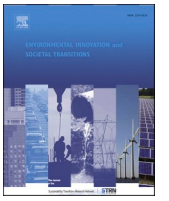
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# Community-initiated co-creation in the Global South: Does the government just watch?

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ABSTRACT

Co-creation has increasingly gained traction as a means to search for innovative solutions to wicked problems, including in the pursuit of the green transition. Whereas several contributions on the forms, determinants and successful outcomes of co-creation for the green transition focus on the Global North, experiences from the Global South – where non-state actors often drive local green co-creation – are increasingly drawing attention. The extant literature seems to suggest that state actors play different roles in different countries and regions, with a directive leadership role being more pronounced in the Global North than in the Global South. To explore the role(s) government actors play in the orchestration of local green co-creation in the Global South, we rely on a multiple case study drawing on the GOGREEN project database, examining the governance factors that shape the co-creation of green transitions through the study of 36 case studies across 28 countries. Relevant case studies from the Global South suggest two possible roles that government actors may play: (i) governments welcome local co-creation processes 'out of opportunity', exploiting opportunities for co-creation where non-state actors mobilize local resources and government has limited capacity; and (ii) governments support local green co-creation 'out of necessity' in contexts where non-state actors initiate such processes in response to pressing needs despite initial reluctance by government actors due to various reasons.

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## 1. Introduction

In a world where the complexity and uncertainty of 'wicked problems' (Rittel and Webber, 1973), such as the nature and climate crisis, arise from their interconnected social, economic, political, and ecological dimensions, no single definition, solution, or governing authority is sufficient to address them. Climate change is considered a wicked problem because its causes and impacts are diffuse, long-term, contested, and unevenly distributed across societies and generations, while attempts to solve one aspect may create unintended consequences elsewhere (Weber and Khademian 2008; Alford and Head 2017; Auld et al., 2021; Sorensen and Torfing, 2022; Ansell et al. 2022). These characteristics call for collaborative problem-solving (Folke et al, 2005; Armitage et al, 2009; Butler et al, 2015; Imperial et al, 2016), and co-creation is increasingly relied upon as a means to foster innovative public-value solutions. Co-creation is defined 'as the process through which a plethora of public and private actors are involved – ideally on equal footing – in a collaborative endeavour to define common problems and design and implement new, better, yet feasible, public solutions' (Ansell and Torfing 2021: 216). It is seen to offer a powerful mechanism for advancing sustainability transitions that develop ecological resilience and enhance social well-being (Torfing et al, 2024a). In this article, we understand the green transition as a broad process of socio-technical, economic and institutional transformation aimed at shifting societies towards environmentally sustainable and socially resilient forms of development. This understanding aligns with the sustainability transitions literature, which conceptualises transition processes as long-term systemic changes involving technologies, governance arrangements, infrastructures, social practices and cultural norms (Köhler et al., 2019; Geels, 2018). From this perspective, green transitions are not limited to technological innovation, but also require new forms of collaboration, participation and institutional coordination across multiple levels of governance. Local green co-creation initiatives can then be understood as niche-level innovations that emerge in protected spaces and experiment with alternative practices, social relations and governance arrangements (Geels, 2018).There is a growing literature exploring the forms, determinants and successful outcomes of co-creation processes for the green transition, with most contributions focusing on the experiences of countries in the Global North (e.g. Köhler et al, 2019; Araújo and Franco, 2021; Newig et al, 2023; Nguyen et al, 2024), and often emphasising the role of the state (particularly local governments) in leading and resourcing co-creation (Smeds and Acuto, 2018; Bulkeley, 2021). However, experiences from the Global South are increasingly drawing attention. Here, local green co-creation is often driven by non-state actors, as in the case of grassroots environmental movements addressing deforestation through community-led initiatives in India (Agrawal and Ostrom, 2001), community-driven disaster recovery programmes in the Philippines (Gaillard and Mercer, 2013), or community-based initiatives aimed at sustainable infrastructure development in Indonesia (Bebbington et al, 2008).

The extant literature on local green co-creation seems to suggest that state actors play different roles in different countries and global regions, with a directive leadership role being more pronounced in the Global North than in the Global South. To further examine this difference, we ask: *What role(s) do government actors play in the orchestration of local green co-creation in the Global South?* We address this guiding question through a multiple case study drawing on the GOGREEN project database, which aims to examine the governance factors shaping and conditioning the successful co-creation of green transitions through the analysis of 36 case studies across 28 countries. Because the cases concern local projects, our focus is primarily on the role of local public authorities, especially local governments; at the same time, regional and national authorities enter the analysis where their policies, resources, rules or administrative constraints shape local co-creation.

The results of the analysis lead to two possible roles that government actors may play in local green co-creation in the Global South: (i) governments welcome local co-creation processes 'out of opportunity'; that is, they exploit opportunities for local co-creation where non-state actors mobilise local resources and skills and government has limited capacity; and (ii) governments support local green co-creation 'out of necessity' in contexts where non-state actors initiate such processes in response to pressing needs despite initial reluctance by government actors due to a variety of reasons. These findings contribute to qualify the literature on co-creation to the extent that it often assumes that government will welcome local green co-creation and do everything it can to support it. This article shows that this is not necessarily the case, as experiences from countries in the Global South suggest, but it also reveals that governments in such countries may support co-creation, albeit for different reasons.

The paper is organised as follows: the next section reviews the extant literature on the conditions that sustain local-level co-creation efforts for the green transition, especially focusing on the politico-institutional level and on the role of the state. This section is followed by a brief presentation of our methodology. The subsequent section presents the results of the case studies, aiming to bring out the different roles played by government in different contexts. The discussion section considers the significance of the findings, and the conclusion draws lessons for theory and practice, considers the limitations of our study and provides some suggestions for further research.

## 2. Theoretical framework

The climate and nature crisis can be perceived as a wicked problem confronting all levels of government, from the local to the global (Rittel and Webber, 1973; Roberts, 2000; Lazarus, 2009; Levin et al, 2012; Alford and Head, 2017). Reflecting the failure of governments to respond adequately to global-level environmental sustainability crises (Bernstein and Hoffmann, 2018), the literature on co-creation and collaborative governance offers a polycentric alternative that suggests that public, private and civic actors may join forces and engage in creative problem-solving at multiples scales, including the local level. Numerous local green co-creation partnerships may cumulatively make a difference (Torfing et al, 2024a; Ansell et al, 2022; Bulkeley, 2021; Sarr et al, 2021; Jordan et al, 2018; Biermann et al, 2017; Osborne, 2010; Ostrom, 2010; 2015). Scholars therefore suggest that collaborative governance and co-creation represents a viable strategy for bringing together distributed yet interdependent actors to tackle wicked problems across

scales – and to achieve green transition objectives, such as those described by the 'Sustainable Developmental Goals' (SDGs) that have defined the global policy agenda since 2015 (Weber and Khademian 2008; Ostrom, 2010; Hofstad and Torfing, 2017; Alford and Head, 2017; Hofstad et al, 2023; Ansell and Torfing, 2021; Ansell et al, 2022; Hofstad and Vedeld, 2020; Vedeld et al, 2021).

