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Global sustainability development and China's emergence as a promotor

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Abstract

Sustainability, that, stands on three pillars, social, economic, and environmental, and the idea or concept of "sustainable development" binds them together to uplift the spirit of development. China appears as an emerging global development partner in the late 1980s for sharing the development with sustainable development. After World War II, the world community sought global peace and security, freedom, socio-economic development, and environmental protection to reconstruct a new world. China responded to the United Nations Conference on the Human Environment in 1972, realizing the importance of nature and the environment worldwide. China's Belt and Road Initiative (BRI) and International Green Development Coalition (BRIGC) promote the Agenda 2030 of Sustainable Development. The country also emphasizes on global green governance, such as south-south environmental cooperation and Sustainable Development Goals of the United Nations Office for South-South Cooperation and Global Green Growth Institute (GGGI). Therefore, this paper discusses the presence of China in global platforms, focusing on Carbon Dioxide (CO_2) reduction policies, promoting renewable energy generation (REG), endeavoring for marine sustainability, green finance, agriculture, and biodiversity conservation, referring China's ecological civilization (EC) construction as an example.

Keywords: *energy conservation, global green development, social development, UN Declarations*

Introduction

In recent years, the world has been severely affected by global warming, climate change, globalization, unsustainable agriculture and renewable energy consumption, deforestation, biodiversity loss, and environmental pollution. These factors adversely affect the economy and human health and deteriorate the world's environment (Pata, 2021a). The world temperature has been increasing due to global warming. The emission of Carbon Dioxide (CO_2), which is a contributor to greenhouse gases (GHGs), peaked at almost 34,169 million tonnes in 2019 (BP, 2020). CO_2 emissions increased to 405.5 parts per million (ppm), methane gas to 1859 parts per billion (ppb), and nitrogen dioxide increased to 329.9 ppb in 2017 (World Meteorological Organization, 2018). In addition to these, other contributors also affect global warming and climate change (Yilanci and Pata, 2020). Despite the benefits of globalization, such as increasing the revenue flow, shifting companies in the low wages in countries, finding a better product, having diversifying workforces, collaborating knowledge and technology,

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creating new markets and boosting the economy, it contributes to environmental pollution by simultaneously increasing production levels and consumption. Consequently, this increases CO_2 and ecological footprint (EF) due to unaltered production techniques (Shahbaz et al., 2019).

Countries are heading to industrial development to attain economic growth, that already created many environmental problems by depleting natural resources and emitting harmful gas into the climate and environment (Bhutta et al., 2022; Razzaq et al., 2021). For example, due to global warming, rising temperatures caused significant changes in human beings and natural systems (D'Orazio, 2022). Moreover, the growing population adversely impacts ecological systems, causes severe energy crises, and eventually threatens the sustainable development of human society (Wu et al., 2021). Sustainable development ensures conserving natural resources for present and future generations (Gyamfi et al., 2018).

There is no alternative to compromising the natural environment by any means to achieve long and steady environmental sustainability (ES). ES aims to reduce the impact of human interventions on nature and promote the preservation of nature and natural resources and encircle human life from the individual to the social level. Therefore, the natural environment must be flown in its habitual ways without any disruption so that today's people can meet their needs and preserve the same amount for future generations. In case of any human behaviors or actions cause damage to the environment, it is the duty and responsibility of the concerned authority to control and minimize the influence on nature.

The very concept of sustainable development is closely related to the environment and was first introduced in 1972 with the vision of incorporating socio-economic and environmental issues. In 1987, Gro Harlem Brundtland, the chairperson of the World Commission on Environment and Development (WCED), published a report which is popularly known as the Brundtland report entitled *Our Common Future*. The report states that sustainable development is a development that "meets the needs of the present without compromising the ability of future generations to meet their own needs" (UN, 1987). The report developed some guiding principles for realizing the critical global environmental problems. In addition, the United Nations Conference on Environment and Development or Earth Summit of Rio in 1992 and the global action plan of Agenda 21 and Agenda 30 set a large number of goals and targets for achieving sustainable development.

