



# Why common interests and collective action are not enough for environmental cooperation – Lessons from the China-EU cooperation discourse on circular economy

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## ABSTRACT

Scholars have argued that circular economy (CE) must be upscaled and globalized to address excessive resource extraction and waste generation. Many CE practitioners consider the first international CE agreement between China and the EU a milestone towards such an effort. This analysis shows why this expectation is premature. European and Chinese stakeholders' optimistic and depoliticized CE narratives disable communication regarding development disparities, negative competition and distrust, which shape geopolitical rivalry. While skeptical narratives that address political barriers exist, they fall short of suggesting alternatives. Based on 72 stakeholder interviews, 40 documents and participant observation, these results highlight the critical importance of investigating narrative strategies to repoliticize environmental cooperation. Such narrative strategies would support contestation and negotiation on development disparities and open channels for joint conceptualization of implementation scales for environmental strategies, circular or otherwise. We therefore propose using constructivist perspectives of international relations to explore discursive barriers and enablers to global environmental action.

## 1. Introduction

In an age of increasing globalization, international cooperation is a central but challenging process for the governance of socio-environmental change. Traditional explanations for cooperation failures often focus on problems of free-riding and disparate interests, yet literature from climate governance has recently shown such explanations have weak empirical support and suggests that narratives may offer novel insights (Aklin and Mildener, 2020; Meckling and Allan, 2020; Stevenson, 2021). Understanding the politics that shape international cooperation through a discursive lens is therefore significant for global environmental governance (Adger et al., 2001; Andonova and Mitchell, 2010; Bäckstrand and Löwbrand, 2006; Biermann and Pattberg, 2008; Hajer and Versteeg, 2005; Orach and Schlüter, 2016).

To address this research gap, we discursively analyze the first international circular economy (CE) cooperation, using the Memorandum

of Understanding (MoU) on Circular Economy between China and the European Union (EU) as an entry point (European Commission and Chinese Development and Reform Commission, 2018). Many CE practitioners consider the MoU as a milestone towards global efforts to address pressing environmental problems of extraction, resource use and waste management (Ellen MacArthur Foundation, 2018). As CE is a prominent but contested international narrative on managing socio-environmental change and achieving sustainability transitions, it presents an opportune discursive case for studying international cooperation in environmental governance.

Proponents see CE as a 'paradigm shift' (Prieto-Sandoval et al., 2018, p.605) away from the 'linear economy' of high rates of resource extraction and waste production towards a 'closed loop' system of sustainable production and consumption (Geissdoerfer et al., 2017; Korhonen, Nuur et al., 2018; Prieto-Sandoval et al., 2018). Critics argue CE prevents radical systemic change by perpetuating practices

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embedded in established ecological modernization (or eco-modernism) discourse (Hobson and Lynch, 2016; Valenzuela and Böhm, 2017), whose central claim is that environmental sustainability can be achieved within existing modern institutions of capitalist markets and governments (Mol 2002; Fremaux and Barry 2019). Eco-modernism is commonly characterized by win-win scenarios of decoupling environmental degradation from human activity (Bäckstrand and Lövbrand, 2006; Hajer, 1995) through technological innovation and increased efficiency (Christoff, 1996; Dryzek, 2013), despite empirical evidence that rebound effects and burden shifting offset decoupling gains made from technological efficiency (Isenhour 2016). What is undisputed is CE's ability to bring diverse actors together and to transcend disparate interests and collective action problem framings commonly used to explain international cooperation stagnation (Blomsma and Brennan, 2017; Ghisellini et al., 2016; Machin, 2019). China and the EU's CE agreement appears to be one example that support proponents' argument that CE is a concept that unites interests and enables global environmental efforts. At the same time, CE literature reveals little international cooperation on CE conceptualization, standardization, or implementation, not even between China and the EU, CE frontrunners who have been developing CE policy programs within their own jurisdictions (Flynn et al., 2019; Kern et al., 2020; Korhonen, Honkasalo et al., 2018; McDowall et al., 2017).

How can we make sense of such divergent expectations and assessments in the international arena? As a first step, we investigate China-EU CE cooperation narratives to understand the factors shaping potentials and limitations of this new international cooperation between an old (EU) and a new (China) global environmental leader. To do so, we apply Argumentative Discourse Analysis (Hajer, 2006), using data from 72 interviews with key stakeholders, 40 documents related to China-EU CE, and participant observation at relevant international events. This approach enables the generation of novel insights for international environmental cooperation because it views cooperation as a sense-making process. It sheds light on the relationships between diverse groups of political actors as well as avenues for human expressions of identity and meaning (Leipold and Winkel, 2017; Yanow, 2014). Understanding the values, beliefs, and sentiments behind stakeholder CE conceptualizations in discourse gives a good indication of the enabling and disabling factors that shape China and Europe's joint CE actions. This paper will 1) introduce institutions, discourses, agents and practices relevant to China-EU CE efforts leading up to the 2018 MoU, 2) trace CE cooperation narratives in China-EU relations and explore their discursive dynamics, and 3) identify discourse coalitions and stakeholder conceptualizations of the CE concept. These results expand scholarship on CE development beyond national and regional comparisons to international relations, as well as facilitate a realistic evaluation of China-EU CE cooperation's prospects and implications thereof for the global governance of environmental change. Most importantly, they add new insights into opportunities and obstacles for international environmental cooperation.

## 2. Theoretical approach: Argumentative Discourse Analysis

To analyze the politics of China-EU's efforts for CE coordination and what this means for international environmental cooperation, this paper draws upon the discursive tradition of interpretive policy analysis, which has gained prominence in environmental politics scholarship since the 1990s (Bäckstrand and Lövbrand, 2006; Hajer, 1995; Litfin, 1994). Rather than focusing on national interests or cost-benefits, our analysis focuses on narratives and coalitions as well as their connected values, beliefs, and sentiments in the context of China-EU relations, especially what the qualities of these relationships mean for the conceptualization of their CE cooperation. We believe that much can be learned from this regarding the political prospects of a relatively new concept in international relations because discourses and narratives illuminate the underlying meaning structures shaping political

discussions (Dryzek, 2013) and the resulting actions (Sharp and Richardson, 2001). These meaning structures are critical for explaining current policy processes and anticipating how they might develop in the future because they determine how people translate human difficulties into policy problems, constitute policy instruments, and create coalitions of support or opposition (Fischer and Forester, 1993; Fischer and Miller, 2017; Roe, 1994; Yanow, 2000).