Collaborative governance can be defined as a collective decision-making process based on more or less institutionalised interaction between public, private and civic actors seeking to establish common ground for joint problem-solving and public value creation (Douglas et al., 2020). While collaborative governance refers broadly to the institutional arrangements and processes through which cross-sector actors coordinate collective action, co-creation represents a more specific and innovation-oriented form of collaboration focused on the joint exploration of problems and development of new solutions. Moving from the original concept of collaborative governance, co-creation involves organised public and private actors, including lay actors such as users, citizens and neighbourhood groups, in distributed interaction to explore shared problems and arrive at innovative solutions (Torfing et al, 2019). Co-creation thus places stronger emphasis on active participation, mutual learning, experimentation and the involvement of affected actors in shaping public solutions. It is perceived to facilitate the assembling and aligning of relevant, resourceful and/or affected local public and private actors in partnerships, platforms and networks, including with active involvement of citizens and other civic actors, which may initiate co-creation bottom-up through forms of social innovation (Klijn and Koppenjan, 2014; Ansell and Miura, 2020; Ansell et al, 2022; Koppenjan, 2024). Co-creation may be seen as a form of social innovation – characterised by "the innovation process opening up to society, its orientation by the major societal challenges and a stronger recognition of non-technological innovations geared to changing social practices" (Domanski et al. 2020: 457) – insofar as the latter mainly highlights the role played by citizens and customers within the innovation process (in addition to traditional innovation players such as companies and research organizations). This definition of co-creation aligns with the socio-technical transitions literature, which conceptualises grassroots innovations as bottom-up, locally embedded initiatives that respond to specific community needs and values, often outside conventional market-based innovation pathways (Smith and Seyfang, 2013; Geels, 2018).

While cases of successful co-creation of green solutions are found across the globe (Fukui et al, 2021; Hickmann and Stehle, 2019; Hofstad and Vedeld, 2020), extant research on collaborative governance and co-creation has focused primarily on countries in the Global North (see Köhler et al, 2019; Araújo and Franco, 2021; Newig et al, 2023; Nguyen et al, 2024). This literature outlines the local drivers as well as the politico-institutional conditions that enable and support local green co-creation, often underscoring structural conditions, such as multi-level governance (EU and UN policies), traditions for public–private collaboration, mixed public governance paradigms and social-liberal market-oriented policies and the presence of capable and resourceful local governments. These enabling factors condition the willingness and ability of public actors to lead and manage local co-creation processes aimed at fostering sustainability transitions (Ansell and Gash, 2008; Ansell et al, 2022). Hence, this literature has started to identify and suggest specific constellations of politico-institutional conditions perceived as important for enabling successful local green co-creation processes (Ansell and Gash, 2008; Vedeld and Hofstad, 2022; Hofstad et al, 2023; 2022). For instance, case studies from the Global North frequently underscore how decentralised, resourceful, and administratively capable local governments facilitate public–private collaboration and citizen participation through active metagovernance (van der Heijden, 2019; Ansell et al., 2022; Røiseland et al., 2024). Other studies emphasise civil society capacity, entrepreneurial actors and social trust as enabling conditions for collaborative governance (Røiseland et al., 2024; Vedeld and Hofstad, 2024), where broad-based co-creation strategies often build on those same politico-institutional conditions.

By contrast, recent scholarship on sustainability transitions in the Global South cautions against treating transition pathways as uniform, or assuming that models developed in Global North settings travel easily across contexts (Lederer et al., 2018; Weko and Goldthau, 2022). In the Global South, green transitions are shaped in different combinations by uneven state capacities, infrastructural deficits, developmental priorities, and dependence on international finance, technology, and donor support. The Global South is not a homogeneous category: these dynamics vary across countries and localities according to political regimes, state capacities, developmental priorities, historical trajectories, state–society relations and levels of decentralisation. Sustainability transitions are therefore often embedded within broader struggles concerning economic development, energy access, poverty reduction, and social justice. These conditions influence both the opportunities for and constraints on collaborative governance and local co-creation processes.

The relevant extant literature suggests that local green co-creation in the Global South frequently emerges through hybrid governance arrangements involving local and central governments, NGOs, international organisations, private firms, donor agencies, and grassroots actors operating across multiple scales (Lederer et al., 2018). Government actors often play an active and facilitating role in orchestrating collaborative interaction (thus acting as hands-on metagovernors) or in creating local platforms and arenas for collaboration and co-creation based on experimentation (hands-off metagovernors) (Castán Broto and Bulkeley, 2013; Masuda et al, 2022; Ansell et al, 2022; Hofstad and Vedeld, 2020), although the form and intensity of such governmental involvement vary significantly across institutional and developmental contexts. Despite such evidence, other studies from the Global South point to relatively fragmented governance landscapes in which local governments operate with constrained capacities and where international donors, NGOs, grassroots organisations, or private actors may play more central roles in initiating and sustaining collaborative green initiatives. Studies of renewable energy development further demonstrate how participatory governance and local experimentation may coexist with centralised state steering, developmental imperatives, and uneven implementation capacities (Bapuly, 2025). Likewise, Weko and Goldthau (2022) emphasise how unequal access to low-carbon technologies and infrastructure shapes transition pathways in the Global South and conditions local capacities for green innovation.

Evidence from the Global South also indicates that civic participation and collaboration may take different forms across socio-political settings. These contexts vary in political inclusion, socio-economic inequality, state–society relations and access to resources, and collaborative initiatives may emerge precisely because state support is weak or absent (Agrawal and Ostrom, 2001; Bebbington et al., 2008). Accordingly, the enabling conditions identified in Global North research should be treated as

context-dependent rather than universal. Examples of community-led and self-organised forms of environmental governance from the Global South include community initiatives addressing deforestation in India (Agrawal and Ostrom, 2001) and local systems for managing shared resources in Indonesia (Bebbington et al., 2008). Building on Ostrom's work on common-pool resource governance (1990; 2015), this literature demonstrates how collaborative problem-solving and self-governance may emerge even in contexts characterised by limited government involvement or weak formal institutions. At the same time, scholars have also observed how interventionist state practices or authoritarian governance structures may constrain collaborative governance and civic participation (Vedeld, 2000; Hickmann and Stehle, 2019; Placek et al., 2023). In countries such as China and Vietnam, forms of "authoritarian environmentalism" may prioritise technocratic and top-down environmental management approaches over deliberative and participatory forms of governance (Bruun and Rubin, 2023; Yan et al., 2022).

