



**Policy Instruments for Chinese Sustainable Future:  
Environmental Policy Integration and  
Strategic Environmental Assessment  
for the Energy and Transport Sectors**

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**An Environmental Policy Integration  
perspective of the weaknesses and  
potentials of current Chinese  
practice**

Olivia Bina

Wuppertal Institute, Wuppertal, 2009

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## Project outline

Policy Instruments for a Chinese Sustainable Future focuses on the integration of the environment into transport and energy planning in China, both at the policy level and in terms of concrete measures for the two administrative levels of provinces and municipalities. The outcomes of this project will help to build transportation and energy-use systems that are environmentally sound and capable of achieving sustainable development in China. As part of the Asia Pro Eco II Programme the project contributes to the programme's main themes for China: energy savings, improved air quality and reduced emissions of greenhouse gases.

At the heart of this project are two closely related mechanisms that are central to EU efforts to promote sustainability: Environmental Policy Integration (EPI) and Strategic Environmental Assessment (SEA). The action targets the inadequate reflection on environmental policy objectives, the weakness of the environment as a cross-sectoral priority, and the need for technical/practical solutions that can lead to immediate improvements in the development of sectoral plans. The 30 months Action consists of four work packages and multiple activities.

For further information please go to:

[http://www.epi-in-china.com/project\\_information/summary.html](http://www.epi-in-china.com/project_information/summary.html)

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## Persisting disjuncture in environmental governance

Depending on the perspective, the rise or return of China as a major global player is attracting attention, admiration and fear in equal measure. In all cases, the adjectives used are superlatives – as illustrated by the avalanche of commentaries in the media across the world, heightened by China's hosting of the Olympics in August 2008. The games occur exactly 30 years since the reforms and the opening-up of China: started by Deng Xiaoping in 1978, the reforms lifted hundreds of millions of people out of poverty, and have created a new middle class of between 150-200 million. Economic growth over the past three decades has been 'the fastest among major nations, with an almost 10 percent annual increase in gross domestic product' (Liu Jianguo and Diamond, 2008:37).

Given the scale and pace of change, growth is coming at the expense of the environment, which in turn is taking a heavy toll on human health. China is not only compressing the six centuries of history that have led to our modern capitalist societies into a few decades. It is also – and as a result – compressing all manner of environmental emergencies into one major, evolving, crisis (Day, 2005; OECD, 2007). According to research by the World Bank, SEPA and a team of international experts (World Bank and SEPA, 2007), the combined economic costs and human health impacts costs of outdoor air and water pollution for China's economy comes to around \$US100 billion a year (or about 5.8 percent of the country's GDP). Other estimates range from 3 to 20 percent (Bina, 2007), prompting China's President, Hu Jintao's (2007) comment that '[China's] economic growth is realized at an excessively high cost of resources and the environment.

How has the Government responded to the crisis? China has made progress and taken bold commitments, which in many ways sound more far reaching than most of the countries renowned for their leadership on environment and sustainability. Since the 1990s scholars and experts have identified significant improvement in environmental policy and related implementation mechanisms (Aden and Sinton, 2006; Day, 2005; Economy, 2006; Mol and Carter, 2006; OECD, 2005; 2007; Song Guojun *et al.*, 2008; World Bank, 1997; Xue Lan *et al.*, 2006). Nevertheless, observers from within and outside China continue to find evidence of what Lieberthal (1997:3) calls the 'disjuncture between [China's] promise and its performance on environmental issues'. Although the legal framework can be further improved, and new economic mechanisms introduced, the analysis of the Organization for Economic Cooperation and Development (OECD, 2007:3) leaves no doubt that '[o]verall, environmental efforts have lacked effectiveness and efficiency, largely as a result of an implementation gap'.

The reasons for the weak and often ineffective response to China's environmental crisis are complex and diverse. Many go to the heart of the issues commonly discussed in environmental governance literature,<sup>i</sup> including: a narrow framing of environmental policy and related instruments, poor integration and coordination between actors, and a gap between political commitment and implementation. The scholars and experts cited above have found China's capacity for governance to be improving, but with significant, persistent, flaws – as illustrated by the OECD's conclusions (2007), and reiterated by the findings of the Task Force of the China Council for International Cooperation on Environment and Development (CCICED) on *Environmental Governance*. One of the main findings of the CCICED report, submitted to the Chinese Government in November, 2006, claims that

'[e]nvironmental considerations... are not adequately incorporated into the expectations of performance of other government ministries and agencies', that there is a need for 'policy integration' and 'for a coherent master plan for institutional reform in environmental governance' (Xue Lan *et al.*, 2006:24 and 52).

It is the theme of policy integration by government actors that lies at the centre of this inquiry. The aim is to contribute to the growing body of research on China's environmental governance by focusing on what Lafferty and Knudsen (2007:5) call 'the steering mechanism for environmental and [sustainable development] governance': Environmental Policy Integration (EPI). This primarily European conception of how to operationalize environmental sustainability (Lenschow, 2002), aims at inserting environmental policy considerations into the formulation and implementation of other development policies (Stanners *et al.*, 2007). The rationale being that 'environmental objectives have for long been systematically devalued in sector policy-making and should be given higher priority since environmental functions are prerequisites for many economic activities' (Persson, 2004:42). The literature and recent national (Song Guojun *et al.*, 2008) and international (OECD, 2007; Xue Lan *et al.*, 2007) inquiries into China's environmental performance suggest that this normative rationale for EPI is far from being a priority in the country. Nevertheless, there are efforts towards integration, triggered by the leadership's awareness of the environmental costs of growth. I therefore explore EPI's dual relevance for China: as an analytical framework (EEA, 2005), and as a normative concept promoting the 'principled prioritization of environmental factors in decision making' (Jordan and Lenschow, 2008:519). Following an introduction to the concepts and framework for EPI evaluation, below, I then pursue three objectives: (1) to use the analytic lens of EPI to deepen current understandings of the weaknesses in China's environmental governance, (2) to identify potential areas of strength in its current practice, and (3) to draw on EPI's normative core of principled priority in order to further strengthen the positive trends in China, and facilitate the operationalization of 'scientific development': the new priority of the Communist Party of China (Hu Jintao, 2007; Shambaugh, 2008).

