



China Council for International Cooperation on Environment and Development

CCICED Issues Paper 2018

Shocks, Innovation and Ecological Civilization A ‘New Green Era’ for China and for the World

Introduction

In 1970 Alvin Toffler published a “must read” book, which described the evolution towards post-industrial, information-oriented societies characterized by impermanence, and fear of the future.¹ *Future Shock* was written at the dawn of a global ‘new era’ initially dominated by wealthier nations that had new means of communication, almost unlimited mobility, and innovation led by the Bretton Woods institutions that set the stage for globalization of trade and investment. Particularly in the 1980s and 1990s, market forces ruled in the western world. Over time development benefits widened to include many developing countries, with poverty reduction for some, and dramatic economic growth in the case of China.

It can be argued that sunset for this particular ‘new era’ period was the 2007-2008 global financial crisis,² which exposed many governance issues, and created widespread antipathy towards excesses associated with globalization, and towards inequalities in wealth creation and distribution. Often this antipathy is expressed as rejection of expert opinion of ‘elites’, especially on the part of those who feel “left behind” in post-industrial societies. Today we see the rise of populism in many countries, and calls for major institutional changes—including a shift away from many of the international economic agreements that have shaped social and economic progress during the last 40 to 50 years. This has resulted in both political and economic shocks in nations as diverse as the USA, Brazil and Venezuela, the UK and some other EU members, and parts of Africa.

Coincident with the start of the 1970’s ‘new era’ was the emergence of environment and development as a major global concern. From the 1972 Stockholm Environment Conference to the UN SDG 2030 Framework and the 2015 Paris Climate Change Agreement, there has been a steady rise in concern for environment globally and at national levels. This rise has led to innovation technologies, planning and financing progress, and growing participation by business, communities and citizens. Despite

¹ Alvin Toffler. 1970. *Future Shock*. Re-published by Bantam in 1984. 576 pp.

² See Martin Wolf. 2015. *The Shifts and the Shocks*. Penguin. 528 pp.

this positive effort the threats to the planet's ecosystems and environmental protection have continued to become more acute and self-reinforcing.³

Now, in various parts of the world hard-won environmental progress is under considerable threat as a consequence of several factors including population growth, rising per capita consumption for wealthier countries, and extreme poverty. A new political pressure is the rise of populism as seen in the USA and an alarming number of other nations. This pressure is sometimes accompanied by a rejection of science, globalism, and governmental interventions such as green taxes.

The need for transformative changes to environment and development relationships cannot be denied. We know what is needed and the urgency of creating successful interventions. Indeed, through innovation there are many economic opportunities to be harvested through green development. Still, there will be shocks ahead. A bumpy ride can be predicted.

It is time for a 'new green era' to take hold—where environment and development issues are firmly linked and mainstreamed. We have the makings already in hand globally in the form of coherent, integrated development approaches via the UN SDG2030 framework, plus various global conventions, and environmental, economic and social institutions linked to the UN.

China's efforts nationally are supported by theory and practices for construction of an *Ecological Civilization* linking five key policy action areas: economy, social, cultural, environmental and political.⁴ The EU has created an impressive policy effort involving its member nations.⁵ However there is no guarantee of success, and even if goals are met, an ecologically and environmentally secure future will require much additional action.⁶ The decade ahead is significant, since option foreclosure is already occurring, and by 2030 unfulfilled tasks will be much more difficult, especially for water use, green urbanization, biodiversity conservation, climate change mitigation and adaptation, and sustainable ocean use.

China's New Era⁷

China has signaled at the highest level that the country has entered its own *New Era*. It is a time of definitive change with signposts: 2020 – a moderately prosperous society; 2035 – basic realization of socialist modernization; and 2050 – a prosperous, harmonious and beautiful country. This New Era is focused on the contradiction

³ The most recent warning was from the IPCC in October 2018 indicating that unless global temperature rise was maintained below 1.5 °C, planetary conditions for humans and natural ecosystems will face great difficulties. https://www.ipcc.ch/pdf/session48/pr_181008_P48_spm_en.pdf

⁴ See Xie Zhenhua and Pan Jiahua. 2018. *China's Road of Green Development*. Foreign Languages Press. Beijing. 302 pp.

⁵ For example, the EU Roadmap for a low-carbon economy by 2050; the environmental action program vision to 2050 on innovation, circular economy and sustainability.

https://ec.europa.eu/info/energy-climate-change-environment/overall-targets/2050-targets_en

⁶ See PBL. 2017. *The worldwide context of China's green transition to 2050*. PBL Publication 2982. 58 pp.

⁷ For a useful overview see: *China's "New Era" with Xi Jinping Characteristics*". 15 December 2017. European Council on Foreign Relations. China Analysis. 16 pp.

https://www.ecfr.eu/page/ECFR240_China_Analysis_Party_Congress_Ideology

“between unbalanced and inadequate development and the people’s ever-growing needs for a better life.” Emphasis is placed on the achievement of an Ecological Civilization by 2035. While these points largely focus on domestic action so people can pursue a better life, there is also much about the New Era that is focused at a global level. China is indicating that it is prepared to tackle larger roles for strengthening global governance.