In sum, the literature suggests that local green co-creation takes different institutional forms depending on broader political, developmental, and governance contexts. In some settings, collaborative initiatives are actively orchestrated by capable local governments, while in others they are driven primarily by grassroots organisations, NGOs, private entrepreneurs, or international actors. Rather than assuming a single model of collaborative governance, the emerging literature on sustainability transitions in the Global South points to the importance of analysing how state capacity, developmental priorities, civil society mobilisation, and transnational support structures shape local green co-creation processes. Following this, this article examines the role(s) government actors play in the local co-creation of green solutions in the Global South.

## 3. Methodology

To explore which role(s) government actors play in local green co-creation in Global South contexts, we employed a comparative case study. Comparative case studies offer a robust foundation for building theory by facilitating the analysis of similarities and differences between multiple cases (Denzin and Lincoln, 2011; Yin, 2013).

Case selection was guided by a combination of practical opportunities and theoretical considerations. The empirical basis of our study is the 'Governing Green Transitions' (GOGREEN) project (2022–2026), which has produced an extensive database comprising 36 case studies of local green co-creation across five macro-areas of intervention: energy production, community development, agriculture, ecology and conservation, and waste, sanitation, and circular economy. The GOGREEN project is a collaborative research effort involving multiple research teams worldwide in conducting comparative analyses of local co-creation endeavours and how they contribute to the green transition. To ensure rigorous data collection and analysis, the GOGREEN project relied on a common standardised research protocol jointly formulated in 2022. Embracing the principles of open science, this protocol is publicly accessible, benefiting not only from input provided by research partners but also from comments from the broader public (www.gogreen-project.com). In qualitative research, cases are not selected randomly but to serve a theoretical purpose (Brower et al, 2000; Eisenhardt and Graebner, 2007; Seawright and Gerring, 2008). To examine the role(s) government actors play in local green co-creation in the Global South, cases were selected based on two criteria: (i) they must be situated in countries and localities conventionally included in the Global South, while recognising that the Global South is not a homogeneous category and that its political-institutional arrangements, governance traditions and relationships between public and non-state actors vary substantially; and (ii) they must represent successful examples of local green co-creation, thus demonstrating that the reduced capacity of government institutions or the presence of authoritarian political regimes did not hinder the collaborative design and implementation of innovative green solutions. Thorough scrutiny of the broader sample of 36 cases, we found that the following cases met these criteria: the Ant Forest Protected Area Project (AFPA) in China, the Mangrove Conservation and Restoration (MCR) project in Indonesia, the Production, Protection, Integration (PPI) compact in Vietnam, the Village of Hope in Iran and the Daw Project in Jordan. We then employed an iterative comparative interpretation of the qualitative material. We conducted repeated cross-case readings of the case reports, focusing specifically on the role played by government actors in the initiation, support, and orchestration of local green co-creation processes. Through this comparative process, recurring patterns of governmental involvement emerged across the cases. Table 1 summarises the main characteristics of these five cases of successful local green co-creation, reporting key elements of: (i) the background, history and national/regional/local context of the cases, (ii) the main objectives of the local projects and the sustainability problems addressed and (iii) the core stakeholders/participants.

We recognise that the "Global South" does not constitute a homogeneous analytical category, with political-institutional arrangements, governance traditions and relationships between public and non-state actors differing considerably. The selected cases represent diverse political regimes, governance traditions, state capacities and relationships between state and civil society actors. These differences are analytically important and may shape the conditions under which local green co-creation emerges, as well as the specific roles assumed by government actors. Accordingly, our aim is not to generalise findings to the Global South as a whole, but rather to identify and compare patterns of governmental involvement across heterogeneous Global South contexts. The comparative design therefore allows us to explore how variation in politico-institutional settings influences the orchestration of local green co-creation processes.

The source of data is the GOGREEN database. The data included in the database were collected by researchers participating in the project on the basis of both primary and secondary sources, including publicly available documents, semi-structured interviews and direct observations of collaboration processes and local practices. Documentary data were gathered from project websites, relevant newspaper articles, project descriptions and government reports at the local, regional and national levels, providing the necessary context for understanding the backgrounds and primary objectives of the co-creation cases. Interviews were conducted with key informants involved in the five projects spanning public, private, nonprofit and civil society actors and focused on the structural, strategic and tactical-operational governance factors prompting, supporting and scaffolding local green co-creation. Observational

**Table 1**
Main features of the co-creation projects being examined.

| Name | Background, history and contexts | Objectives | Stakeholders |
|---|---|---|---|
| AFPA project (China) | China is highly biodiverse, with over 9,000 protected areas, although conservation efforts face challenges due to geographical, economic and social disparities, particularly in the western regions. Alibaba's Alipay has played a significant role in promoting biodiversity conservation, notably through its Ant Forest Project, which combines user engagement in low-carbon behaviours with tree planting and support for protected areas. Launched in 2019, the AFPA project supports community-based conservation in locations like Fushou Village, involving locals in reserve management. | 1) Promote biodiversity conservation in ecologically sensitive areas.<br>2) Enhance the livelihoods of local communities.<br>3) Encourage low-carbon consumer behaviours via the Alipay platform. | 1) Ant Group<br>2) Paradise Foundation, a local environmental NGO<br>3) Pingwu County Nature Resource Protection and Industry Development Association, an NGO established by the villagers<br>4) Local villagers |
| MCR programme (Indonesia) | Starting in 1999 in Pangpang Bay, the programme is a comprehensive effort in response to the massive deforestation that threatened the mangrove ecosystem in Banyuwangi, East Java. The project creates a habitat that protects biodiversity, especially for marine species, such as fish and crabs, which depend on the mangrove ecosystem for survival. Mangroves function as a transition zone between sea and land, holding sediment and maintaining soil stability to form a natural protective line important for the ecological balance and well-being of the surrounding community. | 1) Develop a robust mangrove ecosystem as a natural shield against environmental damage and a sustainable economic source for local communities (derivative products and business opportunities). | 1) Local Forestry and Fishery Agencies of Banyuwangi<br>2) Village authorities<br>3) Local community (organisations, farmers, fishermen)<br>4) NGOs |
| PPI compact (Vietnam) | Initiated in 2018, the project supports the transition to sustainable coffee farming in the Vietnamese central highlands. The PPI brings public and private actors together in hitherto separate sustainable transition programmes in a value-chain partnership, joining global coffee importers and roasters, middlemen buying the coffee from farmers, private agricultural supply companies and consultancy firms, local-, district- and provincial-level public agencies, a sustainable coffee NGO, local farmers' and women's associations, and scores of local coffee farmers, some of which come from minority groups. | 1) Improve the environment.<br>2) Rejuvenate coffee plantations.<br>3) Enhance occupational safety and health.<br>4) Reduce carbon emissions. | 1) IDH, the international sustainable development NGO that initiated and led the project<br>2) Governmental authorities<br>3) Big coffee roasters, global coffee importers and platforms<br>4) Local community |
| The Village of Hope project (Iran) | The Village of Hope is a co-created village reconstruction pilot project programme that was initiated in the wake of the November 2016 earthquake that hit the Kermanshah province in Iran. The Sarab-e Zehab village, where the Village of Hope would be built, suffered 620 fatalities, and an estimated 90% of all buildings were destroyed. The co-creation project emerged as a grassroots-led initiative, spearheaded by Dr. Sadegh Zibakalam from the University of Tehran in response to the initial delays in national first-aid responses. The project started as an informal national donation campaign, subsequently evolving into a full-scale village reconstruction programme. The project chose to leverage the SDGs as informal benchmarks for its reconstruction programme. | 1) Build 85 housing units.<br>2) Alleviate poverty in the village.<br>3) Use of sustainable building materials based on 3D-printed panel technology.<br>4) Establish a 'Cultural House' in the village to empower women.<br>5) Use of sustainable wastewater treatment plants and of a sewage network based on more environmentally friendly technologies. | 1) Scholars/academics<br>2) Local communities<br>3) Government |
| Daw Project (Jordan) | The Daw Project is a technical capacity-building programme, aiming to provide young adults aged 18–24 with a tailored 3-month intensive training package. The project equips them with practical skills in | 1) Capacity-building.<br>2) Improvement of young people's specialised skills and job opportunities.<br>3) Reduce youth unemployment. | 1) Actis Acts, a charitable foundation owned by Actis (a global investor in sustainable infrastructure)<br>2) Yellow Door Energy (YDE), a Dubai-based distributed Commercial & |