In particular, this study draws on Argumentative Discourse Analysis (ADA) (Hajer, 2006). We understand discourse analysis as theory and methodology intertwined, which means that the methodology assumes certain basic philosophical premises. Discourses are ideas of realities and the exchange of these ideas constructs social reality. For example, CE cooperation may mean different things to different stakeholders, and each actor group attributes their own ideas to this term; their evolving exchanges shape the reality of CE in China-EU relations. Based on these theoretical premises, we follow the common definition of "discourse" as a sum of (topically related) communicative interactions between people (Keller, 2013) and the definition of "narratives" (or "storylines") as a subset of overarching discourses. 'Narrative' is defined as a story that ascribes meaning to social or physical phenomena by connecting a sequence of events and actions in a plot, including, excluding, and emphasizing problems, actors, and events to provide an interpretation of who or what is significant (Feldman et al., 2004; Hajer, 1995; Kaplan, 1993). We use this definition to operationalize our narrative analysis, which is made explicit in the results, and visualized in Table 2 and 3.

Following Hajer (1995), we consider dominance and strength of a narrative to be constituted by discourse structuration, where actors draw on the ideas, concepts, and categories of a given discourse to maintain credibility. Discourse institutionalization is defined as when a given discourse is translated into institutional arrangements. Discourse coalitions are not necessarily connected to particular actors but rather to practices in the context of which actors employ narratives, and (re) produce and transform particular discourses. Some actors may utter contradictory statements or help reproduce different discourse-coalitions. Discourse-coalition is thus defined as "the ensemble of story lines, the actors that utter these story lines, and the practices through which these story lines get expressed" (Hajer, 2006, p.71).

## 3. Materials and methods

This study collected data from key policy, industry, research and NGO stakeholders from international, Chinese and European institutions whose work is related to circular economy efforts between China and the EU (Appendix A lists interviewees by their affiliation). The data set is comprised of:

- 20 explorative interviews
- 72 semi-structured interviews conducted primarily in Brussels and Beijing, with a select few in Geneva, Helsinki, the Netherlands and Shanghai
  - between 30 and 120 min in length
  - 61 were recorded and transcribed
  - 11 could not be recorded because interviewees did not give consent; these have been documented using on-site notes as well as follow-up memory protocol
- 40 documents related to China-EU CE (e.g., environmental dialogues, joint declarations and event programs, press releases, speeches, media articles, publications; Appendix B lists all documents)
- Participant observation at the International Circular Economy Conference and Exhibition in Beijing (November 2017), Circular Economy Stakeholder Conference in Brussels (March 2019), and the World Circular Economy Forum in Helsinki (June 2019)

The data was gathered between October 2017 and August 2019. In a first step, the first author conducted exploratory interviews with

scholars and practitioners from China (primarily in Beijing) and the EU (primarily in Brussels) knowledgeable on different aspects of China-EU CE cooperation. Interviewees were identified using CE literature, media as well as participant observation at the 2017 International CE Conference and Exhibition in Beijing. These interviews provided context for CE cooperation in China-EU relations, guidance for setting our case boundaries and offered insights for our interview questionnaires. Next, a Google internet search, using the keywords “circular economy”, “European Union” and “China” was conducted to gather relevant communication and policy documents (Appendix B lists all documents), which together with information gathered from the exploratory interviews, suggested a preliminary list of 50 potentially relevant interviewees. Finally, the in-depth interviews were conducted between January and August 2019. Following a snowballing method, the interview list was refined and expanded based on new suggestions from interviewees in an iterative process, which was repeated until the remaining individuals could not be reached for an interview (after five attempts) or refused the interview. In the end, 72 interviews could be secured in English and Mandarin Chinese and were transcribed according to the recordings without translation. Participant observation (Spradley, 2016) was conducted at the international CE events identified through the desktop research and interviews, enabling an understanding of the document and interview data in an embedded context. Participation was limited to occasional conversations to gain deeper insight into important events identified through document analysis and interviews. Field notes were taken throughout the period of observation in written, dictation and photographic form.

We analyzed the interview data deductively (Keller, 2013), based on categories provided by Hajer’s ADA, and inductively, inspired by grounded-theory techniques (Saldaña, 2015). Appendix C specifies the interview questions and corresponding analytical categories of ADA. Inductive analysis was cross-referenced between five analysts to achieve intersubjective plausibility (Sousa, 2014). Further documents and participant observation data from relevant stakeholder events were analyzed to contextualize and complement the interview results (Schwartz-Shea and Yanow, 2013).

To assure the protection of interviewees’ personal data, aggregated stakeholder categories (e.g., A = academic institutions) have been developed for the purpose of referencing direct quotes in this article (see Appendix A). The interviews in each category were numbered according to the interview date (e.g., A1 = first interviewee from this category, P7 = seventh interviewee from this category). The codes do not represent the order of interviewees’ affiliations presented in Appendix A. Capitalized words in quotations reflect emphasis made by interviewees. In the results section, direct quotations from Mandarin Chinese interviews are translated into English for comprehension purposes.

## 4. Results

All results are based on the interviews, documents and participant observation. In section 4.1, we first present information on the key institutions, actors, discourses and practices that paved the way for the CE MoU, before presenting CE cooperation narratives and coalitions between China and the EU after the 2018 CE MoU in Sections 4.2, 4.3 and 4.4.

### 4.1. The lead-up to present day CE narratives

CE first appeared in China-EU relations in the 1990s through bilateral dialogues initiated by China with EU member states to seek both technology and policy learning to fast-track its industrialization process (e.g. CH\_R1, CH\_P4, EU\_P9, EU\_P7). At the time, CE ideas were embodied by the term ‘recycling economy’ as it was conceptualized

primarily as recycling and cleaner production to achieve technology-based pollution control. Interviewees perceive China-German relations (e.g., Sino-German Environment Forum) and the German Development Cooperation Agency (GIZ) as playing a significant role in introducing CE ideas to China (EU\_P13, CH\_P4, CH\_P3). At the China-EU level, this older conceptualization dates back to industrial policy dialogues between the European Commission’s Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs (DG GROW) and the Chinese Ministry of Industry and Information Technology, which began in the 2000s and continues up to the present (EU\_P7, European Commission, no date).

The CE concept emerged in China and the EU’s policy realms at different times. In China, CE achieved national recognition in 2002 after cycling through a series of local and regional pilot demonstration projects under the State Environmental Protection Agency (subsequently reorganized into the Ministry of Ecology and Environment since 2018). China’s 11th Five-Year-Plan (2006–2010) made CE its explicit goal, which led to the CE Promotion Law of 2008 and an upscaling of CE pilots amongst other initiatives (CH\_R6, CH\_R9, CH\_R8, CH\_R1, State Council of the People’s Republic of China, 2013). The National Development and Reform Commission (NDRC) is the main government body responsible for CE (Chinese National Development and Reform Commission, 2015). The NDRC’s CE work is supported significantly by the China Association of CE (CACE) and its advisors, many of whom are scientists from top Chinese academic institutions (CH\_I2, CH\_I2, CH\_I4, CH\_P3, IO\_5, IO\_4, China Association of Circular Economy, 2014).

