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Education for Sustainable Development in China: A Review of Progress to Date and Future Prospects

In the period since the announcement of the Global Action Programme on Education for Sustainable Development (GAP) (2015-2019) at the Second World Conference on Education for Sustainable Development held in Aichi-Nagoya in 2014 considerable achievements have been made in education for sustainable development (ESD) in China. As theoretical research and innovatory praxis go deeper, we are sure to see ecological civilization and ESD become a distinctive mainstream strand in the overall onward advance of the modernisation of education nationwide and serve as important arenas for innovation.

Keywords:

Climate change - China - Education for sustainable development - Education for ecological civilisation - Peak carbon emissions and carbon neutrality

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Since the announcement of the Global Action Programme on Education for Sustainable Development (GAP) (2015-2019) at the Second World Conference on Education for Sustainable Development held in Aichi-Nagoya in 2014, China has engaged in a wide-ranging programme of theoretical research and practical innovation in education for sustainable development (ESD). Taking as catalyst the implementation of the range of policy papers promulgated at the Third World Conference for ESD held in Berlin in May 2021, the experts' group from the Chinese National Working Committee on Education for Sustainable Development (CNWCESD) has engaged in multiple exchanges and discussions with various higher educational institutions and primary and middle school principals from across the nation to review and summarise work advancing ESD in China over the past five years, and to look forward to identify the likely trends in development and key tasks ahead for ESD over the coming decade. This paper presents a summary of the outcomes of those engagements.

1. Summary review of ESD in China

Looking back, the achievements in advancing ESD in China over the past five years can be categorised under the following five aspects of work:

1. Study and dissemination of literature concerning ecological civilisation and ESD published by the UN, UNESCO and the Chinese government.
2. Carrying out theoretical research into ecological civilisation and ESD and publishing a series of papers based on the outcomes of that research.
3. Offering advice to government and advancing the inclusion of ecological civilisation and ESD in national public education policy.
4. Conducting research for innovation in curriculums, pedagogy and study to promote more meaningful content in schools and fostering a new batch of model schools and districts demonstrating ESD as catalyst for higher-quality education.
5. Running a range of activities helping foster the practice of sustainable living among young people and encouraging their participation in the building of a society founded on ecological civilisation.
6. Further improving systems and effective methodologies for sustainability training for principals and educators at both national and local levels
7. Creation and extension of a cooperative alliance for ecological civilisation and ESD in partnership with other stakeholders such as

certain social organisations, museums and enterprises.

8. Consolidating a platform for the collection, archiving and exchange of ESD-relevant information plus related services, including print magazine, website and WeChat public account formats.

9. Assembling an accomplished team well able to conduct research, organise work and offer guidance for ESD.

10. Setting up a robust international network of ESD specialists and platforms for exchanges.

In summary, the value of the successful experience and innovation embodied over the course of implementing ESD programmes in China over the past five years and longer includes:

- guaranteeing that research programmes for ESD are characterised by correctness in direction, being forward-looking and in the value of the guidance they offer, because there has been an emphasis on aligning the top-level design of theoretical and practical research to the demands of trends in social, economic, environmental and cultural sustainable development at the global level and the requirements of the domestic building of an ecological civilization;

- attaining high levels in research into educational theory and practise in the domestic arena, to good effect, because of the emphasis placed on a primary goal of creating a theoretical framework based on fostering youth achievements in sustainable development and rooted in the requirements for reform and innovation in the way schools are constituted. This has produced a series of research outcomes among which the road map for ESD, sustainable development trainings for young people, E-STEAM [ESD in science, technology, engineering, art and humanities, and mathematics] courses, sustainable learning classrooms, schools for sustainable development and ESD experimental regions can be seen as representative examples.

- achieving excellent results over a broad area in ESD in the ongoing promotion of high-quality education in participating schools because we made sure to avoid the shortcomings of “teaching to the test” style pedagogy,

adapted to the needs of social and personal sustainable development and paid attention to solutions suggested by principals and educators regarding a model of skills training guided by ESD principles.

- the team achieving a transition from ESD as an abstract concept to a broadly applied practice in schools at a speed much faster than the international average, thanks to our painstaking design and full participation in evidentiary research into holistic (WIA) systems of ESD praxis that includes establishing new educational concepts, innovations in curriculum content, the creation of ESD learning centres, practising sustainable ways of living and taking part in building a green society.

