Review

Understanding the "Implementation Gap" to Improve Biodiversity Governance: An Interdisciplinary Literature Review

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ABSTRACT

The loss of biodiversity across the planet emerged as a global problem in the 1960s. The UN Conference on the Human Environment held in Stockholm in 1972 addressed this issue with a declaration, the first international action plan and the establishment of the United Nations Environment Programme. Since then, numerous institutional instruments have been adopted at the international level but biodiversity loss has continued unhalted worldwide. The conservation of biodiversity is a collective action problem that is affected by issues of governance. Multilateral environmental agreements are vital for biodiversity conservation but their implementation still remains a challenge. A better understanding of this process (with its enablers and hindrances in national and subnational contexts) is needed especially now that a new Global Biodiversity Framework has just been adopted. Theories about policy implementation have been numerous but there has been little dialogue across disciplines. Since the rich theoretical progress that has been made has a value for the practice, this article analyses the major analytical contributions about implementation to shed light on the journey that international institutions undertake after their adoption in global political arenas. With this focus, the articles not only want to contribute to analytical reflections on the flaws of the past, but also inform the implementation of the new Framework.

KEYWORDS: biodiversity governance; implementation; international regimes; public policy; Global Biodiversity Framework

Received: 04 April 2023
Accepted: 11 April 2024
Published: 16 April 2024

INTRODUCTION

Biological diversity, or biodiversity, consists of the variability among living organisms from all sources (terrestrial, marine and aquatic) including diversity within species, between species and of ecosystems [1]. The loss of biodiversity across the planet started to emerge as a global problem in the 1960s [2]. The direct drivers of biodiversity loss are: changes in land and sea use (e.g., agriculture and shipping); overexploitation of living resources (e.g., logging and fishing); climate

change; pollution; and invasive alien species. These direct drivers are the result of indirect drivers that can be demographic, economic or relate to the institutions put in place and the resulting system of governance [3].

At the global level, a system of biodiversity governance started to be sketched in the early 1970s. In 1972, the Stockholm Declaration was adopted at the United Nations Conference on the Human Environment (UNCHE) and placed the environment at the forefront of the international political agenda. The same year, Meadows et al. [4] stressed the importance to respect, in economic growth, the limits imposed by the planet and its finite natural resources. Following the adoption of several Multilateral Environmental Agreements (MEAs) throughout the 1970s and 1980s (Table 1), the Brundtland Commission stressed, in 1987, the importance of a "sustainable development" that does not compromise the ability of future generations to meet their own needs [5]. Other major steps followed in the construction of a global system of biodiversity governance, like the adoption of the Convention on Biological Diversity (CBG), in 1992, and Agenda 2030, in 2015 [6].

Table 1. Major steps in global biodiversity governance.

Year	Key events and main documents
1972	UN Conference on the Human Environment (UNCHE, Stockholm): • Stockholm Declaration • Action Plan • UN Environment Programme
1972	*The Limits to Growth* [4]
1971, 1975	Ramsar Convention on Wetlands
1973, 1975	Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES)
1979, 1983	Convention on the Conservation of Migratory Species of Wild Animals (CMS)
1987	*Our Common Future* [5]
1992	UN Conference on Environment and Development (UNCED, Rio) (or Earth Summit): • Convention on Biological Diversity (CBD) • UN Framework Convention on Climate Change (UNFCCC) • UN Convention to Combat Desertification
2002	UN World Summit on Sustainable Development (Johannesburg)
2010	CBD's Aichi Targets
2012	UN Conference on Sustainable Development (Rio)
2012	UN Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES)
2015	Agenda 2030—Sustainable Development Goals (SDGs)
2022	Global Biodiversity Framework (GBF)

Despite the elaborate array of institutional instruments established internationally in the last 50 years (Table 1), results in the state of the environment have been rather disappointing and biodiversity loss has continued unhalted worldwide [7]. In 2019, the United Nations (UN)

scientific body in charge of studying biodiversity and ecosystems, i.e., the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES), concluded that human activities are driving biodiversity loss at a greater pace than ever before in human history [8]. For instance, more than 25% of assessed animal and plant species are declining on a planetary scale [2]. In fact, results in terms of biodiversity conservation vary across the globe [3], with very weak achievements in the least developed contexts like many African countries [7]. Furthermore, biodiversity loss has intertwined with the other major crisis of our time, i.e., climate change. The two phenomena are, indeed, linked by mutually reinforcing dynamics that make then "twin crises" [6].