No well-established definition has been introduced for sustainability so far, since the notion is interpreted by different societies according to their own goals and interests (Sneddon, 2000). To understand "environmental sustainability," it is also necessary to understand sustainability. The term 'sustainability' defines the population of today's world has the responsibility to ensure the needs of future generations. In the simplest way, it means meeting the needs of current and future populations without affecting each other. Sustainability is a holistic approach that binds all three dimensions of social, economic, and environmental together, aspiring for long-term benefits. In fact, applying sustainability in real life, whether on a large or a small scale, has a significant outcome in the future. However, the term is defined and explained in various ways in different subject areas by adding a modifier. For instance, members of the economic, social, agricultural, and ecological professions explain the term within their own context, like economic sustainability, social sustainability, and environmental sustainability. In the field of environment, Callicott and Mumford elucidated the term "ecological sustainability" as a conservation concept that defines meeting human needs must not intervene in ecosystems. In a general perspective, environmental sustainability refers to the responsibility of conserving natural resources and protecting the ecosystems for the present and future generations.

Environmental sustainability emphasizes consumption and production so that future generations can meet their needs. To maintain natural capital, Herman Daly (1990) opined that harvesting should be less than regeneration, waste generation has to be below the assimilative capacity of the environment so that it cannot adversely affect, and for the consumption of non-renewable resources, there need to be renewable alternates of that resource. The journey of the concept of sustainable development began with the hand of Hans Carl von Carlowitz in 1713 when he stressed on proper management of natural resources. In 1798, Thomas Malthus showed his concern in his book "An Essay on the Principle of Population" regarding

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the rapid growth of population compared to the resources available. Rachel Carson's "Silent Spring" in 1962 and Paul Ehrlich's "The Population Bomb" in 1968 showed how human beings exploited natural resources. Entering into the 21st century, the world realizes the necessity of sustainability and talks almost in every forum about this and formulated its first official definition in the Brundtland report in 1987 entitled "Our Common Future". Reversely Francois Perroux defines the term development as "for all people and for the whole person (Francois, 2014a), and the new development sets out to be "global", "integrated" and "endogenous"" (Francois, 2014b).

Undoubtedly, the world is moving fast in all aspects, particularly in the race of economic growth. To keep countries with this race, environmental degradation has increased alarmingly around the world. Therefore, it is the responsibility of the global community to prevent and control environmental pollution and sustainable use of natural resources for the present and future generations. The objective of this article is to highlight the importance of global sustainability and keep China as an example for other developing countries where China promotes itself from a polluter to a promoter of green development.

Method

The secondary data were extracted from literature search on the ScienceDirect database. We used the keywords "ecological civilization", "sustainable development", "China's ecological sustainability model", "sustainable development goals", "green governance of China", "BRI model of China", "China's role in global sustainability", "renewable energy sources" and "environmental sustainability". Our search period remained from 2018-2022, and we retrieved more than one thousand articles related to the aforementioned keywords. However, we chose very relevant literature to support our study. We also reviewed Paris Agreement, Brundtland report, United Nations Declarations, Belt and Road Initiative (BRI) etc.

Results and Discussions

China's role in global sustainability

China's Ecological civilization concept has drawn the attention of the world community for its multifold benefits (Yan et al., 2021), and has earned much acclamation around the world. For instance, a joint report of the World Bank and the China State Council Development Research Center reflects the green development vision, which is based on ecological civilization (China 2030: Building a Modern Harmonious and Creative Society, 2015), and the United Nations Environment Programme published a report about the effort of China toward ecological civilization (UN, 2016). However, China's participation in international treaties and conventions before 1980 was not significant, but after 1980 China emerged as a key global participant in international discussions and conventions (McBeath & Wang, 2018). China attended the United Nations (UN) Conference on the Human Environment in 1972 and participated in Rio Declaration and the UN Convention on Climate Change and Biodiversity in 1992. Since then, the role of China in the UN Framework Convention on Climate Change (UNFCCC) has played a pivotal role. Same year, China joined in China Council for International Cooperation on Environment and Development (CCICED) to promote global environmental sustainability. With a view to controlling the emission of greenhouse gas, China joined in Kyoto Protocol in 1998. The country expressed its sustainable development goals at Earth Summit in Johannesburg in 2002. In 2010, China hosted a UN climate negotiation session and six years later signs in the Paris Agreement, an international treaty on climate change, in 2016.

