Sustainable Development Discourses in China

Berthold Kuhn

Dept. of Political and Social Sciences, Freie Universität Berlin, Germany

Correspondence: Berthold Kuhn, Dept. of Political and Social Sciences, Freie Universität Berlin, Germany.
E-mail: Berthold.Kuhn@fu-berlin.de

Received: September 1, 2016   Accepted: September 19, 2016   Online Published: November 30, 2016
doi:10.5539/jsd.v9n6p158          URL: http://dx.doi.org/10.5539/jsd.v9n6p158

We acknowledge support by the Open Access Publication Funds of Freie Universität Berlin.

Abstract

The United Nations General Assembly adopted the 2030 Agenda for Sustainable Development in September 2015. The term sustainable development will further shape international cooperation in the next decade and beyond. It is also frequently used in China’s policy documents and connects well to a set of home-grown Chinese discourses, in particular the term of ecological civilisation and the chapter on green development in the 13th Five Year Plan (FYP) approved in March 2016. This paper discusses Chinese discourses related to the promotion of sustainable development on the basis of interviews with experts – academics as well as practitioners. The hybrid character of the concept of sustainable development has been conducive to its growing relevance in China. The Chinese government, however, has also paid attention to balancing the use of the term at the level of policy formulation by promoting home-grown discourses, in particular the concept of ecological civilisation.

Keywords: sustainable development, United Nations, China, discourses, ecological civilisation, green development

1. Methodology

The methodology consisted of analysing literature and policy documents, participation in conferences and workshops and, most importantly, conducting semi-structured interviews with more than 30 experts of different academic disciplines and institutional backgrounds in China in spring and summer 2016.

Given the recent policy developments in China, in particular the launch of the 13th Five Year Plan in March 2016, and recent global events, in particular the Agenda 2030 summit in New York and the Conference of the Parties’ (COP) 21st summit in Paris, interviews with experts were considered to be the most appropriate way to obtain analysis and opinions related to recent evolutions of discourses and practices related to sustainable development.

The purpose of the interviews was to understand (i) why the concept of sustainable development has gained such prominence in China, (ii) which other related discourses are of major relevance for China’s transition towards a more balanced approach to economic growth and (iii) which actors are involved in the promotion and use of the different home-grown and international discourses.

The selection of interview partners was based on contacts and recommendations gathered through participation in conferences and the network of the University Alliance for Sustainability (UAS). The selection was guided by the idea to collect and analyse perspectives of experts from different disciplinary and institutional backgrounds. Interviews were conducted with researchers of different schools and research centres mainly from Beijing University and Tsinghua University. Other interviewed experts were affiliated with the Central Party School as well as government associated and more independent think tanks. The business community was also consulted – including a major bank and influential consulting firms. In addition, activists of non-profit organisations and media, including Chinese Association for NGO Cooperation (CANGO), China Youth Climate Action Network (CYCAN), Institute for Public and Environmental Affairs (IPE) and Greenovation Hub, Beijing, contributed a great deal to the analysis of discourses and government interaction with stakeholders at different levels. Some of the experts preferred to remain unidentified while others, mainly researchers and experts from independent

1 This paper focus on discourses on mainland China, the People’s Republic of China. It will use “China” throughout the text except in the case where it specifically refers to Taiwan (Republic of China, ROC).
NGOs, agreed that their names and affiliations could be mentioned.

2. Global Discourses on Sustainable Development

The concept of sustainable development reflects growing awareness of the links between mounting environmental problems and socio-economic issues. The World Conservation Strategy (IUCN et al., 1980) played a pivotal role in advancing the use of the concept at the global level (Hopwood, Mellor, O'Brien 2005). The United Nations has worked on the promotion of the sustainable development concept for several decades. Our Common Future, also known as the Brundtland Report, was published in 1987. Its definition of sustainable development is widely used -also in China:

“Development that meets the needs and aspirations of the present without compromising the ability of future generations to meet their own needs” (United Nations World Commission on Environment and Development, WCED, 1987).

This widely recognised definition encompasses two key concepts: (1) the concept of needs, in particular the essential needs of the world's poor, to which overriding priority should be given; (2) the idea of limitations imposed by the state of technology and social organization on the environment's ability to meet present and future needs (WCED, 1987).

