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Research Note

The Interpretation of Ecological Modernisation in China

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Introduction

Today, ecological modernisation is a widely used concept, field of inquiry, and topic of debate in the environmental social sciences across the globe. Originating from a small number of European countries – most notably Germany, the Netherlands, and some Scandinavian countries – in the late 1980s, the concept became well known in other developed countries in the 1990s and 2000s, with the journal *Environmental Politics* being a key venue of the maturation of related scholarship and debates. But ecological modernisation made it also from the academy into practical politics, for instance, in the political programme of the social democrats in the Netherlands, the Green Parties in Ireland, Scotland and England and Wales, in the official environmental policy of Germany, as well as in the ideologies of some environmental NGOs in Europe. A key issue in the debate over ecological modernisation has been its relevance for developing regions and societies. Identifying some of the key characteristics and institutional underpinnings from where it originated in north-western Europe, various scholars have questioned the relevance of this concept for developing countries, both in explaining existing environmental reform patterns and as a normative concept guiding the planning of future green trajectories (e.g. Mol, 1995; Blowers, 1997; Buttel, 2000). Research on ecological modernisation processes and dynamics outside Europe and especially in developing countries has found mixed results: some found ecological modernisation useful for analysing specific environmental reform patterns (often related to globalisation tendencies, institutions and practices) (Sonnenfeld, 2000); others provided evidence of its limited

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explanatory value; still others hoped for ecological modernisation inspired reforms, but thought these unrealistic in the short term (Phung Thuy Phuong, 2002). Some recent studies have pointed to the rapidly developing Asian countries as places where concepts and practices of ecological modernisation could perhaps be most useful (cf. recently Sonnenfeld & Mol, 2006).

Against such a backdrop, the publication of *China Modernization Report 2007: Study on Ecological Modernization* by the Chinese Academy of Sciences (CAS) early this year marks the official articulation of ecological modernisation theory in China.¹ Here, it is not so much Western academic scholars using ecological modernisation ideas to interpret environmental reform patterns, practices and potential in China, as, for instance, in Carter and Mol (2007), but rather the CAS, a high level Chinese research institution with close ties to Beijing policy-makers and significant media impact, which has launched the 450-page report. In this research note, then, we aim to explain the background of this interpretation of ecological modernisation in China, review the contents of this major report and its (potential) impact in China's environmental politics, and discuss the specifics of this 'China-style' ecological modernisation *vis-à-vis* the European versions that have dominated the social sciences discourse on environmental reform to date.

China's Modernisation Discourse

Modernisation has been a century-old dream of the Chinese people, but emerged especially strongly after 1949 when the New China was founded.² Modernisation was related to 'catching up' with developed countries and served to push for extraordinary economic growth. In 1964, to catch up with the West, the Third National People's Congress set the objective of modernising agriculture, industry, national defence, and science and technology by 2000; this policy was called '*si ge xiandaihua*' (Four Modernisations). In 1975, the late Premier Zhou Enlai reiterated this objective.

No substantial steps were taken until the late 1970s, however, when Premier Deng Xiaoping introduced the 'open-door' market-oriented economic reforms, and elaborated a three-step approach towards modernisation: solving the problem of inadequate food and clothing; realising a comfortable life (both in the 20th century); and by the middle of the 21st century, achieving the aforementioned Four Modernisations. With these reforms, modernisation again came back in the political discourse in China, as a slogan and as a task to be achieved.

In the 1990s, a new version of 'Four Modernisations' was formulated, emphasising the coordinated modernisation of economy, society, politics and culture. This reformulation paid significantly more attention to non-material domains compared with the earlier (1964) 'Four Modernisations' that focused especially on the material dimensions of modernisation.

At the opening of the National People's Congress (NPC) in 2001, Premier Zhu Rongji announced that China had achieved the first two steps laid out two

decades earlier by Premier Deng (resolving inadequate food and clothing, and realising a comfortable life), as China's GDP had topped 8.9 trillion yuan (US\$800 per capita) by the end of 2000. In his address, Zhu suggested that the new millennium marked the beginning of the last of Deng's steps towards China's modernisation (realisation of the formulated 'Four Modernisations' by the middle of the 21st century). Since then, many of China's cities and provinces have worked out timetables for attaining these goals.³

As in other countries, research and policies on modernisation in China have made ample use of indices and indicators. In order to serve the implementation of modernisation goals, various Chinese governmental authorities, research institutes and local governments have been involved in the formulation, measurement, and monitoring of modernisation indicators.⁴ Although currently systems of indices and indicators vary depending on the perspectives of the individual researcher or the collective department, wide consensus exists in China today that a comprehensive modernisation index system must cover at least the domains of economy, social-cultural development and the environment.

