

Improving Environmental Management Accounting and Environmental Management Performances in Chinese Supply Chains

EU - Asia Pro Eco Programme

Presented at

EMAN Conference

Espoo (Finland) 2007



Main Project Participants:

- ❁ Prof. K. Hanf -Autonomous Univ. of Barcelona
- ❁ Prof. M.R. Rovira Val- Autonomous Univ. of Barcelona
- ❁ Prof. Xu Jieming of Yunnan Univ.
- ❁ Prof. Yang Yu of Nanjing Univ.
- ❁ Prof. F. Birkin of Sheffield Univ.
- ❁ Zhen Liu of Sheffield Univ.

A vertical red bar on the left side of the slide, featuring a faint, dark mountain landscape. The rest of the slide has a light gray background with a similar mountain landscape.

❁ **P**roject description

❁ **B**ackground to EMS
(& EMA) in China

❁ **C**ompany Case
Studies

❁ **S**takeholder Studies

Project Aim 1

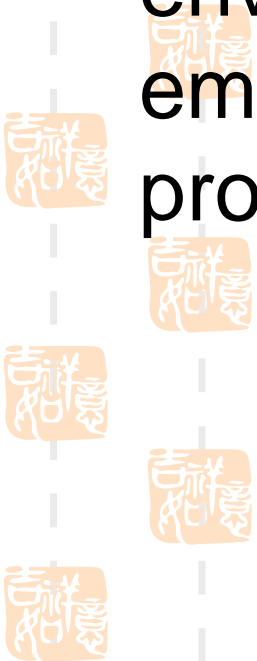


The elaboration of a model of an “effective system of environmental management”



Project Aim 2

To specify the types of external and internal factors that define the pattern of constraints and opportunities within which environmental management systems emerge and function in the two Chinese provinces of Yunnan and Jiangsu



Project Locations: Chinese Provinces of Yunnan and Jiangsu



Project Output 1

The project was to report on the experiences of the case study firms regarding the opportunities and constraints with regard to institutionalizing systematic care for the environment at the level of the firm in Chinese national and international supply chains.



Project Methodology

Semi-structured interview techniques were used to determine the specific organizational arrangements performing the functions of environmental management was achieved by the empirical analysis of twenty company case studies – 10 companies per province – supported by a series of company stakeholder interviews.

Project Output 2

These recommendations would be the basis of a set of recommendations for creating conditions which will increase the likelihood of a successful introduction of environmental management and environmental management accounting into the firms of the two Chinese provinces.



EMA Content



- Unfortunately, the role of accounting was not found to be significant for internal company management in the case study companies.
- The lack of developed standard cost systems and data meant that it was impractical to take an essentially “next step” towards training in environmental management accounting in the firms particularly given the limited resources of the project team.
 - But a way forward for EMA was identified.



Background to EMS in China

The Dilemma of Environmental Damage versus Economic Growth

- China shaved off 7-20% of its GDP/year in pollution and damage in last 20 years (CSR Asia 2007)

versus

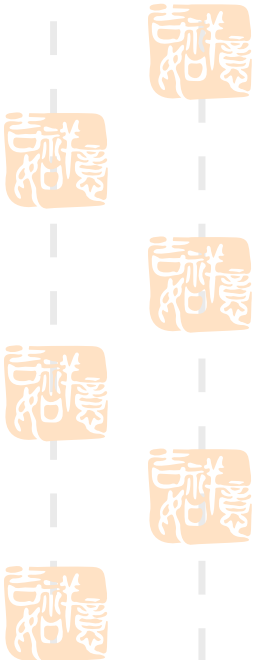
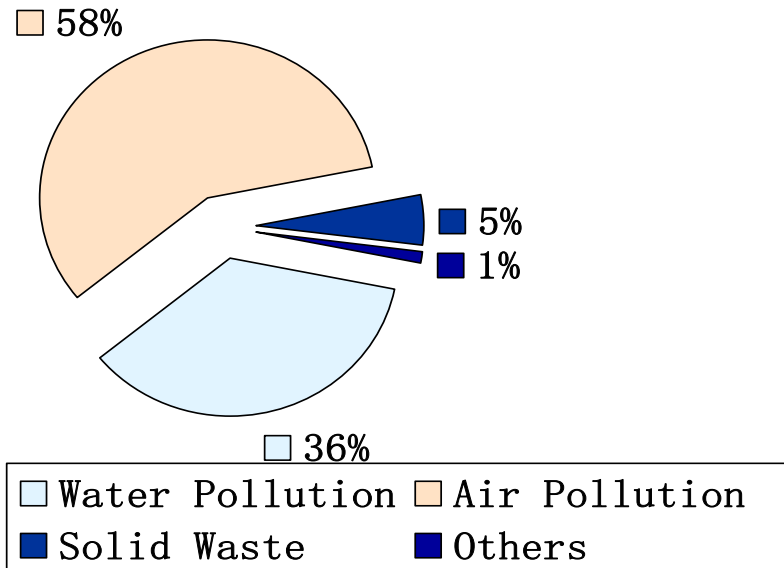
- An improving poverty situation