## Environmental Policy Integration: concept and analytical framework

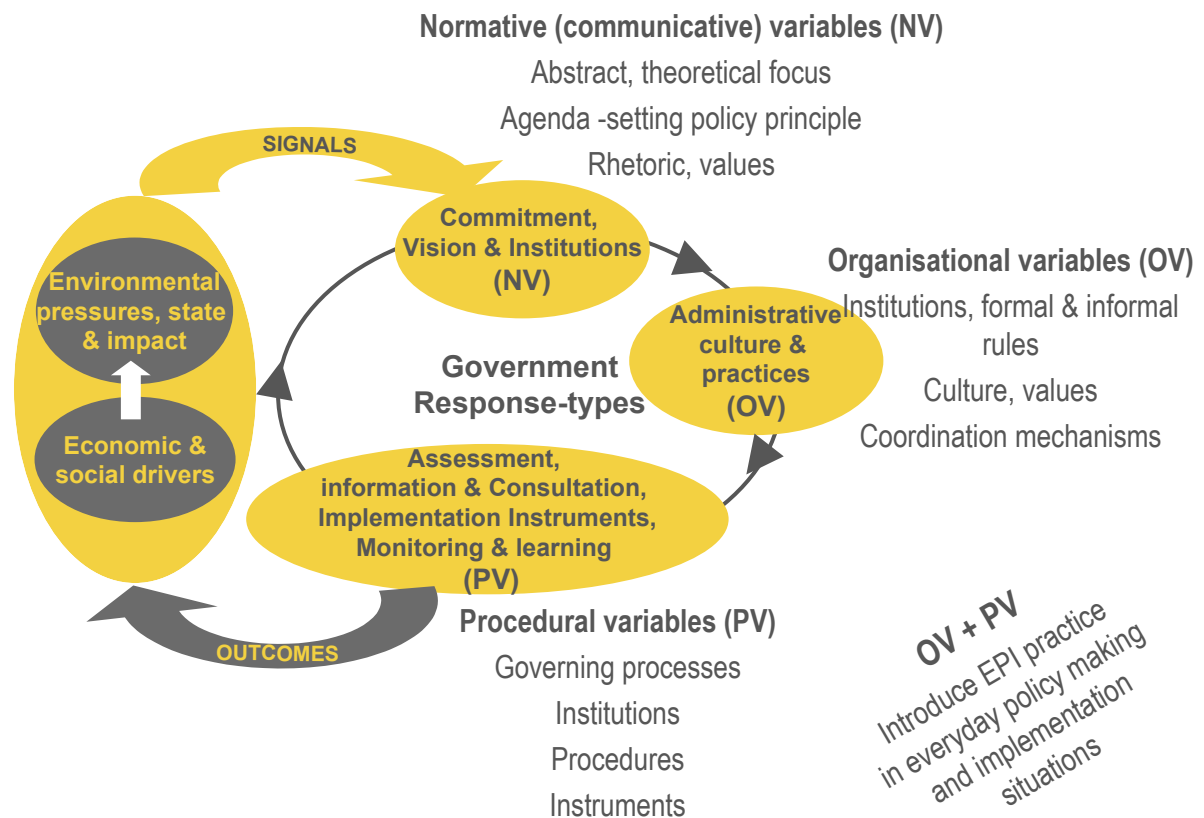
The normative and positive origins of EPI are linked to those of sustainable development. EPI expresses the concerns arising from the weakness of early environmental policy design, which reacted to the impact of man on nature by promoting the rise of a new sector: the environmental sector of the 1970s. In *Our Common Future* (WCED, 1987), the need for profound innovation in solving the environment and development problematique led to the framing of sustainable development. The pursuit of this new direction required far reaching changes in traditional political orientations and institutional arrangements. It is precisely this need for innovation and change that underscores the normative conception of EPI as a 'first order operational principle' (Lenschow, 2002:6), or principled priority (Lafferty and Knudsen, 2007) for sustainable development. EPI is considered implicit and indispensable to sustainability (Jordan and Lenschow, 2008). In positive terms, the objective of EPI is to insert environmental policy considerations into the formulation and implementation of other development policies (Stanners *et al.*, 2007), for sectors to share ownership of environmental policy (Jordan and Lenschow, 2008), and for EPI to promote 'environmental and SD [sustainable development] governance' (Lafferty and Knudsen, 2007:5). The following sections examine China's rapidly evolving governance concept and practice against this focus on *integration*, thus building on the CCICED's findings. Currently, EPI is not a common expression in China's environmental and sustainability policy domains. However, the aim is to explore the extent to which EPI is taking place '*de facto*' (Hey in Persson, 2007)ii in China, and the strengths and weaknesses of its application.

A lucid categorization and analysis of the different concepts, interpretations and practices of EPI is offered by Persson (2004; 2007), Lafferty and Knudsen (2007), who distinguish between the political-strategic aspects of EPI (see in particular: EEA, 2005; OECD, 2002), and the more academic policy-analytic discourse (Jordan, 2001; Jordan and Lenschow, 2008; Lenschow, 2002; Nilsson, 2005; Persson, 2004). The following analysis draws on the EEA's (2005) *Framework for evaluating integration of environment into sector policies*, which proposes a set of criteria for 'understanding ...how to promote integration' (Stanners *et al.*, 2007:149). There are a number of reasons for this choice: first, the EEA *Framework* is the most recent comprehensive and coherent approach to the question of evaluating progress towards EPI; second, the logic of the *Framework* is grounded in the DPSIR – drivers-pressures-state-impact-responses – model and the concepts of efficiency and decoupling, involving a move beyond end-of-pipe solutions towards decoupling of sectoral driving forces (Stanners *et al.*, 2007). Both aspects are especially relevant to the Chinese case, as witnessed by the Government's discourse on the limits of China's resources and the need for efficiency and decoupling (Hu Jintao, 2007; NDRC, 2007).

The EEA *Framework* is designed to evaluate sector responses, and I have therefore adapted it to serve an inquiry into the overall approach of the Chinese Government to the issue of environmental integration in government policy making ('policy integration', Persson 2004). As shown in Figure 1, the framework focuses on three 'response types': normative, organizational and procedural, intended to respond to 'signals' and deliver 'outcomes' which improve the relationship between 'economic & social drivers' and the environment. Table 1 presents criteria for each response as a way of further illustrating their content. The responses combine insights from Persson's (2004) proposed categories of factors influencing the achievement of EPI,

and Jordan and Lenschow’s (2008) interpretative frames for a policy-analytical approach to EPI. Thus, the EEA’s first response type (‘Commitment, vision and institutions’) is linked to Persson’s *normative* criteria, and Jordan and Lenschow’s (2008) idea of ‘EPI as an agenda setting policy principle establishing the relative “value” of environmental protection within the broader discourse of sustainable development’. The EEA second response (‘Administrative culture and practices’) is expanded to include elements of Persson’s *organizational* variables. The remaining three EEA response types (‘Assessment, information and consultation’, ‘Implementation instruments’, and ‘Monitoring and learning’) are included within Persson’s *procedural* criteria. Finally, both organizational and procedural dimensions link to Jordan and Lenschow’s (2008) framing of EPI ‘as a governing process of developing and applying different institutional and procedural measures [instruments] to implement th[e] principle’ of EPI in everyday policy making situations.