The recent inclusion of the environmental domain in the official definition of modernisation in China mirrors the changing priorities of the Chinese state in what it sees as of key importance in its further and future – one would almost say: sustainable – development. It is no news that China today is confronted with an overloaded, overused and overexploited eco-system, which is threatening its rapid economic growth and up until now otherwise rather gradual transition process. One of the consequences of this environmental threat to continued modernisation is China's increasing orientation to look for natural resources elsewhere around the world (a strategy that Western countries have followed for centuries, and that Japan, for instance, has followed in the region since the earlier part of the 20th century).

Another, perhaps less well known, consequence is that the Chinese government has started to address seriously some of the environmental consequences of one-dimensional, economic modernisation. The so-called 'environmental storms' launched by China's State Environmental Protection Administration (SEPA) in 2005, 2006, and 2007, are some recent intensifications in environmental protection, succeeding in achieving some immediate goals. SEPA's deputy director, Pan Yue,⁵ however, acknowledges that in 2006 China experienced increases, not decreases, of some major pollutants⁶; more than 150 major environmental accidents; and a 30% increase in environmental complaints compared to 2005. Nevertheless, China's alarming environmental situation is forcing the central government to reconsider and adjust its trajectory of one-dimensional economic modernisation. The country's need for innovative institutional arrangements and alternative channels to mitigate the negative impacts of traditional, economic modernisation has been widely recognised.

Within such an historical context, the *China Modernization Report 2007: Study on Ecological Modernization* should be understood, then, as an urgent

and timely effort to insert ecological rationality into the modernisation discourse, policy-making, and practice in China.

Ecological Modernisation: Chinese Interpretations

Officially released on 27 January 2007, in Beijing, the *China Modernization Report 2007: Study on Ecological Modernization* (China Centre for Modernisation Research, 2007) enjoyed large scale media and public attention in China and around the world. Through its subtitle, literature review, and analysis, it officially and publicly introduced in China the concept, ideas, and scholarly literature around ecological modernisation. The background and positions of the experts and academics that assembled this report also indicate that the ideas conveyed in this report have been communicated with relevant governmental departments and may expect a warm welcome by the policy-makers.⁷

The 2007 report is part of a larger project on what the CAS has labelled 'second-time modernisation' (analogous to Beck's, 1992, second or reflexive modernisation). Whereas the previous year's modernisation report had focused on social modernisation (social welfare, equity, education, etc.), the 2007 report finds that 'compared with its social and economic modernisation, China's ecological modernisation lags far behind'.⁸ The 2007 report gives a quite down-to-earth picture, ranking China among the worst of all countries in terms of 'ecological modernisation', based on 30 indicators regarding ecological quality, ecological economy, and ecological society.⁹ This, too, differs significantly from the generally optimistic and sometimes glorifying descriptions and predictions for China, which had prevailed in the 2006 modernisation report.

But what do the Chinese mean by ecological modernisation? According to He Chuanqui, leader of China Modernisation Strategic Studies Group¹⁰ and principal author of the report, ecological modernisation is considered a major aspect of the reflexive/'second-time modernisation'. The first part of the 2007 report provides an extensive introduction to the history, core principles, developments and analytical methods of ecological modernisation theory, drawing on and entering into debate with Western ecological modernisation contributions from among others Martin Jänicke, Joseph Huber, Peter Christoff, as well as our own work. Overall, many of the key concepts of Western-style ecological modernisation theories can be found here, such as dematerialisation, the ecologising of the economy, decoupling, prevention and clean technology. Also the close relation between ecological modernisation and reflexive/second-time modernisation ideas are remarkably similar. But there are also a few remarkable new things, as well as several 'omissions'.

