

Green Goals, Governance Capacity and Innovation – 'Mind *and* Bridge the Gaps'

CCICED Issues Paper 2015¹

INTRODUCTION

We are on the cusp of a new, very pragmatic level of environment and development action globally. The new UN 2030 Agenda for Sustainable Development sets out a challenging set of goals and targets.² Hopefully there will be a strong outcome at the Paris UNFCCC meeting in December. These calls for action are being driven by the emerging green financial sector, leading businesses in fields such as clean technologies and energy innovation, and by the interests and needs of both industrial and developing nations. More than ever before, China is a prominent green development player domestically and internationally. Its commitments include substantial new financial inputs towards South-South Cooperation and China-US commitments on GHG reduction. There are assurances that China's flagship new international initiatives will be green from their start, including the BRIC Bank headquartered in Shanghai, the Asian Infrastructure Investment Bank (AIIB), and the 'One Belt One Road' (OBOR) effort to bolster trade and development along the land and sea ancient Silk Road routes.

Above all, China has signaled very clearly by recent domestic policy announcements and actions that it will show great perseverance in shaping new relationships for an Ecological Civilization, with much more emphasis on integrated and coordinated approaches starting with the 13th Five Year Plan (2016-2020).

Last year CCICED called for better understanding of the 'turning points' that could move China away from tipping points such as the air pollution crisis and towards improved environmental and ecological conditions. The major environmental problems now present within China have become leadership's key concerns threatening social stability, human health and ultimately the achievement of development goals. Thus it is reasonable at this stage of national development that environmental protection should receive considerably more attention in China than in some other countries.

2015: A 'Blockbuster' Year for Environmental Initiatives

Indeed, 2015 has been a 'blockbuster' year for environment and development reform within China. The revised Environmental Protection Law became effective on 1 January 2015. An Action Plan on Water Pollution has been initiated and the Air Pollution Act has been strengthened and will become effective in January 2016. Each

¹ The Issues Paper is produced for each CCICED Annual General Meeting by the CCICED Chief Advisors, Dr. Arthur Hanson and Prof. Shen Guofang, with inputs from various sources including the Chief Advisor's Group. This is the 14th such document.

² There are 17 goals and 169 target actions agreed upon by the United Nations General Assembly summit on 25 September 2015. See: *Transforming our world: the 2030 Agenda for Sustainable Development*. <https://sustainabledevelopment.un.org/post2015/transformingourworld>

month there have been advances in environment and development policy and practices, often linked in some fashion with the advice provided by CCICED in past years. Details of these advances are provided in the *2015 Policy Progress* report tabled at this year's CCICED Annual General Meeting (AGM). There is evidence that China's War on Pollution is working, at least with respect to air pollution. And there are many other promising signs of change, not the least of which is the remarkable initiative to bring about regional cooperative planning and management in the Beijing-Tianjin-Hebei region (Jing-Jin-Ji) covering almost 10% of China's population.³ This will help to create more liveable cities and emphasize regional air pollution control.

Increasingly investment regarding the environment is seen to be compatible with, or part of, the rationale for the *New Normal* of lower economic growth rate but with higher value added and better efficiency. Environmental matters are now anticipated to be one of the key drivers of China's new, high value economy of the future. The new economy will showcase innovation solutions based on green technology, improved green planning and management across many sectors, and with greater emphasis on the service economy.

The approach towards the process of green development is termed 'greenization' by Chinese leaders. The CPC Political Bureau at a meeting chaired by President Xi Jinping on 24 March 2015 introduced a guideline on conservation culture and highlighted greenization of production, the economy and lifestyles—with a focus on lowering resource consumption, boosting green industries and promoting a low-carbon, thrifty lifestyle.⁴ The Politburo leaders noted that greenization will contribute to "national soft power" and provide "a new advantage in international competition". This announcement has been followed up with the release of two major documents providing more detailed direction on reform for ecological civilization, also sometimes referred to as ecological progress.

The first document, released in April 2015, was *Opinions of the Central Committee of the Communist Party of China and the State Council on Further Promoting the Development of Ecological Civilization*.⁵ In September 2015 the CPC and the State Council released an integrated reform plan to provide medium-term policy direction (presumably to about 2030) for constructing China's ecological civilization. This document, which is being provided to all CCICED Members by the CCICED Secretariat, is quite remarkable in its scope and in the magnitude and difficulty of tasks.⁶ It proposes transformative changes of eight key systems (see Box 1). The

³ *Introducing China's Future Megalopolis: The Jing-Jin-Ji*

<http://blogs.wsj.com/chinarealtime/2014/04/04/chinas-big-ambitions-for-the-jing-jin-ji/> ;

⁴ *Chinese leaders push for 'greenization'*. http://news.xinhuanet.com/english/2015-03/24/c_134094125.htm

⁵ Sam Geall. July 2015. *Interpreting Ecological Civilization. Parts 1 (Vision) , 2 (Policy) and 3 (Standards, Mechanisms and Assessment)*.

<https://www.chinadialogue.net/article/show/single/en/8018-Interpreting-ecological-civilisation-part-one->

⁶ full text of the *Integrated Reform Plan for Promoting Ecological Progress* is available at: http://english.gov.cn/policies/latest_releases/2015/09/22/content_281475195492066.htm; also see Dimitri de Boer. *China's 'Ecological Civilization' Sets China on a Greener Course*.

<https://www.chinadialogue.net/article/show/single/en/8229-OPINION-China-s-Ecological-Civilisation-sets-China-on-a-greener-course>

framework of ecological civilization reform should be a potent driver since it provides for a longer term and integrated approach. The strategy can take off quickly if it is well embedded within the 13th FYP,

Box 1. Eight systems to be reformed for China’s Ecological Civilization.

The September 2015 Ecological Civilization Reform Plan document identifies eight systems in need of reform and strengthening:

- Property rights for natural resource assets;
- Development and protection of territorial space;
- Spatial planning system;
- Regulating total consumption and comprehensive conservation of resources;
- Payment-based resource consumption and compensation for conservation and protection efforts;
- Environmental governance system;
- Market system for environmental governance and ecological preservation; and
- Evaluation system for officials’ ecological conservation performance and responsibility for ecological damage.

These eight systems are described primarily in management reform terms rather than institutional terms, since there is much negotiation and work ahead to prepare for the follow-up institutional changes and reforms.

Performance Gaps

Despite the policy progress, plus some hopeful signs of ecological and environmental improvement, important gaps between expectations and performance still exist and, for some matters, are worsening. None could match the immediate drama and overt tragedy of the Tianjin chemical warehouse explosion in August 2015.⁷ The cost is high in terms of human loss and economic cost (measured in tens of billions of RMB). Yet the longer-term costs of persistent pollution such as urban air pollution are much higher still.⁸ The costs to Chinese society of climate change and poor land use practices such as soil and groundwater pollution are very high and likely will continue to grow. In fact environmental performance gaps are poorly understood and measured. Likely their full impacts are understated.

The capacity to fulfill environment needs is limited by institutional, financial and human resource shortfalls. Innovation efforts, whether technological, managerial or other forms, must be strengthened. In short, it is necessary not only to ‘mind the gaps’ so that progress on environment is even across a wide range of problems, but also to ‘bridge the gaps’ so that China can fully address its green development goals in a

⁷ *China’s State Council Probes the Tianjin Explosions.* <http://thediplomat.com/2015/09/chinas-state-council-probes-the-tianjin-explosions/>

⁸ <http://newclimateeconomy.report>; Feng Tei and Frank Jotzo. 2014 *Reaping the Economic Benefits of Decarbonization for China.* https://ccep.crawford.anu.edu.au/sites/default/files/publication/ccep_crawford_anu_edu_au/2014-08/ccep1413.pdf

fashion that leads to a value-based, transformative ecological civilization. Fortunately, this effort is entirely consistent with the new global aims such as the UN Sustainable Development 2030 goals, and a maximum 2⁰ C temperature rise.