In the EU, CE promotion began with the EU CE Action Plan of 2015 (EU\_P16, EU\_P2, European Commission, 2015). Alongside the European Commission’s Directorate-General for Environment (DG ENV) and DG GROW, NGOs such as the Ellen MacArthur Foundation, and specific strands of the business community, represented by Business Europe, have also been key CE stakeholders in the EU (IO\_1, IO\_4, EU\_P16, EU\_P4, EU\_P2).

CE in its current conceptualization of ‘closing the loop’ and eco-design based on ideas from resource efficiency surfaced in 2015 as the result of EU level policy processes. In 2016, the EU began its CE Missions, a series of “high-level political and business meetings to communicate and promote sustainable and resource-efficient policies” (European Commission, no date), with China as one of the CE Missions’ first target countries in 2016. This Mission was coordinated together with the CACE in Beijing and attended by many EU industry associations, business representatives, NGOs and academics as well as select China-EU business groups (CE mission program and program list). The Dutch representation in the EU delegation was perceived to be CE frontrunners and particularly influential in China-EU CE discussions (EU\_P2, EU\_P4, EU\_P9, CH\_I3, CH\_R8). Interviewees also perceived scholars from several Chinese academic institutions as particularly influential in facilitating China-EU CE discussions (EU\_P16, EU\_P17, CH\_I4, CH\_R7, EU\_NGO5).

The CE Mission in China paved the way for the signing of the CE MoU in 2018 at the 20th China-EU Summit (EU\_P2, EU\_P16). While the MoU is not legally binding, it is significant because it is the first official joint declaration of intent from China and the EU to begin a high-level cooperation on CE (EU\_NGO5, CH\_I4, EU\_P16, EU\_NGO4, CH\_R1, EU\_P2). Various international organizations, including the World Economic Forum (WEF), the United Nations Conference on Trade and Development (UNCTAD), and the Organization on Economic Cooperation and Development (OECD) applauded the signing of the CE MoU from the sidelines (IO\_4, IO\_1, IO\_9).

Table 1 shows the main CE-related actors in China and the EU as well as those related to the China-EU CE MoU according to interviews, documents and participant observation data:

**Table 1**

Main CE-related actors in the EU, China and for the China-EU CE Memorandum of Understanding according to interviews, documents and participant observation data.

| EU   | China   | International   |
|--|---|---|
| <ul style="list-style-type: none"> <li>• European Commission (DG ENV and GROW)</li> <li>• Ellen MacArthur Foundation</li> <li>• Business Europe</li> <li>• GIZ in China</li> <li>• EU Delegation in China</li> <li>• Dutch Embassy in China</li> </ul> | <ul style="list-style-type: none"> <li>• National Development and Reform Commission (NDRC)</li> <li>• China Association of Circular Economy (CACE) – under NDRC</li> <li>• Chinese academic institutions – e.g., Tsinghua, Tongji University</li> <li>• Chinese Ministry of Industry and Information Technology</li> <li>• Ministry of Ecology &amp; Environment</li> </ul> | <ul style="list-style-type: none"> <li>• WEF</li> <li>• UNCTAD</li> <li>• OECD</li> </ul> |

**4.2. Optimist eco-modernist narratives: Circular economy as neoliberal trade cooperation**

This section explains the three narratives of ‘Common CE Market’, ‘Regulatory Harmonization and Learning for a CE’, and ‘CE Technology Exchange’ that structure CE discourse in China-EU relations after the CE MoU (also see Table 2). These narratives are not mutually exclusive and reinforce an overarching eco-modernist ‘win-win’ meta-narrative of the CE as primarily a neoliberal trade cooperation to address problems of perceived weakening trade relations and increasing carbon emissions. The causes of this problem framing are threefold. First, the EU is trying to find a balanced position as China-US relations deteriorate. Second, both China and the EU are adapting to shifting power relations as the EU’s trade imbalance with China increases, in part due to protective measures from China such as subsidies to its companies or hard policy instruments such as its 2018 waste import ban. Third, China and the EU

**Table 2**

Optimistic narratives in China-EU cooperation related to the circular economy.

| Meta-narrative | CE as a trade cooperation concept   |  |   |
|----------------|---|--|---|
|                | These three narratives are based on the premise that China-EU trade relations are weakening. The underlying hope of each narrative is to revive China-EU trade for their respective and mutual benefit.   |  |   |
| Narrative      | ‘Common CE Market’  | ‘Regulatory Harmonization and Learning for a CE’   | ‘CE Technology Exchange’  |
| Problem        | <ul style="list-style-type: none"> <li>• The EU lacks long-term investments for its CE transition</li> <li>• China has difficulties making CE environmentally friendly AND profitable</li> </ul>  | <ul style="list-style-type: none"> <li>• Neither EU nor China has enough knowledge or experience to develop or implement CE frameworks alone</li> <li>• Diverging regulations for trade, waste and technology across EU and China create problems for CE business cooperation</li> </ul>                         | <ul style="list-style-type: none"> <li>• Resource insecurity of critical raw materials for key EU exports, e.g. hi-tech</li> <li>• China needs innovative technology from the EU to improve eco-efficiency</li> </ul>   |
| Cause          | <ul style="list-style-type: none"> <li>• Investors do not have sufficient incentives to invest in EU CE innovations as they lack economies of scale</li> <li>• China’s economic development process requires a lot of financing, especially the upgrading of its industrial infrastructure</li> </ul> | <ul style="list-style-type: none"> <li>• Globalized value chains</li> <li>• Development gap: China and the EU are in different development stages and therefore have different regulatory frameworks</li> </ul>  | <ul style="list-style-type: none"> <li>• The EU lacks own natural resources and loses resources to competitive resource acquisition strategies from countries like China</li> <li>• China is still developing and has not mastered all necessary technologies to solve development problems such as pollution (though it has improved a lot)</li> </ul> |
| Consequence    | <ul style="list-style-type: none"> <li>• The EU is losing competitiveness and suffers from a lack of growth and jobs</li> <li>• China cannot control its industrial pollution, which hinders economic growth</li> </ul>   | <ul style="list-style-type: none"> <li>• Operational problems for companies and trade barriers for Chinese and EU firms</li> <li>• Unlevel playing field enables some (Chinese) firms to compete on price and not on environmental standards</li> </ul>  | <ul style="list-style-type: none"> <li>• The EU is losing competitiveness and suffers from a lack of growth and jobs</li> <li>• China cannot control its industrial pollution, which hinders economic growth</li> </ul>   |
| Solution       | <ul style="list-style-type: none"> <li>• EU and Chinese businesses should cooperate/ compete to create a large common CE market for circular products and services</li> </ul>   | <ul style="list-style-type: none"> <li>• As the EU is more developed, China can learn from its legislations and experiences</li> <li>• The EU can learn from China’s CE policy experimentations</li> </ul>   | <ul style="list-style-type: none"> <li>• Enable CE technology exchange through common CE market: Trade secondary raw materials from China for green technology/ knowledge from EU</li> </ul>  |
| Benefits       | <ul style="list-style-type: none"> <li>• The EU regains competitiveness while transitioning to a more sustainable future</li> <li>• China speeds up its transition from state-led to market-oriented environmental initiatives, overcome economic bottlenecks created by pollution</li> </ul>         | <ul style="list-style-type: none"> <li>• Better enable CE trade, business cooperation, and similar waste treatment processes</li> <li>• Companies will compete on a level playing field, and some Chinese firms then cannot compete on price</li> <li>• Environmental standards in China will improve</li> </ul> | <ul style="list-style-type: none"> <li>• The EU secures access to necessary resources for its hi-tech exports and regains competitiveness through exporting CE technology</li> <li>• China secures necessary CE technology to overcome economic bottlenecks created by pollution</li> </ul>   |