Biodiversity conservation is a collective problem that is clearly affected by its governance [2]. This has led scientists, policy-makers and practitioners to question the current system of biodiversity governance and start considering the need for a change. The COVID-19 pandemic has added momentum to the belief that our relationship with nature and the way this relationship is governed call for a radical transformation [3].

Unfortunately, scientific investigation has brought some pessimism about the role and effectiveness of international institutional arrangements in defence of biodiversity. According to Hoffman et al. [9], international treaties used by countries to address global challenges that transcend national boundaries, like the environment, have generally failed to produce their intended effects with the only exception of those in the trade and finance. The study clearly shows the low effectiveness of international environmental agreements, especially in the absence of enforcement mechanisms.

Hoffman et al. [9], however, focus on the formation of treaties and their design in order to explain failures in global governance. While acknowledging the importance and breadth of the work by Hoffman et al., this article wants to point out that, often, international agreements—like the ones adopted for the environment and biodiversity—are not flawed by design: their effectiveness highly depends on the complexity that their implementation brings along. The relation between treaty design and final impact analysed by Hoffman et al. [9] implies a long causal chain that risks obscuring the articulated mechanisms that follow treaty adoption and lead to the domestic enactment of international (environmental) agreements and their execution through national policy outcomes and outputs.

In their recent literature review on global biodiversity governance, Petersson and Stoett [2] highlight a few themes as crucial for biodiversity governance and international law (Table 2). According to these authors, MEAs are vital for biodiversity conservation and environmental protection but can be successful only if supported by domestic stakeholders. Unfortunately, when new international obligations require substantive domestic policy developments, '*implementation is very hard*' (Lesson 1) ([2], p. 4, emphasis in the original). Indeed, the ratification of

international agreements does not guarantee effective national implementation. Petersson and Stoett [2] also identify a few causes of governance failure linked to implementation: (a) insufficient resource capacities; (b) policy incoherence across international and national level; (c) disparate preferences of negotiators; (d) and institutionalised uncertainty (i.e., the outcomes of interactions between actors within institutions are largely unpredictable).

Table 2. Lessons learned.

Number	Description
1	Implementation remains a central challenge, but this challenge should not be conflated with ineffectiveness
2	Multilateral environmental agreements are vital for success
3	Coordination and policy coherences (across international institutions, national sectoral policies, and between the international and national levels) is often lacking, insufficient, or superficial
4	Institutional change and policy reform within existing (international) institutions is incremental at best
5	Understanding local political dynamics is critical
6	Equity concerns remain central to biodiversity policy development at all levels
7	The role of non-state actors and private voluntary standards fluctuates
8	Tensions over state sovereignty and collective action and the commons have often been visible but as often lurk in the shadows of environmental diplomacy and most ongoing discussions of global biodiversity governance

Source: based on [2].

The implementation of global biodiversity laws and policies passes through national political processes that are pivotal for the success of international commitments [10]. As these international obligations travel to the domestic level, they pass through different layers of governance and are exposed to different forces that shape and reinterpret them, thus strengthening or weakening their content in different contexts [11]. Despite their indivisible nature, the connections between global and domestic governance are poorly understood [10]. A better (hopefully complete) understanding of the process of implementation by state and non-state actors, with its enablers and hindrances located at the national and subnational levels, is still very much needed [3].

The challenge of implementing global biodiversity policies at national (and subnational) level has been recognised in the CBD for long time now [10]. Such challenge must be addressed if we want a successful Global Biodiversity Framework (GBF). However, as stressed by Phang et al. ([7], p. 4): 'the attention given to implementation is disproportionately small compared to that given to defining the new biodiversity targets'.