(*continued on next page*)

**Table 1** (*continued*)

| Name | Background, history and contexts | Objectives | Stakeholders |
|---|---|---|---|
| | solar photovoltaic installation and operation, and it provides opportunity to participate in the installation and operation of a 20 kWp solar plant at a local community centre that lacks access to electricity or/and relies on power derived from fossil fuel sources. Once this phase is finished, young people are supported in their search for employment in the field of installing and maintaining photovoltaic cells through connections with specialised and experienced mentors. | 4) Revitalise the supply of green energy to a healthcare community centre.<br>5) Promote access to healthcare. | Industrial solar platform in the Middle East and Africa<br>3) the Jordanian–German Center of Excellence, a specialised vocational training centre focusing on solar energy systems<br>4) EDAMA Association for Energy, Water & Environment, a Jordanian NGO with the mission to promote the creation of a green economy |

data, in the form of field notes, were collected during meetings and events where project stakeholders convened. These data contributed to a finer-grained understanding of the co-creation projects' processual elements and dynamics. These data were all summarised in publicly available case-reports, which provide the basis for the present re-analysis. Case reports underwent an iterative validation process to ensure inter-coder reliability in the analysis of governance factors and co-creation outcomes. External reviewers critically evaluated the scoring to ensure alignment with the research protocol. When a misalignment occurred, a meeting was organized between external reviewers and the research team to arrive at a shared understanding.

Each case report contains primary data from observations and interviews, and from a mini-survey administered to all the informants, as well as secondary data from document analysis. Data is scored numerically on several parameters and accounted for through qualitative description. In accordance with the exploratory nature of the paper, we relied above all on qualitative data: they offer a richer description of the phenomenon under investigation and allowed us to better understand the dynamics behind actors' interaction.

## 4. Findings

The analysis of the five cases points to the emergence of two types of public actor roles in local green co-creation in the selected Global South countries. Neither of them appears to conform to the usual roles prevalent in co-creation experiences from the Global North. These two public sector roles, which we shall further describe and exemplify below, can be summarised as follows: (1) governments may welcome local co-creation processes 'out of opportunity' in contexts where non-state actors mobilise local resources and skills and governments only have limited capacities (examples are found in the cases from China, Indonesia and Vietnam); (2) governments may support local co-creation processes 'out of necessity' in contexts where non-state actors initiate collaborative processes in response to pressing needs despite the initial reluctance of government actors or an unfavourable institutional-legislative context (examples are found in the cases from Iran and Jordan). The difference between the two public sector roles lies in the contrast between the willingness of government to exploit complementarities between the public and private sector and/or access skills and resources that it may not possess (opportunity) and the government's need to support a collaborative initiative to avoid losing legitimacy and/or appear deficient in implementing its own policy commitments (necessity).

### *4.1. Public actor's role type 1: welcoming out of opportunity*

The first role is displayed by cases located in countries with weak (Indonesia) or no (China, Vietnam) forms of liberal democracy, where governments accept the involvement of societal actors in green co-creation partnerships, because it provides an opportunity to solve problems that the public sector cannot solve on its own. Government recognises the severity of biosphere problems while also realising that it can neither solve the problems all by itself nor initiate the kind of cross-boundary collaboration that is needed. Consequently, it seizes the opportunity to have non-governmental organisations and community-based initiatives to initiate and drive local co-creation as a pragmatic problem-solving device.

The *Chinese AFPA project* (Zhao and Zhang, 2024) is exemplary of this configuration of structural political-institutional regime conditions. Despite being the longest-running autocratic one-party state and following the economic reforms and attempts to 'open up' in the 1980s, the Chinese institutional context is characterised by two opposed movements; namely, political centralisation and administrative decentralisation. There is a strict governmental hierarchy between 'state – province – city – county – township', with political power centralised at the state level, where the Communist Party rules unopposed. At the same time, the Chinese administrative system has developed a 'de facto federalism' system, with local governments enjoying significant discretion from the centre, and with the village level – the most grassroots governance unit in rural China – operating with significant independence from local government. Over the past four decades, grassroots-level village autonomy and the active management and expansion of social organisations have increased. This is particularly evident in relation to the management of the nature reserves that provide a home to large-scale indigenous communities. These communities, often economically disadvantaged and receiving limited local financial support, rely heavily on local natural resources for their sustenance and need to monitor and curb activities that pose ecological threats (e.g., hunting, deforestation). However, local nature conservation efforts frequently trigger local conflicts. Against this background,

the AFPA project represents a case of successful local green co-creation, as it has successfully harmonised biodiversity conservation with community development in Fushou Village. The village is located in an impoverished area in the Sichuan Province and marked by conflicts between conservation and development due to local villagers' utilisation and potential depletion of natural resources and with state-owned nature conservation agencies that lack sufficient resources (e.g. funds, staff skills, programmes for community participation) and power/authority for conservation (e.g. pro forma patrols, misalignment between conservation goals and local villagers' interests and needs). Rather than being resolved through top-down intervention, these tensions were gradually addressed through the creation of the community association, repeated interactions among NGOs, villagers and public authorities, and the joint development of conservation rules, patrol plans and alternative livelihood initiatives.