In 2003, the per capita GDP exceeded **\$1,000**,
4 times that of 1980,
more than 250 million people were lifted out of poverty.
(AIESEC 2006).

Development Crisis

- Economic losses resulting from environmental pollution were around 10 billion Euro in 1992 (British Consulate 2005)

Economic Losses in 1992



New Thinking: The Green National Strategy in China



PRC Policy has Significant Shift- The 11th 5 Year Plan (2006-2011)

- Key-"Harmonious Society"
- Balance of Economy-Society-Environment
- 1. Sustainable growth-Circular Economy
- 2. Social stability-Cities and Urban areas
- 3. Development of the West and Second Tier cities
- 4. Rational use of energy and resources



Green National Strategy



FYP for the Environment

- Environmental capacity is important consideration
- Environmental standards for market access
 - China **refuses** companies not meeting standards, such as Jiangsu province
- Environmental cost is integral economy
 - **Green GDP**, e.g. ten provinces in trial in 2006



Implementation of Regulations





Green National Strategy

The Targets for the Environment

- 10% reduction in total pollutants
- 20% reduction in energy consumption per unit of GDP
- 30% reduction in water usage by industry

7 Goals for the Environmental Protection and Control

- Air pollution control
- Water supply
- Waste water, Solid & Hazardous wastes treatment
- Monitoring and analysis system,
- Consulting services,
- Others in ecological and natural resources protection
- Nuclear safety and radiation management.

Not Just Words



Actions not Just Words

- **82** ongoing projects (£75B) have been banned in 2006. (www.gov.cn)
- More than **4000** small coal mining companies will be shut down by 2010. (EMR 2006)
- **10** big Chinese enterprises published a sustainability report in 2006, COSCO (China Ocean Shipping Company), **first CSR report** by a state-owned enterprises on 20/12/2006 (CSR Asia 2007)
- Increasing investment, more than 140 billion Euro during 11th 5 years plan (BBCChinese.com 2006)

“Significant encouragement from governmental departments and other influential bodies are the most important factors”

(Ho 2007, CSR Asia Weekly Vol3 2007, p3)

Motivation and Implementation



- Reality is an challenge

Example: Increasing consumption

In Beijing **1,000** cars a day are added
(CSR Asia Weekly 2007)

Example: Inefficiency

Uses **3 times** the energy of the world average
(CSR Asia Weekly 2007)

Example: Social stability



Company Case Studies



- All the case study firms had well developed EMS; 16 had ISO14001 certification, 1 firm was in the process of applying for ISO14001 certification and 3 firms had no EMS certification but nonetheless exhibited developed EMS functions



Company Case Studies



- Environmental policies
- The Chinese managers interpreted policy more as regulations and specific objectives. Nonetheless, 17 firms did at length provide environmental policy statements such as “No harm to the Environment”, “Civilisated garden factory”, “Obey guidelines” and “Communicate, comply”.



Company Case Studies

- It was considered necessary to investigate whether the firms did in fact implement a full ISO14001 system even though the certification had been obtained. This was done since doubts had been expressed regarding the real commitment the firms to environmental management.
- All firms has necessary Chinese environmental permits and complied with all regulations. We are happy to report that these components of a developed EMS did exist in the case-study firms and that they were in appropriate use.

Company Case Studies



- Verification
- Only half the firms had their environmental performance audited by external agents. The external agents were the EPB except for three firms two of whom used a Quality Management agencies in Beijing and one who used Det Norka Veritas



Company Case Studies



- Ecodesign was practiced by 4 firms
- Life-Cycle Assessment by 1
- Multimedia Pollution Control by 3
- Corporate Social Responsibility by 1
- Environmental Impact Appraisal by 1.
- Only 8 firms reported that they aggregated physically-measured environmental performance data and used this for internal management purposes



Company Case Studies

- Environmental costs were reportedly used by 9 firms but just what this meant in practice was not encouraging for environmental management accountants.
- Only 4 firms for example knew what their investment in environmental performance had been: 3% and 8-10% of total investment, 100 million Yuan and 87 million Yuan.
- Similarly their environmental expenditure was known to only 9 firms and this ranged from 0.08% of overall expenditure to 14% of all new build costs.