govern their political and economic systems very differently and do not agree on many issues as a result of tensions between their worldviews. As trade relations are historically very important for the China-EU relationship, shifting dynamics leave the two sides seeking new areas for cooperation. CE, as a mutually beneficial, neutral cooperation that addresses economic and environmental problems from both regions through technical rather than political dimensions, meets this need.

According to this meta-narrative, CE is good for China-EU relations because it gives the two partners a new environmental topic to tackle together through market mechanisms. The meta-narrative also argues that CE benefits the world: in cooperation, China and the EU can fight for the Sustainable Development Goals (SDGs) together, for example by combating marine litter and climate change. These narratives are dominant in the China-EU discourse as actors use them to structure their core arguments.

**4.2.1. Common CE market**

The core premise of the ‘Common CE Market’ narrative is that EU and Chinese cooperation will create a larger common market for the free trade of CE products and services, not only between China and the EU but also globally (e.g., EU\_NGO1, EU\_P8). Such a market would ameliorate financing difficulties that both China and the EU have faced in their efforts to create their own circular economies. For the EU, market expansion would bring much-needed long-term investments for a circular transition and the opportunity to upscale promising, small-scale CE innovations from circular businesses and science institutes (e.g., EU\_NGO1, EU\_P8). A large common CE market would benefit the EU by enabling the region to regain competitiveness and jobs lost during the 2008 financial crisis while transitioning to a more sustainable future. CE is being used “as a vector, as an element that will stimulate MORE the business opportunities” (EU\_I7). For China, market

expansion could help make circular initiatives not only *xunhuan*, which translates to ‘circular’ or ‘environmentally friendly’ but also *‘jingji’*, which translates to ‘economic’ or ‘profitable’, and independent from government subsidies (e.g., CH\_P7, IO\_5, EU\_P13). A large common CE market would benefit China by speeding up its transition from state-led to market-oriented environmental initiatives and by helping the country to overcome economic bottlenecks created by environmental degradation that currently hinder rapid industrialization. The CE business cooperations characterized in this narrative include business competition and considers market competition an advantage in driving CE initiatives forward.

4.2.2. Regulatory harmonization and learning for a CE

The narrative of ‘Regulatory Harmonization and Learning for a CE’ (‘Regulatory Harmonization’) assumes that neither the European nor the Chinese government has sufficient knowledge, experience or capacity to implement a CE alone. Due to globalized value chains, the EU needs China and other supplier countries to adjust to its CE-relevant regulations to achieve its own CE goals, while learning from EU’s regulatory examples and mistakes can help China develop its own CE practices. While focusing on government-led cooperation of CE policy learning and standard alignment, the goal of regulatory harmonization is “work together in order to set the rules to make it possible for those new [circular] business activities to succeed...” (EU\_I1). Regulatory harmonization addresses both trade and technical challenges posed by divergences in regulatory frameworks, for example with respect to waste treatment. Some actors envision mutual policy learning and believe that the EU’s past environmental policy experiences and China’s current policy experimentation have great complementarity (e.g., CH\_R4, EU\_I1, CH\_R1), while others believe that China seeks to learn from the EU’s more developed and systematic regulations (e.g., EU\_P16, EU\_P1, EU\_P7). Regulatory harmonization benefits the EU by leveling the playing field for European companies in that it forces all companies to compete on CE values and prevents Chinese companies from competing purely on price (e.g., EU\_I1, EU\_I7). Policy alignment, including early warning systems for policy changes, would protect EU industries from external shocks such as the one the Chinese waste import ban inflicted on EU recycling industries (e.g., EU\_P4, EU\_P7). Regulatory harmonization benefits Chinese companies who are early movers of CE by giving them access to European markets. Moreover, increases in CE-related standards in China would also improve Chinese environmental conditions and reduce emissions, in turn benefitting the whole world. A goal of China-EU CE MoU is to develop CE standards that would be mutually beneficial (European Commission and Chinese Development and Reform Commission, 2018). For Chinese actors, closing the gap between EU and Chinese regulations is also proof that China is catching up to

industrialized countries.

4.2.3. CE technology exchange

The narrative of ‘CE Technology Exchange’ emphasizes the importance of CE-relevant technology exchange, primarily in the form of market transactions, between China and the EU as a means of resource acquisition for the EU and technology acquisition for China. ‘CE-relevant technology’ in this case is often used synonymously with ‘green technology’ and ‘high technology’ and refers to both the materials and knowledge required for its production. In this narrative, actors assume that the EU has the necessary green technology to solve environmental problems such as pollution, because it is more advanced in development, has already overcome similar problems, and therefore has the technology ready at hand. As one of the EU’s key exports, high technology is however dependent on critical raw materials such as rare earth minerals, which are abundant in China. The EU therefore benefits from circular trade with China, which would ensure that second-hand raw materials resulting from the waste to value processes triggered by CE philosophy will be accessible to the EU. This would enable EU green technology businesses to take advantage of their market leadership in China and elsewhere. This process would also benefit China because it adds value to China’s environmental industries by improving eco-efficiency, pollution control and waste management among other environmental goals (e.g., EU\_I13, EU\_NGO1, EU\_P1, CH\_I3). EU actors see an opportunity for regaining competitiveness by helping China to reduce emissions. Chinese actors see an opportunity for retaining competitiveness by solving solid waste management and pollution problems that hinder unabated economic growth. Almost all actors agree that reducing emissions in China with European green technology is a win-win for China and the EU as well as for the environment and the economy.