The collaboration between Alibaba's independent Ant Group and local NGOs, mainly the Paradise Foundation and the Pingwu County Nature Resource Protection and Industry Development Association, has been critical to filling the governance gaps pertaining to the limited capacity of local government. Indeed, the local community actors have helped to ensure the sustainability of the project by providing financial, human and technical resources for effective conservation through donations, training for the rangers, revision of village rules and regulations, development of patrol plans and community-based conservation strategies, support for the creation of alternative environmentally-friendly industries, audit of the use of funds, information and data collection, and environmental advocacy. Notably, this collaboration evolved over time: while the Paradise Foundation initially played a strong coordinating role, annual evaluations, training activities and regular meetings progressively strengthened the autonomy of the local association, which increasingly assumed responsibility for managing resources and developing new conservation and livelihood initiatives. At the same time, cooperation between the local government and environmental NGOs, dating back to panda conservation initiatives in the 1990s, has provided a strong basis of trust, which further enhances the local government support for NGO involvement in community-based conservation projects.

The *Indonesian MCR programme* (Chen-Florea et al, 2024) places local cross-boundary collaboration in the context of former President Suharto's long-lasting authoritarian rule, which dictated central political solutions to be implemented by local authorities in a top-down fashion. When the democratic revolution forced Suharto to resign from his post in 1998 after 30 years of military dictatorship, the Indonesian political system shifted towards a more democratic and decentralised governance system, enhancing opportunities for non-state actors to provide inputs to solving local problems, such as the destruction of the Pangpang Bay mangrove forests. Since its inception in 1999, the MCR programme has viewed the collaboration between the government, NGOs and local communities as the result of a gradual process of sharing and systematically integrating local knowledge and public and private resources to address complex environmental issues. The different development stages of the MCR programme illustrate the gradual expansion of the collaborative network that has ensured its effectiveness and sustainability over time. Indeed, the initial phase of the MCR programme was marked by fragmented and unsuccessful village-based initiatives, primarily consisting of uncoordinated local efforts and minimal multi-actor collaboration. Local environmental authorities, such as the Fishery and Forestry Agencies of Banyuwangi, lacked the necessary resources (e.g., financial and organisational capabilities) and skills to create lasting synergies with the parallel efforts of the village communities. Additionally, local authorities were unable to synthesise the diverging interests and motivations at play. While the village communities were generally concerned about the environmental consequences of deteriorating mangrove forests for their livelihoods, village authorities were primarily concerned with the potential economic benefits of conserving and rehabilitating mangroves, which offered coastal protection and opportunities to develop ecotourism. Moreover, the bureaucratic rationality of local environmental authorities, driven by institutional structures and policy mandates, diverged from the priorities of other stakeholders, as administrative efficiency and regulatory compliance sometimes overshadowed more nuanced ecological considerations in collaborative decision-making. Repeated interactions among village communities, local authorities and emerging civil-society partners gradually transformed these initially fragmented efforts into a more coordinated collaboration, fostering shared understandings of the causes of mangrove degradation and the need for joint action.

With the 2011 ratification of the Indonesian Instruction no. 3 by the national government, establishing equitable development as a national policy agenda, the MCR programme gained the legitimacy necessary to attract and recruit the relevant and affected actors required to ensure the success of the collaborative project. Local environmental authorities, village communities, businesses and NGOs coalesced around the joint effort to provide necessary technical know-how (through training and education) and resources (financial and manpower) to drive mangrove reforestation initiatives. The creation of the Pangpang Bay Mangrove Forum and, subsequently, the designation of the area as an Essential Ecosystem Area further institutionalised collaboration by providing formal venues for knowledge exchange and joint planning, while progressively broadening participation to NGOs, universities and private-sector actors. In sum, governmental legitimacy paved the institutional pathway for integrating NGOs, private organisations and local community actors and aligning them with plans and initiatives of local government that seized the opportunity to benefit from local-actor involvement.

Lastly, the *PPI Compact in Vietnam* (Torfing et al, 2024b) is particularly informative of how local green co-creation can be prompted and supported based on economic and political imperatives. Initiated by the IDH, an international sustainability NGO working in several countries and in different commodity areas, the PPI Compact is a puzzling case, since a foreign NGO is allowed to organise and lead a large-scale innovative collaborative network in an autocratic one-party state led by the Vietnamese People's Party. Interviews and policy documents reveal two good reasons that work in tandem to encourage the privately initiated co-creation of sustainable coffee production. The first reason is economic; Vietnam is the world's second-largest coffee exporter, and its exports generate substantial revenues. However, a combination of consumer demand and increasingly strict EU import regulations means that maintaining this revenue hinges on a rapid transition to sustainable coffee farming. In this critical situation, it is recognised that all relevant and affected actors must contribute with their knowledge, ideas and resources to make the shift to sustainable coffee production. The second reason is political; the Vietnamese state is governed by political party resolutions that the bureaucratic apparatus helps to

formulate and implement. However, state capacities are limited due to the combination of limited GDP, low tax revenues and the presence of a large informal economy that limits tax collection (Tran, 2014). Against this backdrop, the PPI Compact emerged through a gradual process in which earlier attempts to promote sustainable coffee production were consolidated into a collaborative governance arrangement capable of coordinating the previously separate efforts of public agencies, coffee companies, intermediary organisations and local farmers. The government has gradually embraced the use of Public–Private Partnerships, which were first tested in infrastructure projects through the introduction of Build, Operate and Transfer contracts with private companies (Decree 77/1997) and later generalised to most sectors, including agriculture (Law 64/2020). The establishment of the PPI Compact Steering Committee in 2019 and its subsequent transition from a pilot phase (2019–2021) to a consolidation and scaling phase (2022–2025) institutionalised regular interaction among stakeholders, facilitated knowledge sharing, and progressively expanded participation across the coffee value chain.

### 4.2. Public actor's role type 2: supportive out of necessity

The second role for public actors can be seen in cases located in contexts where either the government is initially unfavourable to bottom-up local participation, collaboration and innovation, but where local green co-creation nonetheless emerges in response to pressing needs, or where the government appears to be favourable in principle, but practical hindrances emerge due to institutional and/or legislative factors. Over time, however, governments are led to acknowledge and support the efforts of local actors to deal with pressing problems and to shape local responses based on co-creation.