Among the new things is the refinement and differentiation of ecological modernisation. According to the report, depending on the modernisation stage a country is in, the pathways towards ecological modernisation can be different. Figure 1 shows three pathways of ecological modernisation for

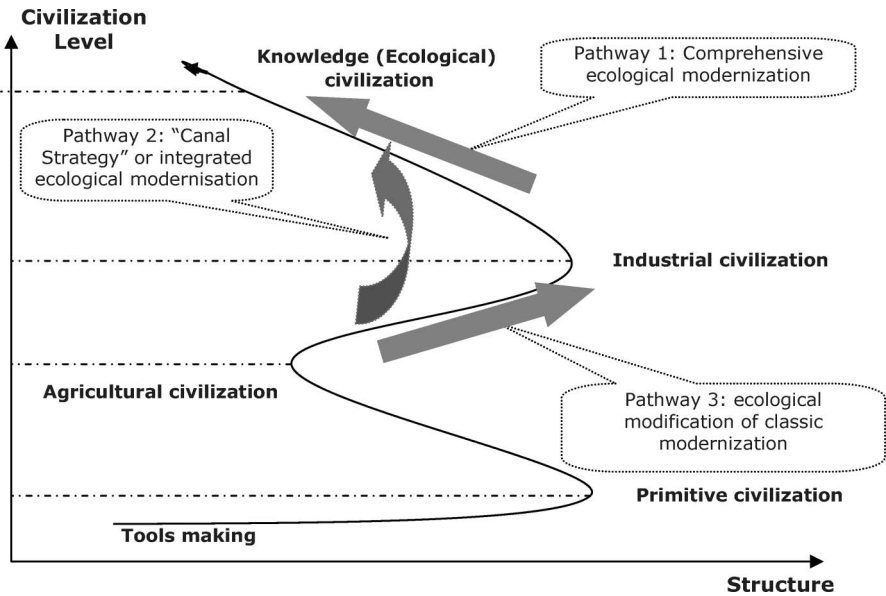


Figure 1. Pathways towards ecological modernisation. *Source:* translated and adapted by China Centre for Modernization Research (2007: 195).

countries at different stages of economic development/modernisation. Pathway 1 (labelled comprehensive ecological modernisation) applies to the highly developed countries where ecological modernisation takes place through dematerialisation, decoupling and ecological rationalities. Pathway 2 (labelled integrated ecological modernisation) applies to developmental countries that take a short cut (the Canal strategy) towards an eco-modernised society by focusing on accelerated greening industrialisation and ecologising economy towards a knowledge society. Pathway 3 (labelled ecological modification of a classical modernisation path) is relevant for developing countries that are still in the middle of conventional industrialisation and urbanisation processes ('first-time modernisation'), but modify these processes according to ecological conditionalities. In addition, for highly developed knowledge societies distinctions can be made between the 'idealist European model', the 'pragmatic North American model', and a 'realistic model' (for newly industrialised countries entering the second-time modernisation). This all seems a more refined differentiation than ideas of styles of ecological modernisation that have figured in the Western literature to date. But the conclusion seems the same: there exists no 'optimal' model for, nor unique strategy towards, ecological modernisation; ecological modernisation is very much time-place dependent.

Using this analytical framework, the 2007 report examines the status quo of China's ecological modernisation in terms of awareness and institutional

changes and concludes that China took off for ecological modernisation (pathway 2) from 1998, marked by the publication of the Ecological Environment Construction Plan in 1998 and ‘Guideline for Ecological Environmental Protection’ in 2000. Based on 2004 data, the 2007 report ranks China 100 among 118 countries regarding ecological modernisation level, not too far from the Environmental Sustainability Index of 2005 (Esty *et al.*, 2005; Table 1). In a similar manner, 31 municipalities, provinces and regions were ranked as well. Among the municipalities and provinces, the most ecologically modernised ones are: Beijing, Shanghai, Tibet, Qinghai and Zhejiang. At the bottom we find Xinjiang, Henan, Hebei, Ningxia and Shanxi. (246–7).

Looking into the future in its ambitious policy recommendations and projections, the report posits that, if the correct path is taken,¹¹ China’s ecological modernisation level could improve from the lowest to the third quartile by around 2020. It argues further that, if appropriate strategies, policies, and practices are established and successfully implemented, by around 2050 China could be among the top 40 countries in terms of ecological modernisation; and by the second half of the 21st century, among the top 20 countries in comprehensive ecological modernisation.