**Figure 1 Framework for evaluating environmental policy integration in China**



Source: adapted from EEA 2005, with elements from Jordan and Lenschow 2008; Persson 2007

**Table 1 Response types and criteria**

<b>Response types and variables</b>	<b>Criteria</b>
<b>NORMATIVE variables:</b> Commitment Vision & Institutions	<ul style="list-style-type: none"> <li>– High-level political commitment and leadership</li> <li>– Societal backing</li> <li>– Definition of a policy framework for EPI or sustainable development</li> <li>– Fundamental change in policy paradigm and tradition</li> <li>– Time perspective</li> <li>– Use of knowledge and science</li> <li>– Changes in governmental architecture to overcome sector compartmentalization, e.g. integrated departments, new institutions</li> <li>– Restructuring of the government budgetary process</li> </ul>
<b>ORGANISATIONAL variables:</b> Administrative culture & practices	<ul style="list-style-type: none"> <li>– Environmental responsibilities reflected in the internal management regime of sectors?</li> <li>– Coordination and communication mechanisms between sectors and environmental authorities?</li> <li>– Coordination and communication mechanisms across the main levels of governance?</li> <li>– Accountability mechanisms</li> <li>– Training and awareness programs</li> <li>– Interaction with external actors</li> </ul>
<b>PROCEDURAL variables:</b> Assessment, Information & Consultation Implementation Instruments  Monitoring & learning	<ul style="list-style-type: none"> <li>– Process for ex ante environmental assessment?</li> <li>– Consultation of environmental authorities and stakeholders?</li> <li>– Is environmental information available for and used to inform policy-making?</li> </ul> <hr/> <ul style="list-style-type: none"> <li>– Financial assistance programs supporting environmental objectives?</li> <li>– Other market-based instruments?</li> <li>– Technical or other standards to promote EPI?</li> <li>– Other instruments used to promote EPI?</li> </ul> <hr/> <ul style="list-style-type: none"> <li>– Monitoring of sector's progress towards its EPI objectives and targets?</li> <li>– Systematic evaluation of the effectiveness of the policies?</li> <li>– Mechanisms for exchanging good practice?</li> </ul>

Source: adapted from EEA 2005; Jordan and Lenschow 2008; Persson 2004.

The three response types: normative, organizational and procedural, are intended to meet the expectations of Brundtland's Commission for profound innovation and institutional change, by operationalizing sustainable development in everyday policy-making. I therefore turn the analytic lens of EPI on China's environmental policy and governance practice, to deepen current understandings of the weaknesses and strengths identified in recent studies (Mol and Carter, 2006; OECD, 2007; Xue Lan *et al.*, 2006) and to explore the relevance of EPI as a principled priority in China's context.

The material for this inquiry comes from a combination of literature and policy document analysis, reference to official statements by top leaders in the state news channels and in a range of domestic and foreign newspapers. I then refer to seventeen selected semi-structured interviews carried out between 2006 and 2008. To respect confidentiality, most interviews have been coded: Director, Ministry of Science and Technology (Chinese government, CG); Officer, Ministry of Science and Technology (CG); Officer, SEPA/MEP (CG) – three interviewees; Director of an environment and engineering research institute (CG); Professor of economics (Chinese academic, AC); Professor of environmental policy and economics (AC); Scholar in Public Administration (AC) and in Philosophy (AC); Program Director at the Global Environmental Institute (Chinese NGO, CNGO); Deputy Director (Chinese think tank, TTC); Officer of the European Delegation (International, I); Director at the World Bank, Beijing (I) – two interviewees; Consultant (I); and an Officer - European country aid agency (I). Finally, I draw on insights gained from the preliminary results of the European funded project: *Policy Instruments for Chinese Sustainable Future: Environmental Policy Integration and Strategic Environmental Assessment for the Energy and Transport Sectors* (hereafter: CHINA-EPI-SEA project, see: <http://www.epi-in-china.com/>).

## Understanding weaknesses from an EPI perspective

There is evidence that China has adopted a wide range of normative, organizational and procedural variables (see Table 1) that can promote EPI's purpose, even if these are not part of a strategy, or framed as 'EPI' procedures or instruments.

### ***Strong but unpersuasive commitment***

In terms of *normative* responses, at least two aspects of China's commitment to EPI-type objectives are striking: unequivocal recognition of the depth of the ecological crisis affecting the country and of its direct link to economic growth, and high-level political commitment – and apparently leadership – to address this crisis. Official statements (e.g. Hu Jintao, 2007), policies (e.g. NDRC, 2007) and plans (e.g. NPC, 2005) support the commitment.

At the Sixth National Environmental Protection Meeting (April 2006) Premier Wen Jiabao announced three new policies, all implicitly supporting EPI: 'integrating environmental protection and economic decision-making on an equal footing, further decoupling pollutant emissions from economic growth, applying a mix of instruments to resolve environmental problems'(OECD, 2007:3). These policies represent a new agenda for the country's growth model, exemplified by President Hu Jintao's (Xinhua, 2006) aim to realize "efficient and rapid" economic development, rather than 'pursuing speed... of economic growth'.iii Aim reiterated at the 2006 Economic Work Conference of the Communist Party Leadership whereby the country must 're-engineer the economy' and search for 'a new growth pattern that is energy-saving, environmentally friendly and sustainable' (China Daily, 2006). Similar statements from the top leadership are a regular feature in several 'official' newspapers, including the People's Daily, Xinhua, China Daily, but also the Shanghai Daily, The Standard, China Post and others;iv and the political will to change course is noted by several interviewees and in the literature (Liu Guoli, 2007).

Three evolving discourses initiated in the 1990s, provide the conceptual basis for these political commitments and new policies: the building of a *harmonious* society, the pursuit of a *scientific viewpoint* of development, and the creation of a *circular* economy (NDRC, 2007). Together, they account for China's evolving conception of sustainable development (interview CG56), which was first defined in China's Agenda 21 (NPC, 1994). At the 17<sup>th</sup> National CPC Congress, Hu Jintao (2007) places 'scientific view point of development' (hereafter 'scientific development') at the heart of his message, leading to a resolution amending the CPC Constitution, to include such principle. Hu (2007) links scientific development to the need to improve environmental management:

'[w]e must adopt an enlightened approach to development that results in expanded production, a better life and sound ecological and environmental conditions, and build a resource-conserving and environment-friendly society... harmonise... economic growth with the population, resources and the environment, so that... our economy and society will develop in a sustainable way' (speech at 17<sup>th</sup> CPC Congress, October 2007).