Stakeholders as Drivers for EMS (EMA)

- The influence of the Central Chinese Government is large in China.
- Provincial governments do control large areas (Shanxi province for example is $\frac{3}{4}$ the size of the UK) and the Chinese provinces range from cold and desolate, hot and desertified to wet and temperate, hot and tropical so that the provincial governments do enjoy a degree of autonomy.
- But the PRC's environmental commitments as exemplified by the central government's new Harmonious Development FYP is the main driver for Environmental Performance Improvements in China

Stakeholders as Drivers for EMS (EMA)

- The changes caused by the new FYB will be directly experienced by firms in China through local and regional EPB.
 - Only 2 of the case study firms reported that this was not the situation.
 - One of these was a tourism company operating an ethnic village and the other was a branch of Avery Denison who performed to internal and very high environmental performance standards.

Stakeholders as Drivers for EMS (EMA)

- Business and consumer associations are not as well developed in China and whilst they were reported to be an influence on their environmental performance by 13 case study firms.
- Some 15 firms reported that the Media (press and television reporting) was an important consideration for improving their environmental performance.
- 2 firms identified the public as a direct influence.

Stakeholders interviews



- Environmental Protection Bureau
- Environmental Monitoring Centre
- NGO
- Neighbourhood Committee
- Academics
- Media



Stakeholders interviews

More pressing environmental problems identified:



PROVINCE:

- Water/wastewater
- Ecosystems
- Forest

CITIES

- Water/wastewater
- Air pollution
- Noise



Stakeholders interviews

Suggested improvements for improve:

Government's environmental policy:

- Environmental education
- **Companies behaviour**
- Financial support
- Strong regulations
- Green economic measures
- Big cities' size problems
- Public participation

Enforcement of environmental policy/regulations:

- Monitoring
- Dissemination & Access to env. information
- Env. education
- Gov. depart. Efficiency
- Financial support
- Public participation
- **Companies reporting**

Stakeholders interviews

Collaboration



- 75% stakeholders have different kind of collaboration with:
 - **setting up/ reinforce** environmental policies/regulations

- with **firms**

- Stakeholders main role in improving general environmental quality:

- Training, Environmental education , Information provision

- Financial support

- Other services provision



Stakeholders interviews

- **Role that firms could/should play** in improving environmental quality:
 - To prevent and reduce waste and pollution
 - To increase the use of environmental friendly technologies
 - To be proactive
 - Comply with the environmental regulations and policies / Cooperation with EPB
 - Financial support to local environmental NGO
 - Education and training
 - Social responsibility
- **Factors** that make difficult for firms to improve their environmental performance:
 - Environmental awareness
 - Financial capacity
 - Low government's pressures
 - Access to environmental technologies

EMA



- *Environmental Management Accounting*
- No evidence of what EMAN would take to be EMA was found in the case study companies.
- However EMAN members should be encouraged by the EPB reports.



EMA



- These reports are requested from all firms in China and comprise
 - (i) an annual forecast of the emissions that the firm will make in the forthcoming year;
and
 - (ii) annual statistics on a firm's actual environmental performance (which are used to compile provincial and national statistics).



EMA



- The annual forecast is used as the basis of a polluting permit which is issued by city authorities (whose jurisdiction extends into neighboring countryside) and which come with penalties for non-compliance. The penalties are between 500 and 20,000 Euros for the firms



EMA



- But there are possible stronger “hidden” political penalties for those EPB managers that are responsible for significant non-compliance of firms in their areas.
- A bad case of accidental river pollution can for example mean not only financial penalties but court action for both firm and EPB official and even the expulsion of the EPB or SEPA (State Environmental Protection Agency) official from the Communist party (an effective end to that person’s career).



Conclusions



- EMS is well established in China
- EMA is not
 - A strong driver mechanism for the adoption of EMA in Chinese companies is present
 - However, the general level of management accounting was low and this must be improved prior to EMA (?)
- There are many EMA research and implementation opportunities in China