- bringing together a wide range of stakeholders and various social forces to work towards fostering a new generation of citizens educated in sustainable development and playing an active part in exploring the theory and practice of life-long learning, thanks our concentrated efforts in establishing a collaborative ESD network that schools, government agencies, social partners and enterprises can jointly participate in.

- enriching our own knowledge and praxis by studying research outcomes and learning from the successful experience of the UN and other nations, thanks to the attention we gave to correlating and conducting linked research into how international trends in education relate to the progress of reform and innovation in Chinese education, and also sharing Chinese insights into ESD with the world, in the shape of distinctive research outcomes and outstanding case studies, an embodiment of our team’s spirit of international partnership.

2. Prospects for ESD over the next ten years

After thorough study of the core message of documents such as UNESCO's *Roadmap for ESD for 2030* published subsequent to the May 2021 Third Global Conference on ESD held in Berlin, and particularly in light of our summation of the achievement of work to advance ESD in China over the past five years, the following is how we see the prospects for the building an ecological civilisation and ESD in China and what we regard as the major tasks:

Emphasise theoretical research for ecological civilisation and ESD.

The concept of ecological civilization represents the sum of the material and cultural progress mankind can achieve in the process of achieving the goal of harmonious development for man, Nature and society. Sustainable development is core to a society based on ecological civilisation. At present, most countries are at the stage of making the transition from industrial societies to ecological civilisation. As a country's sustainable development advances, it will of necessity spur the continuing increase in ecological civilisation elements which will then in turn speed up the transition away from industrial to ecological civilisation. As we face a post-pandemic world full of instability and uncertainty, it is essential we help every learner understand that sustainable development and ecological civilisation theory represent an arsenal of the thinking required to tackle the many severe challenges we face such as global warming, pandemics and economic downturns. It is of vital importance not just for humanity as a whole or the various nations, but also for each individual citizen.¹

In this regard, the major research themes we will be engaging with include: the theoretical underpinnings of ecological civilisation and sustainable development; the interrelatedness and particularities of education for ecological civilisation and ESD; outline programmes for making ecological civilisation and ESD part of elementary education and the

same for adult education and vocational training; the make-up and methods of a programme to foster green living among young people; innovatory models in curriculum design and pedagogy when teaching ecological civilisation and ESD; and a strategy for creating green campuses with the distinctive features of ecological civilisation.

Bringing the concepts of peak carbon emissions, carbon neutrality and low carbon living into the national education system.

The Chinese government's major strategic policy position on peak carbon emissions and carbon neutrality represent an effort to resolve the most prominent limiting problems in the resource environment and a necessary choice if the Chinese people are to achieve long term development, and are also a solemn undertaking to be part of building a shared future for humanity.

The specific goals of this strategy include achieving the initial structural foundations of a low carbon economy by 2025, a drop in domestic energy use of 13.5 percent compared with 2020, a decrease in CO₂ emissions of 18 percent compared with 2020, the proportion of energy from non-fossil fuel sources reaching around 20 percent and forest cover growing to 24.1 percent. It is hoped that by 2030 clear advances will be apparent in the transition to a green society and economy, with efficiencies in the most energy-use intensive industries achieving the best international standards, and the targets are a 65 percent reduction in CO₂ emission against the 2005 figure, 25 percent energy from non-fossil fuels and forest cover up to around 25 percent. CO₂ emissions should by then have peaked and begun a stable decline. By 2060 it is hoped to have a fully low carbon economy and clean, safe and efficient energy generation, with non-fossil fuels providing above 80 percent of supply, the goal of carbon neutrality realised, major achievements in building an ecological civilisation and the beginning of a new world where man and Nature are in harmony.²

To achieve these twin carbon targets, besides fully integrating the goals of peak car-

bon emissions and carbon neutrality into long-term plans for economic development and optimising the structural arrangements of high-quality development regions such as Beijing-Tianjin-Hebei and Guangdong-Hong Kong-Macau in line with these carbon goals, another major basic policy decision by the Chinese government has been to introduce the concepts of peak carbon emissions, carbon neutrality and low carbon living into the national education system, with a view to speeding up the adoption of green lifestyles and creating a public consensus that will make full public participation come more quickly.

To assist in this respect, our team will draft an *Outline for Integration of Peak Carbon Emissions, Carbon Neutrality and Ecological Civilisation Concepts in the National Education System, a Model Curriculums for Education on Peak Carbon, Carbon Neutrality and Green Living for Primary and Middle Schools* and similar model curriculums for adult and vocational education, higher education and enterprise trainings, and we will also be conducting activities in cities across the nation to educate young people regarding best practice in peak carbon, carbon neutrality and green living and give awards to the best examples.