4.3. Skeptical narratives: Barriers of neoliberal trade cooperation for CE cooperation

Three skeptical CE narratives of ‘Development Disparity’, ‘Negative Competition’, and ‘Distrust’ demonstrate a discourse that is skeptical of neoliberal market solutions to deliver on the stated goals of the eco-modernist CE cooperation (see Table 3). These narratives are also not mutually exclusive and underline the barriers to CE as a trade cooperation. They appear more fragmented than the optimistic narratives, as actors who drew on these narratives did not always offer clear solutions to the problems they presented, and often fell back on solutions from the optimistic narratives. They reference more joint research projects as well as educational and cultural exchanges between China and the EU as necessary to foster greater mutual trust and understanding.

Table 3 Skeptical Narratives in China-EU Cooperation Related to the Circular Economy.

| Narrative   | ‘Development Disparity’   | ‘Competition’   | ‘Distrust’   |
|-------------|---|---|--|
| Problem     | <ul style="list-style-type: none"> <li>EU and China’s many political, cultural and social differences contribute to their divergent development stages and trajectories</li> </ul>          | <ul style="list-style-type: none"> <li>EU and China are competing for resources, global economic status, and on CE</li> </ul>           | <ul style="list-style-type: none"> <li>The EU distrusts China in political and commercial transactions</li> <li>China distrusts the EU to follow through in concrete actions that benefit China’s environment</li> </ul>                               |
| Cause       | <ul style="list-style-type: none"> <li>Different histories and national conditions</li> </ul>   | <ul style="list-style-type: none"> <li>Resource scarcity, development gap, the global capitalist system</li> </ul>                      | <ul style="list-style-type: none"> <li>Chinese lack of transparency and reliability</li> <li>Solving China’s environmental problems would accelerate China’s ‘catching up’ to the West in development and threaten the EU’s competitiveness</li> </ul> |
| Consequence | <ul style="list-style-type: none"> <li>Different CE conceptualizations lead to difficulties to apply CE technologies and standards with the same results and for mutual learning</li> </ul> | <ul style="list-style-type: none"> <li>Lack of trust to share information and assets, a barrier to building a CE</li> </ul>             | <ul style="list-style-type: none"> <li>Challenges in knowledge and technology transfers slow down CE cooperation and implementation</li> </ul>   |
| Solution    | <ul style="list-style-type: none"> <li>Fragmented. Did not offer clear solutions. Sometimes fall back on optimist solutions.</li> </ul>   | <ul style="list-style-type: none"> <li>Fragmented. Did not offer clear solutions. Sometimes fall back on optimist solutions.</li> </ul> | <ul style="list-style-type: none"> <li>Suggesting more educational and cultural exchange between China and the EU to foster greater mutual understanding</li> </ul>  |

#### 4.3.1. Development disparity

This narrative emphasizes China and the EU's differences in e.g., history, culture, political system, governance style, and social-environmental conditions, all of which contributes to their varied developmental trajectories and sense of political and (supra)national identities. China and the EU's different CE foci are rooted in their respective developmental needs and national priorities, which hinders China-EU CE cooperation through a common market, regulatory harmonization and learning, and technology exchange. A European industry representative sums up the skepticism towards building a common CE market: "You can exchange concept, but if you want to cooperate, just to have an agreement on having a SINGLE circular economy, an economy means business, functioning business, making profits, revenues and giving salaries. Then if there are two different rules...CAN'T function" (EU\_I7). While most Chinese actors think positively of policy learning from the EU, many actors also think that in some areas, the harmonization of rules between China and the EU is premature. They think that China is not yet ready to adopt some EU rules on a national scale because of its development stage, e.g., plastic bans; and lack institutional capacity to implement others, e.g., Extended Producer Responsibility (EPR) (e.g., CH\_I4, CH\_I5, CH\_R4, CH\_R7). Chinese actors were generally supportive of technology exchanges, although several expressed unease that 'easily applicable' and profitable technologies, e.g., waste-to-energy plants, often cannot fix local environmental problems and sometimes even bring new challenges due to diverging socio-environmental conditions and unsuitable implementation measures (e.g., CH\_NGO1, EU\_I14, CH\_I2, EU\_P15). Other times, European technologies are unsuitable for China's environmental problems due to being too expensive, not matching the scale of the local problem, or was not designed for local Chinese contexts (CH\_I3, EU\_P15).

#### 4.3.2. Negative competition

This narrative demonstrates the difficulties of China-EU CE cooperation engendered by geo-political competition for resources, market share, technology, and standard-setting. Further adding to competitive tensions are the blocs' respective desires to regain or maintain competitiveness (EU) and to close the development gap with the EU and other western nations (China). Both China and the EU strive to be more resource independent for security purposes. Although regulatory collaborations provide opportunities for policy learning and knowledge sharing, CE-related standards from China and the EU are perceived by counterparts to also have impacts on businesses that affect their ability to compete. For example, European industry actors often refer to China's waste import ban as good in principle but unnecessarily stricter than EU waste standards and implemented as a hard instrument that harms EU waste industries and the environment in the short term (e.g., EU\_I4, EU\_I11). CE-related EU regulations such as the 2003 Restriction of Hazardous Substances Directive (RoHS), the 2003 Waste Electrical and Electronic Equipment Directive (WEEE), and the 2007 Registration, Evaluation, Authorization and Restriction of Chemicals (REACH) are simultaneously praised for their precision and described as hurtful to Chinese firm competitiveness (e.g., CH\_R7). China is also perceived as wanting to set its own standards after policy learning and to extend their standards regionally instead of following standards agreed upon by the international community prior to China's membership in key international organizations such as the United Nations. Some actors see the development gap as an opportunity for China to exercise its latecomer advantages, such as not having some of the EU's technological lock-in effects or path dependencies, to catch up to or leapfrog past developed countries. These actors also saw China's loose regulatory environment as an enabling factor for experimentation with new technologies and policies. Some Chinese actors also describe China as having a comprehensive value chain of its own and the capacity to build a domestic CE, while the EU relies on external regions to complete its value chain. In essence, this narrative argues that China's desire to build its own version of a CE may hinder China-EU CE cooperation. Referring to the CE MoU, one

Chinese industry representative remarked: "But whose way should we follow in the implementation?" (CH\_I5).

