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Competition or collaboration? EU and Chinese engagement with aquaculture sustainability in Africa

Fatime L. Traore[1] | **Lin Zhang**[2] | **Yuan Yuan**[2] | **Annah Lake Zhu**[1] | **Simon R. Bush**[1]

[1]Wageningen University & Research, the Netherlands

[2]Freshwater Fisheries Research Center of the Chinese Academy of Fishery Sciences, Jiangsu Province, China

Correspondence
Simon R. Bush, Wageningen University & Research, Hollandseweg 1, 6706 KN Wageningen.
Email: simon.bush@wur.nl

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Abstract

Motivation: The sustainability of aquaculture worldwide is increasingly shaped by international relations. The European Union (EU) and China have considerable influence on the sustainability of the industry, both domestically and globally. However, little is known about the similarities and differences between the region and country that govern aquaculture sustainability internally and how they shape the sustainability of the sector in other parts of the world, including rapidly developing aquaculture regions in Africa.

Purpose: We assess the domestic governance of sustainability in aquaculture in the EU and China. We then analyse the extent to which these two areas translate their internal sustainability goals into aquaculture-related development cooperation with African countries.

Approach and methods: We undertook a scoping review of domestic policy for the sustainable development of aquaculture in the EU and China. We reviewed EU and Chinese development projects, financing, and trade policies supporting aquaculture development in Africa. The findings of these reviews were validated in a workshop.

Findings: Although the EU and China express similar technical and environmental concerns, they differ in their governance of their domestic aquaculture sectors. Similarly, at the international level, while both the EU and China have explicitly committed to promote sustainable aquaculture overseas, their approaches to achieving these ambitions through development cooperation differ substantially. EU cooperation includes creating (ambitious) norms for sustainability in Africa. China avoids influencing the domestic policies of African countries, preferring to provide training and technical cooperation.

Our comparison reveals areas of existing competition between the EU and China in the development of aquaculture internationally, but also overlooked areas of potential complementarity and cooperation.

Policy implications: Our findings contribute to an improved understanding of aquaculture governance and enable the exploration of possibilities for greater alignment between EU and Chinese interventions in aquaculture around the world.

KEYWORDS
Agrifood, aquaculture, governance, international relations, politics, sustainability

1 | INTRODUCTION

Global patterns of trade, aid, and investment have changed drastically since the early 2000s, with South–South relations growing precipitously (Pieterse, 2017). China, in particular, has emerged as a primary driver of South–South cooperation, outpacing conventional donors in the Global North in key indicators (Mahbubani, 2018). Since China's 'going out' policy in 1999, followed by the Belt and Road Initiative (BRI) launched in 2013, China has increased its interventions across the Global South (Lee, 2022). More recently, these interventions have gradually diversified, with China embracing more environmental and development-based assistance alongside a previous focus on infrastructure, trade, and finance (Zhu et al., 2024). At the same time, in response to China's BRI, the European Union (EU) and other donors in the Global North have expanded cooperation with the Global South to invest in trade and infrastructure. The result has been a shifting global landscape in which China and the EU increasingly find themselves as competitors—but also potential collaborators—in trade, aid, and investment across the Global South.

Aquaculture is an overlooked area in which these global dynamics of competition and cooperation are rapidly emerging. After five decades of rapid expansion around the globe, aquaculture now constitutes a highly heterogeneous industry that makes an important contribution to global trade and nutrition security (Garlock et al., 2020; Hanson, 2019; Naylor et al., 2021). The sustainability of the sector is also highly variable, based as much on species and production technologies (Garlock et al., 2024) as it is on the effectiveness of state policy and regulation (Naylor et al., 2023). China and the EU have played particularly influential but contrasting roles in the growth, development, and sustainability of aquaculture internationally. China is the world's largest aquaculture producer (contributing 52.2 million tonnes or 43% of global production in 2020) and the largest exporter and processor of aquatic food (see Figure 1). It is also the second largest importer worldwide with a market value of USD 19 billion (MoA, 2021b), which is likely to increase as the country moves closer to being a net importer (Khan et al., 2023). The EU, by contrast, has largely chosen not to develop its domestic aquaculture, contributing only 1.1 million tonnes or 1% of global production (FAO, 2022). Yet, the EU remains the largest single market for aquatic products, valued at EUR 24.21 billion (EC, 2021c). Thus, despite aquaculture production being extremely low in the EU and high in China, both regions represent two of the largest domestic markets for aquatic foods, with substantial impacts on global production.

Both the EU and China have shown clear sustainability aspirations when it comes to their investments in aquaculture domestically and internationally. The EU, despite choosing not to promote the expansion of production in member countries (Garlock et al., 2020), portrays itself as a market regulatory power for sustainability in global food systems under its Green New Deal agenda (Bradford, 2020; Bush & Oosterveer, 2019). Similarly, since 2017 China has initiated efforts to "green" the country's BRI, creating the BRI International Green Development Coalition alongside a series of other green finance and sustainability initiatives (Gong & Lewis, 2023; Harlan, 2021; Zhu et al., 2024). Within this context, both countries aim to develop sustainable aquaculture but have done so in very different ways. Broad comparisons have been made in terms of the EU's focus on global sustainable development as opposed to the President Xi Jinping's "Ecological Civilization"—a Chinese approach to sustainable development (Goron, 2018; Hanson, 2019; Weins et al., 2023). However, little is known about how these general differences translate into varying approaches to sustainability abroad, especially in aquaculture.

This article is based on a scoping review (Arksey & O'Malley, 2005) comparing the EU's and China's strategies for governing aquaculture sustainability, both domestically (that is, within national jurisdictions) and abroad (through international cooperation with African nations). We do this by first examining sustainability as an

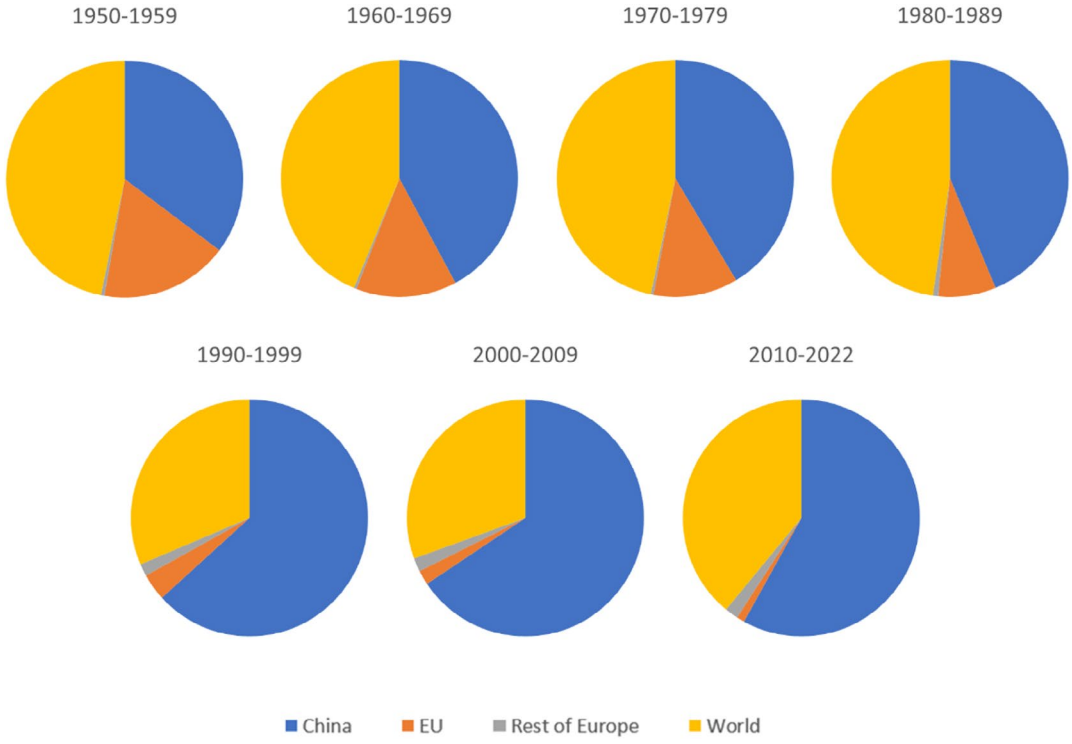

FIGURE 1 Contribution of the EU and China to global aquaculture production. *Note*: Data sourced from an online query FAO Fishstat (FAO 2024).

ambition and policy goal for domestic aquaculture in the EU and China through policy reviews of EU directives and regulations and Chinese aquaculture-related legislations and five-year plans. Then, using African aquaculture as a generalized case, we compare the strategies of the EU and China in shaping sustainability abroad through development aid, investment, and trade-related policies and projects. Our data was sourced from the EU Aid Explorer database, project overviews published by the European Commission and the Chinese government, and supplemented by information collected through academic and grey literature. Our findings and conclusions were validated through a two-part international hybrid workshop in November and December 2022 with technical experts and academics in the field from Africa, China, and the EU.

Africa provides a useful focus because it has emerged as an overseas destination for EU and Chinese aquaculture-related assistance to realize the continent's perceived unfulfilled potential for food security and local economic development (AU-IBAR, 2016; Chan et al., 2019). After decades of mixed results, aquaculture is experiencing a renewed expansion in many regions of Africa in response to growing domestic demand for aquatic foods—albeit from a low starting point (Garlock et al., 2020; Naylor et al., 2021). This new round of aquaculture expansion is driven by a mix of factors, including increased local investment catalysed by the expanding capacities of domestic agri-food sectors, as well as by international investment and development assistance—including from the EU and China (Naylor et al., 2023). As seen in other regions of the Global South, which altogether produce more than 90% of global farmed production (Garlock et al., 2020), the expansion of aquaculture has drawn attention to sustainability in carrying capacity, pharmaceutical use, and resource use efficiency (Jiang et al., 2022). It remains unclear, however, how new international aquaculture investments balance growth with the wider imperative of sustainably farmed aquatic production and consumption. Unpacking these dynamics surrounding aquaculture, we argue, provides rich ground for understanding the wider geopolitics of sustainable development of food provisioning.