Several factors and their potential multiple combinations can explain implementation gaps and the subsequent policy failures [12]. Explanations of policy implementation have been numerous and based on an

abundance of explanatory factors but there has been little dialogue across disciplines investigating implementation from different research angles [13]. Although it would be complex to synthesise the rich theoretical arguments and incorporate the vast set of variables into one single analytical model, the rich theoretical progress that has been made has a value for the policy practice in the real world. This is particularly true if knowledge is cumulated rather than left fragmented and scattered around across different domains of the academic literature. This theoretical diversity has often been left compartmentalised so that different perspectives have failed to enrich each other. Searching for, filtering and defining points of substantial consensus across disciplines makes sense to offer help to the world of (political) action [13]. Ultimately, biodiversity is a political space [2].

This article moves from this context and discusses the challenge of implementation not only to reflect about bottlenecks affecting biodiversity governance but also to inform the implementation of the new GBF. It provides a multi-disciplinary literature review on implementation and presents the existing knowledge on the topic. The article starts by reviewing the literature on international regimes that has directly addressed the issue of domestic implementation of MEAs and other international agreements in the framework of regime effectiveness. The gaps in regime theories are complemented with insights on implementation that stretch out to research on Europeanisation, public policies and development countries. In total, four disciplinary fields have been analysed through a narrative literature review that covers how these fields have explained implementation with its inducements and constraints. A narrative (also known as traditional) literature review is a comprehensive analysis of the current knowledge on a given topic. The narrative approach to literature review was preferred to the increasing use of systematic literature review in the social sciences because: (1) theoretical insights on policy implementation are scattered across various strands of literature; (2) the article has the ambition to condense the cumulated knowledge on the topic [14].

IMPLEMENTATION AND REGIME THEORIES

International regimes are commonly defined as ‘sets of implicit or explicit principles, norms, rules and decision-making procedures around which actors’ expectations converge in a given area of international relations’ ([15], p. 186). They have been the object of studies from the disciplinary field of international relations. Scholars in this discipline have developed numerous theoretical frameworks; yet, an integrated “regime theory” has never been developed [16]. More specifically, the studies on international environmental regimes have focused on regime formation, i.e., how regimes come into existence. Early studies on international environmental regimes have, indeed, analysed how international public problems enter the international political agenda, how agreements are

reached among states and why international environmental regimes take different forms. Explanatory value has been attributed to power, interests and knowledge acting as independent variable [17].

Little attention was initially paid to the implementation of these regimes: until the end of the 1990s, the topic was still new [18], unexplored [19] and in its infancy [20]. The functioning of international (environmental) regimes—once formed—started to become an important aspect of research in international relations only in the late 1990s when the actual effectiveness of international regimes emerged as an area of academic interest [19,21]. Indeed, it became soon clear that regime effectiveness largely depends on 'the willingness and the ability of national governments to translate regime rules, procedures, and programmatic commitments into practices that succeed in directing the behaviour of the right set of subjects' ([22], p. 273). In other words, national (or domestic) implementation translates international obligations into national policy initiatives (i.e., public policies) that prescribe given activities and proscribe others with the aim of influencing actors' behaviours [20,23]. Three contributions marked this shift of academic focus at the turn of the millennium: Victor, Raustiala and Skolnikoff [19]; Underdal and Hanf [24]; and Brown Weiss and Jacobson [25].

The first to identify a knowledge gap in the study of international regimes, Victor et al. [19] explain regime effectiveness as depending on several variables: the nature of the problem addressed, the configuration of power among states, the character of the accords, exogenous economic and political forces, public concern and implementation. In particular, implementation is addressed as pivotal for regime effectiveness and explained as affected by two major factors: socio-economic transformations and civil society's participation. The study by Victor et al. [19] has a clear pioneering value. However, it only partially captures the complexity of implementation at the national (and subnational) level.