Scientific development encompasses a range of ideas on and around sustainable development, and, as many have pointed out, is still work-in-progress. It embraces principles of efficiency, resource (primarily energy) saving and decoupling – all of which occupy a special place in driving the modernization of the State (Yao Runming *et al.*, 2005), influencing several responses by Government, and the search for a new development model. Crucially, scientific development is a priority of the President and Prime Minister (Hu-Wen regime): a driver for the new, more compassionate, direction of China's development that responds to increasing social disparity (Liu Guoli, 2007). In terms of EPI, it is especially important as it exemplifies the Government's quest for a new development model and a new 'ecological civilization' (Hu Jintao, 2007): a quest that is in line with the message of *Our Common Future*, and to which EPI is meant to contribute. The pursuit of scientific development, including strengthening of environmental protection, is finding tangible expressions in national development strategies, especially the 10<sup>th</sup> and 11<sup>th</sup> five year plans (5YP) (NDRC, 2007) which translate the commitment into targets:

'the promotion of energy efficiency, pollution control and resource conservation so as to be able to cut energy consumption per unit of GDP by 20% and major pollutants by 10%, relative to 2005 levels by the end of the 11<sup>th</sup> the Five-Year Plan, and to increase forest coverage to 20% of the country from its 2005 level of 18.2%' (targets in the 11<sup>th</sup> 5YP, 2006-2010, in: Xue Lan *et al.*, 2006:22).

Changes in governmental architecture are also part of the *normative* responses (see Table 1) enabling the translation of commitments into practice. The 11<sup>th</sup> National People's Congress (NPC, March 2008), or national legislature, has attempted a bold step towards institutional restructuring of the government to address sectoral fragmentation and overlaps, as well as to strengthen the government's capacity to focus on the strategic changes that need resources and urgent attention. These issues are already highlighted in China's Agenda 21 (NPC, 1994) and continue to be reiterated (NDRC, 2007) due to limited progress. The plan involves the creation of five so-called 'super ministers', including the Ministry of Environmental Protection (MEP). The key aspect of the shake-up deals with shifting the focus of the central government to overall macro-regulation of the economy, and with the continued transition from a central planned economy to one that is (mostly) market-based (Howlett, 2008). Chi Fulin (Xinhua, 2008), argues the government reshuffle reveals a new emphasis on 'capacities in strategic thinking and policy-making, administration and overall coordination'. Li Junpeng (Xinhua, 2008) of the National School of Administration, adds that it seeks to promote 'all-round, coordinated and sustainable development'. Hua Jianmin, the secretary-general of the State Council, admits (in: Callick, 2008) that "problems of overlap between departments, disconnect between power and responsibility and low efficiency are still quite stark". The approved changes are expected to help reduce inefficiency and overlapping responsibilities.

However, in practice, what has been achieved in March 2008 falls short of promises and expectations (interviewees CG56, CG57, AC5 ex-CG11). Interviewees remark on the fact that in China the pace of change is often slow and dictated by prudence (interviewees CG56, CG57, and I11), suggesting that the limited reshuffle was to be expected. However, as Chi Fulin warns that: "[w]ithout substantial changes in government functions, the change in the mode of economic development would be very difficult or even unreachable" (in: Xinhua, 2008). Radical change is necessary if the rhetoric is to translate into new, sustainable modes of development.

Initial conclusions on the basis of *normative* responses, suggest that China's Government is earnestly pursuing Liberatore's (1997:107) 'new model of development that can be environmentally and socially sustainable in the long term', but is less clear in its commitment to Liberatore's requirement to develop EPI as an *approach*, not just objectives. However, two related aspects of China's EPI-type response raise concern. First, is a lack of persuasion. Persson (2008) emphasizes 'persuasion' at the implementation and local levels, as a critical test of commitment. In China the momentum behind EPI-type political commitments originates predominantly from central Government (indeed from its highest leaders Hu Jintao and Wen Jiabao), and the message is struggling to reach the leaders and administrations across this vast country (Cheng, 2007; Day, 2005; Michalak, 2005; Pei Minxin, 2006). Part of the reasons for the difficulty relate to the *organizational responses* in the EPI framework adopted here. I discuss these below. But part of the reason forms the second aspect of concern: a prior commitment. The economic imperative in China is not driven by economic and poverty reduction objectives alone. It effectively underpins political and social stability, that is: 'the' priority of China's authoritative regime (Cheng, 2007). This limits the Government's capacity to pursue EPI-type initiatives even when it is convinced of their desirability, as illustrated by an interviewee (AC5) explaining that the main obstacle to the uptake of EPI measures such as an energy or environmental tax is "social stability". The predicament is exacerbated by the fact that severe pollution prompted 51,000 public disputes in 2005, posing a threat to social stability (Pan Yue and Zhou Jigang, 2006). This second reason for weakness is certainly of concern, but also, unsurprising once compared to the disappointing results of OECD countries in shifting priorities (Jordan and Lenschow, 2008).

Having shown growing commitment to EPI objectives, and having raised important reservations regarding the persuasiveness of Central Government, I now explore in more detail the tangible signs of EPI in daily policy making, and implementation situations, to illustrate further the strengths and weaknesses of China's *de facto* EPI.

### ***Weak implementation: quantity more than quality?***

I begin by considering *procedural* responses (Figure 1), as these tend to be the most common response-types in EPI practice, together with *commitment* (Jordan and Lenschow, 2008), and China proves to be no exception. The type of procedures, mechanisms and tools included under this heading are listed in Table 1 and they have been the focus of repeated inquiries into China's environmental governance and sustainability performance (notably: Day, 2005; Economy, 2006; Mol and Carter, 2006; NDRC, 2007; OECD, 2007; Song Guojun *et al.*, 2008; Xue Lan *et al.*, 2006). Drawing together a range of sources, including interviews, I summarise in Table 2 the most important initiatives that correspond to the EPI criteria (Table 1).

The range is significant and attests to China's modernization (Mol and Carter, 2006), and to the embracing of economic and market actors as part of 'the economization of environmental governance' (Economy, 2006:172). Song Guojun and others (2008:chapter 4) identify three categories of methods for environmental policy in the broadest sense: (1) 'command and control' which maintain a central role, (2) 'market/economic' which are relatively recent and – according to the authors should be applied only after careful analysis of costs and benefits, and (3) 'persuade and encourage', which respond to Chinese traditional value and praise of excellence - they include: information, education, public participation, voluntary agreements, and

evaluation and praise systems, including for example the environmental model city program. Many of these mechanisms fall into the EPI categories in Table 2.