The notion of a “community with a shared destiny for mankind” links China and the World, with commitments to take on roles in reform and development of global governance. Recent statements have committed China to greening of the Belt and Road Initiative (BRI), firm support for the Paris Climate Change Agreement, commitment to a China SDG2030 Action Plan, hosting of the Convention on Biological Diversity (CBD) 2020 COP 15 (Convention of the Parties 15) in China that will set 2020-2030 goals for biodiversity; and other commitments that demonstrate willingness to take on some leadership roles internationally, and in general, to become a more active player on global environmental stewardship. It is developing greater confidence in its own development model and its innovation capacity to achieve economic and some social goals. This confidence may make it easier to transfer this experience to others.

China’s New Era terminology arose from the 19th CPC Congress held in October 2017, with subsequent March 2018 National People’s Congress follow-up. It is largely based on President Xi Jinping’s efforts of the past five years and future plans of the Party and Government under the leader’s direction. The New Era signals a major national shift that will be played out in a global context where China is emerging as a strong player; and where other sorts of “rejuvenation” and “dismantlement” by some other countries or alliances are being proposed or undertaken.

Some of the most concrete examples in 2017 and 2018 regarding Environment and Development in China’s New Era have been institutional reforms intended to make resource and environmental decisions within China more efficient and effective. Also, reform of the country’s international development system; guidelines for greening of the financial sector; the green tax law implementation; and other legislative reforms. Punitive action against those Party Members and civil servants not obeying environmental rules, or engaging in corrupt practices has become severe. The same is true for enterprises. Environment is now ranked as one of the highest three priorities for government action.⁸

If China is successful in meeting its New Era aspirations, the consequences will be very positive not only for China, but also for many other countries, especially some developing nations. There should be benefits regarding global environmental conditions as well. There are some international expectations that China can play a leadership role on climate change, on desertification and on biodiversity conservation. In the case of oceans, China is a very important player in world fisheries and aquaculture, shipping, port development, the blue economy and biodiversity matters

⁸ A very comprehensive overview of Government of China action on environment is provided in *2017-2018 Progress on Environment and Development Policies in China and Impact of CCICED’s Policy Recommendations*. This document is prepared annually for distribution at the CCICED Annual General Meeting.

including migratory species protection, and regulation of trade in endangered species, and in the international shipment of wastes. China is heavily engaged in ocean science and technology, including arctic and Antarctic safety. China can become a major contributor to ocean use monitoring. These examples suggest China can underpin the effort for sustainable development globally. In doing so, China may even find broad support among other countries for its ecological civilization approach.

Global Green New Era?

What of the bigger picture for a Global Green New Era on Environment and Development? Will the 2020s become the decade of environmental improvement so badly needed at a global level? Or will goals of important initiatives such as the Paris Agreement and the UN SDGs be missed? Will global enterprises soften their commitments to environmental quality if there is not sufficient external pressure? Can hard-pressed cities throughout the world keep up with their low carbon and other green goals—and still provide for rapid urbanization rates?

Environmental Risks

Environmental risks are on the rise. And they interact with other risks in complex webs that can affect social instability, disease incidence and many other types of risks. The important point is that even as environmental issues become more important risk factors, their potential and real impacts often are being downplayed for self-serving reasons. Also, there is some degree of resignation—for example, the rise in occurrence and intensity of forest fires in various areas of the world is being considered as a ‘new normal’ as a consequence of climate change. Yet this may be misleading since it suggests a plateau in impacts when actually such situations can become worse and worse over time.⁹

Clearly, better environmental risk management at a global level is essential as part of a New Era where ecological safety, pollution control and environmental monitoring must prevail as essential conditions for staying within nine key planetary boundaries. The World Economic Forum (WEF) and others point to climate change as a major emerging risk to economic and other interests. This has been an important consideration for some time, as a consequence of rising claim levels from “natural disasters” such as floods. Very likely, the international re-insurance industry will become an essential driver for improved performance, especially for responsible environmental care and other programs involving financing. If enterprises in any sector are refused insurance, behavioral change takes place. Future shocks that potentially affect communities, ecosystems and economies should be a strong incentive for preventive action; and to some extent such efforts are taking place throughout the world.

Yet, as noted in the 2017 global risk assessment publication prepared for the WEF:

Global cooperation is under strain. Heightened domestic anxiety has intensified geostrategic competition. Advanced economies look to strengthen border controls,

⁹ <https://www.theglobeandmail.com/politics/article-a-summer-of-fire-heat-and-flood-puts-a-focus-on-adapting-to-climate>

*while climate change reform hovers under a cloud of uncertainty and trade agreements are collapsing.*¹⁰

‘Push and Pull’

Unfortunately, it is becoming clear that some of the future shocks likely to affect green global progress will likely to be driven by ideological, political or some poorly-founded grounds rather than acting on gathered scientific evidence of the urgent need for global and national environmental protection and mitigation. This situation is becoming apparent in statements and action on climate change, on biodiversity where international success is highly dependent of the quality of national action, and on trade and investment—where even the WTO appears to be under a degree of threat.