Underdal and Hanf [24] confirm the explanatory value of civil society's participation but they also highlight the capacity of the state as an important explanatory variable to understand the implementation of international agreements. In their study (on acid rain), Underdal and Hanf [24] test the validity of three models that can explain regime implementation. First, the state is assumed as a unitary rational actor; in this model, implementation depends on considerations about the costs of compliance and the benefits originating from the solution of the problem at stake. Second, implementation depends on social learning and the policy diffusion derives from the transnational flow and exchange of knowledge and ideas. Third, the implementation of international regimes depends on domestic politics and the dynamics present in a policy area, namely the societal demand or support (e.g., through NGOs and green parties) for international commitments and the state capacity (e.g., funds, personnel and leadership).

Both societal mobilisation and state capacity are confirmed by Brown Weiss and Jacobson [25], although these authors propose a more elaborate analytical framework that explains domestic implementation through four clusters of explanatory factors: (a) the characteristics of the activity addressed by the international treaty (e.g., interests involved as well as economic and cost/benefit considerations); (b) the characteristics of the accord (as the establishment of review, monitoring and sanctioning mechanisms); (c) the international environment (i.e., the forces existing around the international accord, such as conferences of the parties or international organisations); (d) and the factors involving the country. Brown Weiss and Jacobson recognise greater importance to this last cluster. It includes a set of variables (like culture, economic conditions, political system and social pattern) with an indirect influence on implementation because they operate through (crucial) proximate variables that can be manipulated through policy interventions. These variables with direct impact on implementation are public support and mobilisation from NGOs, administrative capacity, leadership, knowledge and information.

To sum up, scholars in international relations have acknowledged, though late, the salience of domestic implementation for the effectiveness of international regimes/agreements and started to look into national political dynamics as the most proximate causes of weak regime implementation and, consequently, effectiveness. Among the state-level explanatory factors, these scholars have stressed public participation and state capacity as crucial independent variables in the implementation of international obligations.

Despite these relevant contribution to the topic, more insights on national implementation of meta-national rules have been developed by the scientific research conducted on the European Union (EU) and the process of Europeanisation.

IMPLEMENTATION AND EUROPEANISATION RESEARCH

The scientific research on the political system of what is today the EU started decades ago with a focus on the historical process of economic, political and social integration that took place in Europe and the consequent gradual transfer of political powers and competences from the national to the EU/supranational level. Such interest for the European polity-in-the-making shifted towards the implementation of the EU body of law in the 1980s. The term “Europeanisation” was, then, given a new connotation. While the concept had always been used to indicate the development of new structures of governance at the supranational level, under a new broader connotation, the term started to include also the process of influence of European decisions on national political and policy systems [26].

Thus, Europeanisation has embraced the domestic response of Member States (MSs) to new EU policies and rules as institutional change and

structural adaptation in national policy practices, administrative structures and political patterns of interest intermediation [27–30]. Although both meanings are now embedded in the concept, this article uses Europeanisation as the "penetration" of meta-national obligations into national policies as required by compliance with EU, which happens through implementation [30]. Europeanisation studies increasingly highlighted implementation gaps affecting the functioning and effectiveness of European policies and legislation. This called for academic investigation on the causes of non-compliance with EU law and the varying degree of domestic implementation across MSs [26,31,32]. Three main waves can be identified in the study of implementation of EU law.

Early Europeanisation research investigated implementation of EU policies in a fragmented way and without any theoretical framework [32]. Some researchers focused on the chain of command and control within the EU, echoing the top-down approach to policy implementation (see below) [27]. They argued that clear EU provisions and effective national administrations can ease implementation, while problems of misinterpretation of EU directives and administrative resource shortcomings jeopardise national compliance [33,34]. Other researchers, with a bottom-up approach to the topic, stressed the need to incorporate national actors (e.g., parliaments, sub-national authorities, implementing agencies and target groups) in the European decision-making to achieve better implementation [27,32].