**Table 2 Main procedures, mechanisms and tools for EPI in China**

Response types and variables	Procedures, mechanisms and tools for EPI in China
<p><b>PROCEDURAL variables:</b> Assessment, Information &amp; Consultation</p>	<ul style="list-style-type: none"> <li>– Ex-ante assessment: 2002 Law for environmental impact assessment (EIA) of projects and plans (and extension to policies being discussed);</li> <li>– The three simultaneities system (continuity and coherence between design, construction and operation phases);</li> <li>– Consultation: Legal requirement to consult the public as part of EIA procedures (Guidance 2007);</li> <li>– New requirement for access to environmental information (2008).</li> </ul>
<p><b>PROCEDURAL variables:</b> Implementation Instruments</p>	<p><b>Market-based instruments, charges and incentives:</b></p> <ul style="list-style-type: none"> <li>– Tradable emission permits (which however are implemented essentially as quota systems);</li> <li>– Pollutant charge system, SO<sub>2</sub> emissions charge was recently raised but remains low (1.6 RMB per ton);</li> <li>– Range of new pricing and taxation that favour eco-friendly and renewable energy practices. Resource tax standards for mining products (coal, crude oil and natural gas) are gradually increasing;</li> <li>– Tariffs on energy-intensive products (iron, steel and coke), introduced January 2007;</li> <li>– Taxation policies for high polluting, energy-consuming, and resource-intensive products (eg. 30% tax reduction for automobile manufacturers meeting low pollution emission standards in advance);</li> <li>– Incentives for the withdrawal of antiquated industrial production facilities (leading to closure of small coal-fired power plants, small coal mines, cement facilities etc);</li> <li>– Energy tax, under consideration (2008);</li> <li>– Environmental tax, under consideration (2008).</li> </ul> <p><b>Technical or other standards to promote EPI:</b></p> <ul style="list-style-type: none"> <li>– Energy saving (municipal, county and key enterprise targets) and emissions reduction targets;</li> <li>– Energy Conservation Law - draft amendment (2007);</li> <li>– Renewable Energy Law (2005), Regulation for Wind Power Connection to Grid (1994);</li> <li>– Circular economy initiatives (eg. use of industrial solid waste to increase to 60% by 2010, draft regulations are being discussed promoting the use of residual heat and pressure, energy conservation in civil buildings and government offices).</li> </ul> <p><b>Other instruments used to promote EPI:</b></p> <ul style="list-style-type: none"> <li>– Environmental planning (on pollution and on nature conservation);</li> <li>– Revision of the national budget structure in 2006 leads to acceptance of environmental protection expenses;</li> <li>– Guideline for the Adjustment of the Industry Sector;</li> <li>– Green accounting.</li> </ul>
<p><b>PROCEDURAL</b></p>	<ul style="list-style-type: none"> <li>– Monitoring of sector's progress towards its EPI objectives and</li> </ul>

<b>variables:</b> Monitoring & learning	targets: ACCA21 has been developing sustainable development indicators (but their use remains limited to date); <ul style="list-style-type: none"> <li>– A new monitoring system for energy consumption per unit of GDP, conservation and emissions reduction is being studied;</li> <li>– Monitoring and information: current mechanisms produce low quality, often unreliable, data which is the basis for reporting by the National Statistical Bureau;</li> <li>– State Council produces an annual list of enterprises that should eliminate outdated production facilities;</li> <li>– Learning: mechanisms that fall under the category of ‘persuade and encourage’ contribute to this (eg. dissemination of information, education, public participation, and evaluation and praise systems, including for example the environmental model city program).</li> </ul>
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Source: Author based on a range of sources including (Day, 2005; Economy, 2006; NDRC, 2007; Song Guojun *et al.*, 2008) and various interviews (AC4, AC5, CG56).

From the interviews and media transpires a desire by Government to learn, from OECD countries in particular, about mechanisms and tools that will help it meet its new goals for sustainable development and environmental protection. However, although much can still be learnt and added to the range of measures already in place, the problem does not lie in a lack of ideas about how to move from commitments and principles to measures on the ground. It lies one step further, with implementation. Despite recognitions of progress, there is almost unanimous acknowledgement that implementation and effectiveness remain weak. This transpires in the scholarly and expert evaluations cited earlier, and is confirmed by many interviewees and by Song Guojun and others (2008), as well as in the coverage of environmental and sustainability problems by the national (English) media.

The reasons for poor implementation vary, depending on the nature of the procedure or tool. They include a weak rule of law, conflict of interests and corruption, lack of capacity and resources - primarily affecting operations by environmental authorities. Environmental Impact Assessment (EIA) and monitoring, crucial EPI procedures, are two clear examples of all these problems (interview AC4). Difficulties also arise from the characteristic choice of ‘campaigns’ as a form of translating principles (and above commitments) into practice, and of enforcing application of the procedures in Table 2. Sims (1999) argues that this spectacular – but essentially weak – method of implementation has undermined most efforts to introduce institutions and a legal framework for the environment since the 1970s. Economy (in: Hvistendahl, 2007) notes that elaborate staging is emblematic of China’s overall approach to the environment: “With any campaign in China, the focus is on reaching targets as quickly as possible, without attention to the details... What China likes and is very good at is demonstration projects. But what it needs is systemic reform”; or what in EPI terms is a ‘continual process’ (Stanners *et al.* 2007b:146). This view is confirmed by interviewees (AC4, AC8, I11), and repeated in the recommendations of the OECD and CCICED. The fate of China’s experiment with green accounting is revealing (Economy, 2006). Considered one of the strongest EPI measures available (Jordan and Lenschow, 2008), green accounting in China is now on hold, for a mixture of methodological and political (opposition by some local authorities) reasons, (interview AC5, I11). Others argue this mechanism is too complex for current capacities in

China (interview AC4, GC56). Despite sending a strong message in support of the leadership's priority for saving scarce resources, it has lost support.

Overall, EPI and sustainability remain the subject of procedures and tools, rather than strategy and long-term design (Li Wenzhao, interview), placing their priorities at a disadvantage, as they are confronted by the strategic imperative of economic growth (the previous engagement), which continues to override all other priorities (interviewees: CG57, TTC1, AC4, AC5, I16). This is most visible at the local level, where the daily struggle to promote development seems to find few alternatives from energy intensive and often polluting industries (interview GC56). On the one hand, the richer parts of the country – notably the South and coastal provinces – seem to be moving away from heavy industry as a means of growth (interview I11), and encouragingly for EPI, it is the policies for renewable energy and energy efficiency that are driving part of this shift, especially with reference to the directions of foreign direct investment (FDI). This is undergoing a structural transformation away from energy-intensive and polluting industries in line with the Guideline for the Adjustment of the Industry Sector (see Table 2) and NDRC's encouragement of foreign investors to participate in 'clean' enterprises (recycling, renewable energy and energy efficiency), which are also growing areas for domestic investment. On the other hand, as discussed under *normative* responses, underlying the economic imperative is CPC's firm intention to maintain social stability. And it is "social stability" that represents the main obstacle to the uptake of measures with the greatest EPI potential (interview AC5). The Government is concerned about the command and control nature of the energy saving target in the 11<sup>th</sup> 5YP, acknowledging that it is not an efficient mechanism for a country the size of China, with low governance and monitoring capacity. A market-based instrument would be easier to implement, and Prime Minister Wen Jiabao "is convinced that this is a key solution"; but – argues the interviewee (AC5), Wen must balance this with other priorities, and mainly that of social stability: at the moment, the high levels of inflation on food and energy do not allow such move. The tariffs on energy-intensive products (iron, steel and coke), introduced January 2007 went ahead because they are less contentious from social perspective.