The concept of sustainable development has been branded nebulous, “riven with contention” (Taylor, 2002) and “intrinsically ambiguous” (Wackernagel & Rees, 1996: 33). Controversies have evolved about the relationship between the three distinct dimensions environment, society and economy. Moir & Carter (2012) discussed different conceptualisations on the basis of diagrammatic representations of sustainability. Meadowcroft (2000), Moir & Carter (2012) and Van Zeijl-Rozema et al. (2008) emphasised the importance of institutional change in meeting the goals of sustainable development. Governance is seen as a pathway to achieve sustainable development (Van Zeijl-Rozema, A. et al., 2008: 411).

Sustainable development policies have been promoted in the context of major world conferences debating global environmental and development issues, in particular the conferences in Rio de Janeiro in 1992 and 2012, in Johannesburg 2002 and the series of annual COP meetings with their focus on climate mitigation and adaptation. The business community has embraced the term in the context of growing attention paid to Corporate Social Responsibility (CSR) strategies. The concept has also received strong support from civil society organisations around the world. Many Non-Governmental Organisations (NGOs) distance themselves from traditional growth-oriented policies and sector focused approaches and advocate more balanced development concepts as well as holistic and community based approaches.

China played a constructive role in advancing the sustainability agenda at the global level by bridging positions of developed and developing countries (Ye & Fues, 2014).

In September 2015, the United Nations’ Agenda 2030 with its seventeen Sustainable Development Goals (SDG) was eventually adopted by 195 states in New York. 169 targets and more than 300 indicators have been formulated to measure progress. The SDGs reflect the international diplomatic community’s efforts to strike a balance between social, economic and ecological development goals. The seventeenth goal explicitly refers to partnerships for sustainable development and, thus, acknowledges the importance of governance and stakeholder interaction across state, market and civil society organisations.

3. Sustainable Development Discourses in China

Thoughts on the respect for nature and the importance of harmony between humans and nature are reflected in China’s main philosophical traditions (Ying Li et al., 2015). Confucianism teaches harmony between men and nature as well as respecting the “discipline of nature” (自然纪律 zìrán jìlǜ, Tian and Tan, 2009). Taoism refers to “following nature” (顺其自然 shùnpí qízìrán, Cao, 2008). Buddhism contains rich ecological thoughts (Ying Li, 2015) by paying attention to holism and daily ecological practices (Yan, 2011).

Maoist rule and industry-oriented economic policies broke with the concept of harmony between humans and nature. The impetus to develop the policy field of environmental protection from the 1970’s onwards stemmed more from the People’s Republic of China’s return to world politics and its participation in the first global environmental summit in Stockholm in 1972 than from a spread of awareness on ecological problems in the country (Betke, 2003: 774). However, following the open-door policy that fuelled China’s economic growth from 1978 onwards, environmental concerns have ranked low for many years. While basic environmental regulations were in place, the implementation of legislative provision was generally poor. Literature attributes it mostly to the lack of an effective enforcement mechanism (Economy, 2014; Habbard, 2015; Ran; 2013).
While strong economic growth continued in the first decade of the new Millennium, social and environmental concerns became more serious and led to a rise of awareness among the public as well as state and party authorities. Advocacy-oriented NGOs contributed to advancing sustainable development perspectives at different levels.

China published national reports on sustainable development in the years 1997, 2002 and 2012. The term sustainable development remains one of the key discourse elements in China’s process of economic and social transformation. The Government, in particular the National Development and Reform Commission (NDRC), worked with this term to underscore its comprehensive mandate for steering processes of economic, social and environmental development. As in other countries, the business sector refers to this concept in the context of growing attention paid to CSR strategies. NGOs have embraced it because it offers a holistic approach to development and is a widely referenced concept in international cooperation.

At the occasion of the 17th and 18th Party Congresses in 2007 and 2013, the Chinese political leadership intensified efforts to promote the concept of sustainable development as well as home-grown concepts related to environmental and climate protection, social harmony and more moderate economic growth. According to the interviewed experts, academics as well as practitioners, discourses of climate sceptics or discourses focused on de-growth perspectives do not play a significant role in China.