The paper proceeds as follows. Section 2 compares EU and Chinese domestic governance of sustainable aquaculture. Section 3 then examines these actors' strategies for shaping the sustainable development of aquaculture in Africa. Section 4 discusses the wider implications of the current approaches adopted by the EU and Chinese for supporting African aquaculture. Finally, Section 5 concludes the paper with some reflections on the potential for EU–China cooperation to shape sustainable aquaculture in Africa and beyond.

2 | DOMESTIC SUSTAINABILITY GOVERNANCE

State support for domestic aquaculture in the EU and China differs markedly. China has historically supported the enormous growth of the industry through a series of economic reforms and expansionist policies, often at the expense of environmental protection (Jia et al., 2018). China has only recently shifted its attention to green growth and increasing imports of aquatic products for domestic consumption (Crona et al., 2020; Garlock et al., 2020). By contrast, despite recognition of aquaculture's contribution to nutrition (Guillen et al., 2019), the EU has historically limited the expansion of aquaculture through environmental and food regulation, while at the same time regulating aquaculture imports through its leading global market position (EC, 2021a). The following compares these domestic differences as a starting point for understanding the EU and Chinese approach to aquaculture development beyond their borders.

2.1 | Aquaculture governance in the EU

The EU has an ambiguous history of promoting growth while maintaining high levels of regulation over aquaculture in response to concerns over environmental impacts on inland and coastal regions. While there is significant public budget available to expand the industry (Abate et al., 2016), in line with recent calls to increase seafood security of the trade bloc (Suárez-de Vivero et al., 2019), decision-makers tend to emphasize precaution at the cost of creating inefficiencies between environmental regulation and production (Abate et al., 2018; Puszkarski & Śniadach, 2022). The EU's focus on environmental regulation supports its agenda for sustainable food, water and marine ecosystems. This, however, has limited the EU's contribution to global aquaculture production, which has declined from 17% in 1950 to just 1% in 2020 (see Figure 1). This has in turn meant that the EU depends on imports, which currently deliver 40% of the region's consumption of aquaculture products (EC, 2021a). This dependency has also driven EU engagement with the sustainable growth and regulation of aquaculture abroad.

The integration of aquaculture into EU policy has remained slow and ambiguous. The 1970 Common Fisheries Policy gave broad yet unspecified support to member states for developing aquaculture; while EU directives on environmental impact assessment, water quality, habitat protection, and animal health legislation were not specifically tailored to aquaculture (Peñas Lado, 2016). To develop a more coherent framework and action plan for the development of aquaculture in the EU, the European Commission turned to the development of aquaculture-specific strategies and guidelines (Long, 2016). Over the past two decades, sustainability has become central to the development of EU aquaculture through legislation and strategic guidelines. At the same time, aquaculture has shifted from "an 'add-on' outside core policy considerations" (Bostock et al., 2016, p. 718) to an increasingly important and ambitious policy area. Throughout, however, ambitions for achieving both growth and environmental performance have competed rather than complimented, even to the point (Asche, Eggert et al., 2022), where regulation has led to underutilization of available inland and coastal resources.

An agenda for increased aquaculture was first made explicit in the 2002 strategy for the sustainable development of European aquaculture (EC, 2002). However, this strategy has been variously assessed as overambitious; with unrealistic timeframes, unclear mechanisms for implementation, and inadequate financial support (ECA, 2014; Long, 2016; Peñas Lado, 2016). The second Aquaculture Strategy developed in 2009 (EC, 2010)

sought to overcome these shortcomings. This strategy set incentives, guidelines, and communications structuring support to the sector (Ertör & Ortega-Cerdà, 2017), as well as facilitating the investment of EUR 1.17 billion to the industry spent between 2000 and 2014 (Guillen et al., 2019). The EU built on this second strategy with the inclusion of aquaculture in the 2013 revision of the Common Fisheries Policy (EU, 2013), the development of the accompanying strategic guidelines for aquaculture (EC, 2013) and the European Maritime and Fisheries Fund (EU, 2014). The EU also identified aquaculture (Ertör & Ortega-Cerdà, 2017) as a key sector for sustainable economic growth under its wider Blue Growth strategy that is designed to support sustainable growth of the European maritime economy (EC, 2012).

At the same time, the EU has matched its ambitions for expanding aquaculture with its wider strategies for environmental sustainability. From the first Aquaculture Strategy onwards, the EU has sought to regulate key sustainability concerns over the sector's development, including the environmental impacts related to invasive species, feed, disease, the use of veterinary medicines, and animal welfare (EC, 2002, 2010, 2013; EP, 2020). Additionally, the European Fisheries Fund, which focuses on aquaculture as one of its five priority axes, emphasizes sustainability and environmental impact as conditions for subsidizing innovation (EU, 2006). The EU has also developed wider environmental conditions for the expansion of aquaculture, including the maintenance of good water quality through the Water Framework Directive (EU, 2000) and sustainable use and conservation of coastal waters through the Marine Strategy Framework Directive (EU, 2008).

The focus on sustainable aquaculture has been renewed under the EU's European Green Deal (EC, 2019), emphasizing the sector's contribution to a climate neutral, resource efficient, and competitive economy, in accordance with the United Nations Sustainable Development Goals (Puszkarski & Śniadach, 2022). Sustainable innovation is central to the EU Green Deal is through the bioeconomy and farm-to-fork strategies. Aquaculture falls under the "marine pillar" of the bioeconomy strategy (EC, 2018) with support for sustainable innovation linked to selective breeding methods, feed ingredient optimization and industrial processing, health and welfare monitoring, disease control and mitigation, preservation and bioremediation of aquatic ecosystems, and energy production. The Farm-to-Fork strategy (EC, 2020) further embeds sustainability into growth strategies for aquaculture with the aim of improving animal health, welfare, and social equity—including a significant expansion of organic production (Busacca & Lembo, 2019)—while contributing low-carbon food to European markets.

The Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030 (EC, 2021a) also contribute to the goals of the Green Deal. Central to this strategy is the development of a competitive and resilient aquaculture sector that can deliver nutritious and healthy aquatic food, while also creating jobs and reducing the EU's dependence on seafood imports (EC, 2021a). The guidelines integrate aquaculture with the EU's broader sustainability efforts in three ways. First, the Strategic Guidelines recognize the importance of cohesive legislation that directly targets the development of aquaculture. Second, increasing prominence is given to aquaculture delivering alternatives to terrestrial animal protein (EC, 2021a). Finally, and following ambitions in other sectors including fisheries (Kadfak & Antonova, 2021; Miller et al., 2014), the guidelines aim for European aquaculture to become "a global reference for sustainability" (EC, 2021a, p. 2). This ambition is supported directly through the EU's ongoing international engagement with third countries, as well as indirectly through the EU's support for food safety and organic standards (Hough, 2022).

2.2 | Aquaculture governance in China

China has a much less ambiguous history than the EU, having promoted the rapid and continued expansion of its aquaculture. China is the largest producer of farmed aquatic and marine food in the world, growing from 35% to 58% of global production over the past seven decades (Figure 1). The growth of the industry has coincided with rapid industrialization, wage growth, and urbanization, which has given the middle class purchasing power and demand for farmed aquatic food (Fabinyi, 2016; Newton et al., 2021). It has also been supported by the Chinese

state, with decision-makers preferring growth over regulation until the early 2010s (Broughton & Walker, 2010; Naylor et al., 2023). Under the wider ambitions of Ecological Civilization, however, significant attention has more recently been paid to balancing growth of the sector with environmental performance.

The initial phases of aquaculture development in China saw a shift from traditional aquaculture practices to the codification of aquaculture principles for production on state-owned farms in the late 1950s and early 1960s (Jia et al., 2018). This period was, nevertheless, characterized by a slower rate of growth given state control over land use and political upheaval during the Cultural Revolution (Hishamunda & Subasinghe, 2003). It was not until the country's reform and opening beginning in the late 1970s that greater importance was given to food self-sufficiency. The 1985 decree to reform policies to accelerate fisheries development enabled the free marketing of aquatic food and a move away from collective state-owned systems to household farming, aimed at supporting rural livelihoods and improving supply to urban areas (Jia et al., 2018; Yang, 2018). The 1986 Fisheries Law and the 1988 Food Basket Project subsequently accelerated aquaculture expansion by opening up inland lakes and reservoirs and coastal areas (Liang et al., 2018) to production, standardizing production systems, supporting research on compound feeds and breeding, and investing in processing capacity (Hu et al., 2021; Jia et al., 2018; Yang, 2018). These policies combined to make China the world's largest aquaculture producer by the early 1990s.

The 1990s saw the culmination of a broad range of legislation to explicitly address environmental concerns in its economic development plans, with mixed effects on aquaculture. Regulation of environmental pollution and the protection of aquatic wildlife affected the industry's access to land and water (Cao & Sang, 2019) and farming practices related to disease and drug control (Zou & Huang, 2015). At the same time, however, wider concern over the status of fisheries resources, leading to a zero growth of fisheries in Chinese waters by the end of the 1990s, led to further expansion of inland and coastal aquaculture (SCIOPRC, 1997). Explicit attention was also given to designating land suitable for aquaculture, to tackling seed quality and disease problems, in order to promote the sustainable, rapid, and healthy development of the sector (Yang, 2018). This designation of land also led to the consolidation of inactive family farms into commercial scale farms (Edwards, 2015), as well as the redesignation of ponds back to rice farming to respond to concerns over national food security (Naylor et al., 2023).

From 2000 to 2011 China began to explicitly expand both regulation on food safety and environment for aquaculture through the 10th and 11th Five-Year Plans. Within these plans, food safety and environment were framed in terms of the further modernization of the sector, the stabilization of the fishery economy and rural economy, and ensuring food security (MoA, 2001, 2006, 2011). Concern over food safety of aquaculture products, in response to antibiotic use in production (Lulijwa et al., 2020), resulted in the integration of the sector into wider Chinese food policies. In 2003, the Ministry of Agriculture (MoA) issued the first regulation to Control the Safety and Quality in Aquaculture in an attempt to improve record-keeping of production volumes and drug and chemical use, as well as labelling of fish products in the market (Broughton & Walker, 2010). This resulted, as outlined by Jia et al. (2018), in better record-keeping, expanded farm registration, and state certification of "Hazardless Products" from "Hazardless Farming Sites." As a result of these reforms, local government was able to improve public services and management, as well as promote "commodity centred value chain development."