#### 4.3.3. Distrust

This narrative shows the significance of trust building for China-EU CE cooperation. Stakeholders expressed the need to switch from a competitive and defensive mindset to one of collaboration and sharing information for better understanding of each regions' assets (EU\_P11, CH\_R5). Collaborative mindsets and trust are necessary as well for creating common CE standards for green goods or eco-design (EU\_NGO6, EU\_P7). EU actors find transparency and communication to be a challenge when working with Chinese counterparts and feel they do not receive timely information, that there is not always follow-through on promises, and that they do not understand the rationale behind certain decisions (EU\_P7, EU\_I14, EU\_P9, EU\_I4, EU\_P17, EU\_P4). While there are many channels for exchange, one stakeholder expressed that the communication is fragmented and lacks structure (EU\_P7). Language barriers are cited as reasons for industry communication problems while China's complex bureaucracy and general internal ministerial division and competition are cited as reasons for lack of political transparency (e.g., EU\_I4, EU\_P4). Distrust hinders knowledge and technology transfers and slows down broader CE cooperation and implementations, for example because actors are concerned about protecting their intellectual property (EU\_P17, EU\_P15, CH\_I3). While Chinese actors do not share their EU counterparts' distrust in specific transactions, there is distrust that cooperating with the EU will result in concrete benefits to China's environment. This sentiment is exacerbated by the EU's official position that China is no longer a developing country; many actors understand this EU position as a signal that it is less willing to finance and invest in China's development projects (e.g. CH\_R4, EU\_NGO4, IO\_10; also see [European Commission, 2019](#)). This quote from a well-established CE academic in China exemplifies this overarching distrust: "I think that many people are just shouting slogans [CE]... they don't offend anyone and everyone loves to hear them, but they...do not result in anything concrete. Which of China's environmental problems has been solved thanks to cooperation between China and the EU in the area of circular economy? At least I have not seen anything" (CH\_R9).

#### 4.4. China-EU CE discourse coalitions and actors

[Section 4.1](#) shows that China-EU CE cooperation is predated by the two political actors' respective CE trajectories that shifted responsibility towards economic institutions and business and trade frameworks. This is evidenced by the key actors involved and the institutional process that led up to the MoU. [Section 4.2](#) and [4.3](#) have shown that optimistic CE cooperation narratives focus on trade while skeptical narratives cast doubt on this focus. But who are the actors subscribing to optimism and skepticism discourse coalitions, respectively, and what are their sentiments towards the market's key role in China-EU CE cooperation?

The results demonstrate two discourse coalitions as shown in [Fig. 1](#): 'CE Market Optimists' ('Optimists') and 'CE Market Skeptics' ('Skeptics'). The 'Optimists' comprise actors who, in the context of trade promotional practices, used optimistic CE narratives to structure their arguments for how a market-driven China-EU CE cooperation would be beneficial for all parties: the EU, China, the economy and the environment. [Table 4](#) shows that European and international actors drew more on these narratives, especially favouring 'CE as Trade Cooperation' and 'Market Exchange'. In particular, European actors affiliated with industry trade associations, policy actors in the Commission, Dutch government, an EU member state embassy representative in China, regional governments, NGOs such as the Ellen MacArthur Foundation, but also international organizations including UNCTAD, WTO, OECD, the International Resource Panel and the Bureau of International Recycling drew exclusively on optimist narratives. Chinese actors also subscribed to Optimist narratives, especially that of 'CE Tech Exchange' and 'CE as

NARRATIVE STRENGTH

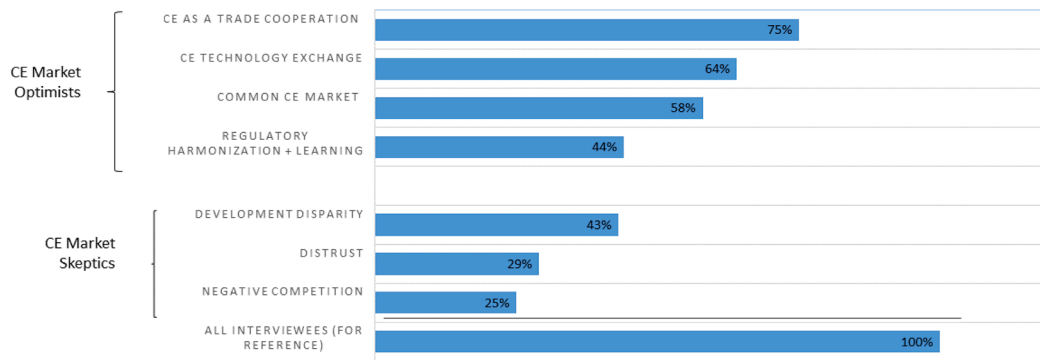


Fig. 1. The x-axis shows the narrative strength or how often actors used the narratives to structure their arguments. The y-axis shows the optimistic and skeptical discourse coalitions and their respective narratives. These narratives are shown in descending order according to their narrative strength. The bottom bar references the total number of interviewees.

Table 4  
Narrative subscription of actor groups by political affiliation of institutions.

| Discourse Coalition | Narratives               | International | China | EU  |
|---------------------|--------------------------|---------------|-------|-----|
| CE Market Skeptics  | Negative Competition     | 0%            | 27%   | 30% |
|                     | Distrust                 | 10%           | 41%   | 28% |
|                     | Development Disparity    | 40%           | 73%   | 28% |
| CE Market Optimists | Regulatory Harmonization | 30%           | 55%   | 43% |
|                     | Common CE Market         | 40%           | 32%   | 78% |
|                     | CE Tech Exchange         | 40%           | 82%   | 60% |
|                     | CE as Trade Cooperation  | 80%           | 64%   | 80% |

Table 5  
Narrative subscription of actor groups by institutional function.

| Discourse Coalitions | Narratives               | Policy | Research | Industry | NGO |
|----------------------|--------------------------|--------|----------|----------|-----|
| CE Market Skeptics   | Negative Competition     | 17%    | 27%      | 36%      | 20% |
|                      | Distrust                 | 38%    | 36%      | 18%      | 20% |
|                      | Development Disparity    | 48%    | 45%      | 27%      | 60% |
| CE Market Optimists  | Regulatory Harmonization | 41%    | 54%      | 36%      | 60% |
|                      | Common CE Market         | 55%    | 45%      | 64%      | 70% |
|                      | CE Tech Exchange         | 59%    | 82%      | 59%      | 70% |
|                      | CE as Trade Cooperation  | 76%    | 82%      | 64%      | 90% |

Trade Cooperation’. This Optimist discourse coalition converges actors’ diverse understandings of CE behind an optimistic perception that China-EU business and regulatory cooperation will boost the trade of circular goods and services on a global market, thereby resulting in positive diplomatic, economic and environmental outcomes.