Further studies in the late 1990s have focused on the costs of adaptation (e.g., [33]). Here, implementation is understood as a continuation of politics with other means. Some MSs can fail in defending their policy preferences during the adoption of European directives. The new EU rules can then experience friction with existing domestic institutional settings and policy frameworks. Such misfit creates opposition and resistance by those MSs during the phase of implementation. However, the explanatory value of the "goodness to fit" has been questioned by later studies that revealed how the implementation of EU rules rather depends on the will of domestic actors to change (or maintain) the status quo rather than to the degree of fit (or misfit) between EU and national policies and institutions.

Therefore, the complexity of domestic politics became the area of investigation of a third wave of Europeanisation research [32]. In this wave, Héritier et al. [35] consider European policies as an input in the domestic policy process. Their implementation is affected by the reform capacity of a MS, which depends on the presence of veto points obstructing transformation. Likewise, for Haverland [29], implementation of EU directives is determined by the domestic mobilisation (in favour of the change) or opposition (against any transformation) of political parties, public administration, business groups, environmental NGOs, and the civil society.

Risse et al. [36] developed a more elaborate framework where both the goodness to fit and considerations of domestic politics converge. The result is that when EU rules and domestic policy legacies better fit ("institutional compatibility"), the pressure for change and reform ("adaptational pressure") on MSs is lower; hence, implementation will not face great obstacles. The presence of misfit implies, instead, higher adaptational pressure. In this case, implementation will be affected by national veto points and the mobilisation of national actors (similarly to [29,35]).

To sum up, Europeanisation research has developed two important insights on the implementation of rules adopted at a meta-national level. First, the implementation of these rules travels along a process of penetration that influence policy-making within the MSs of the EU [26,30] because they create an adaptational pressure for transformation and change [27–29,35,36]. International obligations create a comparable tension for adaptation, or "pull towards compliance" as defined by Bernstein and Cashore [37]. Second, high pulls for change ignite domestic political forces—as mobilisation of national actors in favour or in opposition of new rules—during national implementation [29,36], which ultimately determine the reform capacity of MSs [26].

IMPLEMENTATION AND POLICY SCIENCE

Scholars from the disciplinary field of policy science have examined the process of policy implementation for much longer and more in depth than the previous strands of research. This discipline developed in the second half of the twentieth century and put government interventions, public policies and policy-making at the core of its scientific investigation of [38,39]. In particular, it has thoroughly investigated what happens to a policy initiative after its legislative adoption (or enactment), i.e., policy implementation.

Since the 1970s, researchers from the policy science started to develop analytical frameworks that could help understand the complexity characterising the implementation of public policies and explain the achievement (or not) of expected results. Despite the theoretical efforts to untangle such intricacy and capture the entire process with few variables, a general theory of implementation has never emerged [40,41]. The body of scholarly literature on the topic is traditionally arranged into three main blocks that correspond to the use of a top-down approach, a bottom-up approach and syntheses of these two.

With a clear hierarchical perspective, the scholars adopting a top-down approach to the study of implementation have examined the process as the mere execution by national public administrations of policy interventions decided by legislative bodies and central governments [34,42–44]. According to these scholars what most matters for a successful policy implementation is the clarity and adequacy of policy objectives and means (i.e., the policy design); the amount of assets made available (i.e.,

policy resources); the presence of veto points; and the chain of command and control that steers the whole process [45–47].

This approach has given little attention to the role played by public officials and target groups and assumed a strong capability of central policy-makers to control the entire implementation process across national bureaucracies and societal beneficiaries [39,42]. In order to compensate such neglect, a number of studies were conducted since the early 1980s that took a bottom-up turn in the study of implementation [34]. These studies have stressed the salience of building consensus between policy-makers (at the top) and administrative implementing agencies (at the bottom) [48] and the relevance of participatory mechanisms connecting public and private organisations [49].