Since 2010, environmental concerns around the expansion of aquaculture have been further embedded within national policy in line with China's "Ecological Civilization" agenda. The concept of "Ecological Civilization," introduced in the 12th Five-Year Plan (2011–2015), has been used to guide environmental actions across the full range of sectors, including aquaculture. The 12th Five-Year Plan (2011–2015) included the "Three Red Lines" policy, designed to control the withdrawal and efficient use of water in response to concerns about overall water security (Newton et al., 2021; Tang & Liu, 2018). This policy led to bans on the use of fertilizers and modifications of water bodies (e.g. fencing bays and inlets) previously used for aquaculture. To ensure environmental quality, cages and pen culture systems have been downsized or completely removed from lakes, reservoirs, and rivers—often at the cost of farmer livelihoods (Newton et al., 2021; Wang et al., 2018). The 13th Five-Year Plan (2016–2020) further emphasized Ecological Civilization, and

in doing so gave a primary role for state-led environmental efforts that place environmental protection alongside economic development (Cao et al., 2017; Naylor et al., 2023; Zhu et al., 2024). This has led to the integration of environmental farming methods in the 14th Five-Year Plan for Aquaculture and Fisheries (2021–2025) and the Fisheries Law, including an explicit policy for water treatment, a transition away from pond fertilization and direct feeding of wild juvenile fish to compound feeds and, for the first time, the implementation of ecological restoration measures (He & Zhang, 2022; Liu et al., 2015; Shen & Huang, 2021) and control of veterinary drug residues in aquatic products (MoA, 2021a; Naylor et al., 2023).

3 | ENGAGEMENT WITH AFRICA

Although the EU and China have had very different approaches to developing their domestic aquaculture, both have expressed commitment to the promotion of global sustainability goals and ambitions. Under the rhetoric of the Green Deal, Europe is positioning itself as a normative and regulatory benchmark for the sustainable growth of the sector beyond its borders. China is similarly extending its wider ambitions for a "global Ecological Civilization" beyond its borders (Xue et al., 2023; Zhu et al., 2024), through the transfer of technology, infrastructure, and expertise through trade and economic partnership. The following explores how both the EU and China translate these ambitions through their international engagement in African aquaculture development cooperation, trade, and investment.

3.1 | EU international engagement

The EU's aspiration to become the "global standard" for aquaculture sustainability and quality is explicitly stated in its development cooperation policies, as well as international trade and investment policy and regulation. In line with the Farm-to-Fork strategy that emphasizes how EU policy is already a gold standard for producing food that is "safe, plentiful, nutritious and of high quality [while] protecting human, animal, and plant health, and of the efforts of farmers, fishers, and aquaculture producers" (EC, 2020, p. 2). This is echoed in the Strategic Guidelines for EU aquaculture, which reiterates the EU's aspiration "to become a reference as a sector that is resilient, competitive, and a global standard in sustainability and quality"—also explicitly in line with the UN Sustainable Development Goals (SDGs) (EC, 2021a, p. 16). These ambitions are also more broadly embedded within the Green New Deal (EC, 2019) in terms of extending expertise in "green regulation" to enable partner countries to design similar policies across a range of sectors, including aquaculture.

Echoing these ambitions, the EU's largest development interventions relating to aquaculture (in terms of funding) have focused on strengthening institutional capacities and regulatory framework at both regional and national levels (see Table 1). At regional level, the EU has supported the implementation of the African Union 2014 Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa (PFRSFA), with the ambition of improving coordinated policy-making for aquaculture across continental, regional, and national levels (AUC-NEPAD, 2014), starting with the African Union Ten Years Aquaculture Action Plan for Africa 2016–2025 directly funded through EU FishGov and FishTrade projects (see Table 1 and AU-IBAR, 2016, 2022a, 2022b). The Action Plan was further elaborated through the EU FishTrade project, aimed at integrating intraregional fish trade into member states' development and food security policies. It also supported the adoption and implementation of market-based forms of regulation in line with the EU Farm-to-Fork strategy related to certification, quality and safety standards, and regulation—all aimed to "jumpstart market-led sustainable commercial aquaculture" (AU-IBAR, 2016, p. vi). More broadly, the EU has also supported the African Blue Economy Strategy, based on their own European Blue Growth Strategy, in which sustainable aquaculture expansion was one of five key focus areas for regional wealth generation and youth employment (AU-IBAR, 2019).

TABLE 1 Selected EU aquaculture-related development interventions in Africa.

Programme	Type	Geographical focus	Goals	Years	Contribution
Strengthening Institutional Capacity to Enhance Governance of the Fisheries Sector in Africa (FishGov1) (EC, 2022b)	North–South cooperation	Continental	Improved institutional and policy environment.	2014–2018	EUR 11 million
Enhancing sustainable fisheries management and aquaculture development in Africa (FishGov2) (AU, 2021)	North–South cooperation	Continental	Improved coordination of fisheries and aquaculture policies in Africa; improved representation of Africa in international fora.	2021–2025	EUR 12 million
Improving Food Security and Reducing Poverty through Intra-regional Fish Trade in sub-Saharan Africa (FishTrade) (Keeley et al., 2020)	North–South cooperation	Sub-Saharan Africa	Enhancing capacity of regional and pan-African organizations to support integration of intra-regional fish trade into development and food security policy agendas.	2015–2018	EUR 5.5 million
FISH4ACP – Unlocking the potential of sustainable fisheries and aquaculture in Africa, the Caribbean and the Pacific (FAO, 2023)	North–South cooperation	West Africa, Indian Ocean, Caribbean, Pacific	Strengthening fisheries and aquaculture value chains; contributing economic growth, social equity, and environmental sustainability.	2020–2025	EUR 47.5 million
TRUEFISH – Fish farming in Lake Victoria (Lattice Aquaculture Trust, 2022)	North–South cooperation	East Africa/ Lake Victoria	Developing competitive, gender equitable, and sustainable commercial aquaculture.	2019–2024	EUR 10 million

Normative ambitions to support sustainable aquaculture development are also embedded within the EU's Economic Partnership Agreements and Sustainable Fisheries Partnership Agreements with African regions and countries. These instruments of the EU's Comprehensive Strategy enhance trade relations with the continent (as well as the Caribbean and Pacific regions) and regional economic integration to promote economic development while upholding "social justice, respect for human rights, high labour and environmental standards, and health and safety protection" (EC, 2014, p. 15). Aquaculture features as a key area of development in these agreements. The Economic Partnership Agreement with the East African Community supports the ambitions for regionally aligned "sustainable and responsible development of the living inland, marine resources, aquaculture … through increased investment, capacity building and improved market access" (EC, 2022, p. 24). Reflecting the wider international ambitions of the EU, the agreement embeds normative goals related to biodiversity and managing water conflicts within aquaculture technology transfer, regulation, monitoring and surveillance systems, ecolabelling, financing

joint EU-African ventures and promoting EU-African trade. Similar ambitions are outlined in bilateral Sustainable Fisheries Partnership Agreements with Morocco, Liberia, and Madagascar that promote aquaculture in line with the European Farm-to-Fork and Blue Growth strategies (EC et al., 2023).

African seafood imports to the EU have high levels of rejection—making up 41% of seafood imports that are non-compliant with EU food safety standards (Kareem et al., 2023). In response, EU partnership agreements have supported building capacity in African countries for food safety monitoring and compliance, including accreditation by European authorities, adherence to labelling regulations, and compliance with hazard analysis and critical control point standards (Keeley et al., 2020). Additionally, emphasizing its normative support to economic and political regionalization, the FishTrade project provided direct support to increased capacity for intraregional trade in Southern African Development Community, the Economic Community of Central African States, and the Economic Community of West African States in support of food security and reducing poverty (Keeley et al., 2020). Within this project, support was provided for the development of legal frameworks, standards, and monitoring capacity for regional exports. Moving forward, normative goals will continue to be integrated into trade policy under the Green New Deal (EC, 2020), with explicit emphasis given to Green Alliances for sustainable food systems that integrate social wellbeing and nature-positive outcomes with economic growth in trade and engagement with Africa.

Finally, the EU plans to further embed normative sustainability in finance regulation in its engagement with low- and middle-income countries. Domestic EU investments in aquaculture are, like other sectors, governed by the EU's European sustainable finance package, including the Sustainable Finance Disclosure Regulation and the EU Taxonomy of Sustainable Activities (EC, 2021b). It is not yet clear how the taxonomy and disclosure regulation will be transferred to emerging markets. However, recommendations of the High-Level Expert Group on Sustainable Finance for low- and middle-income countries established by the European Commission could have direct consequences for African aquaculture (Amaeshi et al., 2024). For instance, the panel recommended that in line with the Farm-to-Fork strategy, the EU should support African countries to develop stable sources of finance in support of positive sustainability outcomes, including green, social, and sustainability bonds (and marine-focused "blue bonds") that have already been applied to aquaculture in countries such as the Seychelles (Benzaken et al., 2024). The panel also recommended that the EU help improve the depth and size of capital markets in low and middle-income countries by sustainability-linked bonds that are allocated to specific green, social, and sustainable projects against pre-defined sustainable performance targets and indicators.

3.2 | China's international engagement

China's development cooperation also aims to address issues surrounding aquaculture sustainability. However, the scope and focus of its interventions, and consequently the way sustainability features within them, differ from that of the EU. China's overall global development cooperation is based on an explicit principle of promoting the greater good and shared interests (SCIOPRC, 2021b), with a primary focus on South–South cooperation. This cooperation is also predominantly enabled by China's BRI, established in 2013, which serves as a platform for improving infrastructure, as well as enabling trade and investment, deepening financial integration and policy coordination and strengthening "people-to-people bonds"—including in relation to aquaculture (NDRC et al., 2015).