Overall, many of the criteria for *procedural* responses in Table 1 appear to be present in China, thanks also to the 11<sup>th</sup> 5YP (2006-2010). However, the Plan is too new to be evaluated, and one is mindful that obstacles to effective implementation remain strong, to the point of frustrating often high-level commitments (e.g. green accounting). From the perspective of EPI response-types, the capacity to devise mechanisms and tools (i.e. practical solutions and actions) is unquestionably a strength of China's machinery of government, one far more established than strategic planning for environment and sustainability – which remain weak. I now turn to *organizational* responses: the change in the administrative culture, rules and practices that EPI theory considers to be the most effective glue between commitment and procedures, leading to shared responsibility and ownership with sectors and actors beyond the 'environment' per se.

### ***Weak implementation: fragmented authority***

*Organizational* responses (Figure 1) are intended to translate China's EPI-type norms (i.e. scientific development and specifically, efficiency) into processes, outputs and outcomes. They do so primarily through the machinery of government's capacity for leadership, responsibility, accountability and coordination (Table 1), which in turn facilitate the effectiveness of *procedural* responses (Table 2). They make possible the kind of innovation and far reaching change sought by Brundtland's Commission, and implicit in the idea of scientific development (Zhou Yan *et al.*, 2007).

*Organizational* responses define the rules and practices that support such innovation, taking environmental concerns beyond existing (and mainly technical) environmental departments, into the heart of sectoral policies and decision-making – in line with EPI's normative goal. Taking an EPI perspective therefore broadens the analysis of environmental governance, to reveal weaknesses and strengths that go beyond those affecting specific procedures and tools. I consider weaknesses first, and focus on two aspects: authority and leadership for EPI, from which depend the organizational criteria identified in Table 1: responsibility, accountability and coordination.

Previous sections show that commitment to sustainability in China comes primarily from Central Government (or 'Centre'). More specifically, the momentum behind scientific development and EPI-type priorities comes from members of the Communist Party's Politburo, including the President and Prime Minister, and from elements within State Council, which is officially known as the Central People's Government, and is the highest executive and administrative organ of the State. It represents all key sectors directly or indirectly targeted by EPI, including ministers and heads of ministerial-level organizations and state-level corporations. Thus, to deliver EPI, the Centre must have the political *authority* to mobilize all sectors (functions, or *tiao* in Chinese) and governance levels (territorial levels, or *kuai* in Chinese) towards a shift from growth to scientific development, and efficiency.

Scholars are divided as to whether the CPC, and the Centre more broadly, have lost clout since the new economic regime introduced in 1978. Lieberthal (1997:6) argues that 'it is decidedly not the case' and identifies several levers held by the Centre, and Shambaugh (2008) supports this view. In stark contrast, Pei Minxin (2006:167, 175) talks about 'governance deficits' and 'state incapacitation... reflected in the worsening environmental degradation that threatens the sustainability of economic development'. Pei and others (see: Cheng, 2007) point to local governance deterioration due to corruption and collusion following decentralization, and a declining capacity for political mobilization. There is however broad agreement on the fact that the legitimacy, and survival (social-stability) of the Party are linked to delivering economic growth (Cheng, 2007; Day, 2005; Pei Minxin, 2006). This further entrenches the pursuit of rapid growth and weakens the Centre's resolve to promote EPI and sustainability. With this in mind, the question becomes: how effectively can the Centre's political authority be mobilized for EPI, and translated into *organizational* responses? and how can responses be applied throughout the country's vast administration, combining sectors and the three governance levels (i.e.: the centre, 31 Provinces, and a combination of approximately 600 cities, 2000 counties, 100,000 townships, and a million villages (Lieberthal 1997))?

Authority is required in order to operate throughout the government machinery, and in China authority is inseparable from rank (interviews AC4, AC8, I11). The highest rank is held by the Politburo, followed by State Council, Commissions, Ministries and so forth through the government machinery. But this illustration of a linear, top-down, exercise of authority through rank is misleading for four reasons. First, a fundamental rule interrupts the linearity stating that 'units of the same rank cannot issue binding orders to each other' (Lieberthal, 1997:3). In day-to-day operations, this simple rule has pervasive impacts on communication, cooperation and decision-making, as it dictates the possibility – or not – of an administration to call higher ranking administrations to a round-table meeting, or to request data, and so on. Second, Provincial Governments have the same rank as Ministries: this means that sectoral Ministries cannot issue binding orders to Provinces (Lieberthal, 1997). Third, sectors (or functions) and governance levels (territorial levels) lead to two levels of authority: in terms of the environment sector, for example, this means that the new MEP presides over the Environmental Protection Bureaus (EPBs) of all territorial levels, however, while it governs its EPB in Province X according to the environment 'function', the EPB is also under the authority of X's Provincial Government, and required to respond to its specific territorial priorities. Fourth, the 1978 reforms give the territorial line of authority priority over its functional counterpart, to allow for local initiative, and growth. The result is that 'authority in China is fragmented by function, by territory, and by rank' (Lieberthal, 1997:4).

Suddenly, the fact that primary support for EPI comes from the Centre, suggests as many weaknesses, as strengths. There is no simple top-down line of authority to deliver EPI. Solutions can be found of course, including involving high ranking offices such as the Development Reform Commissions in Provinces and Municipalities, or the Mayors' offices. Examples of these difficulties, and their solutions, abound even within the China-EPI-SEA project mentioned, which involves all three governance levels. But the point remains that a significant part of the energy of governing is devoted to negotiation and building consensus (Lieberthal, 1997), at great expense of social capital (*guanxi*). In terms of sharing responsibility, and cooperating on EPI-related issues, the obstacle is significant. Effectiveness of EPI procedures requiring the involvement of different authorities, such as EIA – deemed the most important of existing procedures in China (interview AC4) – is severely compromised (Bina, 2008; Gu Lixin and Sheate, 2005).

The fact that EPI in China is not an explicit policy or strategy, but the result of commitments to sustainability, efficiency, environmental protection and the new holistic scientific development concept, makes *organizational* responses all the more difficult to mobilize. The rank of environment and sustainable development agencies is emblematic of the challenge: the environment administration in China attained Ministerial status only in March 2008, while Agenda 21 is torn between the NDRC's Director of the Department of Regional Development, Division of Environment (Central Government), that has functional authority for sustainable development, and directs the implementing agency – Administrative Center for China's Agenda 21 (ACCA21), and the Ministry of Science and Technology (MOST) as Vice Director of sustainability in China. Although NDRC is a high-ranking Commission, environmental sustainability is responsibility of MEP, which continues to have difficulties in making itself heard among the more influential ministries target of EPI (interview CG57). While ACCA21's work is limited by resources and low rank. Although things may change given novelty of its ministerial status, the common perception of environment remains strictly that of a (marginal) sector *per se*, rather than the essential basis of most development sectors. As for sustainability, interviewees (CG56, I11) conclude

that “implementation [of sustainable development] is poor”, and that in general, sustainability and EPI-type concerns are dealt by technical agencies rather than the more authoritative departments of sectoral ministries.