3.1 The Impact of the Global Agenda

The landmark world conferences of the United Nations from the 1990s onwards and the cooperation with multilateral and bilateral cooperation agencies have in many ways influenced discourses and policies in China. The interviewed experts from government, think tanks and NGOs referred to projects and conferences with the United Nations Development Programme, the Economic and Social Commission on Asia and the Pacific, the World Bank and the Asian Development Bank. They also mentioned bilateral cooperation with Canada, Germany, South Korea, Japan and the United States as well as the growing dialogue in the context of South-South Cooperation and among BRICS countries. Global environmental policies also played a role in China’s dialogue within the Group 77 and the Forum for China Africa Cooperation (FOCAC), in particular in the context of world and regional summits.

3.2 United Nations Summits and Global Agreements

The influence of the global development and environmental agenda on policy-making in China is evident from the engagement of China in global conferences, its timely accession to multilateral treaties and agreements and the drafting of important national policy documents and reports in connection with global summits. Among the latter group of documents, the Agenda 21 White Paper on China's Population, Environment, and Development in the 21st Century, published in 1994 after the Rio Conference on Environment and Development is especially influential. Torney (2016) suggests that China might become one of several focal points of climate leadership following the landmark climate agreement at the COP 21 meeting in Paris. The election results in the United States of America in November 2016 – with Donald Trump as the president-elect – have raised expectations on China in this regard.

There has been consensus amongst the interviewed experts that China’s decade long participation in global environmental politics prepared the ground for its pro-active commitment to promote the sustainable development agenda. China’s engagement in environmental politics dates back to the Stockholm Conference on the Human Environment in 1972 shortly after the People’s Republic had taken over the seat in the United Nations Security Council from the Republic of China (Taiwan). China has subsequently participated in a series of global environmental conferences and passed significant legislation, including a comprehensive review of its environmental law in 1989 and 2014.

China’s accession to the Kyoto protocol in 2002 and the participation in the series of COP meetings were instrumental in enhancing China’s commitment to the global agenda for sustainable development. China accounted for more than 50 percent of projects agreed under the Kyoto Protocol’s Clean Development Mechanism (CDM). The CDM infrastructure related investments raised awareness on the potential co-benefits of pro-active involvement in mechanism of global agreements.

3.3 Millennium Development Goals

China’s remarkable contributions (UNDP, 2015) in achieving the Millennium Development Goals (MDGs) – the first set of globally agreed goals of the United Nations – prepared the ground for China’s constructive role in negotiating the SDGs. The “narrative of success” of China’s engagement in achieving goals agreed by the international community underpinned China’s efforts for greater influence in global politics (Ye & Fues, 2014).

In the years before the Agenda 2030’s conclusion, China had taken substantial efforts to address key issues of
global concern in its own national policy papers (Government of China, Ministry of Foreign Affairs, 2013) and
diplomatic negotiations covering the seventeen sustainable development goals. Its initial reservations regarding
the integration of the MDGs and the SDGs as well as the inclusion of good governance related targets (Ye & Fues,
2014) has gradually given way to a pragmatic and flexible approach in international negotiations.

3.4 Sustainable Development Goals

China’s constructive engagement with the post-2015 agenda was mainly driven by two factors: First, the process of
change of national development priorities towards a resource-light and low-carbon prosperity model with a high
degree of social inclusion made it easier for the political leadership to agree to an ambitious global agenda
balancing economic growth with ecological and social development. Second, China could use the Agenda 2030 for
Sustainable Development to deepen its influence in the Global South and become a stronger player in international
cooperation and global politics.

The comprehensive set of targets and indicators developed in the context of the SDGs and the foreseeable planning,
monitoring and evaluation process correspond well with the domestic policy-making style of China. Compared to
China’s Five Year Plans, the style of policy agreements of ruling parties or coalition governments in western
democracy is quite different. These are usually drafted in much shorter periods of time and, thus, offer limited
opportunities for substantial contributions of stakeholders outside the political system. Such political agreements
are of less formal nature and tend to receive less public attention than China’s landmark FYP.

The interviewed expert, in particular the NGO experts, also pointed to the normative power of the participatory
process steered by the United Nations. The agenda setting and implementation processes of global development
goals do not only involve states but also encourage involvement of business and civil society organisations.

3.5 China’s Globalised Economy and the Private Sector

Following the opening of the economy in 1978, China has experienced a long phase of strong economic growth.
Chinese corporations regularly participate in global and regional business summits that address sustainability
issues. One of the experts named the CSR Asia Summits 2016 in Hong Kong and referred to the many Chinese
corporations that joined the Global Reporting Initiative (GRI) and the Carbon Disclosure Project (CDP).