The Chinese authorities have expressed their intentions to support the member countries of the BRI to develop their aquaculture through "investment, training talent or sending fishing experts to provide technical guidance" (Xiaodong, 2019, paragraph 11). In an attempt to increase the environmental sustainability of the initiative, the Chinese government presented a new vision for a greener BRI in 2017, and the BRI International Green Development Coalition was subsequently launched in 2019. The objective of the coalition is to promote the integration of sustainable development into the initiative and to help realize the SDGs. Additionally, China engages African nations through various bilateral and multilateral cooperation mechanisms, such as the Forum

on China-Africa Cooperation, which sets out broad agreements on the development of the food sector in Africa, including aquaculture (SCIOPRC, 2021a, 2021b).

The policies guiding Chinese development cooperation emphasize the principle of "respecting each other as equals" (SCIOPRC, 2021b, p. 6), which includes a commitment to respecting national sovereignty, non-interference, and win-win targets (SCIOPRC, 2021b). As such, Chinese activities do not tend to engage with the political and governance settings of their partner countries. Although China's reluctance to interfere in host country political and regulatory frameworks differs from the approach of the EU, the country aligns to broader ambitions to promote sustainable development abroad and help developing countries carry out the UN 2030 Agenda for Sustainable Development (SCIOPRC, 2021b).

China's interventions in African aquaculture are also supported by stated priorities such as promoting sustainable industrial development, eco-environmental protection, poverty reduction, and contribution to livelihoods (SCIOPRC, 2021b). Along with other development activities, these aquaculture interventions have most recently shifted from primarily South–South engagement through direct bilateral or multilateral cooperation to also include multilateral bodies such as the FAO, an arrangement referred to as triangular cooperation. Under this arrangement, Chinese ministries or organizations cooperate with multilateral organizations to jointly implement projects in developing countries. This newer form of cooperation has only become prominent since the launch of the BRI (Zhu et al., 2024). Both South–South cooperation and triangular cooperation have enabled China to share innovations and good practice from its domestic aquaculture—including inputs, seed, and feed; aquaculture facilities and infrastructure; appropriate policy and legal frameworks and reliable and efficient data collection systems (Jia et al., 2018)—although the emphasis tends to be more on technical cooperation than governance interventions, as shown in Table 2.

China's development cooperation in African aquaculture has focused on sharing knowledge and technology transfer aligned to domestic "green" production ambitions. These projects are based on the assumption that Chinese knowledge, science, and technologies inherently represent good practice and that recipient countries will be empowered to pursue their independent sustainable development (SCI, 2021b). This has led to a strong focus on either training staff from African countries in China or transferring technology by sending fishing experts to provide technical guidance to African countries (see Table 2). In this capacity, the Freshwater Fisheries Research Centre of the Chinese Academy of Fishery Sciences delivered aquaculture training programmes to participants from Africa since 1992; it has also become a FAO reference centre and has trained professionals from all over the world, 35% of whom were from African countries (Jia et al., 2018). In addition, there are a series of technology transfer projects (see Table 2), including the China-International Fund for Agricultural Development (IFAD) South–South and Triangular Cooperation in Ghana and Nigeria (Bikara et al., 2021), the Agricultural Technology Transfer trilateral programme in Malawi and Uganda and Agriculture Technology Demonstration Centres in South Africa and Uganda (Jiang et al., 2016; Jing & Yuan, 2013; Luo et al., 2014). These projects focused on capacity development for sustainable aquaculture, improving livelihoods and food security, and promoting commercial opportunities between China and African countries. They also focused on the development of research and development aimed at improving African catfish and tilapia breeding, hatchery and nursery techniques, as well as value chains and social and economic sustainability.

The Chinese government has also promoted foreign investment in African food sectors, including aquaculture. The government has made comprehensive use of foreign aid, preferential loans, export credits, loan interest discounts, and direct financial support to encourage Chinese enterprises to move abroad (Luo et al., 2010). China has also developed the Investment Policy Framework for Sustainable Development that stipulates that Chinese enterprises must conduct feasibility and uncertainty analyses that broadly include sustainability (Donou-Adonsou & Lim, 2018). The goal of sustainable development for Chinese outbound investment is reflected not only in the normative documents of relevant ministries and commissions but also in the bilateral investment agreements and related regional economic and trade agreements that China has recently signed with foreign countries (Maurin & Yeophantong, 2013). Although Chinese investments in aquaculture can offer development and employment

TABLE 2 Selected Chinese aquaculture-related development interventions in Africa.

Programme	Type	Geographical focus	Goals	Years	Contribution*
Aquaculture training programs (Jia et al., 2018)	South–South cooperation	Continental	Capacity building; transfer of aquaculture technology; integrated fish farming; rice-fish farming; didactical training for aquaculture.	1992 onwards	Provision of training, scholarships, etc.
Promoting Sustainable Cage Aquaculture in West Africa (ProSCAWA) (Bikara et al., 2021; Nasr-Allah & Al-Kenawy, 2021)	Triangular cooperation	Ghana, Nigeria	Promote sustainable cage culture to empower rural communities; Enhance employment, incomes and nutritional status of rural households.	2020–2023	USD 500,000 Cages Capacity building, knowledge exchange
Agricultural Technology Transfer (AgriTT) trilateral programme (Jing & Yuan, 2013)	Triangular cooperation	Ghana, Nigeria, Malawi	Technology transfer and developing value-added services around new technologies and farming practices.	2013–2017	Expertise
South African Agriculture Technology Demonstration Centers (ATDC) (Luo et al., 2014)	Bilateral	South Africa	Technology transfer and business development.	2009–2017	USD 8.5 million
China–FAO–Uganda South–South Cooperation project (phases I, II, III) (UNOSSC, 2018)	South–South cooperation	Uganda	Demonstration farms; Establishing fish farmers' association; Training; Technical support.	2012–2018, 2022–2025	Expertise
Poverty Alleviation through Tilapia Industry Chain Development in Tanzania (UNOSSC, 2022)	South–South cooperation	United Republic of Tanzania	Technical extension services, capacity-building training, academic partnerships.	2020–2022	Expertise
FAO–China South–South Cooperation Project in the Democratic Republic of the Congo (UNOSSC, 2022)	South–South cooperation	Democratic Republic of the Congo	Accessible technology development, hand-operated feed distributor, nursery design, and cage culture demonstration.	2019	Expertise
Technical Extension and Application of Sustainable Aquaculture in Mozambique and Namibia project (UNOSSC, 2022)	South–South Cooperation	Namibia, Mozambique	Researcher and farmer training; Development of technical manuals; Transfer of scientific equipment.	2013–2014	Expertise

*Funding may also have been provided for many of these projects, but it is not included in cases where this was not explicitly stated.

opportunities, the lack of reporting requirements within China means that their impacts are currently unknown (Crona et al., 2020). It is also unclear, given China's non-interventionist edict, how more structural sustainability impacts are achieved, especially in countries with weak domestic governance. Instead, where outbound aquaculture investment has faced significant challenges, funds have often been redirected to other seafood-related sectors like fishing and processing (Ray et al., 2022).

Currently, the trade in aquaculture products from Africa appears to be extremely limited, despite concerns. In global terms, three-quarters of China's seafood imports, dominated by wild caught species, but including farmed Atlantic salmon, catfish, and shrimp, are directed at processing and re-export (Asche, Yang et al., 2022). Seafood exports from Africa to China have grown, yet still represent less than 2% of total Chinese imports—and are mostly attributed to Chinese distant water fleets (Abbott et al., 2021). Nevertheless, Africa is China's second largest export market for low-value frozen fin fish (Yang et al., 2020) and the second largest market for farmed tilapia exports (MoA, 2022; Zhang et al., 2017). China has requirements for food safety and quality and has made efforts to improve seafood traceability, although to a limited extent (Asche, Yang et al., 2022; Fabinyi, 2016). Sustainability issues have become more prominent through the China Aquatic Products Processing and Marketing Alliance (CAPPMA), an industry association supervised by the MoA (Sun, 2022). However, these efforts have largely focused on supporting compliance with international certification schemes such as Aquaculture Stewardship Council and Global Seafood Alliance, both of which have gained only a limited foothold in the Chinese market (Fabinyi, 2016; Sun, 2022). And while CAPPMA has introduced Guidelines on Responsible Seafood Sourcing, these appear to be oriented to engage with international standards rather than setting an agenda for market-led influence on importing markets (Sun, 2022). Given that differences between import prices to the EU and China are getting smaller, the lack of normative market regulation related to sustainability may be a factor in increasing China's overall market share (Crona et al., 2020). Nevertheless, in contrast to the EU, it is possible that Chinese engagement in Africa is driven primarily by the assumption that the continent serves as an important destination market for, rather than a source of, aquatic foods.

4 | DISCUSSION

As expected, our results show clear differences in the overall governance of EU and Chinese domestic aquaculture. The perceived overregulation of aquaculture by the EU has limited the sector's overall expansion. This is in large part a function of the multi-level governance of the EU, with competing interests and shifting power relations not only between the institutions of the EU and the member states but also between public and private sectors (Krause & Stead, 2017; Partelow et al., 2022). In contrast, China's governance of its aquaculture has long been geared towards growth and expansion. Centralized, top-down leadership with considerable decision-making power at the higher levels of government and a more blurred line between the public and private sectors has enabled direct goal setting and state-sponsored expansion.

Despite these clear differences, both the EU and China have increasingly adopted sustainability as a key component of their aquaculture policies. The EU has elevated its aquaculture sector from having a marginal position to increasingly being seen as a strategic sector for food provision, as well as a way to achieve wider restoration and conservation goals in inland and coastal waterways (Colsoul et al., 2021). The EU has also set out clear ambitions for addressing key sustainability challenges related to feed, seed, and ecosystem impacts. And despite ongoing challenges of aligning governance structures to ecosystem-based and transboundary ambitions for the sector, the EU continues to invest in harmonizing and mainstreaming sustainability for aquaculture across Member States (Carter, 2021). In contrast, China's domestic focus on sustainability grew out of the recognition of the adverse effects associated with the rapid expansion of aquaculture production. Recent shifts in Chinese policy, as with the EU, have emphasized the need for integrated approaches to govern aquaculture in inland and coastal regions, although with far greater emphasis on mitigating high levels of nutrient emissions at both farm to ecosystem scales (Luo et al., 2018).

