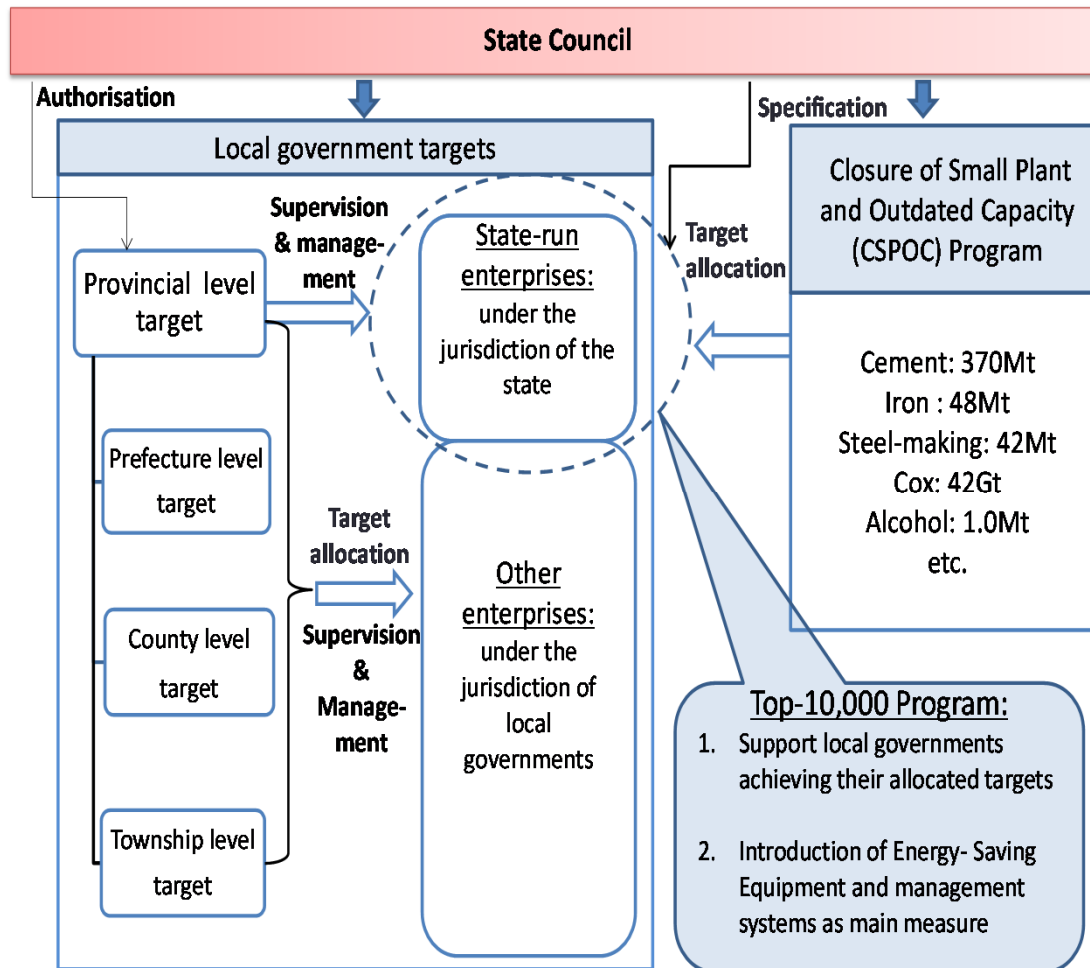
- Carbon stock, forestation

11次5カ年計画期間における非化石エネルギー目標			
	目標	達成状況 (2009年までのデータ)	
植林	400万ha	データなし	△
森林被覆率	20%	20.4%	✓
森林蓄積量	132億m ³	133.6億m ³	✓