China’s strive for innovation and global competitiveness played a significant role in promoting sustainable
development discourses, in particular in the field of energy supply, clean production and consumption.
Numerous green policy initiatives were coupled with heavy investments targeting energy reduction and pollution
control. China became the world’s largest market for wind and solar energy and the world’s largest producer of
wind turbines. The new policies are driven by the desire to rebalance China’s economy, to strengthen energy
security and to address the pollution problems (Stalley, 2015: 205).

3.6 International Cooperation of NGOs

Chinese NGOs have for many years benefited from development assistance and partnerships with donor agencies
and international NGOs. One of the interview partners from the Chinese Association for NGO Cooperation
(CANGO) described how the organisation has benefited from international cooperation in the process of
accumulating expertise on environmental and climate issues. CANGO has developed from an apex organisation to
the China International Center for Economic and Technical Exchange (CICETE): a clearly more independent
nongovernmental organisation that participated in the Rio+20 and many other international landmark conferences
together with likeminded independent Chinese environmental NGOs. The China Youth Climate Action Network
(CYCAN) also referred to the global climate policy agenda as an impetus for its foundation process. The
organisation is now focusing on mobilising youth for climate action, engaging with the green private sector and
monitoring outcomes of global summits on climate change, in particular the COP meetings.

In the past decade, the volume of development assistance to China has gradually declined in the context of China’s
economic development and middle income status. However, policy dialogue, international networking and
exchange activities continued and the number of research projects, think tanks and non-profit organisations
working on issues related to sustainable development is still growing in China. Most of the NGOs in the “green
sector” reported growing dialogue and collaboration with government departments and the private sector.

4. Home-grown and Borrowed Discourses Related to Sustainable Development

4.1 Ecological Civilisation

The concept of ecological civilisation considers nature as part of life rather than something that can be exploited
without restraint. It serves as a reference framework to develop visions of modern ecological socialism and also
highlights specific Chinese characteristics of green development. The concept gained more popularity in the
process of developing the concept of a new China dream. It is frequently used by party and state officials as well as political scientists.

The term of ecological civilisation is part of a series of visionary discourses about civilisations, societal transformations and economic reforms that have a long tradition in communist China. The promotion of such discourses corresponds with the Chinese Communist Party’s (CCP) claim for a holistic understanding of human development suitable for the Chinese context. The term ecological civilisation has surpassed the level of a predominantly internal party discourse or propaganda slogan. Given the urgency of the pollution problems, growing media attention on China’s ecological crisis and the challenges to meet expected commitments by the international community, ecological civilisation has been developed into a policy framework for comprehensive economic and governance reforms.

The policy of ecological civilisation has been incorporated into the Communist Party of China’s (CPC) Charter at the 18th CPC National Congress in 2012 and is since considered to be a key element of China’s national development strategy. The CPC released a nine-section milestone policy document on ecological civilisation in April 25, 2015: the Central Document Number 12 with the title “Opinions of the Central Committee of the Communist Party of China and the State Council on Further Promoting the Development of Ecological Civilisation”. It goes beyond restating high-level intentions and proposes standards, mechanisms and assessments to improve policy implementation. Most importantly, the document reflects a change in policy priorities from economic growth to sustainable development. It also recognises the significance of governance structures, policy and performance incentives and develops a framework for introducing environmental protection criteria for government performance assessment. Furthermore, it adopts a long-term approach in translating such criteria into practice: environmental black marks will stay on the negative work record of officials for the rest of their career.

Most significantly, the CPC document acknowledges that the transition will demand reforms in governance. By introducing new ways to punish and reward officials, abandoning a bureaucratic culture of “economic growth as the only criterion” in government performance assessment and implementation of a lifelong accountability system that means environmental violations stay on a government official’s record, the text suggests ecological civilisation is no longer a vague rhetorical slogan. At the level of the state administration, the Ministry of Environment (MEP) is at the forefront of the discourse on ecological civilisation in China. It has been able to gain competencies and shape its profile through collaboration with academics and practitioners. The Central Party School has started a series of training programmes on ecological civilisation for senior level party officials. Many of the interviewed experts worked as advisors for specific government policies and projects on ecological civilisation at central, provincial or local level.