At present there is both push and pull globally. Much of the environmental push is driven by non-governmental organizations from both north and south countries, plus the well organized associations and research bodies that have been of great value in the international negotiations. Since the 2012 Rio+20 Earth Summit and follow-up for the UN SDG2030 effort and the 2015 Paris Agreement negotiations, there has been an air of optimism that a gateway to rapid progress is opening. Even with the US pull away from the Paris Agreement, and various other disappointments such as limited action on greening of trade and investment agreements, there is still hope that accelerated progress can be made between now and 2020, when further assessments will take place.

China and a Global Green New Era

What are the implications for China’s New Era and for Ecological Civilization in this turbulent global period? As always, there is opportunity in such times. First, by staying the course of innovation; second, by firm commitment to a forward-looking agenda of environmental improvement and investment in green development; and third, by enhanced participation in global green governance, China is already signaling its intent to each of these positions. And by committing to a green BRI, South-South Cooperation, and greening of international financing bodies such as the AIIB, China’s ability to work with developing nations on environment and development concerns will be strengthened. Such efforts will be particularly valuable if they can be linked to progress on the SDG2030 goals, and if countries are interested, promotion of ecological civilization.

China can be an important element in the push side of the equation. It will become more apparent over time that there are international competitive advantages to be had by pursuing green paths. This was demonstrated by Germany decades ago during standard setting for reusable and recyclable bottles. And by Denmark as it promoted wind power in the 1990s. China is betting on electric automobiles, advanced battery technology, and undoubtedly many other products and approaches being promoted for low carbon cities. China can expand its green approaches to food production, advanced circular economies, and innovative green practices for shipping and other forms of transportation, and in many sectors such as ecotourism, major sports events,

¹⁰ <https://www.marsh.com/content/dam/marsh/Documents/PDF/US-en/The%20Global%20Risks%20Report%202017-01-2017.pdf>

advanced water conservation, and green industrial practices for both large and small enterprises.

Potentially, China's biggest asset for promoting significant attention to a new era for green global action is its huge population—now 1.4 billion, about 18.5 % of the world's total. The shift from an export driven to a domestic consumption oriented economy offers many opportunities for decoupling future economic growth from environmentally damaging styles of consumption. China's ecological footprint has grown significantly over recent times. However, on a per capita basis, today's Chinese footprint is still well below what is found in major cities outside of China and in rich countries, especially in North America. The coming 5 to 10 years will be a deciding factor on how effectively incentives can shape consumption patterns towards greener, low carbon, circular economy paths. This is especially the case for food consumption, since China is increasingly dependent on imported sources to satisfy growing demand for meat and fish. Chinese consumers equate clean environment criteria with supply of high quality “pure” food. These are examples where green supply chains and standards become very important.

As China transforms into an ecological civilization domestically, there will be many ramifications for trade and investment both internally and abroad. Intermediary organizations such as those setting production standards and certification can help companies to secure markets. Enterprises selling green technologies, sources providing access to green financing, and IT organizations can all expect to benefit. Job creation through green development is an obsession, whether within China, or other countries. Transformative change toward ecological civilization will need to demonstrate employment opportunities that exceed those otherwise available (for example, those in fossil fuel industries) in order to popularize this “made in China” approach with wider audiences.

China can help move the goalposts for at least some of the SDG2030 initiatives by outperforming anticipated levels of progress. This approach was very helpful in securing the global success of the Millennium Development Goals (MDGs). By demonstrating rapid progress at an early stage, China not only showed the goals to be feasible, but also helped stimulate progress by others. We already know that even if SDG2030 goals are fully met by 2030, it is not enough to secure a sustainable future. To the extent that the pace of change can be accelerated in larger countries, time can be bought for the future.

Certainly, however, China cannot be expected to shoulder too heavy of a burden for either itself domestically, or on behalf of the world community. China has been quite explicit on this subject. This point is relevant to various reforms needed for global green governance. Means must be found to enhance the performance of international accords and to ensure that once agreed upon, they have a high degree of certainty regarding implementation. Also greater efficiency is required during implementation. At the June 2018 CCICED Brussels Roundtable various *synergies* were identified among the major global Conventions for Climate Change, Biological Diversity, and Oceans. Such an approach is not unique, but often the results have been paid only lip service. It is time to take full advantage of synergies in order to amplify outcomes. This is a topic that China could promote globally, and in its own initiatives.

It is fair to describe China as an emerging torchbearer on the international environment and development front. It can serve as a mediator between G7 and the G77. This role will be served well if backed up by *leading through example, leading through strategic allocation of its financial resources and growing bank of science and technology and expertise, and leading with various coalitions* for improving selected aspects of global green governance. In a world increasingly affected by the turmoil of change, China stands out as a nation equipped to be resilient and adaptive. These qualities are important at a time when polyvalent governance models are called for in order to provide flexibility and inclusiveness in addressing problems.

Innovation, Idealism and Pragmatism for a Sustainable Future

In summary, late 2018 brings the world to a brink characterized by major shifts including ecological local-to-global crises, deconstruction of important multilateral agreements, trade wars, post-truth societies, civil conflict and war with hardening of attitudes towards migration or even basic life support, and polarized views that are hollowing out centrist governments in many countries. Demographic trends include aging populations in some places, remaining areas of extreme and relative poverty, situations of extreme wealth concentration and environmentally unsustainable consumption, and rising levels of urbanization. There are unprecedented challenges and opportunities associated with the rapid rise of new technologies: the digital age including artificial intelligence, biotechnology and nanotechnology.