In comparison with the Western literature on ecological modernisation, a primarily economic-technological approach to ecological modernisation prevails in the 2007 report, with an emphasis on China’s major production sectors. Political modernisation, subpolitics, and the reinvention of environmental governance – as the more political innovations in ecological modernisation literature – are not referred too. Yet contemporary China is witnessing various experiments with new forms of environmental governance, for instance, with respect to public disclosures, public hearings and local elections. There is also limited attention to popular participation: the role of environmental NGOs and the growing influence of citizen-consumers that have increasingly dominated the Western ecological modernisation literature in the new millennium. But again, sprouts of civil society activism can be witnessed in

Table 1. China and other countries: EMI versus ESI

	Environmental Sustainability Index 2005		Ecological Modernisation Report 2007	
	Environmental Sustainability Index	Ranking among 146 countries	Ecological Modernisation Index	Ranking among 118 countries
Germany	56.9	31	93	5
Japan	57.3	30	84	13
USA	52.9	45	82	14
PR China	38.6	133	42	100
India	45.2	101	41	101

Sources: Chine Centre for Modernisation Research (2007: 322); Esty *et al.* (2005).

China today, with an emerging environmental movement and growing media reporting on environmental misuse. According to the main author, Professor He Chuanqi, 'in China with its strong government, NGOs are less relevant in ecological modernisation processes compared to Western societies' (personal communication, 2007). The influence of globalisation processes are also largely missing in the report. Given that, one could classify this report as belonging to the first or second – rather than third – phase of ecological modernisation scholarship, i.e. that focusing on technological innovation, and institutional and cultural dynamics, respectively, rather than on consumption and processes and relations of globalisation (Mol & Sonnenfeld, 2000: 4–5); or to a weak version of ecological modernisation (Christoff, 1996). This Chinese interpretation of ecological modernisation is thus primarily limited to the technological-economic dimensions of sustainable development, without entering too much into relations with equity, equality, citizen empowerment and the like. This is indeed partly a consequence of the Chinese state and dominant Communist Party, but current developments in China do provide niche examples that allow wider interpretations of ecological modernisation.

Implications

Even in the short time since it has been published, the 2007 report on ecological modernisation in China has had a significant, if still evolving, impact on the news media, in China's academic community, and on Chinese politics. Its long-term institutional and environmental impacts remain to be seen. It is not by accident that the Western ecological modernisation theory and practices attracted the attention of Chinese researchers in recent years. In general, ecological modernisation gets along well with the concepts that are currently popular and promoted in China, including the circular economy (namely, industrial ecology), green GDP (full cost, environmental accounting), cleaner production, and harmonious development. In addition, the modernisation debates still flourish in China and quantitative rankings remain dominant.

Interestingly, on 11 February, shortly after the release of the report, a separate report entitled *China's National Guideline for Sustainable Development* was published in Beijing by the Sustainable Development Strategy Study Group at CAS.¹² The sustainable development guideline is an effort of 184 respected experts and scientists and for the first time summarised sustainable development practices in China. It will be followed by regional guidelines for 34 provinces and regions. Although the latter report used a different theoretical framework, it also ends with rankings based on different indices. Clearly, *China's National Guideline for Sustainable Development* was less 'mediagenic', both within and outside China. By contrast, the 2007 ecological modernisation report had large press coverage, was widely discussed and reported by the media and on Internet, and met support as well as criticism. Criticism and debate in China focused on, among others, the selection of indicators, the reliability of data and the question whether the concept of ecological

modernisation brought anything new. By 8 February, a Google search showed more than 15,000 relevant results.¹³ Even stock market analysts paid attention to this report, forecasting, for example, that environmental industries will enjoy growth and official support in China in coming years.¹⁴

These two reports, along with numerous others, were published at the beginning of 2007 to serve the two major events of the Chinese political life: the National People's Congress and National Political Consultative Conference (both in March). And for that, the two seem to have succeeded: in his opening speech to the 2007 National People's Congress (5 March) – and in front of 3,000 delegates and the national and international press – Premier Wen Jiabao called for a 'leaner and greener' China, urging for more sustainable economic growth and warning that development was exacting too great a social and environmental toll.¹⁵ There are no signs yet how the proposed strategies and measures will be considered by the government, but this report presented a good example of social scientists effectively communicating with the political elite, policy-makers, news media, and the public.