The convergence on the need to integrate sustainability into domestic aquaculture policy also reflects the wider context of integrating sustainability across all policy areas in both the EU and China. Both have converged their attention around cross-sectoral commitments to improve the environmental, social, and economic dimensions of sustainability. As illustrated above, sustainability (and climate mitigation) has become a central pillar of the EU's overarching policy programme, while China has embraced Ecological Civilization as a central normative framework. The focus on sustainability in aquaculture in each area falls within these wider sustainability-related policy frameworks. Despite this broad convergence, however, aquaculture in China has become a distinct area of sectoral policy and governance, which has enabled both expansion and direct environmental control. By contrast, the EU's focus on aquaculture sustainability has been embedded within competing policy agendas, first competing with fisheries, then with wider themes of marine conservation, before only recently being embedded within food policy. However, aquaculture policy instruments in both the EU and China increasingly reflect the larger strategic ambitions of sustainability and Ecological Civilization and will play a role in shaping the future domestic provision of aquatic food.

The second main finding of our review is that, beyond their domestic ambitions and frameworks, the EU and China demonstrate clear differences in how they integrate sustainability into their international development cooperation. Despite their similar alignment to international sustainability, such as the UN SDGs and the 2030 Agenda, our results highlight divergent strategies for trade, aid, and investment for aquaculture development in Africa.

The EU, in line with its wider ambitions for global environmental diplomacy and being a global reference for sustainable production and consumption, embeds normative sustainability ambitions in its aquaculture-oriented development cooperation and trade negotiations. As with other food domains, including fisheries, the EU uses its normative power to "socialize" countries engaging in development cooperation through agreements and joint regulation, both unilaterally and multilaterally (Schimmelfennig, 2015). Similarly, the EU uses its market power to shape sustainability through market access and trade regulation (Damro, 2015), even when current levels of trade in aquaculture products remain relatively limited—as seen in the case of African aquaculture.

In contrast, China remains committed to development cooperation through mutual assistance and learning, framed in terms of South–South cooperation or, when the Global North is involved, triangular cooperation (Ray et al., 2015). As highlighted by the various aquaculture projects summarized in Table 2, China's overseas involvement is largely devoid of explicit normative negotiation (Zhou & Esteban, 2018). Instead, China focuses on capacity building and technology transfer, with the underlying assumption that the tools and knowledge they provide can underpin a future orientation for the green development of the sector.

We also find that both the EU and China have established broader sustainability frameworks to guide the financial sector. However, the early stages of these frameworks make it unclear how conditions for sustainability will be set and enforced for domestic and international investments in specific industries, including aquaculture. It is also unclear whether and how the EU and China will link these investment frameworks to development cooperation and trade with Africa, both in terms of aquaculture and beyond. Further uncertainty comes from the incorporation of aquaculture into EU economic and fisheries partnership agreements and in China's wider BRI. In both cases, it is not clear what role sustainable investment frameworks and trade will play in supporting the sector. Nevertheless, given that domestic rather than export-oriented production is the main target of Chinese involvement in Africa at present, it appears that greening is more likely to be integrated into development cooperation and foreign investment than through trade.

Based on the EU's and China's domestic policy instruments, frameworks and priorities, there seem to be considerable opportunities, but also clear challenges, for aligning both regions' international engagement with sustainability in African aquaculture. On the one hand, China's continued engagement in triangular cooperation with the EU and Africa—including the programme funding this research—provides substantial opportunity to use China's vast expertise in domestic aquaculture production, together with the EU's more general

experience with development assistance in the Global South. The clear challenge, however, is whether China and the EU's international ambitions can be complementary—especially given that the former is focused on (implicit) non-interventionist principles and the latter on pursuing normative ideals as part of its development cooperation, from human rights and democracy to gender and sustainability (Boening et al., 2013). The EU has often required recipient countries to implement structural changes, revise policies, or implement "good governance" (Hout, 2010). Meanwhile, China has positioned itself as an alternative international development partner, with less overt normative conditions related to issues such as the environmental sustainability of the aquaculture sector, and instead emphasizing South–South collaboration and mutual exchange. These different approaches to international development, underlined by a mix of partnership and competition, have consequences for where and how the EU and China can cooperate in the development of African aquaculture (Ntousas & Minas, 2021).

However, recent developments indicate that the roles that both the EU and China play in international development and cooperation are changing, which could open up further opportunities for convergence. Pivoting away from good governance reforms and toward hard infrastructure investments, for example, the EU embraced the Global Gateway strategy (EC, 2021e) in 2021. According to the president of the European Commission, the strategy "will support smart investments in quality infrastructure, respecting the highest social and environmental standards, in line with the EU's values and standards. The Global Gateway strategy is a template for how Europe can build more resilient connections with the world" (EC, 2021d, paragraph 2). In addition, EU membership in the Partnership for Global Infrastructure and Investment, along with the United States and other G7 countries, also signals a move away from its traditional focus on development assistance towards investment and private sector collaboration. These recent shifts toward infrastructure and investment indicate the EU's turn toward overseas projects that may more closely resemble China's BRI.

Meanwhile, China has started to move away from the original BRI setup, first by establishing the BRI Green Development Coalition in 2019 and then by establishing the Global Development Initiative in 2022, indicating a general shift from trade and investment to development cooperation. Similar to the BRI, the Global Development Initiative is another colossal global endeavour, but focuses more on development, health, and environmental assistance, in contrast to the BRI's focus on trade, finance, and infrastructure. To promote a "more robust, greener and more balanced global development" (Xi, 2021), the Global Development Initiative presents a set of core principles that explicitly prioritize development, a "people-centred approach" that aims to achieve "benefits for all," "innovation-driven development," "harmony between man and nature," and "results-oriented actions" (Xi, 2021). The extent to which China's turn toward more conventional development cooperation will entail more normative engagements and governance interventions with recipient countries, as typically occurs within EU international diplomacy, remains to be seen. However, given the extensive experience with development cooperation and China's recent experience in infrastructure investment, there is ample opportunity for mutual learning from both sides.

5 | CONCLUSION

Aquaculture may seem an unlikely sector to explore the new geopolitics of sustainable development. Nevertheless, understanding EU and Chinese engagement with Africa is important for at least three reasons.

First, these regions' interventions will shape the growth of aquaculture globally and determine the degree to which their own stated objectives of ensuring the sustainability of farmed aquatic products are translated into African contexts.

Second, future EU and Chinese engagement around aquaculture, both independently and (potentially) in partnership with each other, will be a testbed for how African countries are able to achieve sustainability in the sector while negotiating their own ambitions for expanding aquatic food production.

Lastly, the importance of the Global South in aquaculture production means that the support that China and the EU provide to improve the sustainability of the sector can have wider consequences for both economic development and nutrition security.

Our results demonstrate the opportunities and challenges that African countries will face when engaging with the EU and China. As European and Chinese expertise, technology, and funding are made available to African partner countries to grow their aquaculture, there are clear opportunities to ensure that this growth meets both environmental and social sustainability goals. However, sustainable growth will depend on the degree to which the EU and China translate their own ambitions for sustainable farmed aquatic food into the African context. Although China's non-interventionist approach and focus on technology and knowledge transfer may foster the sector's rapid growth, it could also lead to increased environmental impact. In contrast, complying with the strict EU rules may not be feasible for some local producers, even though they may benefit from sustainability outcomes. Furthermore, African countries may prioritize increasing their production and food security outcomes—as China did—and hence consider sustainability a less important goal. Carefully navigating such tensions will be essential for the holistic development of African aquaculture.

Our results also indicate, albeit tentatively, opportunities for EU–China collaboration on sustainable aquaculture. While both the EU and China have different approaches to incorporating sustainability into international support for the sector, there is also a degree of convergence and complementarity. The EU's recent turn towards infrastructure and investment alongside China's recent turn towards global development could open new opportunities for collaboration on the ground combining each other's historical expertise and traditional focuses. China has also shown interest in collaborating and learning from multilateral bodies in its development cooperation, as seen from the types of cooperation they have been deploying in overseas activities. This may offer more opportunities for reforming the regulatory framework of recipient countries without renouncing China's principle of non-interventionism. On the other hand, the increasing demand for seafood in both the EU and China, and the subsequent pressure to increase imports, could lead to greater competition in international trade and investment.

Ensuring that sustainability is integrated into the development ambitions of the EU and China when assisting with African aquaculture requires more than high-level policy goals, instruments, and funding. These factors are important in setting the conditions within which the sustainability of the sector can be steered, but they depend on translation into practice on the ground. Translating policy goals, instruments, and funding into improved practices in African aquaculture is the larger challenge that both the EU and China currently face. Our results provide a starting point for understanding how the EU and Chinese sustainability ambitions will affect this translation. Further research is needed to determine the extent of policy implementation on the ground.