Nevertheless, within this context of fragmented authority and weak mobilization for EPI, the Chinese machinery of government remains one where top-down authority rules. However, it does so, not as a single flow from State Council downwards into sectors and across the territory, but as a multitude of ‘tops-down’, that is: the ‘leaders’ – common term to indicate directors, heads, chiefs, managers – operating *within* government administrations of all ranks, across all sectors, and territorial governance layers. At this micro-scale, authority flows almost exclusively from the leader downwards. Administrative culture, formal and informal rules and practices place most of the burden on leaders who exercise managerial and executive functions following a strict top-down flow of ideas and initiatives (interviews CG23, CG34, CG53, CG57, I1, I2, I11, I15): people prefer to follow orders from above, preferring not to “risk taking the initiative unless they are absolutely certain of all the facts... and that the outcome will meet the approval of the leaders”; promotion is best pursued by following the Party line and the leader’s requests (CG57). This multitude of leaders (often members of the CPC) wields significant authority at the micro-level, but rarely in pursuit of environment and sustainability objectives. An interviewee from a Chinese think tank (TTC1) argues that “the leaders do not really understand” sustainability and that sectoral thinking continues to perceive environment as a separate area and concern. Oftentimes there is either little clarity as to who ‘leads’, or the individual in charge does not have the authority (and/or rank) required (interview I11, and experience through the China-EPI-SEA project). A situation described in Lieberthal’s seminal work as one ‘in which no single official has command authority’ (1997:6) over the range of actors typically involved in the cause-and-effect chains underpinning sustainability challenges (see examples relating to assessment and clean production: Bina, 2008; Gu Lixin and Sheate, 2005; Huq *et al.*, 1999).

Put simply, unless leaders have an interest in EPI-related objectives, it is difficult to pursue these through China’s vast machinery of government, and given the limited capacity for mobilization from the Centre, dilution of the original *commitment* seems inevitable. Abundance of leaders does not translate into EPI-related leadership, and this also helps explain the limited implementation of *procedural* responses (above). The multidimensional fragmentation, weak leadership for EPI-related objectives, together with the overlap between CPC’s power and administrative functions, suggests that the kind of *organizational* responses that would help reduce barriers and facilitate cooperation can only take place very slowly, in line with democratic progress encompassed in the scientific development ideal. And indeed, there are signs that China’s machinery of government is turning some of its unique features (and weaknesses) into levers of change.

Having identified important weaknesses in all three response-types (Figure 1), I now turn to potential new strengths.

## Towards fixing the disjuncture

Until now, the application of EPI as an analytical framework suggests that Lieberthal's (1997:3) reference to a disjuncture between 'promise' and 'performance' remains relevant today. However, EPI scholars acknowledge the importance of context in defining effective responses (Persson, 2004), and China's political and environmental contexts are witnessing dramatic changes. The Hu-Wen regime's concern with the controversial effects of rapid growth, excessive resource consumption, environmental damage and growing disparity between rich and poor, has resulted in a new 'prevalent frame' (Jordan and Lenschow, 2008:519) under the name of 'scientific development' (Hu Jintao, 2007; Shambaugh, 2008). This new conception of development is leading to initiatives that could turn some of the above weaknesses into strengths. I discuss these below, and then explore the proposition whereby the normative interpretation of EPI as principled priority could further strengthen these positive trends in China, facilitating the operationalisation of 'scientific development'.

### ***Building strengths: bridges between leaders, governance and procedures***

In a political system where the CPC is intent on retaining a monopoly of power through its 80 million strong membership and its control of executive and administrative power, EPI can only be delivered if leaders are capable and willing to do so. The changing context points to three levers for pragmatic answers: (1) the commitment to improve governance, (2) the widening of actors involved in EPI-type functions, and (3) the targeting of leaders and mindsets.

The first lever relates to the *normative* responses. The new scientific development concept includes the aim to improve 'the governance capability of the Party', establishing the 'institutional conditions' to direct, institutionalize and encourage scientific development, and – crucially for EPI and sustainability – to improve coordination between functional and territorial powers (Zhou Yan *et al.*, 2007; also: Shambaugh 2008). The priority is to strengthen leaders ability to implement the new view of development, promoting good governance through: the application of modern economics, science and technology, the rule of law, the scientific analysis of opportunities and challenges, and the fight against corruption (China Daily, 2007). In Hu Jintao's words: "[t]he government should expand political participation channels for ordinary people, enrich the forms of participation and promote a scientific and democratic decision-making process" (in: China Daily, 2007). The new development and governance path, approved of the 17<sup>th</sup> National CPC Congress, confirms the continuation of reforms, and transforms recent trends in public participation, the rule of law, and accountability, into new prevalent frames. Thus, it explains and supports the following two levers.

Consistent with *procedural* responses, the second lever is a widening of actors involved in EPI-type functions (Lenschow, 2002). As seen earlier, market forces are taking centre stage in relation to critical areas such as energy (interviews AC5, I15). The involvement of the public is being promoted, and despite setbacks, there is progress (interview TTC1, CNGO1). A third 'actor' is the judiciary, which though lacking expertise in environmental issues, has been increasingly involved in redressing injustices in line with top leaders' directives (Li Wenzhao, interview). The

importance of these steps should be seen also in the light of the critique whereby environmental issues have for too long been perceived as the sole responsibility of government, and oftentimes the Centre. The new actors could add persuasiveness to EPI commitments from the bottom (municipalities and provinces) up.

The third lever refers to *organizational* responses, and provides tangible evidence of the Centre's desire to improve leaders' ability to implement scientific development, thus strengthening that all-important 'glue' between commitment and procedures. Two initiatives draw on top-down mechanisms of evaluation and training (cf. Table 1), to target mindsets (Lenschow, 2002). The first is the officers' performance evaluation system, widely criticised for encouraging growth at the expense of social and environmental concerns (Cheng, 2007; Lieberthal, 1997). Despite Government's recommendations to consider less-intensive options for development, local officials continue to prefer high energy consuming and polluting industries because they raise profits, and – crucially – their chances of promotion (NDRC, 2007), together with family planning and workplace safety. This is set to change, precisely because of the high priority accorded to energy saving and emissions reduction and resource conservation, by the CPC and State Council, who manage the evaluation system (Fu Huahui, interview). Since 2006, with reference to the environmental goals of the 11<sup>th</sup> 5YP, State Council and NDRC are exploring new criteria for evaluating the performance of 'leading groups and leaders of local party committees', and government officials (NDRC, 2007:26). Zhou Dadi argues that "[e]nergy efficiency will take top priority in the promotion of officials" (Asia Times, 2006): in 2006 the Government ordered officials to reduce energy consumption per unit of GDP by 4 percent per year until 2010, and provincial governors signed agreements with the State Council promising to meet the targets (interview AC4). The second initiative goes to the heart of the challenges discussed here: the curriculum of the Central Communist Party School (CCPS) for training leading groups and leaders of local party committees. The pursuit of a more 'scientific' development, includes what Shambaugh (2008) defines as a progressively professionalized and meritocratic CPC, that acknowledges the need to be better equipped for the complex challenges that development in an interconnected world entails. The Party has approximately 2800 Central Communist Party Schools (CCPSs) throughout the country, focusing on mid-career training for party officials: they provide ideological training but also courses primarily aimed at improving governance (Shambaugh, 2008). A course can last between two months and a year, depending on seniority, and in 2007 34 Provincial-level and 284 Prefecture-level leaders were trained (Fu Huahui, interview). The CCPS is usually headed by a top official signaling that this is a position of the "highest importance", according to Fu Huahui, who heads the *Sustainable Development Training for High Level Policy Makers Project* of the Global Environment Institute (GEI).vi GEI, with UK and USA support, is developing five new elements of the curriculum: environmental policy and incentive mechanisms, urban smart growth, sustainable energy policy, sustainable rural development, and climate change. Harnessing the well-established party schools to the objectives of sustainability and EPI could be an effective way of strengthening learning within the administration, and eventually the implementation of the procedures and tools in Table 2.