The path ahead will depend upon a much greater investment on environment and development, with only a fraction of the funding coming directly from central government revenues. Thus innovative financial mechanisms are needed. The rule of law on environmental matters is still relatively untested, and needs some new laws plus considerable reform of existing sectoral laws. Enforcement must be strengthened and attention given to market based laws and regulations that will be of a more enabling nature. This is a decade(s)-long challenge. Overall, there are many shortfalls in governance capacity.

2015 CCICED Theme and Activities

Enabling Governance Capacity for Green Transformation is the 2015 CCICED AGM theme. Green governance requires an interactive relationship among government, enterprises and civil society (social organizations), with full recognition of responsibilities and approaches of each. Enabling conditions are needed so that all sectors/bodies noted above are able to make their full contribution.

In reality the relationships are still at a formative stage for the most part, with limited precedents for action. Information sharing is relatively limited still, and, as often noted in past CCICED studies, the quality of information remains a limiting factor. The move towards a market-based environmental regulatory approach is far from reality so that incentives are often weak or poorly managed. And in the case of the existing command and control system, enforcement policies are only beginning to be fully functional. Green governance capacity at national and local levels is still limited. Therefore a Task Force (TF) on National Governance Capacity for Green Transformation was tasked with assessing the current situation and recommending improvements. This has turned out to be a very difficult task.

This Task Force has been complemented by two others. The TF on Green Finance Reform and Green Transformation was initiated at precisely the right time, since this issue has received a great deal of attention internationally⁹, and that work has spilled over into China¹⁰. This TF has consolidated existing work and introduced its own ideas in order to provide recommendations that take China's situation and characteristics into account. A TF on Rule of Law for Ecological Civilization will provide its initial recommendations to the 2015 CCICED AGM. However this activity is the first major effort by CCICED to examine legal reform in a comprehensive way. The task is proving to be very complex. The legal work will continue, with a final report of this TF at the 2016 CCICED AGM.

In addition CCICED has carried out three Special Policy Studies (SPS) this year. These more specific topics are all of high significance at the present time: Eco-

⁹ UNEP Inquiry Report. October 2015. *The Financial System We Need. Aligning the Financial System with Sustainable Development*. 84 pp. <http://web.unep.org/inquiry>

¹⁰ See IISD 2015. *Greening China's Financial System*. <https://www.iisd.org/publications/greening-chinas-financial-system>

Environmental Risk Management; Soil Pollution Management; and Coordinated Actions for Addressing Climate Change and Air Pollution. All have provided insight into green governance capacity issues and in particular complement the work on Rule of Law, since they identify specific needs for regulatory strengthening.

From June 8-10, 2015, CCICED convened a meeting in Beijing specifically designed to tap into various sources of international experience relevant to the 13th Five Year Plan. This meeting brought together a very senior group of Chinese and international participants, including several CCICED Members. The participants met with CCICED's Chair, Vice Premier Zhang Gaoli.

The topics introduced above are considered in more detail below, along with nine issues of special note.

GREEN GOVERNANCE CAPACITY: CHALLENGES AND PROGRESS

Challenges

What makes the green governance challenges in China so complex, worrisome to government, and so difficult to resolve? In Box 2 examples are provided where reform is needed or is already underway. Such examples provide a partial answer to the question. Reform involves a full set of governance issues in every case: institutional changes, rule of law, better public supervision of development, and accountability for efficiency and effectiveness—full value for the large sums of public and private expenditure that will be spent on environment and development improvements.

Box 2. Examples of on-going environmental governance problems in China

- Magnitude of problems; and slow implementation for Water and Soil Action Plans in the War on Pollution arising from conflicting goals and ‘turf’ wars among ministries.
- Obvious problems with environmental risk planning and management; and lack of coherent national or local systems;
- Corruption in some environmental decisions such as EIA and inadequate oversight function;
- Limited supervisory role of the public, with inconsistent signals from local governments in particular; and ineffective working relationships between enterprises and government on environmental matters; overlapping and unclear mandates of government agencies;
- Divergence in environmental objectives between central and lower levels of government;
- Inadequate levels of staffing, and mismatched skills within some government units; and
- Reliance on administrative measures rather than fully developed Rule of Law.

There are a number of gaps where considerable attention will be needed in coming years. Notably, the gaps are not always about staffing, although it is certainly difficult to believe that the tasks ahead can be fully carried out without additional staffing in institutions such as Ministry of Environmental Protection (MEP). Even if there is a shift towards use of the market in regulations, and various self-policing efforts, it is essential to build further competencies nationally and at local levels.

What is essential is to recognize that government must work effectively with non-governmental organizations, community and enterprises, plus universities, international bodies, etc., in order to effectively address environmental governance. Much of the effort will have to be directed to creating enabling conditions so that all of the sectors/bodies above are able to make their full contribution.

More generally, capacity gaps are substantial in relation to the following general environmental governance matters:

- Communication;
- Credibility, trust and perceived honesty in environmental transactions;
- Institutional strength and coordination among institutions;
- Self-sustaining green financial mechanisms;
- Knowledge for adaptive planning and management;
- Performance: efficiency and effectiveness, timeliness, comprehensiveness.

There are other items that can be added to this list such as capacity to bring innovative technologies quickly and smoothly to the marketplace; capacity to promote and regulate sustainable consumption; capacity to monitor and control environmental health risks; and, in general carry out integrated regional ecological, natural resource and environmental management. This last problem is of considerable significance when it comes to linked issues such as land-based sources of marine pollution, and planning for urban regions such as Jing-Jin-Ji.

Many of the weaknesses and gaps have their roots in the overall governance system and in the accompanying financial mechanisms and legal framework. Yet, rather than limiting change to patch up existing arrangements, considerable work is needed to identify innovative operational policies and administrative measures that are as much as possible based on transparent and market-based approaches. Such points are often considered most important in China's economic reform, but they equally apply for environment and development concerns.

Progress

The good news is that for many issues, progress is being made, and this is making the outlook for green development quite positive. The examples below are indicative of why we should hope for more rapid progress in the coming five years:

- Enormous investment in War on Pollution;
- Strong emphasis on Green Development, Greenization and Ecological Civilization;
- Assurances that in the 13th FYP environment will be given major emphasis and with emerging signs of mid-term strategy;
- Revisions to environmental legislation, with enforcement action strengthened;

- Anticipated peak in coal use, and some indications of possibility for advancement of peak usage dates for other fossil fuels;
- Green development emphasized for China's international cooperation.

What makes the level of action on environmental matters especially significant this year is that they have taken place during a difficult time economically and administratively for China's central government. Challenges posed by the need to address a slowdown in economic growth, stock market fluctuations and bureaucratic slowness in dealing with structural changes have not moved the government away from its focus on environmental improvement.

In reality, arising from moderate economic turbulence and structural adjustment there may be some environmental benefits. The consistent call from leaders for further stimulus of the service economy should reduce energy consumption per unit of GDP. The concern for improved quality of development includes targets related to the environment. Renewed efforts to enhance market-based decision-making can be helpful if they include environmental regulations in the mix. In addition, technology, institutional and management innovation and deepening of economic reform will provide both direct and indirect benefits to environmental management and governance by enhancing efficiency. There also is evidence that the anti-corruption drive is proving to be of value for some aspects of environmental planning and management.