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ORCID

Simon R. Bush https://orcid.org/0000-0002-6689-2246

REFERENCES

Abate, T. G., Nielsen, R., & Nielsen, M. (2018). Agency rivalry in a shared regulatory space and its impact on social welfare: The case of aquaculture regulation. *Aquaculture Economics & Management*, *22*(1), 27–48. https://doi.org/10.1080/13657305.2017.1334243

Abate, T. G., Nielsen, R., & Tveterås, R. (2016). Stringency of environmental regulation and aquaculture growth: A cross-country analysis. *Aquaculture Economics & Management*, *20*(2), 201–221. https://doi.org/10.1080/13657305.2016.1156191

Abbott, J. K., Willard, D., & Xu, J. (2021). Feeding the dragon: The evolution of China's fishery imports. *Marine Policy*, *133*, 104733. https://doi.org/10.1016/j.marpol.2021.104733

Arksey, H., & O'Malley, L. (2005). Scoping studies: Towards a methodological framework. *International Journal of Social Research Methodology*, *8*(1), 19–32. https://doi.org/10.1080/1364557032000119616

Asche, F., Eggert, H., Oglend, A., Roheim, C. A., & Smith, M. D. (2022). Aquaculture: Externalities and policy options. *Review of Environmental Economics and Policy*, *16*(2), 282–305. https://doi.org/10.1086/721055

Asche, F., Yang, B., Gephart, J. A., Smith, M. D., Anderson, J. L., Camp, E. V., Garlock, T. M., Love, D. C., Oglend, A., & Straume, H.-M. (2022). China's seafood imports—Not for domestic consumption? *Science*, *375*(6579), 386–388. https://doi.org/10.1126/science.abl4756

African Union – Interafrican Bureau for Animal Resources. (2016). *The Continental Aquaculture Development Action Plan 2016–2025: Stakeholders' perspectives for implementing the Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa*. https://www.globalseaweed.org/wp-content/uploads/2019/02/AU_IBAR_2016_10year_plan.pdf

African Union – Interafrican Bureau for Animal Resources. (2019). *Africa Blue Economy Strategy*. http://repository.au-ibar.org/handle/123456789/421

African Union – Interafrican Bureau for Animal Resources. (2022a). *Enhancing sustainable fisheries management and aquaculture development in Africa: A programme for accelerated reform of the sector*. https://www.au-ibar.org/projects/enhancing-sustainable-fisheries-management-and-aquaculture-development-africa-fishgov-2

African Union – Interafrican Bureau for Animal Resources. (2022b). *Strengthening institutional capacity to enhance governance of the fisheries sector in Africa*. https://www.au-ibar.org/projects/strengthening-institutional-capacity-enhance-governance-fisheries-sector-africa

African Union Commission–New Partnership for Africa's Development. (2014, May). *Policy Framework and Reform Strategy for Fisheries and Aquaculture in Africa*. http://repository.au-ibar.org/handle/123456789/1204Benzaken

Amaeshi, K., Amrane, O., Ariza, M., Ballabriga, A., Beck, H., Das, G., Gotore, M., Håkansson, N., Hamon, L., Jaulin, T., Jonasson, M., Kuszewski, J., Mesi, S., Orji, U., Ranger, N., Ruhweza, A., Rüst, T., Shamsudin, Z., Stickler, C. … Vinageras, I. (2024, April). *High-Level Expert Group on scaling up sustainable finance in low- and middle-income countries*. European Commission. https://international-partnerships.ec.europa.eu/scaling-sustainable-finance-low-and-middle-income-countries-high-level-expert-group_en#the-groups-mission

Bikara, I., El-Sira, I. S., & Nasr-Allah, A. M. (2021). *Monitoring, evaluation and learning plan for the IFAD-SSTC-funded Promoting Sustainable Cage Aquaculture in West Africa (ProSCAWA) project in Ghana and Nigeria*. WorldFish. https://hdl.handle.net/20.500.12348/4559

Boening, A., Kremer, J.-F., & van Loon, A. (2013). *Global power*. Europe: *Vol. 2. Policies, actions and influence of the EU's external relations*. Springer. https://doi.org/10.1007/978-3-642-32416-1

Bostock, J., Lane, A., Hough, C., & Yamamoto, K. (2016). An assessment of the economic contribution of EU aquaculture production and the influence of policies for its sustainable development. *Aquaculture International*, *24*(3), 699–733. https://doi.org/10.1007/s10499-016-9992-1

Bradford, A. (2020). *The Brussels effect: How the European Union rules the world*. Oxford University Press. https://doi.org/10.1093/oso/9780190088583.001.0001

Broughton, E. I., & Walker, D. G. (2010). Policies and practices for aquaculture food safety in China. *Food Policy*, *35*(5), 471–478. https://doi.org/10.1016/j.foodpol.2010.05.007

Busacca, E., & Lembo, G. (2019). EU regulation on organic aquaculture. In G. Lembo & E. Mente (Eds.), *Organic aquaculture* (pp. 23–39). Springer. https://doi.org/10.1007/978-3-030-05603-2_2

Bush, S. R., & Oosterveer, P. (2019). *Governing sustainable seafood*. Routledge. https://doi.org/10.4324/9781315780429

Cao, J., & Sang, F. (2019). 中国渔业70年:政策演变与高质量绿色发展 Zhōng guó yú yè 70 nián: zhèng cè yǎn biàn yǔ gāo zhì liàng lǜ sè fā zhǎn [Seven decades of China's fishery: Policy evolution and high-quality green development]. *Journal of Poyang Lake*, *05*, 44–46.

Cao, L., Chen, Y., Dong, S., Hanson, A., Huang, B., Leadbitter, D., Little, D. C., Pikitch, E. K., Qiu, Y., & Sadovy de Mitcheson, Y. (2017). Opportunity for marine fisheries reform in China. *Proceedings of the National Academy of Sciences*, *114*(3), 435–442. https://doi.org/10.1073/pnas.1616583114

Carter, C. (2021). Actor intentions implementing 'ecosystem Europe': The contested case of aquaculture. *Environmental Science & Policy*, *124*, 305–312. https://doi.org/10.1016/j.envsci.2021.07.002

Chan, C. Y., Tran, N., Pethiyagoda, S., Crissman, C. C., Sulser, T. B., & Phillips, M. J. (2019). Prospects and challenges of fish for food security in Africa. *Global Food Security*, *20*, 17–25. https://doi.org/10.1016/j.gfs.2018.12.002

Colsoul, B., Boudry, P., Pérez-Parallé, M. L., Bratoš Cetinić, A., Hugh-Jones, T., Arzul, I., Mérou, N., Wegner, K. M., Peter, C., Merk, V., & Pogoda, B. (2021). Sustainable large-scale production of European flat oyster (Ostrea edulis) seed for ecological restoration and aquaculture: A review. *Reviews in Aquaculture*, *13*(3), 1423–1468. https://doi.org/10.1111/raq.12529

Crona, B., Wassénius, E., Troell, M., Barclay, K., Mallory, T., Fabinyi, M., Zhang, W., Lam, V. W. Y., Cao, L., Henriksson, P. J. G., & Eriksson, H. (2020). China at a crossroads: An analysis of China's changing seafood production and consumption. *One Earth*, *3*(1), 32–44. https://doi.org/10.1016/j.oneear.2020.06.013

Damro, C. (2015). Market power Europe: Exploring a dynamic conceptual framework. *Journal of European Public Policy*, *22*(9), 1336–1354. https://doi.org/10.1080/13501763.2015.1046903

Donou-Adonsou, F., & Lim, S. (2018). On the importance of Chinese investment in Africa. *Review of Development Finance*, *8*(1), 63–73. https://doi.org/10.1016/j.rdf.2018.05.003

Edwards, P. (2015). Aquaculture environment interactions: Past, present and likely future trends. *Aquaculture*, *447*, 2–14. https://doi.org/10.1016/j.aquaculture.2015.02.001

European Commission. (2002). *Communication from the Commission to the Council and the European Parliament: A strategy for the sustainable development of European aquaculture*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52002DC0511

European Commission. (2010, June 17). *A new impetus for the Strategy for the Sustainable Development of European Aquaculture* (Document 52010IP0243). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52010IP0243

European Commission. (2012). *Commission Communication*. Blue Growth opportunities for marine and maritime sustainable growth. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52012DC0494

European Commission. (2013). *Communication from the Commission to the European Parliament and the Council: Strategic guidelines for the sustainable development of EU aquaculture*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52013DC0229

European Commission. (2014). *Trade for all: Towards a more responsible trade and investment policy*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52015DC0497

European Commission. (2018). *Bioeconomy – the European way to use our natural resources: Action plan 2018*. https://data.europa.eu/doi/10.2777/79401

European Commission. (2019). *Communication from the Commission to the European Parliament, the European Council, the Council, the European Economic and Social Committee and the Committee of the Regions - The European Green Deal*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52019DC0640

European Commission. (2020). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: A farm to fork strategy for a fair, healthy and environmentally-friendly food system* (Document 52020DC0381). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex:52020DC0381

European Commission. (2021a). *Communication from the Commission to the European Parliament and the Council: Strategic guidelines for a more sustainable and competitive EU aquaculture for the period 2021 to 2030 (COM/2021/236)*. Directorate-General for Maritime Affairs and Fisheries, European Commission. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM:2021:236:FIN

European Commission. (2021b). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions: Strategy for financing the transition to a sustainable economy* (Document 52021DC0390). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX:52021DC0390

European Commission. (2021c). *The EU fish market 2021 edition*. Publications Office of the European Union. https://doi.org/10.2771/563899

European Commission. (2021d, December 1). *Global Gateway: Up to €300 billion for the European Union's strategy to boost sustainable links around the world* [Press release]. https://ec.europa.eu/commission/presscorner/detail/en/ip_21_6433

European Commission. (2021e). *Joint communication to the European Parliament, the Council, the European Economic and Social Committee, the Committee of the Regions and the European Investment Bank: The Global Gateway* (Document 52021JC0030). https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=CELEX:52021JC0030

European Commission. (2022). *Economic Partnership Agreement Between the East African Community Partner States, of the one part*, And the European Union and its Member States of the other part. https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:52016PC0064

European Commission, Fisheries Maritime Affairs F&S, Megapesca L Da, Poseidon, Caillart, B., Cappell, R., Defaux, V., & Macfadyen, G. (2023). *Evaluation and analysis of the Sustainable Fisheries Partnership Agreements (SFPAs) between the EU and third countries including an in-depth analysis of the sectoral support component of the SFPAs – Final report*. Publications Office of the European Union. https://data.europa.eu/doi/10.2771/52188

European Court of Auditors. (2014). *The effectiveness of Fisheries Fund support for aquaculture*. https://www.eca.europa.eu/lists/ecadocuments/sr14_10/qjab14010enc.pdf

