S&T and social development

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What is social development
Social development in China
The causes of challenge
The new development agenda
Social development

- Social development in China includes sustainable development, health care, safety and life quality, development of poor people and regions.
- Social development is one that is not measured by GDP.
Strategy of development

- Since the late of 1970s, China was a very poor country, so economic development became the top priority for government until 2005.
- The basic national strategy behind that is: economic development first, other development will come later.
- This strategy was laid done by Chinese leader Dong Xiaopin and followed by Jiang Zemin.
Ignorance of Social development

- So, for a long time, social development had been ignored by government and society.
- But the former SSTC, now MOST had its contribution to introduce the idea of sustainable development in China.
- In late 1980s, influenced by developed countries, SSTC had began some action for sustainable development in order to avoid to fall the trap of “pollution first and remedy late”. The result was the 21th Century Agenda in June of 1991 and improved by government in 1994.
- Since 1997, Sustainable Development and Rejuvenate the country by Science and Education became the new national strategies.
- But sustainable development or social development usually stayed behind the government main agenda and economy development dominates.
Social development

- Sustainable development (pollution control, new energy etc)
- Health care
- Safety of work and community
- Gap narrowing between regions

- All those areas are in domain of market failure. It needs strong government intervention.
- So, government can play a very important role.
- S&T can play a very important role

- But the economic development first philosophy exhausted the government and left social development to the low level. Most of S&T resources goes to high-tech areas.
The Challenge: ecology

- **Land**: one of ninth of land is covered by desert and expanded each year in about 3436 km²;
- **Energy**: In 2003, Chinese GDP is about 4% of the world, but we consumed 7.4 of world petroleum, 31% coal, 27% steel and 40% cement.
- **Water**: about two third of cities lack of water. 0.36 population in rural area can not have quality water.
Healthcare
Challenge

- Though life expectancy of China has been greatly increased but with lots of new challenges
- Government spend less money on public healthcare. A road of market based reform on healthcare system goes into a dead end.
- Most of government money goes to urban areas. Limited rural farmers are covered.
- But aged population
- Rely on foreign technology
- New common disease like AIDS etc.
The share of healthcare by government

<table>
<thead>
<tr>
<th>Country</th>
<th>Expenditure on healthcare/G DP (%)</th>
<th>Share by family (%)</th>
<th>Share by government (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>5.3</td>
<td>60.6</td>
<td>39.4</td>
</tr>
<tr>
<td>Developed</td>
<td>8.5</td>
<td>27.0</td>
<td>73.0</td>
</tr>
<tr>
<td>Transition</td>
<td>5.3</td>
<td>30.0</td>
<td>70.0</td>
</tr>
<tr>
<td>Less developing countries</td>
<td>4.4</td>
<td>40.7</td>
<td>59.3</td>
</tr>
<tr>
<td>Other developing countries</td>
<td>5.6</td>
<td>42.8</td>
<td>57.2</td>
</tr>
<tr>
<td>World average</td>
<td>5.7</td>
<td>38.2</td>
<td>61.8</td>
</tr>
</tbody>
</table>
safety

- Food safety became top concern in China as well as in international society.
- Overusing of fertilizer, antibiotics, pesticide in agricultural products.
- In China, the accidents in mining, traffic and others produced a loss of 2% GDP.
- Why is so low level of social development
Development stage

- China is entering a stage of heavy-chemical industry in the industrialization.
- This is a stage that Japan in forty years ago and Korea in twenty years ago.
Chart 4: comparison with Japan and Korea in steel and electricity consumption

Source: UBS global basic materials research team

China became a world factory.

Multinational in USA, EU, Japan, Korea and Taiwan all moved their polluted factories into China.
Technology bottleneck