BRIDGING THE GAPS BETWEEN GOALS, GOVERNANCE CAPACITY, AND INNOVATION

Aspirations and Capacity

Given the growing emphasis on green growth and green economy globally, there should be many new possibilities for green innovation that can eclipse the current efforts for Clean Tech and other prominent goals of the past decade. The framework of Ecological Civilization should be a potent driver since it provides for a longer term and integrated approach to unleashing this potential. China can rely on the mutually supportive aspects of a growing and greener domestic consumption market plus increased green international trade opportunities.

China continues to set goals that are intended to solve specific problems, but in the process open new economic and social opportunities for its overall development—the case for low carbon urbanization, circular economy, green chemistry for industrial development, and building environmental cooperation into its new trade and development plans such as OBOR and the AIIB.

These aspirations continue to be pushed at high levels but governance capacity is still a major issue in their actual implementation. Technology innovations may be moved into commercialization quite quickly as was the case for both solar and wind renewable energy. However this innovation has encountered considerable difficulties since the smart grid technology implementation has proceeded more slowly. And institutionally, there has been foot-dragging on the part of the supply chain operators who prefer to deal with more traditional energy suppliers and specifically coal

suppliers. Internationally, China has met trade challenges that have hindered sales abroad of its renewable energy equipment. Thus the reality is that while installed capacity of the most innovative renewable energy sources has increased markedly, their actual contribution to green electricity supply may end up being below projected levels, a blow both to pollution reduction and to GHG emission control. This gap may become even larger as the level of installed capacity grows.

Concerning another green initiative—the widespread use of electrical vehicles (EVs)—the plans to replace government fleets with such vehicles and the subsidies provided for private owners will present major challenges. Recharging stations and their networks will require very careful planning to handle demand adequately. Also there are questions related to vehicle life cycle environmental impacts, especially those related to production and disposal of the massive battery packs. Unanticipated consequences of what may be a remarkably disruptive technology and the appropriate regulatory framework undoubtedly will arise. China has the opportunity to address these issues even if they occur at a scale that few other countries are likely to experience, since the government desires a quite rapid changeover for both environmental reasons, and to ensure that China is a leader in the full implementation of this transformative change.

Other examples could be provided, for example, the various eco-compensation programs in providing adequate safeguarding and improvement of ecological services. China now has the largest commitment of such programs in the world. The institutional framework is not adequate to ensure either optimal efficiency or effectiveness. In particular, there is not an adequate linkage of those receiving ecological service benefits (e.g., downstream cities) with those entrusted with safeguarding the benefits (poor upstream farmers). Similar examples bedevil sustainable management practices in nature reserves throughout China.

Newer programs present particular challenges for example the effort to establish ecological functional zoning and redlining throughout China. This topic was the subject of recent CCICED work and so will not be explored here. Another recent Chinese commitment is to put in place by 2017 a national carbon cap and trade system based on current provincial-level trial efforts. This system may become the largest such national system in the world. The administration will be complex, and potentially open to abuse if not carefully handled at sectoral levels. The point here is that for many of the measures contemplated in China's future environment and development relationship there are weaknesses and gaps in the overall governance system and in the accompanying financial mechanisms and legal framework. Thus important work is needed to identify innovative operational policies and administrative measures that are, as much as possible, based on transparent and market-based approaches.

Governance Capacity Criteria

Governance can be examined through many criteria. In Box 3 these criteria are clustered into what might be called a 'standard approach' that could be applied to any set of capacity concerns and a 'green alternative approach', which covers criteria that are more specific to environment and development. Both lists are indicative rather

than complete. A mix drawn from both sides of this box is desirable in order to strengthen green governance capacity in China.

Box 3. Standard and green alternative approaches to environmental governance issues.

Standard Approach	Green Alternative Approach
Law, regulation & compliance	Development supervision by the people
Institutional size and clarity of mandates	Collaborative planning & management
Leadership ability and commitment	Zero impact development
Skills development	Green taxation
Financing magnitude and distribution efficiency	Sustainable consumption and production
Other incentives	Green investment
Technology fixes and innovations	Integrated and coordinated planning
	Sharing Economy

Environmental Governance 2015-2030

A simple theoretical framework for environment and development capacity is shown in Figure 1. It draws together international experience as it has played out in various countries in Europe and elsewhere since the 1970s. In early years emphasis was placed on seeking compliance to detailed regulations, often mainly through command and control laws. This approach is necessary to a point but stifles innovation and certainly can have a dampening effect on those who wish to go well beyond what is specified by government, since there is little incentive, but perhaps uncertainty and even punishment in the marketplace for those who might wish to excel.

The next level is recognition that addressing environmental risk management can produce not only direct benefits, but also win support for new ways of approaching environmental problems. Thus, Responsible Care Programs sprung up around the world for businesses, often with a push from insurance and financial sector bodies who refused to deal with environmentally harmful situations. Within government, through proper environmental assessments, risks are reduced on development projects, and investments made more productive.

At another level, there are enabling measures to ensure new, non-polluting technologies, renewable energy and many other innovative solutions help to solve environment and development issues in ways that are good for economy and environment.

China is at a stage where all three levels are in play, although as various explosions at chemical plants have demonstrated this past year, the matter of environmental risk planning and management can be very weak—at least for some industrial operations. Furthermore, building an environmental risk system mainly around acute incidents may continue the trend of inadequate attention to cumulative risks. The ability to innovate with sustainable technologies is far from fully functional. And, the ability to

monitor and enforce existing environmental laws and regulations is still relatively weak. Thus the great challenge in coming years is to find the right balance among these three interacting macro-strategies.

Presumably over time the value of China's major investment in innovation will pay off handsomely since it may become much easier to successfully bring new products and methods to the marketplace. Hence China's national and local governments, its enterprises and, indeed, Chinese society should prepare to go quite far beyond what today might be perceived as difficult or even impossible to achieve.



Figure 1. Capacity levels for environment and development success.

Another way to look at governance capacity of a society to address environmental problems at various stages of economic development is through consideration of the Environmental Kuznets Curve (see Figure 2). This often-maligned (for good reasons) conceptual tool suggests that at a certain level of GDP or other measure of societal wealth there will be much greater demand for environmental quality. Certainly China is at or close to such a state at present. Thus environmental degradation should start to decline, with various turning points reached in the coming 5 to 15 years. It would therefore be fair to examine how quickly acceptable levels of environmental quality could be reached over each of the coming five year periods to 2030 and what environmental governance measures might accelerate the pace, or would the pace be determined largely by level of per capita income? At best this conceptual approach is likely to be quite crude.