Attention paid to innovations in ESD curriculums – innovation in learning.

Faced with a future prospect of frequent challenges from environmental disasters and great uncertainties in the outlook for sustainable development, it is essential that educators and learners make the rational choice and decide their responsibility as teachers and learners is to make the school an ecological society and the classroom a place where environmental problems get solved. With that in mind, it is also essential that we rethink and indeed abandon old ways of teaching and adopt in their place new ways of teaching and learning where the educator guides, the learner is proactive and the process is collaborative. This will help make time spent learning in school for the broad mass of primary and middle school students an experience in directly addressing real issues around green

living and sustainable development and present an opportunity to take part in their resolution. This will in turn enrich practical experience and make students better prepared in terms of knowledge, capabilities, values and hands-on experience for the demands of building a future green society.

In this regard, we will be carrying out project-based learning experiments on ecological civilisation that innovate in teaching and learning in colleges, primary and middle schools. These will provide a learning platform for getting to understand ecological civilisation, a linked-up platform where multiple scientific disciplines combine and complement one another, a platform where fostering green living is put into practice, where experience is gained in responding to environmental risks and disasters, a platform for innovation in researching and implementing solutions and where people can participate in the advance towards an ecological civilisation. The implementation principles for this project-based learning will be setting environmental topics with multiple disciplines brought to bear, innovations applied where they had previously been absent and the creation of an opportunity for learners to grow together. Specific requirements are for the combination of questions regarding real-world environmental issues, knowledge for building ecological civilisation in the different disciplines and strategies for coping with environmental disasters into integrated multi-theme research; taking the best from each of the various disciplines and combining their tenets so they can work together to help attain project goals; bringing in innovation where none was before in research for project-based learning in an effort to make the time spent learning result in concrete contributions to building an ecological civilisation; cooperative learning in teams so learners can grow together as they acquire knowledge, capacity and values and learn new ways of living.

Emphasis on establishing ESD model schools or other outstanding centres of learning in rural and urban locales – learning institutions.

Schools are important centres for the broad implementation of ecological civilisation and ESD in both urban and rural settings. Studying the experience in nations such as China, Japan and Germany, we find there are eight quality standards for experimental and model schools for ESD: in-school teaching promoting ecological civilisation concepts to both the collective and individuals; a curriculum that has “learning about sustainable development” as its core theme; sustainable learning classrooms becoming the norm; green and smart school campuses as local exemplars of low waste and low emission living; creation of a system to combat and prevent pandemic with staff and student cooperation and implement it effectively; widespread adoption of green living by students and staff; normalising youth participation in the building of ecological civilisation.³

In this respect, we will be giving guidance to government and education departments at various levels to help speed up the drafting and revision of specific quality standards and operating regulations for ESD model schools, and we will be organising teams of experts to make regular visits to schools to look for, find and disseminate examples of best practice. These will be used in annual meetings where successful experiences are shared and outstanding principals and educators receive commendation. We will also seek to encourage the establishment of similar schools under various names: green schools, ESD schools, eco-schools, ASP schools, environmental education schools and so on. We will also continue to promote the establishment of ESD model districts in urban and rural locales. Basic standards for these experimental districts include: local government drafting mid and long terms plans for ESD and setting up the necessary institutions; ESD at more than a third of local schools; trainings in ESD for school leadership and all teaching staff; local education authorities to draft ESD curriculums and guiding documents

on teaching for ESD and oversee their implementation; local primary and middle school students taking part in a planned fashion in practical ESD and green living public education or science innovation activities, for example in combating pandemics or addressing climate change; setting up local youth activity centres for green living; opportunity for ESD to offer suggestions on greening local society, economy, environment and culture and positive outcomes from the same. At the same time we will be seeking to make education in green living and sustainable development universal so it can take a leading role in the creation of a broad alliance for the building of an ecological civilisation and promote ESD as part of a system of life-long learning.⁴

Encouraging rural and urban young people to take part in environmental activities as individuals or in groups.