4.2 Harmonious Society

The concept of “Harmonious Society” has been developed as an all-encompassing vision for social and economic development towards a prosperous and peaceful China under the leadership of the Hu Jintao/Wen Jiabao administration as a response to growing social injustices and inequalities in mainland China. While the erosion of social values has become the subject of many online debates, we have witnessed a revival of Confucianism after the Millennium which is evident from the many book bestsellers and the worldwide promotion and extension of Confucius Institutes. Official discourses increasingly reference traditional Confucian values of harmony.

Confucius had developed its philosophy in response to a world of social anarchy, which had shaped the life in China after the collapse of the Zhou (Chou) dynasty. He observed social destruction and called for respect of hierarchy and orderly managed relationships at the political as well as personal level. In contemporary China, values of social responsibility are challenged by the rise of individualism and economic competition. The motives of President Xi Jinping’s vigorous campaign against corruption are also rooted in the mounting worries about social stability in China. In a system with more limited check and balances than in western democracies – where the separation of powers is an important constitutional feature of the political systems – dissatisfaction often focuses even more directly on the political leadership.

According to the former President Hu (2005:3), a “Harmonious Society” is one which is “democratic and ruled by law, fair and just, trustworthy and fraternal, full of vitality, stable and orderly, and maintains harmony between man and nature.” These social values cover not only political and economic institutions but also cultural and environmental dimensions (Hu 2005). The term is still in use but might have lost some popularity in the context of the promotion of the discourse of “Ecological Civilisation.”
4.3 Scientific Outlook on Development
The concept of “Scientific Outlook on Development” has been developed as a key element of the overall discourse on Harmonious Society by the former President Hu Jintao and his administration. It reflects efforts to strike a balance between ideologically influenced, science-based and technocratic governance oriented policies for development. The term stands for China’s vision to focus on research and innovations as drivers of development. The concept relates to scientific socialism, sustainable development, social welfare, a humanistic society, increased democracy, and, ultimately, the creation of a socialist harmonious society.

4.4 China Dream
Discourses on the “China Dream” have developed after 2013 in response to a debate on China’s new economic and social visions in connection with developing “a moderately well-off society” and promoting sustainable development. According to several experts, the debate was initiated by Peggy Liu, M.I.T. graduate, former McKinsey consultant and founder of the environmentalist NGO Joint U.S.-China Collaboration on Clean Energy (JUCCCE), a non-profit organization founded in 2007 to create an ecoviable China. Helen H. Wang (2013) connected the Chinese Dream with the American dream, alluding to the need for an easily identifiable concept for a comprehensive process towards sustainable growth and development. The term seems to have been accepted and is also promoted by President Xi Jinping and the top-level political leadership.

4.5 Beautiful China and Beautiful Life
Around the same time or shortly after the China dream discourse evolved, the term “Beautiful China” was coined by the political leadership at the 18th CPC National Congress in November 2013. Preparatory conceptual work could be credited to the Beautiful China Index project by Sichuan University, Chengdu, based on in-depth interviews with government officers, party members and people from all sections of the society on their idea of living a “beautiful life” in China.

In sum, “Beautiful China” refers to a confluence of ideas on increased wealth and an improved ecological environment matching the new government policy priorities. In the process of deliberating on “Beautiful China” on the basis of “ordinary people’s opinion”, it became also clear that such efforts had to rely on technological development and should be decoupled from previously promoted demographic policies, such as the long-standing and controversial one-child policy.

4.6 China’s New Normal
“China’s New Normal” is a top-level economic policy discourse shaped by speeches of President Xi and top government officials to frame a crucial rebalancing of the Chinese economy: one in which the country diversifies its economy, embraces a more sustainable level of growth, and distributes the benefits more evenly (Hu, 2015). It stands for a gradual rebalancing of growth toward lower investment and higher consumption (both private and public), reducing the energy intensity of economic growth and prioritising energy sources that produce low or zero emissions of Green House Gases (GHGs) and local air pollutants.

4.7 Green Development and Green Growth
“Green Growth” and “Green Development” discourses have provided China with opportunities to shape agenda setting processes of world summit along its preferences. The concept of “Green Growth” enjoys much popularity in Asia. United Nations, Economic and Social Commission for Asia and the Pacific (UNESCAP) even stated that the concept emerged from the Asia-Pacific region.