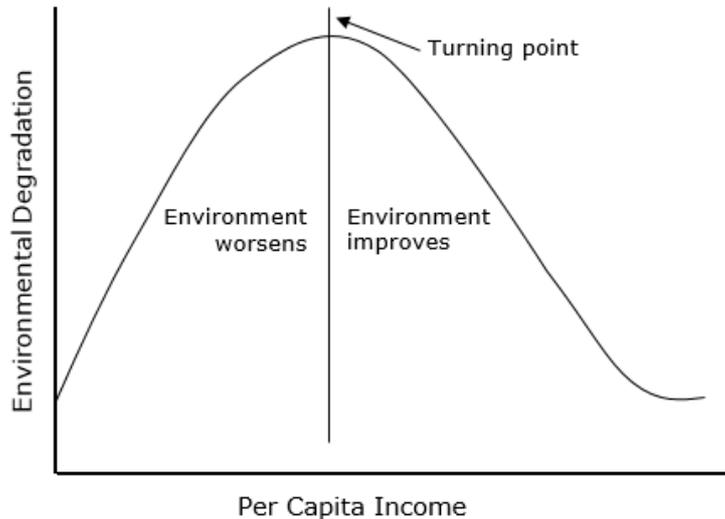


Figure 2. Environmental Kuznets Curve

13th FIVE YEAR PLAN CONSIDERATIONS

Most critical over the next five years is how various turning points for environmental improvement can be achieved. This must be done in a credible and enduring way so that people recognize the improvements as real and as contributing to the quality of life. How to fully address the great, still largely unmet need for adequate environmental protection action within all parts of China is a long-term issue. Thus a mid-term strategy is required, certainly from 2015 to 2030, and likely well beyond. Environmental progress made during the 13th FYP will be the opening for this longer-term success. The 13th FYP is a defining moment in the history of New China. A transition towards a modernized, much richer country; well capable of setting out the future its citizens want. By 2020, the aim is for all parts of the country to be ‘moderately well-off’ economically and in other ways.

The 13th FYP will be a time when China’s GDP is projected to rise above USD 10,000 per person. The higher level of income will be spread more evenly. Inevitably comparisons will be made with other countries at that same time in their economic development stage. However China will need to do more than achieve such a benchmark since it is already leaving the stage of being a low-cost workshop for the world, especially along in the provinces along its relatively rich east coast. These provinces, some of which are among the most polluted, need an accelerated path to better environmental quality.

The 13th FYP offers the opportunity to address the downside of its recent past—a legacy of pollution, over-exploited natural systems, and situations of unsustainable development in both cities and countryside. It will be an opportune time for incremental pressures on the environment to be relieved. Currently, the imbalances between environment and the economy in China are perhaps far worse than those experienced in parts of Europe say in the late 1950s and 1960s. Accelerated environmental action during the 13th FYP implementation could take China well above environmental conditions that many other OECD countries experienced at

similar points in their economic development during the 20th century industrial age. This is not a prediction, rather it is a hope or anticipation.

At CCICED's June 2015 meeting on 13th FYP preparations, participants contributed a wide range of suggestions, including those noted below. The conversations reflected a considerable base of experience covering both international and national experience relevant to China.

Take a Coordinated and Comprehensive Approach

- A 'whole of government' approach is needed in order to align action towards green development and ecological civilization. Integrate across government departments and agencies; also strengthen vertical linkages on environmental matters, ensuring local government has better means to successfully implement central government objectives. Set clear national objectives for environment and development rather than depend upon individual departments.
- Environment must be made a core pillar of development and as a stimulus to China's future growth.
- Ensure environmental issues are tightly linked to, and aligned with, overall deepening of reform.
- Now is the time to seek complex goal integration so that important development agendas do not collide with each other during their implementation. Rather, they should be complementary and synergistic.
- Set "stretched targets" that may be beyond immediate reach, but can take advantage of innovation.
- Establish improved cross-regional cooperation on pollution.
- Ensure binding targets are set for all pollution action plans. Overall, set clear milestones for 13th FYP and demonstrate how these can be of value for initiating longer term action.
- Air quality and pollution control should be considered together in order to optimize outcomes in an efficient manner.

Strengthen and Rationalize Institutional Roles

- Match fiscal strength to administrative needs and scale of activities, but avoid overinvestment. Work within fiscal capacity to avoid creating an excessive debt burden, especially at local levels where much environmental infrastructure expenditure must take place.
- Clarify institutional arrangements for separating protection and exploitation aspects of natural resources and environment issues. This is especially important for water, forests, and for marine and coastal issues. Independent supervision of environment and development should be improved.

Accelerate Pace and Efficiency of Implementation

- Focus on implementation effectiveness and efficiency, including zero pollution strategies, great reduction in energy and resource use ("Factor 10" in some instances), a green bottom line for industries, and green market supply chains.
- Move more quickly from 'pilot project to general practice' and from 'practice to habit'.
- Shift from 'learning to leading' in general approach and in various innovation efforts.

Link Economy and Environment

- Build into the 13th FYP a new normal model of economics that is respectful of environmental needs. Seek a model that does not trade off either the economy for environment, or environment for economy.
- Focus greater attention on jobs and environment potential. Shift tax burden away from labour and onto environmental polluters.

- Use greenization as a mechanism for change management.

Enhance Natural Capital

- Consider nature as “green infrastructure”, for example coastal wetlands as a frontline defence against storms and for water purification.
- Propose better means to recognize and strengthen role of natural capital in development. Ecological redlining is an important element and should be profiled in the plan.
- Strengthen integrated ecological civilization indicators such as ‘life indicators’ related to people feeling better off.
- Build programs for business, government and the public to understand dependence on their natural capital.
- Focus on ecological restoration and natural resources renewal, including biodiversity.
- Strengthen eco-environmental accounting in national accounts.

Diversify Regulatory Approach

- Develop regulations that cannot be easily avoided, ignored or overruled.
- Enabling legal framework is required in order to encourage citizens and enterprises towards sustainable practices. Strengthen and expand green procurement by all government-sponsored entities. Supporting the best rather than fighting the worst is a way towards successful transformative change.
- Develop market-based approaches to environmental regulation and management, including appropriate mechanisms to address market failure. Recognize the needs of both entrepreneurs (supply) and consumers (demand) in market based regulations and incentives.
- Build cap and trade pollution control initiatives in an adaptive fashion since their institutional arrangements and performance may be poorly understood at the start.
- Continue to strengthen green taxation initiatives. For example, carbon cap and trade is not mutually exclusive from carbon tax needs. They can be used together.
- Extend EIA law and regulations revision to all initiatives, not only construction.

Expand Efforts in Business, Financing and Investment

- Strengthen role of business, whether in production, finance, construction, tourism, or other fields such as environmental technology, as a partner of government for implementing green development.
- Expand use of PPP models (Public Private Partnerships).
- Encourage new green products as well as production efficiency and pollution elimination.
- Establish a *green investment forum*, a safe place for business and others to formulate advanced approaches for the business community to develop “enlightened self interests” and to uplift their greenization efforts. Could be tied to G20 meeting in 2016.
- Engage leading companies in order to change a whole sector.
- Focus considerable attention on greenization of SOEs but also how through actions of big companies, SMEs can benefit, for example through assistance on establishing green market supply chains.
- Improve procedures for scaling up investments from pilot-level to full implementation; debt financing mechanisms.
- Continue move away from high consumption, high pollution industry rather than transfer such effects to other parts of the country.
- Should enhance the overall thrust of development towards higher productivity and efficiency across the board. Not sufficient just to get rid of the bad, must also foster the good.
- Focus investment more clearly around sustainable green growth opportunities.

- Seek investments and standards that will foster genuine green leaps forward, for example CAFE (Corporate Average Fuel Economy) standards leading to breakthrough technology for lighter automobiles.

Improve Sectoral Action

- Focus greenization attention particularly on three key areas: mobility, buildings, and food.
- Make agricultural modernization a key contributor through: expanding role of green chemistry, improved processing, incentives for retirement of stranded assets such as some older agro-chemical industry.
- Focus greatest attention on newly emerging industries rather than supporting sunset industries.
- ‘Made in China 2025’ should have green goals for product quality and manufacturing improvement. Will require extensive commitment to green certification processes.
- Some areas for special attention include: water investments, energy efficiency, distributed power, housing, natural gas infrastructure, and parks.