It is no wonder that shifts and future shock are a source of fear. Also that a sense of dystopia grips many people who see loss of work, loss of tradition and society as they know it, and in some cases corruption and mismanagement in governments at a totally unacceptable level. Yet there is also a sense of excitement and hope that drive many people in many locations worldwide. This hope exists not only for some who have prospered greatly in commerce or in professions, but also among those who may live modestly, but who now have better access to a better life including educational opportunities, health care and other essentials that include a voice in shaping their future.

Green innovation¹¹ often is perceived as the panacea to move our societies towards better times, greater prosperity, and with respect for nature. However, as we have learned on many occasions, innovation must be accompanied by deep and environmentally appropriate value systems. While such systems have gained ground, they are not robust enough yet. Especially when stacked against political decision making that favors short-term perspectives on problem solving, and entrenched special interests. What makes China such an important player for green innovation is that is attempting to build an ecologically based value system through its emphasis on ecological civilization; also that it has the means to act on a long-term vision. This

¹¹ See various examples: innovation and green growth: <http://www.oecd.org/innovation/inno/fosteringinnovationforgreengrowth.htm> ; potential consumer-oriented innovations: (<https://interestingengineering.com/21-sustainability-innovations-and-initiatives-that-might-just-change-the-world>); green urbanization: *Handbook on Green Infrastructure: Planning, Design, and Implementation*, editors Danielle Sinnett, Nick Smith and Sarah Burgess. 2015. Edward Elgar Publishing. 474 pp.; biodiversity conservation: <http://www.trustforconservationinnovation.org/sponsored/>

may lead to significant shifts in values and capacity in other developing nations, whether through sharing of innovative technologies, improved access to green financing, and management skills to accelerate the pace of green development.

It will take a strong and combined sense of *idealism and pragmatism* to realize better global conditions for nature and humanity such as those well laid out in the UN Sustainable Development Goals and targets now being pursued at national levels. Acting strategically on these, and with full commitment sooner rather than later is the challenge of the century, since failure to do so has terrible implications for the longer term and certainly for the last half of the 21st Century.

China is well motivated towards idealism through its emphasis on ecological civilization and its commitment to a New Era. And there is a high level of pragmatism in the strengthening of environmental laws and regulatory enforcement, institutional reform including the new Ministry of Natural Resources and Ministry of Ecology and Environment, and many other actions. It is very encouraging that environment and the War on Pollution are now given high priority. It is also apparent that China's population continues to place emphasis on a clean and safe environment as a key element for a better life. We can be reasonably assured that, despite the magnitude of challenges, China through its domestic efforts is likely to progress well during its journey away from tipping points, towards turning points, and eventually to national environmental quality and ecological security.

Globally, China is positioned to build competitive and strategic advantages as it opens new trade and investment paths, and commits to development in many neglected or difficult parts of the world. It has made clear that it will not do so at the expense of the environment. However, there are some skeptics on whether this is possible. This will clearly be one of the most important aspects of whether BRI and some other aspects of south-south cooperation are judged successful in the coming decade.

Realizing a Global Green New Era

As CCICED developed its Phase VI (2017-2021) research program considerable attention was given to the balance of activities focused mainly on domestic Chinese concerns and those addressing international issues. It is apparent that almost all activities now require a mix of both. Relationships are influenced by trade and investment policies including South-South Cooperation and BRI, the rising ecological footprint of China, obligations under international agreements, and trans-boundary impacts such as those associated with global climate change and ocean sustainability. As well, Chinese environment and development research capacity has expanded quite dramatically over the past decade. At the same time, the issues have grown more complex, with the need for integrated policy solutions. These factors also influence action at the regional and global levels.

The short list of questions noted below is helpful for determining priorities in existing and future CCICED work, and advice concerning the challenges and opportunities for a global green new era.

1. How can globalization be redefined along lines that respect *Planetary Boundaries*¹², and enhance *Ecosystem Services*¹³ worldwide? The innovation required will demand new coalitions and continued capacity development within all nations. It will test our capacity to build bridges across political ideologies and create widespread participation opportunities for citizens—rich and poor, young and old, women and men. Will green job creation, sharing economy and other socially relevant actions help in bringing populist interests on board?

2. How to buffer highly interactive environmental, socio-economic and political shocks while still continuing on a pathway of sustainable development at subnational, national, regional and global levels? Can new approaches such as ecological civilization materially help with this buffering, or open new pathways that avoid the shocks?

3. How can synergies and integrated planning for land, water and ocean use, human settlement, biodiversity and ecosystem services accelerate progress on meeting critical SDG2030 goals and other essential targets and make action more cost-effective? This topic is well discussed, for example concerning linkages between global conventions on climate change, biodiversity protection and but action lags.¹⁴

4. How can the digital economy contribute more effectively towards meeting the many challenges for developing sustainable production and consumption? Innovations such as applying block chain techniques related to the SDG2030 goals, green supply changes, advanced circular economy, and sustainable resource use, etc., are examples.¹⁵ The concept of the 4th Industrial Revolution is another.¹⁶ And the massive data banks of Google, Amazon, WeChat, Alibaba and others undoubtedly may lead to ways of changing consumer behavior towards sustainable development.