‘Skeptics’ is a discourse coalition ascribing to skeptical CE narratives that are critical of the trade cooperation meta-narrative the ‘Optimists’ favor. They question whether a market-driven CE between EU and China can achieve cooperation goals given bilateral tensions. Tables 5 shows that institutional actors from policy, research and NGO, draw on Skeptical narratives of ‘Development Disparity’ and ‘Distrust’ more than industry actors, while industry actors subscribe more to narratives of ‘Negative Competition’. Specifically, the discourse coalition comprise Chinese actors conducting research for government and in environmental NGO; European policy actors working in China: at embassies, on China-EU environmental cooperation projects, and in NGOs; actors from

international NGOs such as Greenpeace and ICLEI; as well as some industry actors from non-plastic trade associations, e.g., metals. ‘Skeptics’ did not propose clear solutions other than suggesting more educational and cultural exchange is needed between China and the EU to foster greater mutual understanding.

While the ‘Optimist’ narratives dominate, the Skeptic narratives doubt their market prioritization and suggest underlying tensions between China and the EU are barriers to the trade cooperation. Optimists and Skeptics alike described China-EU CE business cooperation as slow and challenging and could name few upcoming implementations of CE cooperation beyond existing projects and dialogues e.g., Switch-Asia, NAMA Facility (EU\_I13, EU\_P16, CH\_I3). Continued dialogue based on the CE MoU also appear uncertain (EU\_P2, CH\_P1). This demonstrates the lack of institutionalization of the Optimist narratives despite their dominance in structuring the discourse. The stagnation of the Optimist narratives shows the Skeptic narratives’ obstructive effect. In the next section, we provide possible explanations for the stagnation of CE as a new area of joint China-EU initiatives.

5. Discussion

Our central claim is that the discursive dynamics in the China-EU CE case points to strong neoliberal depoliticization. The results show that eco-modernist CE narratives serve a diplomatic purpose by uniting Chinese and European economic and environmental interests into a potential trade cooperation. At the same time, they hinder cooperation, fail to create new types of socio-political practices, and seem unlikely to do so in the future. These results mirror findings from previous studies arguing that most eco-modernist failures are rooted in using win-win scenarios to bring all groups on board and achieve “environmental radicalism” rather than “social radicalism” (Mol 2002, p.96). Eco-modernist narratives typically depoliticize contentious socio-political phenomena that cast doubt on the feasibility of its central goal of decoupling human activity from environmental degradation (Fremaux and Barry, 2019; Hajer, 1995). These doubts include rebound effects, environmental burden shifting between developed and developing countries and justice concerns such as the exclusion of marginalized social groups (Bäckstrand and Löwbrand, 2006; Isenhour, 2016; Isenhour and Feng, 2016; Yeh, 2009).

Our analysis adds new insights into the dynamics such depoliticization creates, and how it may be overcome. First, although the CE cooperation discourse splits into two coalitions of market-optimists (Optimist) and market-skeptics (Skeptic), they both perpetuate eco-modernist discourse. Three Optimist narratives highlight eco-modernist CE goals of decoupling through markets, regulations and

technology. Although three Skeptic narratives underline political tensions of development disparity, distrust and negative competition, they fall back on eco-modernist market solutions or suggest processes they perceive to be less political than market exchange. Ultimately, Skeptics agree with Optimists that CE is a good cooperation platform for China and the EU, but they are skeptical that prioritizing a common CE market can deliver regulatory harmonization and technology exchange.

Second, our analysis demonstrates that a strategy of neoliberal depoliticization prevents alternative voices and innovative solutions from *within* eco-modernist CE discourse. While Skeptics recognize that market cooperation is a political process with political barriers, they remain trapped within eco-modernist discourse as they do not suggest alternatives to dominant market solutions. The few suggestions of more educational and cultural exchange are presented as non-political processes to mitigate distrust in order to better harmonize regulations and facilitate further technology exchange through markets. This shows that Optimist narratives create a discursive lock-in that disables channels for contestation, negotiation, and new ideas for joint CE visions. In line with [Leipold \(2021\)](#)'s observations of EU CE narratives, the Optimist narratives reduce decision-makers' tasks to optimizing regulatory environments for market potential, prioritize market incumbents and exclude non-market actors and their narratives. [Ciplet and Roberts \(2017\)](#) argue such a depoliticization strategy removes issues from political contention, and presents market rationales as "common-sense, objective or neutral, as compared to considerations of equity and justice which are depicted as value-laden and normative, and therefore 'political'" (p.150). The authors show how the permeation of neoliberal depoliticization at the climate change negotiations challenged multilateral cooperation, resulting in decision-making by market logic, exclusion of developing countries' concerns as well as gaps in ambition, transparency, equity, and representation ([Ciplet and Roberts, 2017](#)). [Lucier and Gareau \(2015\)](#) show similar phenomena with the Basel Convention, where neoliberal depoliticization turned hazardous wastes into economic "resources", allowing market actors to re-frame the environmentally unjust and "toxic wastes trade as essential" for sustainable development (p.495). We add to this critical literature by showing how neoliberal depoliticization not only overshadows more critical discourses but that it also prevents reformist voices and alternative solutions from *within* its own discourse. In the China-EU CE case, it specifically disables discursive space for negotiating what kind of a CE or CEs are sustainable and desirable for joint China-EU cooperation as well as which scales of CE strategies are effective and can be mutually supported.

Third, the different perceptions of competition between the Optimists and Skeptics demonstrate a discursive contention on neoliberal depoliticization as a strategy to achieve eco-modernist CE cooperation goals in China-EU relations. While Optimist narratives portray market and standard competition as a driving force for expanding exchange opportunities for technology and policy learning, Skeptic narratives emphasize competition as a driving force for distrust and rivalry, which exacerbates development disparities between China and the EU. Furthermore, while Optimist CE cooperation goals seek to expand common CE markets, Skeptics suggest negative competition fueled by distrust and development disparity undercuts access to these markets and prevent business cooperation. [Machin \(2019, 2020\)](#) document eco-modernist depoliticization in EU politics and in nuclear energy politics as hindering democratic collective processes by erasing political differences from discussion. We support this observation by showing how at the international scale between China and the EU, such erasure does not lead to the desired win-win outcome but exacerbates political tensions and rivalry.

Our analysis thus identifies another crucial gap in eco-modernist scholarship, which has long acknowledged that its manifestations in different regions and countries will develop along different modes due to varied roles of state institutions, market dynamics, civil society pressure and international integration (e.g., [Mol, 1999](#); [Mol, 2002, 2006](#)).