“Going Green While Going Global” and “Planetary Partnerships”

- The BRICS Bank, AIIB and One Belt One Road (OBOR) should have state of the art green strategies.
- Seek environmental convergence among partners, for example on circular economy.
- Begin to shrink total ecological footprint of China.
- Innovation strategies will require greater use of international partnerships, CCS (carbon capture and storage) is an example. In some cases such partnerships could be valuable examples of S-S cooperation, for example in desertification.
- Public health and environment deserve to be considered as a higher priority for international cooperation on the part of China and other countries.
- Link Ecological Civilization and Planetary Boundaries as a framework for international cooperation.
- Consider implications for China of the G7 pledge to complete decarbonization of their economies by the end of the 21st Century.
- China should give priority to the 40 to 50 African countries seeking industrialization to foster green industrialization.

During their discussions with Vice Premier Zhang Gaoli on 9 June 2015, participants of the CCICED meeting noted that the opportunities associated with green development eventually will outweigh the challenges faced today. The 13th FYP is therefore a pivotal point in the transformative change towards ecological civilization. It is essential to set ‘stretch targets’ with the longer-term in mind. Green development must be seen as an important source of new jobs and the new economy. Governance capacity must be built within business and in the whole of society, not only within government. China is to be applauded for intending to make its new international approaches including the AIIB and OBOR compatible with green development.

The Vice Premier noted that “China will never export pollution to other countries” and that there is every reason to want green investment, with future urban development, for example, to be held to a higher standard. Vice Premier Zhao holds high hopes for China’s future environment and development, and for CCICED’s continuing contributions to this effort. He affirmed China’s strong commitment, domestically and internationally for the 13th FYP and beyond, to green development and to low carbon growth —“the right way to achieve national strength and to be accountable to our children’s children”.

NINE ISSUES

1. Equal status in decision-making needs to be given to environment as to economic and social matters.

CCICED has discussed this matter at the level of the Premier and Vice Premier, and placed it within our recommendations over the past several years. While generally accepted and with many initiatives now underway or planned, signals are still somewhat ambivalent. As an example, adding the word environment in the Five Year Plan subtitle (currently the economic and social development plan) would be a very important signal. It is unlikely that this will occur for the 13th FYP. However this is not the only change that would be helpful, as the examples below illustrate.

- The revised Environmental Protection Law is not a Basic Law and therefore lacks the full weight of some other legislation, by comparison to the fundamental law guiding agriculture, for example.
- Inadequate national and local systems of accounts and indicators. While China's central government has considered incorporating additional environment and development indicators in its accounting and decision making, plus downplaying to some extent the great significance of GDP as a measure of progress and goal attainment, so far green development measurement remains a patchwork quilt rather than a full green system of accounts and indicators.
- Impacts of environmental degradation in decision-making and in development monitoring are often seriously underestimated or even remain unknown, and therefore not given full recognition by comparison to social, economic and other development factors. Of particular concern are: environmental impacts on human health, full understanding of problems related to groundwater, soil contamination, trans-boundary impacts, and loss of ecological goods and services. Also for many projects during and after their completion.
- Unfunded environmental liabilities (e.g., soil pollution, groundwater depletion and air contamination, legacy mining and industrial sites, and land-based sources of marine pollution) are prevalent throughout China.

2. A 2015-2030 national environment and development legal reform plan is needed.

It will certainly take much more than a decade in China to reach a satisfactory level of legal revision to catch up with the efforts of the EU and some countries such as the USA, Germany and Australia on environment and development rule of law frameworks. Meanwhile environmental lawmaking will continue to evolve globally in response to frameworks for climate change, biodiversity protection, Law of the Sea, trade and environment, and various other aspects of sustainable development where China has an interest and that require domestic law adjustments to be compatible.

While China has made some important strides, it has been a slow process since reform of the whole legal system is involved, including the judicial apparatus that will accompany a proper rule of law approach. Legislative bodies such as the NPC are not well equipped in terms of their budgets and capacity to work at the pace needed for producing a whole reform package. In recent times it has taken periods of several years for laws to be passed. For every reformulated or new law regulations are required to make the law enforceable, and often other laws need to be updated. With the recent emphasis on ecological civilization and on market-based reforms, there will

be pressure for additional laws and revisions. It will be helpful to have a full plan to address these legal reform needs from a strategic perspective.

The second part of legal reform is the need for a more independent judiciary, and operating procedures to make the system more accessible to China's citizens. Over the past year or two, progress on this effort has taken place, including the initiation of environmental courts, with judges specially trained for such needs. As well, the courts are likely to be much more busy as enforcement measures are tightened under the environmental laws now in place.

A third component of legal reform is to provide enabling conditions for many of the emerging technologies and other aspects of modern business development in China. These needs range from environmental issues related to the many new investment and trade agreements being signed by China, the regulatory aspects related to intellectual property rights to the many new environmental technologies, plus the necessary legal frameworks for such technologies to thrive in China and abroad, for example, in the coming revolution of electric automobiles.

Some examples of specific legal issues include the following:

- By 2020 could there be a basic law on environment and development?
- Finding the right balance and complementarity between existing command and control laws and market-based laws and regulations that will stimulate greater participation in green growth and development by enterprises, the financial sector, and others who respond to incentives.
- The proposed national cap and trade program for carbon emissions is an example of a new type of environmental solution that will require very carefully prepared legal adjustments, and likely a considerable commitment to monitoring performance, potential fraud, and other matters.
- The need for a major effort to harmonize various sectoral laws such as water use with environmental laws; and to harmonize evolving international legal frameworks such as for climate change with national laws and regulations.
- It is essential that the primary goal of protecting public interests such as health and safety, and ecological services not be lost during legal reform. This has happened in a number of instances in some other countries, often due to intense lobbying by vested interests.
- Environmental law thrived in many OECD countries during the 1970s onward because the courts recognized the standing of environmental groups and their lawyers. Especially in the USA, this became an important, even essential element of the environmental regulatory system. China will need to establish where in the spectrum of rule of law and public participation it should place its efforts on opening its courts for citizens concerned about environmental progress and problems.

3. Coherent administrative approaches are still lacking for environment and development.

It is possible with the new Reform Plan for Ecological Progress that more rapid strides for administrative reform on environment and development can take place. However proceeding to do so in an integrated fashion for the eight systems in Box 1 is highly demanding. Especially so, given that there will 'pushback' from many

existing agencies, all seeking their own strengthening. Administrative reform is not simply consolidating departments and agencies into bigger units, or in establishing a substantial number of new coordinating entities such as leading groups or commissions. The reform requires fundamental effort to ensure that regulating bodies for environmental protection are separated from those tasked with development and exploitation of natural resources. The role of development supervision by local people, especially in areas of sensitive biodiversity and environmental conditions, and where substantial investments in eco-compensation are being made, needs to be strengthened as part of the administrative system. The following examples are among the most critical.

- Need resolution of fragmented vertical and horizontal authority for most types of resource and environmental concerns. It is quite possible to pick and choose among available administrative measures to find the most favourable for specific interests.
- Separation of environmental protection and exploitation functions needs to be secured in government nationally and locally.
- The Ministry of Environmental Protection (MEP) is not well enough positioned or staffed by comparison to environmental protection agencies in other leading countries. This is an important reality that should be addressed urgently so that staffing becomes consistent with level and complexity of responsibilities. If this ministry were to take on the additional responsibilities of green development, the need for a greater range of expertise would be even larger.
- Environmental oversight functions (e.g., for performance auditing, EIA and risk management, environmental health and safety) are scattered throughout government, and with limited connections between levels of government. This problem will grow in magnitude as more effort is put into the War on Pollution and new programs for Ecological Civilization, etc.
- The current effort to address corruption problems within government and business in China is highly relevant to a system that in the past has relied heavily on administrative measures with a high degree of individual discretion but without full accountability. It is necessary to tackle corruption issues for any number of reasons and certainly for addressing environmental matters. Environmental risks increase with corrupt practices, EIAs become of less value in decision-making, and public skepticism heightens with resulting social concerns. Sometimes corruption is considered the outcome of “alliances of power and money”. Good administrative practices can break such linkages and rebuild confidence in decision processes.