The *Village of Hope project in Iran* (Mohktari, 2024) is an example of such a set of background conditions. Emerging in an authoritarian country where proactive support for local bottom-up collaboration is very limited, the local co-creation project flourished due to the exceptional circumstances preceding its development, best represented by the destructive impacts of the 2016 Kermanshah earthquake. The theocratic Iranian leadership is deeply wary of international organisations and what is perceived as culturally invasive Western values. As it therefore opposed the local rebuilding projects relying on the UN SDGs, the project initially represented a source of conflict between the government and the local project leaders. However, natural disasters often serve as catalysts for the manifestation of social unity and cross-boundary collaboration, which was also the case here. The Village of Hope pilot project showcases how social and political reconciliation emerged in the wake of a devastating natural disaster, as it became possible to unite the divergent interests between public authorities and civil society (scholars, local communities and NGOs). The Kermanshah earthquake catalysed public acceptance and support for the collaborative pilot project, as it drew the attention of the public and private stakeholders toward the urgency of the humanitarian disaster and the need for local action. The collaborative process unfolded gradually, beginning with public mobilisation and fundraising efforts, followed by negotiations with initially sceptical authorities, and eventually leading to the establishment of a broad coalition involving scholars, government agencies, local communities and NGOs around a shared reconstruction agenda. By relying on expert knowledge, embodied by the founder of the pilot project (Dr. Sadegh Zibakalam, professor of political science at Tehran University) and other regional universities (e.g. the University of Kermanshah and the University of Kurdistan), the project succeeded in grounding the project in the main pillars of the SDG framework, including the social, environmental and economic dimensions of sustainability. The reliance of scientific expertise and evidence also helped to avoid ideological conflicts, remove administrative barriers, and ensure coordination with government agencies. Over time, repeated interactions among project participants and the translation of SDG principles into politically acceptable local objectives succeeded in transforming initial conflict into pragmatic cooperation.

The *Jordanian Daw Project* (Eyadat and Husban, 2024), on the other hand, emerged in a situation where the in-principle commitment of the national government to open public governance using a participatory approach – embodied by the 'The National Strategy for the Jordanian Cooperative Movement 2021–2025' – encountered practical hindrances. While the Jordan Economic and Social Council, established in 2009, bears the responsibility of fostering dialogue between the government and various stakeholders, including ministries, research and education institutions, local communities, civil society organisations and cooperatives, challenges persist in realising effective collaboration. One such challenge relates to civil society organisations' (CSOs) access to resources: while Jordan is in theory committed to providing resources for CSOs in accordance with international conventions, like the International Covenant on Civil and Political Rights and the UN Declaration on Human Rights Defenders, in practice the Societies Law and the Companies Law impose restrictions on CSOs' access to resources, necessitating approval from the Council of Ministers for international funding, and from the Ministry of Social Development for domestic funds. In the case of the Daw project, Yellow Door Energy (YDE), a Dubai-based distributed Commercial and Industrial solar platform, first applied for an open grant managed by the Actis Acts charitable foundation, and it subsequently signed a collaboration agreement with the green economy-oriented Jordanian NGO EDAMA to mark the official launch of the project. In parallel, EDAMA and YDE partnered with the National Employment and Training Company, which assigned the Jordanian–German Centre of Excellence for Solar Energy as an implementing partner (in the form of training provider). The collaboration evolved through a sequence of coordinated stages, beginning with resource mobilisation and partnership formation, followed by the joint development of implementation plans, trainee selection criteria and outreach activities, before progressing to training delivery, solar installation and employment support. While the project objectives focused mostly on the micro and meso levels – through the electrification of a community centre and the integration of marginalised youth in the job market, respectively – the Daw project also helped to achieve key macro-level national government objectives. These include Jordan's target of 50 per cent renewable energy by 2030, which require 2.4 GW of installed capacity by 2025, the reduction of high youth unemployment, and the production of knowledge and creative ideas to inspire future sustainable community-based projects. Throughout the process, regular meetings, feedback mechanisms and cooperative problem-solving enabled project partners to monitor participant progress and resolve implementation challenges, which strengthened coordination and sustained collaboration across

organisational boundaries.

## 5. Discussion

Co-creation of sustainability transitions is universally recommended by the UN SDGs; SDG17, 'Partnership for the goals', underscores the need for broad-based, cross-sectoral engagement to address the nature and climate crisis. No public or private actor can unilaterally solve the severe biosphere problem confronting us. Cross-boundary collaboration is needed to exchange and pool knowledge, ideas and resources, develop and test innovative solutions, and build a common ownership over new and bold solutions to ensure their implementation. From a multi-level perspective on socio-technical transitions, the cases analysed in this article illustrate how local green co-creation primarily operates at the niche level, while its broader transformative potential depends on interactions with regime- and landscape-level conditions (Geels, 2018).

The recommendation of co-creation as a strategy for achieving sustainability transitions begs the question of whether it is actually a viable strategy in all parts of the world. Co-creation may be more widely adopted in those northern and western European countries that have a relatively resourceful public sector, a strong political commitment to sustainability, and democratic traditions for citizen participation and public−private collaboration. Here, co-creation is often advanced both to mobilise societal resources in the pursuit of innovative solutions and as a way of democratising public governance by facilitating empowered participation in public value creation. Liberal democratic states in North America and the Antipodes may also support the co-creation of green solutions, although here the tradition for state intervention is somewhat weaker. Consequently, the public sector is sometimes less proactive in its support for collaborative governance and co-creation of sustainability transitions, leaving it to the private for- and non-profit sector to initiate projects that are then aligned with public agendas.

Based on the extant literature drawn from experiences in the Global South, one might expect public sector actors to be unlikely to initiate or support co-creation, especially in countries with weak government institutions or authoritarian political regimes, who may fear that empowered participation in local green co-creation will create pockets of anti-regime resistance (Vedeld, 2000; Bruun and Rubin, 2023; Yan et al., 2022; Placek et al., 2023). However, the findings in this article not only confirm that local green co-creation does occur in these kinds of countries, they also suggest that the bottom-up co-creation of green solutions may even receive support from the public sector (although how this support is provided varies). In one group of countries (China, Indonesia and Vietnam), our cases display government at different levels seeming to welcome and embrace local co-creation, because it mobilises skills and resources in solving pressing environmental problems that the government itself has limited capacity to solve. Hence, local co-creation provides opportunity to exploit complementarities between the public and civic sector sectors, and local government supports the local co-creation endeavour, although not proactively by prompting and initiating it. If co-creation grows from below, it helps to solve pressing problems and to solve local conflicts, and it is not seen as a way of strengthening democratic participation as will often be the case in Global North countries. In another group of countries, local co-creation emerges in our cases bottom-up without government support (Iran) or despite adverse institutional/legislative conditions (Jordan), but the government comes to recognise its value and supports it out of necessity because there are pressing problems to be solved and the government must ensure its legitimacy and/or ensure the real implementation of policies to which it has committed. In this regard, the Iranian case suggests that support "out of necessity" may be activated by external shocks, such as natural disasters, which heighten the urgency of collective action and increase the political costs of governmental inaction. Such crises may create exceptional circumstances in which authorities become willing to support community-led initiatives that, under normal conditions, would be viewed with greater scepticism or might not receive governmental backing at all.