However, the scholarship has not addressed whether or how such diversified modes can interact, co-exist or harmonize when confronted with negative competitive forces of neoliberal capitalism. [Kelemen \(2010\)](#) has observed that globalizing EU environmental norms has served as a form of expanding EU soft power; [Chen and Lees \(2021\)](#) have made similar observations for China. By prioritizing market cooperation, eco-modernist CE discourse positions CE in the middle of the ongoing struggle between China and the EU for recognition as normative powers ([Kavalski, 2013](#)), further obstructing new forms of cooperation. While our results are limited to addressing CE cooperation narratives in China-EU relations in a short time period and the CE discourse may yet evolve differently, China's absence from the European Commission's new Global Alliance on Circular Economy and Resource Efficiency gives a strong indication in support of our analysis ([European Commission, 2020](#)).

Our study further informs international relations (IR) scholarship. It demonstrates that IR theories such as realist or liberal perspectives are context dependent and supports constructivist schools of thought. We show that the social reality of CE cooperation, or lack thereof, is constructed by the exchanges and omissions of problems, consequences and solutions between state and non-state actors with a stake in envisioning such a cooperation. While Skeptics lean towards a realist perspective and Optimists lean towards a liberal one, the discursive approach shows that this CE cooperation's stagnation was not predetermined. Stakeholders all perceive the CE cooperation positively and believe in this being the right or 'natural' moment for China-EU environmental cooperation - but the discursive reproductions of eco-modernist structures hinder such alignment of interests to institutionalize into new collective practices. In contrast to a realist perspective, our approach shows that the competitive state between China and the EU, as well as their interests, are not pre-given, but are rather constructed by development perceptions and narratives. Questioning liberal notions of cooperation, we also show that common interest in pursuing economic and environmental cooperation does not predetermine desirable outcomes. Adapting prominent constructivist IR scholar [Alexander Wendt \(1992\)](#)'s quote "Anarchy is what states make of it" (p. 391), we argue that international environmental cooperation is what state and non-state actors make of it through discourse. Future research could build on discursive case studies in the IR realm and investigate what narrative strategies support environmental cooperation.

## 6. Conclusion

This empirical study on the first international CE agreement expands CE scholarship beyond national and regional comparisons to international relations and adds important new insights to international environmental cooperation scholarship. Our discursive analysis of the China-EU CE cooperation shows that despite strong intentions and consensus on CE goals of decoupling, the cooperation could not move beyond rhetorical agreement to institutionalization and practice. The perpetuation of eco-modernist narratives constructs common interests through depoliticized market exchange and are thus unable to address underlying political tensions. Ignoring such disparities fuels sentiments of distrust and negative competition that propel systemic rivalry, which threatens and undermines any collaborative efforts. Depoliticization disables channels of communication needed for negotiating what kind of a CE or CEs and at what scales are feasible and sustainable for joint China-EU cooperation. It also prevents critical voices of contestation to communicate cooperation barriers and to offer alternative pathways to reach common CE goals. Such strategies therefore contribute to gridlock rather than a paradigm shift.

Our analysis adds to critical CE literature by showing how unless new environmental concepts can step out of eco-modernist discourse, it cannot build the kinds of international cooperation many authors argue a CE needs to remain a relevant socio-environmental narrative ([Genovese and Pansera, 2020](#); [Kopnina, 2017](#); [Korhonen, Honkasalo et al.,](#)



2018; Moreau et al., 2017; Valenzuela and Böhm, 2017; Zink and Geyer, 2017). Our case has shown depoliticization to be a detrimental strategy in propelling international cooperation from rhetoric towards concrete action. Hence, future research should investigate what discursive strategies might open up channels of communication to negotiate variegated future environmental visions, which includes rules, technology, different forms of exchange and scales of implementation.

The China-EU CE case further reveals an internal struggle within eco-modernist discourse regarding the compatibility of eco-modernism with neoliberal capitalism in a globalized economy. Neoliberal trade cooperation strategies are problematic as the central basis for global environmental governance as they drive negative competition, exacerbate distrust and rivalry, and are not conducive to trade or other types of cooperation. As we have seen from the China-US relationship, trade cooperation can quickly become trade wars as rivalry intensifies (Kim, 2019; Qiu et al., 2019). Trade cooperation are also susceptible to other global phenomena such as the COVID-19 pandemic (Baldwin and Tomiura, 2020). Environmental cooperation that is negotiated as interlinked but independent to trade as well as other relevant areas such as education and cultural exchange may have greater potential. Scholars and practitioners need to scrutinize, experiment and study what kinds of trade and scales of trade contribute to improving environmental governance. As the impact of trade on the environment, especially between industrialized and industrializing countries/regions has been shown to be ambiguous or negative, the value of international trade for environmental governance cannot be taken for granted (Bruckner et al., 2012; Nemati et al., 2019). A few scholars have suggested regional and local CEs to be key in achieving sustainability goals (Korhonen, Nuur et al., 2018; Norris, 2018; Novy et al., 2019). More studies in this direction along with how transregional and trans local CE interactions might manifest would be desirable.

Our study adds to previous research that international environmental cooperation depends not only on common interests and good intentions to act collectively, but that narrative structures and strategies influence perceptions of development, trust and conceptualizations of scales of cooperation. They are crucial to consider if we want to shift paradigms in international environmental discourse (Aklin and Mildenberger, 2020; Meckling and Allan, 2020; Stevenson, 2021). These issues relate to geopolitics, areas environmental governance tends to shy away from. However, our case shows that avoiding such tensions through neoliberal depoliticization strategy is problematic for achieving environmental goals, including those of eco-modernists. Such strategies may have led to gains for environmental discourse in the past, but we now need new narratives to shift us into new territory. This case underlines the importance to find discursive strategies to repoliticize environmental cooperations as scholars have suggested for other sustainability dimensions (e.g., Asara et al., 2015; Kenis and Mathijs, 2014). Existing research on discursive agency and strategies may be a good starting point to develop such endeavors (Leipold and Winkel, 2017).

#### CRedit authorship contribution statement

**Anran Luo:** Conceptualization, Investigation, Formal analysis, Validation, Data curation, Resources, Writing – original draft, Writing – review & editing, Visualization. **Mehwish Zuberi:** Formal analysis, Validation, Writing – review & editing. **Jiayu Liu:** Formal analysis, Validation, Writing – review & editing. **Miranda Perrone:** Formal analysis, Validation, Writing – review & editing. **Simone Schnepf:** Formal analysis, Validation. **Sina Leipold:** Supervision, Conceptualization, Writing – review & editing, Funding acquisition.

#### Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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#### Appendix A. Supplementary data

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