4. Streamlining of ‘Greenization’ processes.

This peculiar term—at least in its translation to English—is meaningful in China, since it opens the concept of green development widely across major sectors and into decision-making at all levels. It is a helpful communications means for leaders, businesses of all sorts, urban and regional planners, and also educators. The problem is that there is no standardized backup as to how greenization processes are to work. Therefore, well-meaning efforts, such as bringing new green measures into play during implementation of the 13th FYP, may become very complex and work at cross-purposes, especially among sectors. Streamlining is needed to arrive at conclusions quickly and efficiently. Otherwise green development will not maintain the good reputation that it deserves.

Greenization may be used as an excuse to slow down or stall initiatives unnecessarily. Premier Li Keqiang has noted the following conversation with a mid-level manager in government:

“We need to go through environmental assessment, water resources assessment and assessments on energy, work safety, traffic, geology, earthquakes, heritage, thunder, weather,” Li quoted the manager as saying. “He told me that it would take at least one or two years.” Li said some assessments, including those covering the environment and safety, were necessary, but some local government departments did not have enough professional staff to carry them out swiftly and efficiently. Some authorities ended up outsourcing the tasks to agencies who pocketed money from the deals, he said. “Some intermediary agencies wear the hat of the government, hold the whip to the market and collect money from businesses...”¹¹

The feeling is that by prescribing overly elaborate suites of analyses, some civil servants or cadre may be trying to avoid personal accountability by delaying decisions.

At various levels of government and enterprises, there also is a real danger that what should be a serious reform effort can be transformed into public relations ‘greenwash’ or worse. Thus ‘greenization’ should be subject to real scrutiny and made workable, with constant attention to ensure that the outcome truly does add value above and beyond other processes.

Streamlining could involve combining various types of risk assessments, including EIA. Or selecting simpler screening tools rather than unnecessarily applying full-blown analyses. Obviously these choices require rigorous oversight so that approval processes do not turn greenization into a rubber-stamp exercise.

Another approach deserving attention is to apply the principle of subsidiarity to green approval processes. Subsidiarity places the action at the most appropriate level of government, or of governance.¹² This has worked well in many settings, where a consolidated assessment takes place at the most appropriate level based on likely impacts and benefits. So, for example, a mine without major national environmental impacts might be assessed at a provincial or perhaps even a lower level.

5. Sustainable Financial Mechanisms for Green Development.

China will be among the largest, if not the largest, country-level investor in environmental improvements during the coming 10 years. When green development, including immense efforts to construct environmental infrastructure and new urban development is added in, the sums become enormous, as will be reported by our TF on Green Finance Reform and Green Transformation. Only a modest portion will come directly from government, perhaps only 20 or 30 %. Even that money will come

¹¹ South China Morning Post. 22 April 2015.

<http://www.scmp.com/news/china/economy/article/1773314/chinas-premier-blasts-delays-created-big-projects-risk>

¹² “Subsidiarity is an organizing principle that matters ought to be handled by the smallest, lowest or least centralized competent authority. Political decisions should be taken at a local level if possible, rather than by a central authority.” (Wikipedia). The concept is often exercised in EU governance where the broader concept of “most appropriate level” arises.

from many sources, including some not fully worked out. Cost sharing with the private sector and SOEs is important, including PPP.

China derives revenues nationally from the improved pricing policies for natural resources, from various environmental fees, and those amounts are likely to increase, although perhaps not at the rate of the recent past. China has not yet set in place property taxes in a fashion that can fuel local development and the running of local government, as happens in many other parts of the world.

Although there are efforts at the national level to identify what might be placed in a green tax system, so far there is no such plan in place. Prospects in the near term for a comprehensive environmental tax system would appear modest. The announcement of a national carbon cap and trade program to start in 2017 may signal an end to the idea for a widely applied carbon tax.

Nevertheless, funding for environmental purposes will continue to rise, perhaps for some problems, spectacularly so. The War on Pollution is targeted in specific ways and appears to be sufficiently funded for air pollution, and likely also for the water pollution priorities. Soil pollution is a puzzle still since no action plan has yet been announced. If experience elsewhere such as in Europe, North America and Japan provides a guideline, soil cleanups in China will be among the most expensive environmental remediation efforts.

There is an expectation that the polluter will pay in China, as elsewhere. There are various mechanisms for this to happen, including special funds linked to mine approvals, etc. However the systems in place are not that mature, and also subject to many factors of ownership and allocation of responsibility, for example in the Bohai Sea oil rig spill earlier in this decade. The general pattern emerging is to set in place reasonable mechanisms for ensuring full financial responsibility lies with those deriving benefits from the use of the environment. This is obviously wise, but the mechanisms to do so require considerable refinement.

Banks and other financial institutions are now required to undertake due diligence so that loans are not made for initiatives causing undue environmental damage. They can do more such as providing concessional rates for green development. They also are important as a source of funding during the commercialization process for novel environmental technologies or other innovation products. Angel investors and other sources of funds from both Chinese and international investors can appear like magic—or not. Joint ventures on a massive scale have helped to modernize industrial bases and put in place advanced power plants. FDI is an important source for many of the environmentally-advanced production facilities operating in China today.

In the near future it is possible that green bonds, a green development bank and various other excellent models for funding green sustainable growth will be well established in China. Some of these sources will also support Chinese efforts internationally, for example through the AIIB. The move towards green financial mechanisms will likely come swiftly and therefore build momentum for green development—as long as the playing field is kept level and open, so that wise investment choices are made. These last conditions will depend upon freedom from

corruption, cronyism, and special interest tampering, especially by local and other vested interest.

Sustainable green growth in particular will require deeper understanding than now exists in order to ensure large sums are not lost on unsuccessful initiatives. Just as there was overinvestment in wind and solar due to failure to take into account demand side considerations, it will be necessary to pace investment in other green development efforts at a rate determined not by the supply side, but on the absorptive capacity and demand. This is particularly important for the massive urbanization effort underway in China.

What is needed is an integrated approach in the assessment of green development financing needs and performance. This capacity does not exist at the present time, either within the supreme auditing system, the individual departments such as the Ministry of Finance and MEP, and perhaps not within the National Development Reform Commission. It is a highly sectorized system, which often becomes part of the problem, as has been the case with the efforts to reform the national power grid and with public transportation systems, where efforts to modernize and to collect realistic levels of user fees have proved difficult.

The financial problems of sustainable green development become particularly acute when it comes to SMEs, the backbone of the Chinese economy. Smaller manufacturing businesses find it very difficult to undertake green upgrades without costly technical assistance and funds to install and maintain pollution control equipment. This is a problem that has so far not advanced much beyond the mechanism of closing down such businesses in favour of larger enterprises, and of advocating a service-based economy with lower pollution levels.

In times to come it should be possible to mobilize community-based funding sources for social organizations and other elements needed for greater public participation in environmental problem solving. In many other countries scattered throughout the world this approach has become highly effective. Whether for cleaning up a stream, or building environmental knowledge bases and safeguarding local environmental treasures, these groups become an essential part of the environmental governance capacity of a city, a province and a nation. China has its own local champions for the environment, and they do require a level of financial support that is at present generally much less than what is found in some neighboring countries.