## ***Making EPI a principled priority of scientific development***

The three changes above are however, mainly a promise of more effective EPI in the future. Of the many questions and doubts that could be raised (the most obvious being Liebenthal's maxim that 'promise' has repeatedly not led to 'performance'), there is one that relates to the 'basic requirement' of scientific development: to achieve a 'comprehensive, balanced and sustainable development' (Zhou Yan *et al.*, 2007). The emphasis is on "balanced" (interview AC7), and the objectives in the equation are 'people first', economic growth, and resource distribution and conservation. Given the complexities of multiple fragmentations (rank, function, territory) and the difficulties faced by leaders and leadership, achieving balance is precisely the challenge in need of direction. All the more so in the light of new evaluation and training requiring that the rhetoric of scientific development is translated into governing mechanisms and decision-making rules that can assist leaders in the day-to-day choices between the invariably conflicting concerns and objectives of such development.

This is where Lafferty and Knudsen's (2007:23) proposition whereby EPI, if adopted as principled priority, can act as 'governing mechanism' becomes especially relevant to China. The scholars (2007:16) propose a definition and decision-making rules based on such principled priority that can direct choices and 'trade-offs', and the promotion of 'decoupling', as part of the new development path for China. Lafferty and Knudsen's (2007:18) define EPI as:

'the incorporation of environmental objectives into all stages of policymaking in non-environmental policy sectors, with a specific recognition of this goal as a guiding principle for the planning and execution of policy'

and specify that such 'guiding principle':

'should be accompanied by: an attempt to aggregate presumed environmental consequences into an overall evaluation of policy, and a commitment to minimize contradictions between environmental and sectoral policies by giving priority to the former over the latter'.

No country has applied such demanding rule in the systematic way implied by principled priority status (Jordan and Lenschow, 2008). However, China presents unique features that make it an almost *inevitable* candidate for such decision-making rule. China's 'ecological crises' (Liu Jianguo and Diamond, 2008:37), are the result of a combination of extreme features: population size and related impact, a limited per-capita resource base, the scale and pace of growth (and urbanisation), inefficiency of resources management and use, and ecosystem fragility, which is being steadily worsened by the interplay between the previous four features (Bina, 2007). Environmental problems are exacerbated by extreme features, and result in economic costs, health costs and exposure to natural disasters. These 'crises' underpin the top leadership's strengthening of its commitment to a balanced and sustainable development (cf. DPSIR logic in Figure 1). China's extreme features, and the Government's concern with the limits – and inequitable distribution – of natural resources and the social unrest that these are triggering, suggest that the country is an ideal candidate for EPI as principled priority.

The authors acknowledge that such principled priority ought to be applied in a 'reflective, prudent and transparent manner'; nevertheless, they argue convincingly in favour of an assessment of the impacts of proposed decisions on 'life-sustaining

capacities' of ecosystems, and for the clear 'definition of those impacts that represent unacceptable risks of degradation' (Lafferty and Knudsen, 2007:24-25). And while decision-making rules would have to be adapted to the context-specific understanding of sustainability, namely 'scientific development', Lafferty and Knudsen's recommendation is remarkably similar to the rules governing China's Plan Environmental Assessment (PEA, see Table 2); a procedure that is already being promoted by the Government, precisely in connection with concepts of carrying capacity, but which would need significant strengthening (Bina, 2008).

## Conclusion

Applying EPI as an analytical frame has shown that the weaknesses of the normative, organizational and procedural responses in China are similar to those of OECD countries (Jordan and Lenschow, 2008). Admittedly, the range of opinions on China's future prospects for EPI and more sustainable futures suggests that it is not possible to draw definitive conclusions based on facts. Partly because information is scarce and often of poor quality (Song Guojun *et al.*, 2008), but perhaps also because the issue is daunting, and views on governance capacity will necessarily be informed by analysts' propensity to view the glass half full, or half empty. But China has been promoting EPI-related policies and tools only since the mid-1990s, and is doing so as a developing nation that has also pursued an average of 9 percent growth per annum for almost three decades. Developed, rich countries never witnessed the combination of extreme conditions that characterise China's situation today. Perhaps because of such characteristic – and against most evidence – many commentators are hoping that this country might lead the way towards sustainable futures. Embracing EPI as principled priority could well be the key to the outcome of the current China's great experiment: sustained rapid economic growth to be continued for decades to come, the world's largest population whose impact is growing and planned to grow into the world's largest internal market – all in a country with limited and rapidly deteriorating resources. Despite remarkable efforts to date, the resources and capacity to promote sustainable and environmentally sound development remain limited compared to those unleashed for GDP growth by Deng Xiaoping's reform era. A Chinese-style EPI could help redirect the momentum of three decades dedicated to a single aim: growth, at almost any price.

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## Notes

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- i After Homeyer (2006), governance is understood here as a broad concept ‘which may be synonymous to, or include government’, where ‘government’ refers to the traditional ‘governmental top-down decision-making and command-and-control enforcement’.
- ii The idea of *de facto* EPI has recently been explored in relation to practice in the USA (see Hoornbeek, in Jordan and Lenschow 2008).
- iii Throughout the paper I use “...” to indicate direct quotes from interview material reported in the press. I use ‘...’ to indicate all indirect quotes and standard citation from the literature.
- iv Based on the authors own database on news on China and sustainable development (October 2004 to date).
- v In 2005 State Council issued several documents to support these concepts and policies, including: Circular of the State Council on Key work of Building Resource-saving Society, Several Opinions of the State Council on Accelerating Development of Circular Economy, Implement the Scientific Concept of Development and Enforce Environment Protection (NDRC, 2007).
- vi Hu Jintao was President of CCPS between 1999 and 2002, and Xi Jinping, one of Hu’s potential successors became the new President in 2007.

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