- Fact 1: China has improved the pollution and energy using per unit GDP substantially, but the size of the economy made pollution and energy consumption in an enormous speed.
- Fact 2: efficiency of pollution control and energy using did not decreased very much since around 2000. it may means that technology become a bottleneck.
Chart 1
Chart 3: The energy consumption intensity of unit output for some countries or regions in 1971-1999, (official exchange rate)
<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
</tr>
</thead>
<tbody>
<tr>
<td>The industrial sewage discharges amounts (billion ton)</td>
<td>200</td>
<td>194</td>
<td>203</td>
<td>207</td>
<td>212</td>
<td>248.69</td>
</tr>
<tr>
<td>Discharges sewage /Unit industrial added value (ton/yuan)</td>
<td>0.013</td>
<td>0.012</td>
<td>0.011</td>
<td>0.01</td>
<td>0.01</td>
<td>0.009</td>
</tr>
<tr>
<td>Industrial exhaust emission amounts (billion stere)</td>
<td>121203</td>
<td>138145</td>
<td>160863</td>
<td>175257</td>
<td>198906</td>
<td>107478</td>
</tr>
<tr>
<td>Exhaust emission /Unit industrial added value (stere/yuan)</td>
<td>8.036</td>
<td>7.686</td>
<td>8.234</td>
<td>8.155</td>
<td>8.22</td>
<td>8.186</td>
</tr>
<tr>
<td>Industrial dust discharges amounts (Ten thousand tons)</td>
<td>1321</td>
<td>1175</td>
<td>1092</td>
<td>991</td>
<td>941</td>
<td>1021</td>
</tr>
<tr>
<td>Discharge industrial dust/unit industrial added value (kilogram/yuan)</td>
<td>0.009</td>
<td>0.007</td>
<td>0.006</td>
<td>0.005</td>
<td>0.004</td>
<td>0.004</td>
</tr>
<tr>
<td>The producing amounts of industrial solid residues(Ten thousand tons)</td>
<td>80068</td>
<td>78442</td>
<td>81608</td>
<td>88746</td>
<td>94509</td>
<td>100428</td>
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<tr>
<td>producing solid residues amounts /unit industrial added value</td>
<td>0.531</td>
<td>0.479</td>
<td>0.454</td>
<td>0.454</td>
<td>0.44</td>
<td>0.415</td>
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<tr>
<td>Industrial solid residues discharges amounts(ten thousand tons)</td>
<td>7048</td>
<td>3880</td>
<td>3186</td>
<td>2894</td>
<td>2635</td>
<td>1941</td>
</tr>
<tr>
<td>Discharge solid residues /unit industrial added value</td>
<td></td>
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Governance problem

- Regional bureau of environmental protection is under the control of regional government. It is easy for polluted companies, regional government and regional bureau of environmental protection to form a common interest group.
- New agenda and new roadmap for development
A. New philosophy of development

- The new government coined the new terms: scientific development, harmony society and environment friendly society. All those lead to more concern on environment, social welfare and quality of life.

- Promoting economic and social development have got equal weight in the government now.
B. New tough measures

- The law of circulation economy will be reviewed this year and may be granted this year.
- There are key actions in this law: to reduce the raw material, over-packaging, emission of industrial waste, use recyclable materials, clean energy.
- The new law will change the way of how to manufacture a product and make the development more sustainable, most important, change the way how to evaluate the performance of government officials in regions.
Setting a national pollution control goal

- Setting a national tough pollution control goal, in the eleventh fifth plan (2006-2010), the aggregate pollution emission per GDP has to be reduced by 10% and energy consumption has to be reduced by 20% in terms of compared the level of 2006.

- This is very tough for regional governments.

- How to implement the goal is a big challenge for this term of government. For the first years, most regions failed.
C. Special program for S&T for social development

- In the new 2006-2020 long term S&T development program, social development has been emphasized as a way toward the harmony society building, including ecology, healthcare, safety, urbanization etc. This is the first time in Chinese history.
The five key fields

- S&T for Resource, including water, oil and minerals resource.
- Cleaning technology for production.
- Healthcare
- Safety technology, including food, production safety. For example, a key food safety S&T program was launched by MOST to develop inspection methods, standards.
- Foresight and policy research
D. Increasing the expenditure on Social S&T.

- In the 2006-2010, government will spend more on S&T for social development. From 2001-2005, expenditure on S&T for social development is about 6 billion yuan. From 2006-2010, it will reach 12 billion. After that, the proportion between industrial and social R&D will change from 7:3 to 5:5 in the national S&T expenditure controlled by MOST. But most of meta projects still are in industrial areas.
E. Increasing budget for GRI in social development

- Restructuring and strengthening the system of government research institutions of social development.
- Following the market oriented reform, the social development related GRI had been in big trouble as they did not the capabilities to get the contact from the market.
- Since 2000, there was a big restructuring the whole system in order to strengthen them.
- The final goal is to have a about 100 key GRI in social development area. The level of overhead budget will be increased from 20000 to 40000 yuen per researcher. By the end of 2004, this transformation almost finished.