In China, green (绿色 lǜsè), is associated with nature and environmental and climate protection, in particular in the greener South of the country. The promotion of green development is associated with less pollution of air, water and soil and a healthier lifestyle, with environmentally friendly production and consumption and renewable energies. “Green” is also used as a prefix in connection with policies and strategies of government and business, for example “green finance.”

The term “Green Development” has been elevated to the rank of a top policy priority in the context of the elaboration of the 13 FYP (2016 to 2020). It has been chosen as one of five chapter headings to describe policy priorities, reforms and targets in the field of environmental and climate policies.

“Green” is a popular term for ecologically minded concepts and activities in China. From the perspective of the
Chinese government it seems more opportune or less problematic to use the term “green” to describe environmental and climate friendly policies as there is not political party associated with “green”. Some independent environmental NGOs in the South of China carry the “green” in their name, e.g. Green Zhejiang in Hangzhou and Green Cross Association in Xiamen. There is, however, no Chinese political party – not even one of the small parties subordinated to the CCP – which flags “green” in its name.

Hu (2014) developed an analytical framework for green development theory and practice in China. He refers to three sources of the theory of green development: “(1) the concept of “unity of nature and humanity” in traditional Chinese philosophy that has developed over thousands of years; (2) the Marxist dialectics of nature, which were developed more than 100 years ago; and (3) the contemporary theory of sustainable development (Hu, 2014: 20).

4.8 Circular Economy

Sustainable and green development discourses witness cross-fertilisation with more technical concepts. One such concept is “Circular Economy”. The concept pays attention to closing the loop of material flow in a society, with reference to industrial ecology, biomimicry and the “cradle to cradle” term credited to the Swiss architect Walter Stahel instead of the linear resource utilisation approach of “cradle to grave.”


4.9 Low Carbon Development and Low Carbon Lifestyle

The term “Low Carbon Development” has been promoted in the context of local policy experimentation and international cooperation in policy exchange and project management. The initial number of nine low carbon cities that have been approved in 2011 has been expanded over the years and complemented by a “low carbon communities” programme at the municipal level.

China has published a series of Low Carbon Development reports. The 8th Low Carbon Development Report stressed that consumption patterns will matter most to achieve ambitious low carbon targets (Qi, Y., 2016). The terms Low-Carbon Development and Low-Carbon Lifestyle have gained popularity among independent NGOs that target students and young people engaged in international exchanges.

4.10 Ecological Marxism

The rise of environmental movements has led to a growing interest in ecological references of Marxist theory culminating in efforts to link Marxist theory to constructive post-modernism (Wang & Fan, 2014). Talks with experts of the School of Marxism, Peking University and the Central Party School in Beijing confirmed that the concept of “Ecological Marxism” or “Ecological Socialism” has emerged from a broader socialist development perspective in China in search for linking it to emerging ecological movements around the world and in China. The concept has been embraced by a number of researchers at renowned Universities, in particular Huan Qingzhi of the School of Marxism of Peking University. Among the younger generation of ecological activists as well as the Chinese business community, ecological Marxism seems not to have gained much popularity.

5. Conclusions

In the case of China, the integrative concept of sustainable development has facilitated dialogue and cooperation by putting emphasis on the balance between economic, social and ecological development. The somewhat blurred character has helped to stall ideologically motivated opposition to the concept. The variety of discourses illustrates the multiple approaches to the concept of sustainable development in mainland China.
The governance dimension of the concept reflects the need to involve stakeholders at different levels to advance and spread new policies and local experimentations that address China’s ecological crisis. Sustainable development discourses and related policy-making in China are based on extensive dialogue and consensus seeking of stakeholders inside and outside government that are led by a dominant agency of central government.

Hart et al. (2015) mapped China’s climate policy formation process and described the mandates and role of different government departments, think tanks, and business groups. The high institutional density and the high level of cooperation explain the ongoing co-existence of the variety of international and national discourses which tie into the concept of sustainable development. Sustainable development remains an important reference concept and has much contributed to China’s growing engagement in global debates about the future of human development. It is, however, increasingly complemented by discourses that reflect the central government’s efforts to put more emphasis on concepts with Chinese characteristics.

References


**Action Factsheets.** Beijing: Innovative Green Development Programme.


**Copyrights**

Copyright for this article is retained by the author(s), with first publication rights granted to the journal. This is an open-access article distributed under the terms and conditions of the Creative Commons Attribution license (http://creativecommons.org/licenses/by/4.0/).