At the present time, with an increasingly difficult outlook in the global fight against the pandemic and the response to climate change internationally and multiple challenges to sustainable development on the domestic front, it becomes essential that we encourage the broad participation of young people in local activities to build ecological civilisation in their urban and rural hometowns. In this regard we will be organising practical themed activities for young people to take part in: on healthy living (including green living in terms of consumption, travel, resource and energy economy in the home, classroom, school and community); on combatting pandemic (including preventing infection in the school, classroom, library, canteen, home and community and proposing science and technological innovations); seeking out examples of best practice in urban and rural communities (including in pandemic prevention, earthquake and tsunami safety, drought and flood prevention and control, smog safety and control and responding to climate change); organising a survey of sustainable development issues in urban and rural areas and drafting proposed amelioration measures; making a survey of urban and rural public education in income

growth and local economic revival and the situation for poor households, the disabled and welfare recipients, plus drafting proposals for amelioration measures; work to preserve and pass down the best traditional cultural

heritage of the various nations and regions (particularly those countries and regions affected by the One Belt One Road initiative); and seeking to understand and protect world cultural heritage and our natural heritage.

Road map for ecological civilisation and ESD

Two broad social functions:

1. education promoting sustainable development in culture and the socio-economic environment;
2. education promoting the building of an ecological civilisation.

Two educational goals:

1. education concentrating on the sustainable development of individuals;
2. education concentrating on fostering a green citizenry.

Three tiers of curriculum setting:

1. National curriculum: implement an “Education for Ecological Civilisation Plus” (EEC+) and ESD+ curriculum;
2. Regional curriculums: develop and implement local EEC and ESD curriculums;
3. School-based curriculums: develop and implement school-based EEC and ESD curriculums.

Two modes of teaching and learning:

1. Sustainable learning classroom
 - > *Four principles for teaching and learning:* themed investigations, comprehensive immersion, cooperative activities, equal priority for knowledge and action.
 - > *Four methods for teaching and learning:* guide students to make advances in their classroom studies, direct students in the successful completion of reports on their investigation assignments, arrange for student participation in classroom evaluation and cooperative discussion, coach students in the design of plans for problem resolution.
2. Ecological civilisation project learning:
 - > Four principles for teaching and learning: ecological themes. Interdisciplinary approach, introducing innovations where previous absent, growing as a team.
 - > Four methods for teaching and learning: joint selection of themes by teachers and students; guidance from multiple teachers from different disciplines; team cooperation in critical thinking, investigations and evidentiary research; writing and exhibiting a project report.

Creation of four types of eco-space:

1. Green smart classroom;
2. Green smart campus;
3. Green smart home;
4. Green smart communities.

Four modes of sustainable living:

1. Moderation and simplicity;
2. Low carbon;
3. Healthy living for disease prevention;
4. Healthy and harmonious.

Four expected outcomes:

1. Producing many innovatory educators and outstanding course examples;
2. Producing many excellent schools with their own trademark styles;
3. Producing many inspiring stories of young people working to build ecological civilisation;
4. Producing multiple outstanding leadership figures ready to take the mission of building an ecological civilisation

In general terms, the common and inter-linked guiding ideas, basic philosophy, mode of operations, working principles and expected outcomes of the implementation of ESD in learning institutions and the wider education system (including basic education, vocational and adult education and higher education) can be summarised in the “road map for ecological civilisation and ESD”.⁵

As we all know, the UN *2030 Agenda for Sustainable Development* with its seventeen goals for sustainable development has set out an ambitious blueprint for social and economic reform and progress over the coming decade. The report of the 19th Congress of the Communist Party of China set out a vision of the future to be created by goals set for the 2020 to 2035 period and then on to 2050. With this as the background, an active interest in the result of related international research and a willingness to learn from it and the inclusion and all-round implementation of ecological civilisation goals and ESD in the 14th Five Year Plan are bound to have an enormous positive impact on the “creation of a high-quality education system” (the development goal set for education in China over the coming five years).⁶

Looking to the future, we firmly believe that achieving the UN’s seventeen sustainable development goals and realising China’s own vision for 2035 and 2050 are significant for national prosperity and local development and are a vital factor in the individual health and lives of every citizen as well as the well-being of their families and a sustainable future for their careers. Faced with a series of ecological crises and the severe challenges of unsustainable development, it is essential that we implement EEC and ESD in our national education system and life-long learning system in a major way. In this regard, it is essential that everyone, be they state official, business manager, academic, educator, media worker or working at the community grassroots, takes inspiration from the spirit of the fight against COVID and is proactive in grasping the fundamentals of EEC and ESD, that they speed up their preparedness and work

constantly to improve their own attainments in EEC and ESD; they can then work to encourage their millions of fellow citizens to come and join in the work of advancing ecological civilisation and sustainable development through education, learning, publicity, training and innovations in praxis and so contribute to the more rapid achievement lasting peace and sustainable development for all.

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NOTES

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