Academic interest in policy implementation diminished for some time. Scholars in Public Policy rediscovered the topic in the late 1990s and revamped its study by focusing on the importance of both central guidance and local autonomy. It became evident that policy implementation can only be fully understood if its investigation takes into account the preferences of street-level bureaucrats and the negotiations within implementation networks as well as centrally defined policy objectives and efforts of hierarchical control [34,41,50]. As a consequence, some authors (e.g., [43]) started to develop theoretical frameworks that brought together both top-down and bottom-up explanatory variables. Two frameworks seem particularly important for the purpose of this article because of their attempts to integrate several explanatory variables in the study of implementation: Goggin et al. [51] and Winter [40,52].

Goggin et al. [51] have looked into the implementation of federal policies in the US and their execution across the federal, state and local level. According to Goggin et al. [51], the implementation of a federal policy initiative (taken as the “message”) depends on both politics and capacity at the state level. “State politics” is made of all the set of possible interaction between public and private actors at the state level. This factor echoes arguments developed by Europeanisation research (see [29,35,36]) and the bottom-up approach in policy studies (e.g., 49). “State capacity” refers to the structural, personnel and resource characteristics of state agencies (i.e., their “organisational capacity”) together with the contextual socio-political and economic conditions (or “ecological capacity”). The pivotal role played by resources and the policy environment resemble the insights developed by top-down studies on policy implementation (see [47]).

Winter [40,52] has proposed an “integrated implementation model” with the aim of solving the little accumulation present in policy studies on implementation. This model explains implementation and its results by attributing explanatory value to few key components such as policy formulation, policy design, implementation process and socio-economic context. During policy formulation, the presence of conflicts and the search for compromise can affect policy design. In turn, an inadequate

policy design (i.e., the content given to a public policy) impact the implementation process that includes multiple competent public agencies, street-level bureaucrats, target groups and their (more or less conflictual) interactions. Finally, outputs and outcomes are produced in a socio-economic context that can facilitate implementation or jeopardise the achievement of policy results.

Since early studies on policy implementation, its success or failure has been linked to the complexity of joint action (see [46]): the involvement of an increasing number of actors can jeopardise the execution of public policies since they can act as veto points. This complexity increases in the context of multiple levels of governance (MLG) where subnational governments have gained political and/or administrative powers through national processes of decentralisation. In the domain of environmental governance, some authors claim that decentralisation and MLG benefit the environment through more responsive policy interventions and more accountable decision-makers (e.g., [53,54]). However, others (e.g., [39,55]) tend to disagree because of the fragmentation of competences, subnational discretion and policy capture by powerful interests that decentralisation may bring along [56].

Based on these insights and the theoretical developments shown in the previous two sections, we can conclude the following. First, prescription originating from international agreements reaches the national level where implementation depends on the national ability to reform the contents of existing public policies. Second, such reform capacity is determined by the state-level politics and state-level capacity. In particular, state-level capacity varies largely across countries with an immense difference between the North and the South of the world. This aspect is central in the literature on development countries that has researched about public policy and government interventions.

IMPLEMENTATION AND DEVELOPMENT STUDIES

Implementation has been studied in developing countries by scholars specialising in development studies. However, a clear body of literature on policy implementation within this disciplinary area does not exist, which makes a comprehensive review somewhat challenging. Therefore, unlike the other sections, this one tries to gather considerations on the main hindrances intervening during the implementation of specific policies and programmes in the less developed world. This review is based on the major academic studies on the topic but has no aim to trace precise chronological distinctions in this specific body of scientific literature.

As it can be expected for the geo-political contextualisation that is inherent to this academic domain, scarce resources recur as a major limitation to the execution of public policies in development studies [57–59]. The state of poverty that commonly characterises developing countries hinders the implementation capacity of their governments and administrations. They usually lack money, capable human resources, data

and information [60]. The issue of limited resources has been studied both in relation to the weak economy undermining the development of these countries and from a specific organisational perspective as weak administrative capacity. With an emphasis on the macro-level, i.e., the weak national economies, Lane [61] argues that economic development—together with political stability—is crucial for the implementation of any policy initiatives in developing countries. Investigation on resources from the research angle of weak administration has been conducted by many authors; only few examples can be provided here.