Ertör, I., & Ortega-Cerdà, M. (2017). Unpacking the objectives and assumptions underpinning European aquaculture. *Environmental Politics*, *26*(5), 893–914. https://doi.org/10.1080/09644016.2017.1306908

European Union. (2000). *Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy*. https://eur-lex.europa.eu/eli/dir/2000/60/oj/eng

European Union. (2006, July 27). *Council Regulation (EC) No 1198/2006 of 27 July 2006 on the European Fisheries Fund*. https://eur-lex.europa.eu/legal-content/EN/ALL/?uri=celex:32006R1198

European Union. (2008, June 17). *Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive)*. https://eur-lex.europa.eu/eli/dir/2008/56/oj/eng

European Union. (2013, December 11). *Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy* (Document 32013R1380). https://eur-lex.europa.eu/eli/reg/2013/1380/oj/eng

European Union. (2014, May 15). *Regulation (EU) No 508/2014 of the European Parliament and of the Council of 15 May 2014 on the European Maritime and Fisheries Fund and repealing Council Regulations (EC) No 2328/2003, (EC) No 861/2006, (EC) No 1198/2006 and (EC) No 791/2007 and Regulation (EU) No 1255/2011 of the European Parliament and of the Council*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv:OJ.L_.2014.149.01.0001.01.ENG

European Parliament. (2020). *European Parliament resolution of 12 June 2018 on towards a sustainable and competitive European aquaculture sector: Current status and future challenges* (Document 52018IP0248). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=oj:JOC_2020_028_R_0004

Fabinyi, M. (2016). Sustainable seafood consumption in China. *Marine Policy*, *74*, 85–87. https://doi.org/10.1016/j.marpol.2016.09.020

Food and Agriculture Organization of the United Nations. (2022). *The state of world fisheries and aquaculture 2022: Towards blue transformation*. https://doi.org/10.4060/cc0461en

Food and Agriculture Organization of the United Nations. (2024). Global aquaculture production Quantity (1950 - 2022). FishStat Online Inquiry. https://www.fao.org/fishery/statistics-query/en/aquaculture/aquaculture_quantity

Garlock, T., Asche, F., Anderson, J., Bjørndal, T., Kumar, G., Lorenzen, K., Ropicki, A., Smith, M. D., & Tveterås, R. (2020). A global blue revolution: Aquaculture growth across regions, species, and countries. *Reviews in Fisheries Science & Aquaculture*, *28*(1), 107–116. https://doi.org/10.1080/23308249.2019.1678111

Garlock, T. M., Asche, F., Anderson, J. L., Eggert, H., Anderson, T. M., Che, B., Chávez, C. A., Chu, J., Chukwuone, N., Dey, M. M., Fitzsimmons, K., Flores, J., Guillen, J., Kumar, G., Liu, L., Llorente, I., Nguyen, L., Nielsen, R., Pincinato, R. B. M., & Tveteras, R. (2024). Environmental, economic, and social sustainability in aquaculture: The aquaculture performance indicators. *Nature Communications*, *15*, 5274. https://doi.org/10.1038/s41467-024-49556-8

Gong, W., & Lewis, J. I. (2023). The role of international engagement in greening China's Belt and Road Initiative. *Environmental Politics*, *32*(7), 1208–1230. https://doi.org/10.1080/09644016.2023.2223074

Goron, C. (2018). Ecological civilisation and the political limits of a Chinese concept of sustainability. *China Perspectives*, *2018*(4), 39–52. https://doi.org/10.4000/chinaperspectives.8463

Guillen, J., Asche, F., Carvalho, N., Fernández Polanco, J. M., Llorente, I., Nielsen, R., Nielsen, M., & Villasante, S. (2019). Aquaculture subsidies in the European Union: Evolution, impact and future potential for growth. *Marine Policy*, *104*, 19–28. https://doi.org/10.1016/j.marpol.2019.02.045

Hanson, A. (2019, December). *Ecological civilization in the People's Republic of China: Values, action, and future needs* (ADB East Asia Working Paper No. 21). Asian Development Bank. 10.22617/WPS190604-2

Harlan, T. (2021). Green development or greenwashing? A political ecology perspective on China's green Belt and Road. *Eurasian Geography and Economics*, *62*(2), 202–226. https://doi.org/10.1080/15387216.2020.1795700

He, J., & Zhang, X. (2022). China revamping decades-old Fisheries Law to combat illegal, unreported, and unregulated fishing: Stimulating the intersection of law, technology, and markets. *Frontiers in Ecology and Evolution*, *10*, 777497. https://doi.org/10.3389/fevo.2022.777497

Hishamunda, N., & Subasinghe, R. P. (2003). *Aquaculture development in China: The role of public sector policies* (FAO Fisheries Technical Paper No. 427). Food and Agriculture Organization of the United Nations. https://www.fao.org/3/Y4762E/y4762e00.htm

Hough, C. (2022). *Regional review on status and trends in aquaculture development in Europe – 2020*. FAO Fisheries and Aquaculture Circular. https://doi.org/10.14629/lreg-2015-1

Hout, W. (2010). Governance and development: Changing EU policies. *Third World Quarterly*, *31*(1), 1–12. https://doi.org/10.1080/01436590903557298

Hu, F., Zhong, H., Wu, C., Wang, S., Guo, Z., Tao, M., Zhang, C., Gong, D., Gao, X., Tang, C., Wei, Z., Wen, M., & Liu, S. (2021). Development of fisheries in China. *Reproduction and Breeding*, *1*(1), 64–79. https://doi.org/10.1016/j.repbre.2021.03.003

Jia, J., Miao, W., Cai, J., & Yuan, X. (2018). Contribution of Chinese aquaculture to the sector, globally, and to overall food security. In J.-F. Gui, Q. Tang, Z. Li, J. Liu, & S. S. de Silva (Eds.), *Aquaculture in China: Success Stories and Modern Trends* (pp. 1–24). Wiley Blackwell. https://doi.org/10.1002/9781119120759.ch1_1

Jiang, L., Harding, A., Anseeuw, W., & Alden, C. (2016). Chinese agriculture technology demonstration centres in Southern Africa: The new business of development. *The Public Sphere*. https://agritrop.cirad.fr/582983/1/ATDC%20Paper.pdf

Jiang, Q., Bhattarai, N., Pahlow, M., & Xu, Z. (2022). Environmental sustainability and footprints of global aquaculture. *Resources, Conservation and Recycling*, *180*, 106183. https://doi.org/10.1016/j.resconrec.2022.106183

Jing, X. J., & Yuan, X. (2013). 渔业援外人力资源开发合作项目浅析 —— 基于淡水渔业研究中心援外培训工作实践 [Preliminary Analysis on Foreign Aid Human Resources Development and Cooperation Projects in Fishery— A Case Study on Foreign-aid Training Courses in Freshwater Fisheries Research Center]. *Chinese Agricultural Science Bulletin*, *29*(8), 71–74.

Kadfak, A., & Antonova, A. (2021). Sustainable networks: Modes of governance in the EU's external fisheries policy relations under the IUU regulation in Thailand and the SFPA with Senegal. *Marine Policy*, *132*, 104656. https://doi.org/10.1016/j.marpol.2021.104656

Kareem, F. O., Martínez-Zarzoso, I., & Brümmer, B. (2023). What drives Africa's inability to comply with EU standards? Insights from Africa's institution and trade facilitation measures. *The European Journal of Development Research*, *35*(4), 938–973. https://doi.org/10.1057/s41287-022-00547-9

Keeley, J., Mullett, I., & Isaac, H. (2020, February). Final evaluation of the FishTrade Project. *WorldFish*. https://hdl.handle.net/20.500.12348/4090

Khan, M. A., Hossain, M. E., Islam, M. S., Rahman, M. T., & Dey, M. M. (2023). Shrimp export competitiveness and its determinants: A novel dynamic ARDL simulations approach. *Aquaculture Economics & Management*, *27*(2), 221–248. https://doi.org/10.1080/13657305.2022.2089772

Krause, G., & Stead, S. M. (2017). Governance and offshore aquaculture in multi-resource use settings. In B. H. Buck & R. Langan (Eds.), *Aquaculture perspective of multi-use sites in the open ocean* (pp. 149–162). Springer. https://doi.org/10.1007/978-3-319-51159-7_7

Lee, C. K. (2022). Global China at 20: Why, how and so what? *The China Quarterly*, *250*, 313–331. https://doi.org/10.1017/S0305741022000686

Liang, Y., Cheng, X., Zhu, H., Shutes, B., Yan, B., Zhou, Q., & Yu, X. (2018). Historical evolution of mariculture in China during past 40 years and its impacts on eco-environment. *Chinese Geographical Science*, *28*(3), 363–373. https://doi.org/10.1007/s11769-018-0940-z

Liu, X., Li, Z., Liao, C., Wang, Q., Zhu, A., Li, D., Li, Y., & Tang, Z. (2015). The development of ecological impact assessment in China. *Environment international*, *85*, 46–53. https://doi.org/10.1016/j.envint.2015.08.004

Long, R. (2016). European Union aquaculture law and policy: Prescriptive, diffuse and requiring further reform. In N. Bankes, I. Dahl, & D. L. VanderZwaag (Eds.), *Aquaculture law and policy: Global, regional and national perspectives* (pp. 130–158). Edward Elgar Publishing. https://doi.org/10.4337/9781784718114.00015

Lulijwa, R., Rupia, E. J., & Alfaro, A. C. (2020). Antibiotic use in aquaculture, policies and regulation, health and environmental risks: A review of the top 15 major producers. *Reviews in Aquaculture*, *12*(2), 640–663. https://doi.org/10.1111/raq.12344

Luo, X., Zhang, S., Zhang, L., Zhang, X., Shen, S., & Wang, D. (2014). Human capacity building for China-Aid agriculture technology demonstration center in Africa [Article in Chinese]. *World Agriculture*, *5*, 177–179.