5. How might China play a greater and sometimes leading role to bring about improved global environment global environment and development governance? Participants at the CCICED Brussels Roundtable (see footnote 14) reviewed and generally agreed with a framework involving several key approaches:

¹² Four of nine *Planetary Boundaries* have been transgressed: “The four are: climate change, loss of biosphere integrity, land-system change, altered biogeochemical cycles (phosphorus and nitrogen). Two of these, climate change and biosphere integrity, are what the scientists call “core boundaries”. Significantly altering either of these “core boundaries” would “drive the Earth System into a new state.” <https://www.stockholmresilience.org/research/research-news/2015-01-15-planetary-boundaries---an-update.html>

¹³ China is now one of the leading countries in the world trying to define the significance of its ecosystem services and protect them through ecological redlining and eco-compensation. See for example Yang Bai et al. 2018. *Developing China’s Ecological Redline Policy using ecosystem services assessments for land use planning* <https://www.nature.com/articles/s41467-018-05306-1>

¹⁴ CCICED held a Roundtable co-hosted with the EU Commission in June 2018. See transcript on *Roundtable on Global Governance and Ecological Civilization*; Roundtable Summary Report; and Discussion Paper *Synergies for Improving Performance on Global Environment and Development Agreements*.

¹⁵ <https://blockchainhub.net/blog/blockchain-sustainability-programming-a-sustainable-world/>

¹⁶ <https://trailhead.salesforce.com/en/modules/impacts-of-the-fourth-industrial-revolution/units/understand-the-impact-of-the-fourth-industrial-revolution-on-society-and-individuals>

Leading by example involves developing efficient domestic processes and policies and thereby setting ever more ambitious national goals. This will support establishment of new global norms supporting environmental global governance. China has done so when it comes to developing green finance and also to a certain degree when it comes to setting domestic climate targets (nationally determined contributions under the UNFCCC process).

Leading by providing resources can be done by providing financial support along the line China already is pursuing when it comes to climate change and South-South cooperation. Other ways of providing resources including capacity building, sharing of policy experiences and sharing of green technologies.

Leading by coalition building is about building clubs of similarly motivated countries seeking to drive the international political agenda and providing ‘good examples’. Such clubs can be supported by linkages between different policy issues, e.g. seeking agreement on environmental issues through linkage to trade issues, cultural and educational exchange programs, etc. China’s Belt and Road Initiative provide a huge opportunity for such linkages and hence building of coalitions that may support environmental global governance.

Leading by increasing the knowledge base necessary for enhanced sustainable development and ecological civilization progress. Some areas of particular significance include sharing of knowledge on impacts from development, especially from novel forms of ocean development, co-management in marine and terrestrial ecosystems, and on-going efforts to define and improve ecological services.

CCICED Research Strategy in Phase VI

CCICED’s research activities are being undertaken via Special Policy Studies (SPSs) clustered under four Task Forces (TFs). Each TF has an emergent theme that will be explored over a period of years, informed by the more specific topics examined by the SPSs. There are eight SPSs at present, with three each in TF 1 and 2. TF 3 and 4 will have more SPSs added in the future. At present there is one in each. The selection of both TF themes and SPS topics and their work has touched on matters of high relevance to both China and the rest of the world. Titles of each are noted below along with a short description of emergent themes for each TF. The themes are subject to further elaboration and refinement during the coming year.

1. Task Force on Global Governance and Ecological Civilization

Emergent Theme: Acting on *synergies* among international governance agreements, focusing especially on the three SPS topics and on UN SDG2030 goals. Synergies should help to meet global, regional and national goals more quickly and comprehensively, achieve co-benefits, and provide greater resilience at an ecosystem and societal level.

1. SPS on China’s Contributions to Global Climate Governance

2. SPS on Post 2020: Global Biodiversity Conservation

3. SPS on Global Ocean Governance and Ecological Civilization

2. TF on Green Urbanization and Environmental Improvement

Emergent Theme: *Integrated green regional development*, while difficult, is essential to achieve comprehensive objectives and transformative changes for a Beautiful China and basic ecological civilization by 2035. This approach covers green urbanization with links to a revitalized rural, ecologically sound economy providing abundant ecological services. The Yangtze River Economic Belt is a very significant case, perhaps the most important in China.

1. SPS on Green Urbanization Strategy and Pathways Towards Regional Integrated Development

2. SPS on Ecological Compensation and Green Development Institutional Reform in the Yangtze River Economic Belt

3. SPS on Goals and Pathways for Environmental Improvement in 2035

3. TF on Innovation, Sustainable Production and Consumption

Emergent Theme: Ecological civilization is based on *green development principles being applied widely and consistently across all sectors*. But these are not yet fully understood or consistently acted upon by either consumers or producers. With China's rise in incomes, the country's ecological footprint continues to rise, and consumers do not have sufficient information or opportunities to make green consumption choices. Green supply chains (domestic and international) will help to change behavior. Innovative green technology in China eventually may surpass what happens elsewhere in the world, given the substantial investment and huge potential markets.