In this sense, the roles played by governments 'out of opportunity' or 'out of necessity' can be interpreted as shaping the degree to which niche innovations remain locally contained or become more broadly embedded. While supportive government action may enhance niche accumulation and diffusion, the socio-technical transitions literature suggests that regime alignment and landscape pressures remain critical for opening windows of opportunity for niche breakthroughs (Geels, 2018).

The distinction between governmental support "out of opportunity" and "out of necessity" also helps to qualify existing discussions of governments as hands-on or hands-off metagovernors (Castán Broto and Bulkeley, 2013; Masuda et al, 2022; Ansell et al, 2022; Hofstad and Vedeld, 2020). In the cases examined here, governments rarely acted as proactive hands-on metagovernors initiating and steering collaborative processes from the outset. Instead, their involvement tended to emerge after community-led initiatives had already developed. Support "out of opportunity" often resembled a more hands-off metagovernance role, where governments enabled and legitimised collaboration while relying on non-state actors to mobilise resources and drive implementation. By contrast, support "out of necessity" suggests a more reactive form of metagovernance, in which governments become involved not because they seek to orchestrate collaboration proactively, but because crises, legitimacy concerns or policy commitments create pressures to engage with existing grassroots initiatives. While the hands-on/hands-off distinction captures different modes of metagovernance, our findings suggest that the opportunity–necessity distinction helps explain the underlying rationales that motivate governmental engagement in community-led co-creation processes.

In sum, we can see that the political-institutional regimes can make a notable difference, although local green co-creation is not contingent upon supportive political-institutional environments. It may emerge and thrive both in countries with liberal democracy and a resourceful public sector and in countries where liberal democracy is new, limited or absent and the local public sector lacks important skills and resources. Indeed, the need for governments in the latter type of country to solve local problems and challenges that it cannot solve by itself due to lack of capacity may lead them to either positively embrace or necessarily support local self-grown co-creation. At the same time, the comparative analysis cautions against treating the "Global South" as a homogeneous category. This caution derives from the cross-case findings, rather than being a direct consequence of case selection alone. Across the cases,

government involvement followed different pathways: in China, Indonesia and Vietnam, governments accommodated or institutionalised community-led collaboration to mobilise external resources and address policy priorities, whereas in Iran and Jordan, support emerged only after crises, legitimacy pressures or implementation requirements made non-state initiatives difficult to ignore. These contrasts, together with variation in regime type, state capacity, decentralisation, civil society autonomy and the historical relationship between state and non-state actors, show that the motivations and forms of government support cannot be attributed to a single "Global South" model. These contextual differences may shape both the motivations for government involvement and the forms that support for co-creation may take. For example, while governments in some contexts may support co-creation pragmatically to compensate for limited administrative capacity, in others support may emerge primarily in response to acute socio-environmental pressures threatening governmental legitimacy or policy implementation. In this sense, the distinction between support 'out of opportunity' and support 'out of necessity' should not be interpreted as fixed models associated with particular regions or regime types, but rather as context-dependent tendencies emerging from diverse politico-institutional configurations.

The widespread diffusion of co-creation, together with evidence that governments may be willing to support it even in contexts where such support is least expected, suggests that a broad range of countries may be able to follow the UN recommendation to pursue social, economic and environmental sustainability through broad-based, cross-sectoral engagement. A condition for this recommendation to hold up may be that governments in new democracies, hybrid regimes and autocratic one-party states perceive co-creation as a pragmatic problem-solving device rather than a mechanism for empowered participation and the democratisation of local governance.

Paying attention to the impact of different politico-institutional regimes is of critical importance, as it helps to contest a Eurocentric view of co-creation as a natural extension of liberal democracy predicated on the presence of a large and resourceful public sector capable of initiating and leading collaborative innovation processes that empower citizens by facilitating their active and direct participation in local governance. While this might be the role of co-creation in one part of the world, co-creation may take a different form elsewhere. In some politico-institutional regimes, the government may welcome co-creation because privately initiated and relatively self-governed collaboration between local actors may help to mobilise resources and tackle problems that government does not have the capacity to deal with, which helps to shoulder the burden of governing. In other politico-institutional regimes, co-creation may initially be frowned upon but later accepted and supported, because pressing problems must be solved, local actors have become engaged, and it is better for government to align itself with local initiatives than to try to suppress them. Hence, the comparative analysis reveals how, in some countries, co-creation may be first and foremost a pragmatic tool for solving problems that bring together actors possessing much-needed ideas and resources.

Notwithstanding these considerations, local green co-creation based on the SDG framework may eventually help to expand plural democracy in autocratic countries. Not only will the eradication of poverty and empowerment of citizens through better quality education and gender equality contribute to generating pressure for democratic participation (Leininger et al, 2019), the experience with co-creation – where different groups and actors with different ideas, interests and resource work together to design, test and implement solutions to pressing problems – may normalise pluralism and slowly but steadily limit and weaken the control of the ruling party. Although some countries may still have a long road ahead (e.g., China), Vietnam seems to be a case in point. Although civil and political rights are still restricted, our case is a testament to a growing acceptance that complex and wicked problems are better solved through the active involvement of a plurality of public and private actors, including farmers and minority groups.

## 6. Conclusion

This article has raised questions regarding the role government actors may play in the orchestration of local green co-creation in the Global South. Based on a comparison of five cases of local green co-creation drawn from the GOGREEN database, our study shows that governments outside the core of Western liberal countries may not proactively initiate, support and orchestrate local co-creation. Instead, they may welcome local green co-creation that is emerging bottom-up as an opportunity to solve problems based on the mobilisation of non-public resources, or they may reluctantly support privately initiated local green co-creation out of the necessity to maintain control and legitimacy in situations where pressing problems call for solutions. The term 'government' in this study refers to public authorities at multiple levels, although the empirical evidence centres on local implementation. The cases show that policy commitments, rules and resources at different governmental levels can condition local co-creation: the distinction between opportunity and necessity as drivers of support aims at showing how and why various levels may differently combine in supporting community-initiated co-creation.