Source: 2012Blue Book of Low-Carbon Development

4. Energy-Saving target responsibility system(TRS)

图2: Scheme of TRS



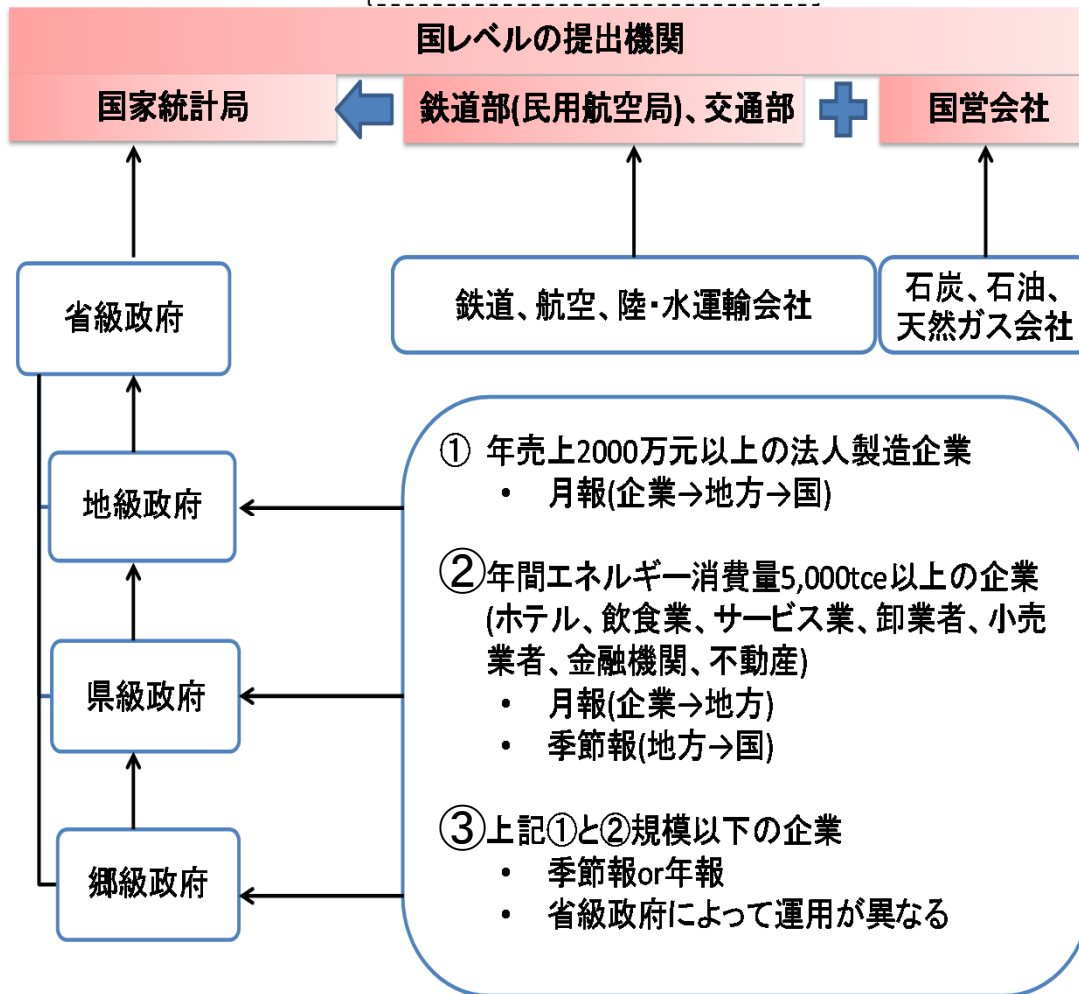
4. Source: MRV Report)

◆ Scheme of TRS

- ✓ State council sets National targets (energy intensity target, Controlling Total Energy Consumption to 4 billion tce by 2015), and distributed to local governments as mandatory targets;
- ✓ Target achievement status is linked to personnel evaluation, with possible punishment measures.
- ✓ The allocated target distributes to the enterprises in the cooperation of a country and the local government

5. Scheme of MRV, challenges

図3: Scheme of MRV



Source: from IGES research output

◆ challenges

- ✓ Lacking accuracy of coal statistics (double counting); lacking reliability of self-assessment data from enterprises,
- ✓ Statistical standards for Enterprises with the annual turnover Less than 20 million in each region are different.
- ✓ Increasing the efficiency of statistical system; Securing of human resources
- ✓ Strengthening supervision and audit for local governments and enterprises