A great advantage is that China can over time find the funds needed to make its development green and sustainable. However at present it is not at the stage where such funds are being allocated optimally, and therefore the outcomes are less likely to fully successful. These problems can and should be tackled vigorously during the coming FYP.

6. Integrated Green Innovation.

China will promote Circular Economy, Low Carbon Economy and domestic green consumption in its efforts to build an ecological civilization. China also has invested immensely in S&T education and institution building to support innovation. This is among the most impressive efforts anywhere in the world, but the real test will come

during the coming 15 years when the payoff is to materialize. Whether advanced power plants, great boosts to information technology, green cars, or advanced pollution control mechanisms, and better ecosystem management on land, water or sea, there will be a need to deal with whole system problems.

Integrated green innovation requires additional capacity to knit the many individual components of old and new solutions to individual problems into a more effective approach. This is the case for renewable energy options that can contribute, along with use of cleaner coal and greater use of natural gas, to coordinated efforts to reduce air pollution and GHG emissions by control of carbon black and nitrogen compounds from sources such as diesel engines and power plants. Another is the very major problem of substantially reducing non-point source agricultural pollution that affects success in the War on Pollution. A third example is the need to address the growing problems of solid waste accumulation. How can such waste be fully turned into useful resources throughout all parts of China? Is the answer more incinerators on the scale of the one now operating (and expanding in size) in Pudong, Shanghai?

These three examples are only a few among many others requiring integrated green innovation solutions. They are a far cry from earlier Circular Economy and other solutions that served China very well a decade ago, when it transformed recycling worldwide through demand for copper, paper and other commodities.

There are important ways to foster integrated green innovation beyond current efforts. One is to put in place better mechanisms to shorten the time for green innovations to be commercialized. This is essential since integrated green innovation requires all necessary elements to be available when needed. There also is a need for fast-tracking of regulations and approvals so that these do not become obstacles. Of great significance is the regulatory framework for Regional Green Innovation Planning, which currently is experimental and fragmented. A test will be the urban integrated planning for megalopolis areas such as for Jing-Jin-Ji. If successful, the result will be highly beneficial to the War on Pollution, green public transportation, enhancement of ecological services, and other matters that will improve quality of life throughout this large region.

7. Data Quality & Credibility.

China continues to suffer from various problems concerning data reliability and also incompatibilities of Chinese and international information. The problems are widespread, certainly not only for environment and development matters. They create credibility issues; and potentially, important decisions may be made based on faulty or incomplete information. Evidence of corruption in data gathering, analysis, and utilization, including “massaging” of information from local levels to higher levels, and in industrial reporting on environmental matters is a further cause for concern. Furthermore, knowledge sharing, while greatly improved, is still subject to many restrictions. A proper ‘scientific development’ approach depends on full data disclosure, transparency & openness concerning methodology.

These problems, unless resolved, will inhibit the success of ecological civilization initiatives and constrain green development efforts. Furthermore, they promote

skepticism on the part of the public, meaning a greater chance for a NIMBY reaction, or limitations on public supervision of development.

Given the expansion of academic centres on environmental science, planning and studies in China, with many now operating at provincial or lower levels, there are good capacity development possibilities. Also, environmental monitoring programs are likely to become much more rigorous and valuable sources of up-to-date knowledge. In the coming half-decade, these sources should be brought more closely into decision-making and made more helpful for broadening understanding of environment and development relationships.

What still is in short supply are the capabilities for integrative approaches to the problems highlighted in this Issues Paper. For policy formulation, assessment of progress, and for the adaptive planning and management of major initiatives, such analysis is essential. It requires teamwork consistent with the broad scope of ecological civilization, but also with the practical implementation insights offered by technical specialists, the public and by business interests.

It is often said that environmental agencies need to think of themselves as science-based organizations. They certainly need access to such skills, but also must have the ability to absorb scientific knowledge and further transform it into forms useful for governance. Organizations such as the US EPA and the European Environment Agency (EEA) have become very skilled at doing so. They are models for China.

8. The Need to Explore the *Sharing Economy*.

The Sharing Economy—now being highlighted in many countries as a consequence of difficult to govern internet-mediated innovations such as ride-hailing operations *Didi Kuaidi*, *Yidao Yongche* and *Uber*—is likely to become an important element of green development. It is anticipated that the concept of creating greater use of assets, whether an apartment, a car, a parking spot in a crowded city, or other underutilized real property, or services is a means to reduce ecological footprint, or planetary resources. The concept is not really new, except perhaps for the role of IT players such as *WeChat* and *Baidu*, which provide the connectivity (and sometimes substantial investment in the sharing economy companies) between those with particular needs and those who can supply these needs, often informally and sometimes without exchange of money.

According to Juliet Schor¹³, who heads a research network on the sharing economy, such activities fall into four broad categories:

“Recirculation of goods, increased utilization of durable assets, exchange of services, and sharing of productive assets...Many [sharing] sites advertise themselves as green and present sharing as a way to reduce carbon footprints. It is a truism among “sharers” that sharing is less resource intensive than the dominant ways of accessing goods and services (e.g., hotels, taxis, shopping malls) because of the assumed

¹³ Juliet Schor. 2014. *Debating the Sharing Economy*.
http://www.greattransition.org/images/GTI_publications/Schor_Debating_the_Sharing_Economy.pdf

reduction in demand for new goods or facilities. The actual environmental impacts of the sites are far more complicated...”

In a sense the sharing economy concept is close to China’s long standing model of political economy that involved sharing of land and other resources via agricultural communes. Even within urban hutongs there is a sense of sharing. The concept might be closely aligned to today’s ideals of ecological civilization and green development. Also, for *xiaokang*, the guiding concept for a moderately well-off society. Another way of thinking about a sharing economy is that it offers ability to do more with less.

Why should sharing economy be profiled on this short list of important issues for China’s future?

First, elements of the sharing economy, and the concept itself are under intensive scrutiny throughout the world, including within China. Undoubtedly it will loom larger in the policy debates of coming years, if for no other reason than the potentially disruptive aspect it may have on existing governance mechanisms for at least some goods and services.

Second, it is not very clear whether the net contribution of a sharing economy to the size of an ecological footprint is positive. As noted by Schor (2014):

“The ecological benefits of sharing are often seen as obvious: secondary markets reduce demand for new goods, so footprints go down. Staying in existing homes reduces the demand for new hotels just as tool sharing reduces new tool purchases. However, despite the widespread belief that the sector helps to reduce carbon emissions, there are almost no comprehensive studies of its impact...The ordinary assumptions about ecological impacts are generally about the first, visible shifts made by a consumer—purchasing used products rather than new ones, or staying in a private home rather than a hotel. To assess overall ecological impacts, however, we have to consider ripple effects. What does the seller or the host do with the money earned? She may use the money to buy high-impact products. Does the appearance of a market for used goods lead people to buy more new things that they intend to sell later? If travel becomes less expensive, do people do more of it? All of these effects raise ecological and carbon footprints. There is also the question of impacts at the level of the economy as a whole. The platforms are creating new markets that expand the volume of commerce and boost purchasing power.”

Third, as noted by the Economist¹⁴, “The sharing economy is the latest example of the internet’s value to consumers...This emerging model is now big and disruptive enough for regulators and companies to have woken up to it. That is a sign of its immense potential. It is time to start caring about sharing.” The term used to describe this form of use is “collaborative consumption”.¹⁵

Fourth, the sharing economy is an important bridge between environment, economy

¹⁴ <http://www.economist.com/news/leaders/21573104-internet-everything-hire-rise-sharing-economy>

¹⁵ Colin Shek.2014. *No Purchase Necessary*.