Our paper's contribution to the literature is threefold. First, our results qualify and integrate the collaborative governance literature as it relates to the role of governmental actors, from a focus on government as orchestrator to one of government as contingent supporter. Among the politico-institutional conditions discussed in the collaborative governance literature, the role of government is often regarded as pivotal, supporting collaborative action by orchestrating stakeholder interaction and creating spaces for experimentation and co-creation (Castán Broto and Bulkeley, 2013; Masuda et al., 2022; Ansell et al., 2022; Hofstad and Vedeld, 2020). Much of the available evidence, however, derives from the Global North and underscores the contribution of resourceful and administratively capable local governments in promoting public–private collaboration and citizen participation through active meta-governance (van der Heijden, 2019; Ansell et al., 2022; Røiseland et al., 2024). In contrast, our cases display situations where successful co-creation emerges before government engagement. Government participation is contingent and adaptive rather than constitutive of collaboration. Our proposed distinction between support "out of opportunity" and support "out of necessity" provides a first typology of these alternative governmental roles. Moreover, the co-creation literature often seems to derive its assumptions from contexts characterised by relatively capable, decentralised and resourceful governments. However, our findings suggest that the

relationship between state capacity and co-creation is not linear. Limited state capacity may actually create incentives for governments to accept community-led co-creation because they need external resources, expertise and implementation capacity. In other words, state weakness does not necessarily hinder collaborative governance: under certain conditions it can create incentives for governments to endorse externally initiated collaborative arrangements.

Secondly, our findings suggest that local green co-creation should not be understood solely as a pragmatic mechanism for mobilising resources and solving environmental problems. While governments in our cases often supported co-creation because it helped address pressing policy challenges, the collaborative processes themselves also created spaces for interaction, deliberation and joint problem-solving among public authorities, community actors, NGOs and private organisations. In this sense, co-creation may have broader transformative implications by fostering new forms of shared power and participation that reshape state–society relations over time. Even in contexts characterised by weak democratic traditions or authoritarian governance, the collaborative engagement of diverse actors can contribute to the gradual expansion of civic participation, mutual learning and cross-boundary cooperation. As such, local green co-creation may simultaneously function as an instrument for problem-solving and as a potential pathway for incremental institutional and political change, although the extent of such transformation remains an important question for future research (Ansell et al., 2024).

Lastly, from a socio-technical transitions perspective, this article contributes to a more context-sensitive understanding of transition dynamics, recognising co-creation as a potentially enabling but not self-sufficient driver of sustainability transitions. In line with recent scholarship on transitions in the Global South, our findings suggest that transition pathways are shaped by uneven state capacities, developmental priorities and broader socio-economic challenges rather than by linear processes of ecological modernization (Lederer et al., 2018; Weko and Goldthau, 2022). This perspective helps to avoid blending niche-level success with systemic change and underscores the importance of politico-institutional contexts in shaping transition trajectories. Our cases illustrate how grassroots niche innovations may gain support from regime actors in contexts where governments do not initially assume a leading role in sustainability transitions. Rather than emerging from deliberate state-led transition strategies, niche–regime alignment often results from pragmatic considerations. Governments may support grassroots initiatives because they mobilise resources, knowledge and implementation capacity that public institutions lack, or because crises, legitimacy concerns and policy commitments create pressure for action. The findings further highlight the importance of hybrid governance arrangements involving public, private and civic actors. As such, niche–regime alignment may emerge less from a shared transition vision than from adaptive responses to pressing environmental and developmental challenges.

From a practical perspective, our findings caution against transferring models of collaborative governance developed in the Global North directly to other political and institutional contexts. Policymakers and international organisations often assume that governments will play a leading role in initiating and coordinating co-creation processes. Our analysis suggests that such assumptions may be unrealistic in contexts where public institutions face resource constraints, limited administrative capacity, or competing political priorities. Efforts to promote local green transitions should therefore focus not only on strengthening governmental leadership but also on supporting the capacities of community organisations, NGOs, social enterprises and other non-state actors capable of initiating collaborative action from below. For public authorities, the findings highlight the potential value of adopting a more enabling approach towards community-led initiatives. Even when governments lack the resources to lead sustainability transitions directly, they can make important contributions by recognizing and facilitating grassroots innovations that have already emerged, for instance by providing access to information, reducing administrative barriers, creating supportive regulatory environments and connecting local initiatives to wider policy agendas.

Such contributions notwithstanding, there are several limitations associated with the present study. The number of cases is limited, the selected countries are not representative of the variety of experiences in the Global South, and there is no attempt to test whether other cases from the same country display a similar pattern. A specific limitation relates to our selection of cases, which were chosen because they represent successful examples of local green co-creation in contexts where one might not expect collaborative initiatives to flourish. While this was appropriate for the exploratory purpose of identifying alternative forms of governmental involvement, it also introduces a potential selection bias. By focusing on successful cases, we are unable to assess whether the patterns identified here - governmental support "out of opportunity" and "out of necessity" - are also present in unsuccessful, stalled or failed co-creation initiatives. Future research should therefore compare successful and unsuccessful cases to examine whether these forms of governmental engagement contribute to positive outcomes or whether other factors explain variation in the trajectories and results of local green co-creation processes. In addition, while our findings suggest that economic, political and legal conditions shape governmental support for local green co-creation, the limited number of cases and space constraints prevent a more systematic comparison of these antecedents. Future research based on a larger set of cases could further explore how different political-institutional configurations relate to different governmental roles. Moreover, future research could explore the role(s) that government subsequently plays in those cases where it was initially reluctant to support the co-creation process. Does co-creation operate in a parallel non-state space, or does government become involved and possibly fundamental to the process, even if it was hesitant to sign on? Does such involvement (if any) show a consistent pattern in cases of acceptance out of opportunity, as opposed to necessity (or vice versa)?

While global comparative studies of local green co-creation are few and far between, our hope is that future studies including more cases will be able to test and further develop the two models for public sector support in Global South countries that we have identified here. There might even be more models that can help to open our eyes to the alternative ways of and rationales for providing government support to local co-creation processes aiming to mitigate the nature and climate crisis. Future research could also explore whether support "out of opportunity" and support "out of necessity" are best understood as ideal types, or whether hybrid and intermediate forms exist in practice, in which governments support local green co-creation both because it offers opportunities to mobilise external resources and because political, legal or crisis-related pressures make support necessary. Further studies may provide

a more nuanced operationalisation of politico-institutional regimes that will allow us to identify different constellations of regime factors motivating different degrees and forms of support for local green co-creation.

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## CRediT authorship contribution statement

**Benedetta Trivellato:** Writing – review & editing, Writing – original draft, Formal analysis, Conceptualization. **Trond Vedeld:** Writing – original draft, Conceptualization. **Hege Hofstad:** Writing – original draft, Conceptualization. **Teguh Kurniawan:** Writing – original draft, Investigation, Data curation, Conceptualization. **Marta Micacchi:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Daniela Cristofoli:** Writing – review & editing, Writing – original draft, Methodology, Formal analysis, Conceptualization. **Pei Zhang:** Investigation, Data curation, Conceptualization. **Jiacheng Zhao:** Investigation, Data curation, Conceptualization. **Alexander L.Q. Chen-Florea:** Writing – original draft, Investigation, Data curation, Conceptualization.

## 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.

## Data availability

The GOGREEN database is available at https://gogreen-project.com/

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