The domestic policies of China related to environmental sustainability have echoed the world in various ways. For instance, the Belt and Road Initiative (BRI), International Green Development Coalition (BRIGC) are open, inclusive, and voluntary international networks. Adhering to the Agenda 2030 of Sustainable Development and bringing long-term green and sustainable goals, the coalition binds the environmental expertise of the BRI partners. It is hoped that the coalition will share green and sustainable development concepts, share knowledge, and data about pollution prevention and control, environmental protection and management, sustainable infrastructure development, and green development. In 2019, the BRIGC and the CCICED meeting took place in New York on the agenda of Collaborative Governance on Climate and the UN 2030 Agenda for Sustainable Development. The main discussion of the meeting addressed global

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efforts to combinedly tackle climate change problems and take proper initiatives for global development cooperation based on the UN Agenda 2030.

As of March 2022, 146 countries have become part of China's BRI project. It indicates that most countries of the world have realized the importance of this project from domestic to regional and global development. It is believed that this BRI project will help these countries to accelerate sustained economic development and improve the livelihoods of millions of people through different development projects. The second annual BRI Forum for International Cooperation 2019 highlighted a number of green development and sustainable development initiatives, including the BRI International Green Development Coalition, BRI Sustainable Cities Alliance, formulation of Green Investment Principles for BRI, Sustainable Development Goals for Children through Shared Development, BRI Environmental Big Data Platform, and the BRI South-South Cooperation Initiative on Climate Change (Xi, 2019). The Forum launched a BRI big data platform to protect the environment and green "going global" initiative.

It is acknowledgeable that the BRI and the United Nations Sustainable Development Goal (UNSDG) 2030 have common similarities in many aspects of sustainable development. It is, therefore, the Chinese ecological civilization model that can contribute to the partner countries achieving the UN 2030 Agenda for sustainable development. The BRIGC performs a significant role in the green development model, engaging with international bodies such as aiming biodiversity and ecosystem management; the BRIGC works with the International Union for Conservation of Nature (IUCN), World Wide Fund for Nature (WWF), Conservation International, the United Nations Environment Programme (UNEP), and the United Nations Environment Programme-International Ecosystem Management Partnership (UNEP-IEMP). It cooperates with the Global Energy Interconnection Development and Cooperation Organization (GEIDCO) to promote and circulate green energy and energy efficiency. Construction of more green cities and the improvement of the environment, particularly water-related pollution, the BRIGC liaises with World Resources Institute (WRI). As a part of the ecological civilization construction, water ecological civilization plays a significant role in meeting the challenges of growing urbanizations and urban populations (Yang et al., 2021).

Intending to facilitate south-south environmental cooperation and Sustainable Development Goals capacity building, China merged with the United Nations Office for South-South Cooperation and Global Green Growth Institute (GGGI). The coalition coordinates with the Energy Foundation (EF) Beijing Representative Office, Environmental Defense Fund (EDF), and Children's Investment Fund Foundation (CIFF) to ensure good global climate change governance and green transformation (The Green Finance & Development Center, 2022). China's efforts to build a shared future for mankind were seen in the green Belt and Road Initiative, south-south cooperation, and providing medical supplies to more than 200 countries to fight against the global COVID-19 pandemic. While improving the environment, climate change, wildlife, and biodiversity conservation situations, China simultaneously extended its hands to the UN and other global development partners in the field of environment protection, biodiversity conservation, green development, global climate change actions, poverty alleviation, sustainable agriculture, disasters prevention, health sanitation improvement, and sustainable utilization of natural resources. China aspires to fulfill the common shared vision of living in harmony with nature before 2050. In a speech at the UN General Assembly 2015, while addressing the world, President Xi emphasized building an eco-friendly world.