1. SPS on Green Transition and Sustainable Social Governance

4. TF on Green Energy, Investment and Trade

Emergent Theme: China's *financial investment at home and abroad must be consistently oriented to sustainable development*. Green energy is a very important element. International trade agreements, whether bilateral or multilateral, should be made consistent with the SDG2030 goals, and provide for inclusion of environmental considerations. Much of China's investment and trade will be with G77 partners, and therefore special attention is needed on greening the Belt and Road Initiative, including sharing of Chinese environmental experience.

1. SPS on Green Belt and Road Initiative (BRI) and 2030 SDGs

In dealing with complex topics like those outlined above, CCICED expects to keep a strong focus on the underpinnings, specific topics and then examining the interactions needed to make rapid progress to green development and sustainable development/ecological civilization.

Underpinnings refer to the cross-cutting concerns that are common to many situations and initiatives. These include green finance needs, institutional issues, rule of law, and social matters such as gender mainstreaming. The *specific topics* are matters such as appropriate green technology development, policy development for problems such as reducing the burden created by plastic debris entering the oceans, etc. *Interactions* are the value added through systemic approaches to problem solving, for example, finding co-benefits from various types of circular economy in green industrial parks.

In strategic terms, this means extracting greater value at three levels in CCICED work. (1) The insights provided from the individual SPSs. (2) The additional benefits of analysis within clusters. For example, the interaction between climate change and oceans And, (3) The ability to deal with green development in complex systems such as the YREB, or new urban-rural settings such as the state level Xiong'an New Area; and the Greater Bay Area (Guangzhou-Hong Kong-Shenzhen-Macau and other cities in and around the Pearl Delta).

These levels of analysis are intended to provide new insights into the issues China and others must consider in the pathways of sustainable development and ecological civilization. It will be challenging for TF co-chairs and SPS team leaders. We hope CCICED Members and Special Advisors will provide their expertise as well, for example in their inputs to the 2018 AGM Open Forums and in various roundtables.

Issues: Aiming High 2020-2035

In 2020 China will celebrate its achievements regarding a moderately well off *Xiaokang Society* free of the scourges of poverty and with much to showcase regarding environmental improvements. 2020-2021 is an important milestone on the way to constructing an ecological civilization by 2035. Getting there will be very difficult. China and many others must aim high. It is not a time to take small steps, or to hold back on action that can accelerate progress on green development. The time frame is only 15 years—only three five year plans for China's domestic green shift. And the time frame for important for major global transformations is even less, based on the SDGs, and the goals for climate change, etc. The issues noted below are among the most significant for a New Green Era that will be good for the planet and people everywhere. They relate to CCICED's work now and hopefully in the future. In the eight issues noted below views are slanted towards China's situation, needs and opportunities.

The 1.5 °C Challenge and Opportunity

The recent IPCC report on catastrophic climate change could not be more blunt. Boiled down to a single point it is that the world should “cut carbon pollution as much as possible, as fast as possible.”¹⁷ If we are unsuccessful in ‘bending the curve’ of global warming over the coming decade, we face a dismal future. Aiming at a 1.5 °C limit is a must. China is not anywhere close, even with the rather herculean efforts over the past several years. Nor are other countries. It is time to lead by example.

The institutional reform in China's government can help to accelerate progress. For example, it will open up more co-benefits with the War on Pollution. Additional opportunities will emerge once green technologies are widely adopted. China is likely to be the leading source of electric automobiles and perhaps become the leading large country in terms of low carbon economy. This will require even greater incentives that exist currently. Enterprises of all types must be committed. Cities worldwide are demonstrating their interest in holding down global warming. Indeed if they do not, they are highly vulnerable to impacts. China has the great advantage that much of its

¹⁷ <https://www.theguardian.com/environment/climate-consensus-97-per-cent/2018/oct/15/theres-one-key-takeaway-from-last-weeks-ipcc-report>

urban infrastructure still remains to be designed and built. Green urban planning must play a larger role. China can transfer experience, technology and in some cases supply investment funding directed to stringent targets in other developing countries. There is need for stronger partnerships since no country on its own can do enough.

‘Space for Nature’

The loss of biodiversity and ecological services continues throughout the world. The seeming inability to stem the losses despite well-intended plans nationally and globally presents a situation with the same degree of urgency as climate change mitigation. Nature has played second fiddle to short-term and long-term economic gain. Ecological restoration and biodiversity conservation is now needed on a grand scale. How grand it should be is an important question.

Some leading figures suggest we need to set aside half the planet to meet nature’s needs, and half for human material needs.¹⁸ This may appear to be a radical approach, but it may be equally radical to argue that all of the earth deserves to be managed for a strong respect for nature, with harmony between people and nature. The latter view might be taken for urban forests and constructed wetlands in cities. Or ocean space, which is three-dimensional, with much of its biodiversity found in deep ocean space, or carried in strong ocean currents between continents, such as whales and fish like bluefin tuna.