<http://english.ckgsb.edu.cn/sites/default/files/CKGSB201412-Online.pdf>

and social development. It provides an alternative approach for achieving sustainable consumption while at the same time developing new models for social networks, including trust-building between total strangers. As noted by Schor, “the uniqueness of this new sharing economy is that it mobilizes technology, markets, and the “wisdom of crowds” to bring strangers together”. In this sense, it may expand social capital as well as help the environment.

9. Taking Ecological Civilization Abroad.

The proactive stance of China towards international initiatives during in the past few years has opened unprecedented opportunities to ensure its efforts for a respectful relationship of people and nature can inform the actions of other countries and the international community. Already green guidelines for Chinese enterprises and development initiatives abroad are in place¹⁶, although it is not clear just how well they are operating in practice. At the 2014 APEC leaders meeting held in Tianjin, China a clearinghouse proposal to encourage green market supply chains was agreed upon and efforts are now underway.

New initiatives including the AIIB, BRICS Bank, OBOR and the various bilateral and multilateral trade agreements signed by China require specific operating guidelines on environment. These should be cast in terms of green development where appropriate, and in some instances could be used as the basis for ecological civilization initiatives. Chinese projects and companies operating in countries throughout the world, and particularly those in the countries of the South need to take special care in building local capacity for green development.

Achieving the new UN Sustainable Development 2030 objectives can be helped by China, not only through monies such as the USD 2 billion pledged recently¹⁷ plus loan forgiveness, but also through capacity building and the sharing of experience under mechanisms such as those being pioneered by the UNEP-Chinese Academy of Sciences International Ecosystem Management Partnership (IEMP)¹⁸. China also has committed RMB 20 Billion in its new fund for South-South climate change cooperation¹⁹. The sums announced by China at the September 2015 UN Summit on Sustainable Development will be supplemented in various ways, and are intended to meet sustainable development needs of some of the world’s poorest nations.

These recent Chinese initiatives have been applauded by leaders of many countries and international agencies. They represent new directions for partnerships and significant opportunities for spreading the ecological civilization approach and green development. In a sense they are a challenge to established ways of addressing development assistance. They will draw heavily on China’s own experience of poverty reduction, and on the scientific and other ecological and environmental

¹⁶ Hu Tao, 2013. *A Look at China's New Environmental Guidelines on Overseas Investments*. <http://www.wri.org/blog/2013/07/look-chinas-new-environmental-guidelines-overseas-investments>

¹⁷ Reuters, 26 September 2015. *China pledges \$2 billion to help poor states meet U.N. goals*. <http://ca.reuters.com/article/topNews/idCAKCN0RQ0HW20150926?sp=true>

¹⁸ <http://www.unep-iemp.org>

¹⁹ *Xinhuanet*, 15 October 2015. *International Community Lauds China’s Climate Fund for South-South Cooperation*. http://news.xinhuanet.com/english/2015-10/15/c_134716775.htm

efforts plus technological innovation now going on in China. They also can draw upon joint efforts with international organizations and other countries.

China also has a good track record of “greening” high profile international events taking place within its borders, including the Beijing Summer Olympics and the Shanghai 2010 World Expo. There are new opportunities, starting with the G20 Summit to be held in the Fall of 2016 in Hangzhou. It is logical to promote Green Financial Mechanisms as a key element for this meeting. In 2022, the Winter Olympics in Beijing can be another green showcase, hopefully focusing global attention on the advanced innovations for ecological civilization that China is implementing on a large scale.

China has taken on a large agenda that will expand its profile regionally and globally over the coming FYP and on into the next decade. It is reasonably prepared in terms of the mutual benefits it would expect to have through enhanced trade and improved relationships. Just as it must seek effective use of funds and Chinese expertise domestically, so also China must understand and act in accordance with the expectations and needs of its partners in other parts of the world. This will not be an easy task, since the countries and regions involved are diverse and in various ecological, social and economic condition.

CONCLUSIONS

Bridging the Gaps

The recorded voice and omnipresent signs to ‘mind the gaps’ are familiar to those who use subways and trains in many parts of the world. If we ignore the danger, we stand to lose life or limb. Similarly, for country and planet, if tipping points are reached in ecosystems, or if quality of life degrades, human civilization and planetary boundaries are in trouble. That is the essence of where we are heading today globally and in many countries.

However, ‘minding the gaps’ only makes us more aware of the dangers and provides some sense of how to avoid the worst. It is building the capacity to fully address the problems that is essential now. Over the coming decade it is unlikely that, either in China or elsewhere, environment and development needs can be fully reconciled. It will take a longer time for that to occur. That is why in this Issues Paper we talk about ‘*bridging the gaps*’. We can expect to change directions, see improvements, and open new opportunities using our best powers of innovation, financing and improved governance during this time frame.

A decade more takes us to the quarter century. By then it should be possible to have firmly established the pathway to an Ecological Civilization in China, and to see the influence this idea may have globally, no matter what the concept may be called outside of China. We must keep sight of the ultimate goals such as those set by the UN Sustainable Development 2030 initiative. And we must recognize the perseverance required for success. If we can successfully bridge the gaps, eventually it will be possible to *close* the gaps between aspirations and actual results on the ground. On the other hand, if gaps *widen* between goals and performance, more

tipping points will occur, making it hard to achieve satisfactory turning points, and adding to the marginal costs of achieving desired changes.

Three Important Observations

China's 13th FYP will be the "Final Sprint" to a 'Moderately Well-Off Society by 2020'. This is symbolically important since 2021 will be the 100th year anniversary of the founding the Chinese Communist Party. Therefore, considerable emphasis will be given to sustainable growth, jobs, and innovation to achieve this well-off status for all. However unless environmental problems are on track to be solved, the effort cannot be judged to be fully successful. It is for this reason that the 13th FYP must be a green plan. It is not enough only to emphasize environment within a single chapter.

China's longer-term environmental protection, green development and ecological progress goals will shift in response to both internal and international pressures. The coming three FYPs will perhaps be the most important to set the stage for longer-term environmental improvement, including matters related to peak fossil fuel use and peaking of Greenhouse Gas Emissions. There will be a need for 2030, 2050 and perhaps other plans related to China's mature stage of economic, social and environmental development. Visions, targets, and implementation strategies must be adaptive, and designed to take full advantage of emerging technologies and China's changing situation domestically and on the world stage. It is best to move beyond a "comfort zone" at each stage, since to do otherwise will constrain thinking and action to those technologies, management concepts, and perceptions of need of the day rather than for those of the future.

International Cooperation will play a larger role in China's future environment and development efforts. Greening of trade and investment will play a larger role in China's bilateral, regional and multilateral affairs. North-South green technology and experience sharing (e.g., China-US; China-EU, bilateral country arrangements, international business linkages, think tank cooperation) will increase in complexity and economic significance. South-South climate change and other topics will open new avenues for innovative cooperation. Global environment and development cooperative initiatives will expand via UN agencies, development banks, international environmental organizations, multinational enterprises, scientific organizations and universities.

Using Environment and Development Experience in Other Sectors

The experience of working through complex multi-stakeholder relationships and other challenges of environment and development problems likely can be applied to other governance issues found in China, locally, nationally, regionally and globally. In this sense, if environment and development is successful in its green transition, other difficult issues such as health system development, job strategies and transition to sustainable growth will benefit from the experience.