China's role in global green governance

Marine pollution caused by industrial discharges, plastic waste, and unsustainable tourism heavily hinder marine ecological civilization, particularly the Blue Economy. The fishing industry of China contributes to approximately two-thirds of global productivity, but plastic waste severely impacts China's sustainable marine environment (Yue et al., 2021). However, realizing such negative consequences, the Chinese government, among the earlier countries, conducted scientific experiments to prevent and control marine wastes for global governance (Wang and Lin, 2018; Wu et al., 2019; Sun et al., 2016; Xu et al., 2018). To ensure sustainable marine governance, particularly marine wastes management, the Chinese government stick to advancing international cooperation and

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promoted the China–Japan–Republic of Korea Cooperation, issued a Statement on Combating Marine Plastic Debris at the EAST Asia Summit and held a Joint Statement on Marine Litter and Plastics between China and Canada. China's efforts to manage and control marine plastic wastes were also seen in the Basel Convention in 2019, in which the country signed the Resolution of Further Actions Taken to Address Plastic Wastes by integrating plastic wastes under the legal binding. These efforts may help to improve the regional marine environment. China also adopted numerous policies to reduce and control land-based solid waste pollution and prevent the marine environment from being polluted by plastic waste (Xu, 2018; Yue et al., 2021).

Regarding renewable energy generation (REG), the Chinese government enacted the Renewable Energy Law in 2009, gradually making China a leading country in producing and exporting renewable energy technologies (Liu, 2019). At the same time, China is leading the world in manufacturing solar panels and wind turbines (Shen, 2017). However, there are favorable and non-favorable arguments about renewable energies. Some argue that renewable energy has no impact on environmental improvement (Jebli and Youssef, 2017), while some admit that renewable energies negatively impact on environmental pollution (Ridzuan et al., 2020: Olanipekun et al., 2019; Pata, 2021b; Pham et al., 2020). Despite mixed opinions, many countries ahead to generate renewable energy and mobilize people to use renewables due to environmental sustainability concerns (Li et al., 2021, Chien et al., 2021, Iqbal et al., 2021, Sadiq et al., 2022).

With the adoption of the Paris Agreement in 2015, China is increasingly making influencing climate governance (Qi and Dauvergne, 2022). China shifted from a 'spoiler' to a 'promoter' of climate action in the global South. China's outreach to developing countries for climate-related projects through financial support, policy networks, and corporate backing create a leading position within climate governance in the global South (Qi and Dauvergne, 2022). China's engagement with global climate governance (Liu, 2021; Trombetta, 2019), and employing environmental diplomacy to move forward its renewable energy industries (Urban, 2018), shield and maintain global interests (Pearson, 2019; Xu and Chen, 2021; Liu et al., 2019; Yu, 2019).

With a view to achieving sustainable development goals (SDGs), China inclined green finance strategy as a powerful tool (Liu et al., 2019). This green finance strategy aims to protect the ecological environment, control various environmental pollution, and promote sustainable social development based on economic and financial resources, which is helpful for harmonizing economic and natural agreements (Mohd and Kaushal, 2018). It is undeniable that the world, particularly the industrial countries, is facing severe resource constraints and environmental and ecological deterioration due to rapid economic activities; therefore, embracing the ecological civilization (EC) has become more important to maintain healthy and sustainable development (Dong et al., 2021).

In developing countries, agriculture plays a significant role in sustainable development to eradicate absolute poverty (Agboola and Bekun, 2019). However, unsustainable agricultural production produces around 20% of global CO_2 emissions (Fao, 2020), and worsens global environmental problems that require reducing agricultural emissions (Gokmenoglu and Taspinar, 2018; Ridzuan et al., 2020).

Realizing the severe consequences of biodiversity destruction by human interventions, the world community urged for "urgent and integrated action" to reflect biodiversity considerations in the Kunming Declaration of the 15th Conference of the Parties (COP15) of the Convention on Biological Diversity (CBD) in 2021 (Zhang et al., 2022).

Conclusions

The Chinese ecological civilization model proves how China overcomes poverty, improves environmental pollution by taking stringent measures, lessens carbon emissions, conserves biodiversity, promotes afforestation and prevents deforestation, and has fought against climate change in recent years. The Chinese experience of achieving the UNSDG 2030 can be applied elsewhere in the world. Moreover, China has already appeared as a significant party through its investment in sustainable development goal activities and organizations as international development partners. In recent years, China's participation in international platforms for promoting global sustainability has been marked as noteworthy and has earned much praise.

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Author contributions

Shuying Wang: Conceptualization, Writing - original draft. Md. Ziaul Islam: Conceptualization, Writing - original draft. Shuwei Wang: Review, editing, and proofreading.

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