Luo, Y., Xue, Q., & Han, B. (2010). How emerging market governments promote outward FDI: Experience from China. *Journal of World Business*, *45*(1), 68–79. https://doi.org/10.1016/j.jwb.2009.04.003

Luo, Z., Hu, S., & Chen, D. (2018). The trends of aquacultural nitrogen budget and its environmental implications in China. *Scientific Reports*, *8*(1). https://doi.org/10.1038/s41598-018-29214-y

Mahbubani, K. (2018). *Has the West lost it?: A provocation*. Penguin.

Maurin, C., & Yeophantong, P. (2013). Going global responsibly? China's strategies towards sustainable overseas investments. *Pacific Affairs*, *86*(2), 281–303. https://doi.org/10.5509/2013862281

Miller, A. M., Bush, S. R., & Mol, A. P. (2014). Power Europe: EU and the illegal, unreported and unregulated tuna fisheries regulation in the West and Central Pacific Ocean. *Marine Policy*, *45*, 138–145. /10.1016/j.marpol.2013.12.009

Ministry of Agriculture. (2001). 全国农业和农村经济发展第十个五年计划(2001–2005年) *The 10th Five-Year Plan for the Development of Agriculture and Rural Economy in China (2001–2005)*. URL:https://www.ndrc.gov.cn/fggz/fzzlgh/gjjzxgh/200506/W020191104623910180258.pdf.

Ministry of Agriculture. (2006). 全国渔业发展第十一个五年规划 (2006—2010年). Quán guó yú yè fā zhǎn dì shí yī gè wǔ nián guī huà (2006—2010 nián) [11th Five-Year Plan for National Fishery Development]. http://www.moa.gov.cn/nybgb/2006/dseq/201806/t20180616_6152371.htm

Ministry of Agriculture. (2011). *12th Five-Year Plan for National Fishery Development*. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC156589/

Ministry of Agriculture. (2021a). *14th Five-Year Plan for National Fishery Development*. https://www.fao.org/faolex/results/details/en/c/LEX-FAOC209619/

Ministry of Agriculture. (2021b). 2021中国渔业统计年鉴. *2021* Zhōngguó yúyè tǒngjì niánjiàn *[Chinese Fishery Statistical Yearbook 2021]*. Bureau of Fisheries, Ministry of Agriculture.

Ministry of Agriculture. (2022). *2022 Zhōngguó yúyè tǒngjì niánjiàn [Chinese Fishery Statistical Yearbook 2022]*. China Agriculture Press.

National Development and Reform Commission, Ministry of Foreign Affairs, and Ministry of Commerce of the People's Republic of China. (2015, March). *Vision and actions on jointly building Silk Road Economic Belt and 21st-Century Maritime Silk Road*. http://2017.beltandroadforum.org/english/n100/2017/0410/c22-45.html

Naylor, R., Fang, S., & Fanzo, J. (2023). A global view of aquaculture policy. *Food Policy*, *116*, 102422. https://doi.org/10.1016/j.foodpol.2023.102422

Naylor, R. L., Hardy, R. W., Buschmann, A. H., Bush, S. R., Cao, L., Klinger, D. H., Little, D. C., Lubchenco, J., Shumway, S. E., & Troell, M. (2021). A 20-year retrospective review of global aquaculture. *Nature*, *591*(7851), 551–563. https://doi.org/10.1038/s41586-021-03308-6

Newton, R., Zhang, W., Xian, Z., McAdam, B., & Little, D. C. (2021). Intensification, regulation and diversification: The changing face of inland aquaculture in China. *Ambio*, *50*, 1739–1756. https://doi.org/10.1007/s13280-021-01503-3

Ntousas, V., & Minas, S. (2021). Introduction: Facing the Belt and Road from the European Union. In V. Ntousas & S. Minas (Eds.), *The European Union and China's Belt and Road: Impact, engagement and competition* (pp. 3–10). Routledge. https://doi.org/10.4324/9780367853235

Partelow, S., Schlüter, A. O., Manlosa, A., Nagel, B., & Octa Paramita, A. (2022). Governing aquaculture commons. *Reviews in Aquaculture*, *14*(2), 729–750. https://doi.org/10.1111/raq.12622

Peñas Lado, E. (2016). *The common fisheries policy: The quest for sustainability*. John Wiley & Sons. https://doi.org/10.1002/9781119085676

Pieterse, J. N. (2017). *Multipolar globalization: Emerging economies and development*. Routledge. https://doi.org/10.4324/9781315312859

Puszkarski, J., & Śniadach, O. (2022). Instruments to implement sustainable aquaculture in the European Union. *Marine Policy*, *144*, 105215. https://doi.org/10.1016/j.marpol.2022.105215

Ray, R., Chi, H.-K. K., Kini, A. P., & Liu, Y. N. (2022). *Swimming upstream: Assessing China's overseas investment push for aquaculture* (GCI Working Paper No. 023). https://www.bu.edu/gdp/files/2022/09/GCI_WP_023_FIN.pdf

Ray, R., Gallagher, K. P., Lopez, A., & Sanborn, C. (2015). *China in Latin America: Lessons for South-South cooperation and sustainable development*. G. E. G. I. Boston University. https://hdl.handle.net/2144/27512

Schimmelfennig, F. (2015). Europeanization beyond Europe. *Living Reviews in European Governance*, *10*, 1. https://doi.org/10.14629/lreg-2015-1

Shen, H., & Huang, S. (2021). China's policies and practice on combatting IUU in distant water fisheries. *Aquaculture and Fisheries*, *6*(1), 27–34. https://doi.org/10.1016/j.aaf.2020.03.002

State Council Information Office of the People's Republic of China. (1997, January 27). 中华人民共和国国务院办公室 *Zhōnghuárénmín Gònghéguó Guówùyuàn Bàn gōngshì Directive Notice on the approval and implementation of the instruction of the Ministry of Agriculture to further expedite the development of the fishery sector*. State Council of the People's Republic of China

State Council Information Office of the People's Republic of China. (2021a, November). *China and Africa in the new era: A partnership of equals* [White paper]. https://www.mfa.gov.cn/eng/zy/gb/202405/t20240531_11367447.html

State Council Information Office of the People's Republic of China. (2021b). *China's international development cooperation in the new era* [White paper]. http://english.mee.gov.cn/Resources/publications/Whitep/202101/P020210122374486901993.pdf

Suárez-de Vivero, J. L., Mateos, J. C. R., del Corral, D. F., Barragán, M. J., Calado, H., Kjellevold, M., & Miasik, E. J. (2019). Food security and maritime security: A new challenge for the European Union's ocean policy. *Marine Policy*, *108*, 103640. https://doi.org/10.1016/j.marpol.2019.103640

Sun, Y. (2022). *Certifying China: The rise and limits of transnational sustainability governance in emerging economies*. The MIT Press. https://doi.org/10.7551/mitpress/14192.001.0001

Tang, Q., & Liu, H. (2018). Development Strategies and prospects–driving forces and sustainable development of Chinese aquaculture. In J.-F. Gui, Q. Tang, Z. Li, J. Liu, & S. S. de Silva (Eds.), *Aquaculture in China: Success stories and modern trends* (pp. 629–646). Wiley Online Books. https://doi.org/10.1002/9781119120759.ch7_4

Wang, Q., Li, Z., Gui, J.-F., Liu, J., Ye, S., Yuan, J., & De Silva, S. S. (2018). Paradigm changes in freshwater aquaculture practices in China: Moving towards achieving environmental integrity and sustainability. *Ambio*, *47*(4), 410–426. https://doi.org/10.1007/s13280-017-0985-8

Weins, N. W., Zhu, A. L., Qian, J., Barbi Seleguim, F., & Da Costa Ferreira, L. (2023). Ecological civilization in the making: The 'construction' of China's climate-forestry nexus. *Environmental Sociology*, *9*(1), 6–19. https://doi.org/10.1080/23251042.2022.2124623

Xi, J. (2021, September 22). *Xi Jinping attends the General Debate of the 76th Session of the United Nations General Assembly and delivers an important speech*. Ministry of Foreign Affairs. https://www.mfa.gov.cn/eng/zy/jj/GDI_140002/xw/202109/t20210923_9580033.html

Xiaodong, W. (2019, April 24). China extends helping hand in aquaculture. *China Daily*. https://www.chinadaily.com.cn/cndy/2019-04/24/content_37461685.htm

Xue, B., Han, B., Li, H., Gou, X., Yang, H., Thomas, H., & Stückrad, S. (2023). Understanding ecological civilization in China: From political context to science. *Ambio*, *52*(12), 1895–1909. https://doi.org/10.1007/s13280-023-01897-2

Yang, B., Anderson, J. L., & Asche, F. (2020). Determinants of China's Seafood Trade Patterns. *Marine Resource Economics*, *35*(2), 97–112. https://doi.org/10.1086/708617

Yang, N. (2018). Chinese aquaculture: Its contribution to rural development and the economy. In J.-F. Gui, Q. Tang, Z. Li, J. Liu, & S. S. de Silva (Eds.), *Aquaculture in China: Success stories and modern trends* (pp. 55–69). Wiley Online Books. https://doi.org/10.1002/9781119120759.ch1_4

Zhang, W., Murray, F. J., Liu, L., & Little, D. C. (2017). A comparative analysis of four internationally traded farmed seafood commodities in China: Domestic and international markets as key drivers. *Reviews in Aquaculture*, *9*(2), 157–178. https://doi.org/10.1111/raq.12110

Zhou, W., & Esteban, M. (2018). Beyond balancing: China's approach towards the Belt and Road Initiative. *Journal of Contemporary China*, *27*(112), 487–501. https://doi.org/10.1080/10670564.2018.1433476

Zhu, A. L., Weins, N., Lu, J., Harlan, T., Qian, J., & Seleguim, F. B. (2024). China's nature-based solutions in the Global South: Evidence from Asia, Africa, and Latin America. *Global Environmental Change*, *86*, 102842. https://doi.org/10.1016/j.gloenvcha.2024.102842

Zou, L., & Huang, S. (2015). Chinese aquaculture in light of green growth. *Aquaculture Reports*, *2*, 46–49. https://doi.org/10.1016/j.aqrep.2015.07.001

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