At present, China might well be close to half-protected status, with more than 15% of its land area in nature reserves, significant numbers of marine protected areas, and a large amount of its land and water area slated to be covered through functional zoning measures and ecological redlining. A lot depends on definitions, for example, does three month zero marine fishing areas in parts of China’s seas qualify as protected space? Arguably, yes. The important point is that China is deeply engaged in protecting nature in the quest for an ecological civilization. The country will have the first stage of a national park system in place by 2020. It plans to review the status and condition of the 12,000 nature reserves.

By hosting the Global Convention on Biological Diversity 2020 Conference of Parties (COP 15) China has an important opportunity to help set an agenda for action during the coming decade. This may be one of the most significant and timely opportunities for China to influence the outcome on the future state of the Planet’s life.

Greening the Blue Economy

China’s interests in the Blue Economy go from pole to pole and involve all maritime sectors. The capacity of China’s ocean exploration involves icebreakers, submersibles in the deepest trenches, and very advanced satellite remote sensing. In China’s EEZ and coastal zone there are serious problems of overuse, and conflicting priorities. Some areas such as the Bohai Sea and Yellow Sea need more attention to integrated, sustainable use management. China’s distant water fleet fishes in many parts of the world, and the government currently is taking various actions to address IUU matters

¹⁸ E.O. Wilson. 2017. *Half-Earth. Our Planet’s Fight for Life*. <http://books.wwnorton.com/books/Half-Earth/>

and other concerns such as fishing fleet subsidies. With modern technologies at hand, China can expect to play an important role in a new generation of maritime shipping, offshore mariculture, offshore energy production, and marine biotechnology.

Some Chinese estimates suggest that the Blue Economy could reach 30% of GDP by 2050 (currently it is about 10%).¹⁹ For this to happen sustainably would require a green development strategy far beyond action taken so far. A case in point is the need to address plastics (including microplastics) entering the ocean from Chinese rivers. Ocean sustainability governance is complex, with numerous international bodies involved. It is one of the most significant areas for China to engage more in global governance and research.

Zero Pollution Urban Strategies²⁰

While it may seem unattainable, zero pollution must be an ultimate goal for at least some elements of the War on Pollution. For example, through the switchover to electric vehicles. And in the use of heat pumps or other natural sources of energy, including wind and solar power, and cooling water from lakes and reservoirs. Avoided material and energy uses and industrial waste utilization can be linked to resource efficiency and both circular and low carbon economies.

A recent UNEP Report²¹ proposes stronger international action to tackle pollution. Five key messages are to: (1) exercise political leadership and partnerships to form a global compact on pollution; (2) establish environmental governance policies for priority pollutants; (3) developing a new integrated approaches for resource efficiency and lifestyle changes; (4) mobilizing finance and investment to drive innovation for new pollution control mechanisms; and (5) create advocacy for action so that citizens and enterprises reduce their pollution footprint. A zero pollution approach in China can be aligned with support for new livelihoods, quality of life, and good health.

Integrated River Basin and Coastal Zone Micro-level Management

Fine-grained planning and management strategies can now be carried out utilizing new institutional mechanisms and a variety of technological tools. While river basin commissions and other bodies can be very helpful, in the case of China, they have not had enough clout or accountability (in contrast with the Rhine Commission or some other bodies). The new system in China of river and lake chiefs, and now bay chiefs brings environmental management accountability to very local levels. For agricultural chemical and water use there is considerable progress in reducing input levels via use of drones, and other means of remote sensing for environmental plans; and real time interventions to address the vexing issues of non-point pollution, unauthorized alterations of coastal lands, etc. Ultimately every *mu* of land should be assessed for

¹⁹ Tabitha Grace Mallory. 2015. *Preparing for the Ocean Century: China's Changing Political Institutions for Ocean Governance and Maritime Development*. Issues & Studies 51, no. 2 (June 2015): 111-138.

https://www.researchgate.net/publication/303804064_Preparing_for_the_Ocean_Century_China%27s_Changing_Political_Institutions_for_Ocean_Governance_and_Maritime_Development

²⁰http://www.resourcepanel.org/sites/default/files/documents/document/media/irp_china_case_study_policy_briefs_ramaswami.pdf

²¹ Report of the Executive Director. 15 October 2017. *Towards a Pollution-free planet*. UNEP/EA.3/25 <http://web.unep.org/environmentassembly/report-executive-director>

ecological services, optimal sustainable use, and needs such as eco-compensation. Nothing short of a sustainability revolution will provide the social, economic and eco-environmental dividends needed.

The nature-oriented shift in use and ecological restoration underway in the Yangtze River Economic Belt (YREB) will benefit from a mountain to sea approach that covers all types of ecosystems and consideration of how they are linked and related to water uses. Hopefully the experience from integrated management in this very large and very complex system can be transferred to other parts of China, and for management of boundary waters.

From Environmental Protection to Ecological Civilization 2035

In recent years globally and in China we have seen that many older institutions and ways of doing things may hold less relevance to a new generation. Knowledge takes on less relevance as it becomes part of obsolescence, and sometimes even as it contributes to major improvements. Marketing shifts to disposable goods, with replacement even before the expected period of usability is reached. These and other trends can play out at all levels from individuals and households, to national and global situations. Turmoil can prevail, especially when governance lags behind the rate of impacts. There are numerous examples. One is the difficulty of implementing carbon taxes, even though conceptually rationale. Another is the perception of environmental risks—assessments of risk level often are much lower if it involves a personal decision compared to risk associated with governmental decisions. And a third is the well-known NIMBY (not in my backyard) phenomenon.