But of course the real proof is 'in the pudding', that is, in the ultimate impacts of the 2007 report – and notions of ecological modernisation therein – on environmental governance, institutional reform, and environmental practices in China. In that regard, the authors deliver a clear message, advocating the establishment of a Ministry of the Environment, providing numerous suggestions for accelerating environmental policy- and law-making, more stringent standards, higher efficiencies, and the greening of urbanisation. The report's policy recommendations have their limitations, however, as they refrain, for example, from suggestions on more sensitive issues such as China's ecological shadow around the world, rising popular discontent over the country's rapidly worsening environmental conditions, the linkages with issues of democracy and equity, and the growing battles around land rights. Hence, the report forms a promising start for an ecological modernisation debate, but there is much room and need for further adaptation, refinements and debates.

Notes

1. Apart from this report, there has also been some recent research on ecological modernisation by Chinese academics. Most of these journal articles are in Chinese and focus on general introduction of ecological modernisation and its implications to Chinese environmental policies (e.g. He & Wu, 2001; Huang & Ye, 2001; Zhang, 2002; Liu, 2005).
2. The concept of modernisation first appeared in 1919, during the May Fourth Movement, when Dr Sun Yat-sen and others began to talk about China's future. At that time, modernisation meant a transition from a traditional agricultural society to a modern industrial society like the modern West, according to China's 'Modernisation: a historical survey', by Hongtu Li, available at: <http://w1.ens-lsh.fr> (accessed 10 February 2007).
3. 'Analysis: modernisation dream to come true', *Renmin Ribao (People Daily)*, 12 March 2001. Available at: <http://English.peopledaily.com.cn> (accessed 9 February 2007).
4. To name the major ones: the State Statistics Bureau introduced 16 basic index in 1991; a specific project team at the Chinese Academy of Social Sciences proposed a comprehensive index and indicators system in 2001 and 2003; a research group at the Development Research

Center of the State Council proposed another indices system in 2004 to guide the '11th Five-Year Plan'; a research group on sustainable development at the Chinese Academy of Sciences proposed indices and indicators within the framework of sustainable development in their report series *China Sustainable Development Strategy Report* since 2002; and various indicators used by local governments like Beijing, Shanghai, Zhejiang province, Jiangsu province, Guangdong province, etc. (He, 2006).

5. SEPA Deputy Director Pan Yue has been the main driver behind the three 'environmental storms'. He often publicly asks for help in his fight against the people he sees as behind the rising pollution. Cf. <http://www.h2o-China.com> (published 16 January 2007, accessed 18 January 2007).
6. China failed to achieve the environmental targets set for 2006 to reduce 4% of energy consumption and 2% of pollutants emission. This makes it very difficult to realise the targets set in the '11th Five-Year Plan (2006–2010)' to reduce pollution intensity per unit of GDP by 20% by the end of 2010. Available at: <http://www.h2o-China.com/news/45257.html> (published 16 January 2007, accessed 18 January 2007).
7. The consultancy group of this project includes experts and scholars from the Chinese Academy of Sciences, the Ministry of Science and Technology, the State Council and Chinese elite universities (<http://www.modernisation.com.cn>).
8. *China Daily*, 29 January 2007: 3.
9. Ecological society refers to the environmental living conditions, with indicators such as safe drinking water supply, sanitation, life expectancy, and the quality of environmental service sectors.
10. This group works within the China Center for Modernisation Research. It was a small centre established in 2002, and is affiliated with the Chinese Academy of Science. The group studies industrialisation, urbanisation, secularisation and the improvement of social welfare and democracy, with a modest annual budget of 600,000 yuan (€60,000) to cover all expenses (<http://www.cas.com.cn>).
11. Ten basic principles, numerous measures and strategies, and lists of indicators for monitoring are proposed to further the ecological modernisation path of China.
12. As early as 1997, in order to serve policy-making in the era of knowledge economy, the CAS started to publish yearly reports, including *Sciences and Development Report*, *High-Tech Development Report*, and *China's Sustainable Development Strategy Report*. The last one was made by the Sustainable Development Strategy Study Group at CAS, which was led by Niu Wenyuan, a well known Chinese scientist in the field of sustainable development (<http://www.gh.cas.cn/html/Dir/2004/03/04/2105.htm>).
13. Interview with He Chuanqi, 8 February 2007 (<http://www.cas.ac.cn/html/Dir/2007/02/08/14/76/47.htm>).
14. <http://sc.stock.cnfol.com/070129/123,1325,2669997,00.shtml>
15. Premier Wen Jiabao's Annual Governmental Work Report at the opening session at the Great Hall of the People in Beijing, 5 March 2007 (http://news.xinhuanet.com/english/2007-03/05/content_5800800.htm).

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