What can be promised today for times 15 years hence? Will people be addicted to automobiles as much as they are today? Will environmental health impacts rise even as pollution levels drop, given the aging populations in China and other countries? Will China's material well being be satisfied at much lower levels than in many western societies? Will emerging technologies provide net benefits for green development or mainly introduce new challenges for the existing problems? These and many other questions make predictions about 2035 difficult—and the situation for another longer-term milestone (2050) is even more uncertain. China has demonstrated that its target setting has produced many benefits over the past decades. It helps to build a degree of resilience as well.

A roadmap of key policies for the transition from a sector-based approach of environmental protection to a more comprehensive ecological civilization approach provides for additional perspectives. Generally, however, some of the economic models and other predictive tools that have been used in the past are too linear for the uncertain times ahead.

Green Supply Chains

The foundation of modern globalization, supply chains can be a means of ensuring good practices, of building capacity, of rapidly spreading the fruits of technology innovation, and for providing assurance to both producers and consumers that products are safe and produced with proper consideration of the environment. This is an idealized vision of supply chains—where standards are robust and transparent in

their application, and where a strong motivation exists all the way from raw materials to final consumer use and disposal. Environmental considerations should enter into each stage. Reality is often very different. Commodity supply chains are often in the spotlight, especially for situations that involve land conversion (palm oil, soy beans), uncertain chain of custody (distant water fishing fleets), illegal sourcing, failure to take into account circular economy considerations (disposal of electronic wastes), etc. Increasingly there is concern to ensure that carbon footprints are included, and undoubtedly other considerations such as impacts on the oceans of plastic products is addressed via supply chain controls.

Greening of supply chains is often seen to be in the domain of multinational firms that depend highly on maintaining their social license to produce and/or sell to consumers. Companies such as Walmart and IKEA and many others have made a genuine effort to make green supply chains an important part of their business strategy. And being part of a long supply chain can allow smaller enterprises to make or market products internationally. These SMEs may struggle to meet green standards without considerable assistance. And there can be differences between national and international standards. Such problems hinder the global progress towards green supply chains. Efforts such as 'Made in China 2025' could be helpful in encouraging widespread adherence to sustainability standards. Consumers need the help of enlightened marketers to provide reliable sustainability evidence and a broader range of green products. The huge consumer markets of China can influence the rapid introduction of new green product types while lowering the cost for everyone in the world. Illumination using LEDs is an example.

Linking Belt and Road with SDG2030 Goals

The current reach of the BRI is focused mainly on infrastructure improvement in partner countries, sometimes on a massive scale (e.g., in Pakistan) However over time it undoubtedly will include other components of trade and investment, some of which might accelerate the pace of meeting their SDG2030 action plan targets. The value of this linkage is that the results will be linked to national priorities; and for some matters such as climate change, or ocean sustainability will also contribute to global goals. There may be significant green opportunities, and also the potential to build a better understanding of ecological civilization. It would be helpful to build a 2035 green BRI strategy that takes into full account SDG2030 goals, and to periodically compare this with actual achievements over time in various countries, including China's own progress.

This approach would be in line with China's domestic efforts for 2035 environment and ecological progress. It also could be helpful in the reform of China's own development cooperation policies, South-South Cooperation on climate change and various regional concerns such as green development in the Greater Mekong Subregion.

Conclusion

This Issues Paper started with consideration of shocks and new eras. Many more could have been introduced, for example, the impacts of global demography with aging population in countries such as China; and countries populated by predominantly

young people. Certainly it will be hard to reconcile the intergenerational differences in needs, and perhaps attitudes towards green development. Some experts predict a substantial shock in the form of climate change refugees, and with that possibility, civil unrest and conflicts over land and water. Health and the environment will remain a major concern, especially around national and local capacity to deal with such matters. China has wisely taken this on board as a major political concern, although much more remains to be done—a major theme certainly to 2035. Other countries in Asia, including Indonesia, Vietnam and cities in India now face their own crises in air and water pollution. To what extent can China help by sharing its experience?

All these examples point to the essential role social and political dimensions will play in determining sustainable development and green civilization outcomes. The emerging New Green Era must pay great attention to these aspects, and build a positive dialogue around new job creation, healthy living in a clean environment, and efforts to narrow income gaps, including the social preparations for making a good living either in town or countryside. Of course transparency and opportunity for all people to contribute to green conditionality in their personal decisions and societal progress is essential. This makes gender mainstreaming so important in all countries. By any measure, we will not see full advancement to an ecological civilization until there is expanded recognition of the role non-state actors can play, whether as community leaders, business leaders, or as committed institutions that can provide R&D support, and those athletes, entertainers and many others, who change the public attitudes due to the respect and attention given to them by ordinary citizens.

Undoubtedly China will be a torchbearer for a green and sustainable world in this time rife with contradictions that threaten our future. Hopefully many others will continue to support such efforts.