Jain [62] stresses the importance of an adequate bureaucratic machinery that can translate policy objectives into a course of action and use its capacity in relation with broader political commitments. Often, the data available and the knowledge of civil servants in developing countries are not only scarce per se; they are also challenged by ambitious policies formulated by national governments. Indeed, while in the Western world, policies tend to evolve incrementally, policy reforms in developing countries are designed with high (and disproportionate) ambitions. Here, public policies are "idealised" and expected to bring along radical change through economic and social reforms. Therefore, they often pursue the creation of completely new institutions, patterns of actions and behaviours; this, ultimately, causes tensions among the many actors involved in or targeted by those new policies [62].

Pyle [63] has pointed out not only the relevance of administrative capacity but also the pivotal role of administrative agencies as key actors whose support, through implementation, determines policy success (or failure). Indeed, 'the best laid plans are of little value unless there is a genuine interest and commitment on the part of the agency that will eventually be responsible for operating the scheme' [63].

Likewise, Grindle [64,65] has brought into the spotlight the role of field administrators, or "implementors", during policy implementation. According to Grindle, the implementors respond to their national superiors and interact with powerful local actors—such as the political and economic elites of a given territory—during the execution of national policies. It often happens that these local actors convince implementors (also through bribing and physical threats) to meet their demands even to the detriment of the real beneficiaries targeted by a public policy.

The importance of bureaucracy with its resources, commitment and related (legal or illegal) practices of influence permeates the development literature. In this context, policy implementation is at risk of being weakened even more in those complex bureaucratic systems that are organised along multiple layers of governance. Indeed, here, each layer (i.e., national, subnational and local) must commit to common goals and have enough resources to pursue those policy objectives [66]. Of course, problems of critical intra- and inter-organisational relations during the implementation process have already been unravelled by policy studies conducted in more developed states (see above). However, factionalism

and local disunity, as well as patronage (especially at the local level), are much stronger and more frequent in developing countries [67].

Despite the interesting facets explored by these contributions, they do not offer a structured theoretical framework on policy implementation. A more elaborate framework was developed by Grindle and Thomas [68]. Their work on policy reforms in developing countries moves from the assumption that a state of equilibrium surrounds an established policy since state interests and target groups have accepted those policy arrangements. New policy developments in the form of a different content foreseen for a public policy (or "policy characteristics") by a reform initiative may generate opposition from all actors with vested interests in the *status quo* (i.e., the "arena of conflict"). Such opposition from both the public and bureaucratic arenas obliges policy-makers and public managers to mobilise a certain amount of (political and administrative) resources to counter those reactions and allow implementation ("resource requirements") [68].

To sum up, the scarcity of resources is pivotal in most studies on developing countries including Grindle and Thomas [68]. However, these two authors have had the merit of emphasising also the explanatory role of a reform with its characteristics and the arena of conflict its content can generate. These explanatory factors show a strong resemblance with the policy design (or message), the implementation behaviour (or state-level politics) and policy resources used in policy studies (see [40,51]).

CONCLUSIONS

By way of summary and conclusion, this section draws out central lessons from the analysis presented in the article. International agreements like the ones negotiated and adopted since the early 1970s to protect, manage and restore biodiversity have the ambition to orient national governments and their actors towards behaviours that can solve environmental problems. The authors of this article agree with Hoffman et al. [9]. Effective international institutions are those that improve global challenges—such as biodiversity loss—and, in many cases, they have failed to do so. We also acknowledge that legal and behavioural compliance with MEAs are necessary but not sufficient conditions for solving environmental problems. International agreements can, indeed, be ineffective because they have been designed in an inappropriate way or based on weak standards vis-à-vis the problem addressed [20].

However, international instruments put in place for biodiversity protection—as well as for any other transnational public problem—cannot have effect without national compliance. In its turn, compliance rests on a smooth process of policy implementation. In spite of the increasing relevance recognised to domestic implementation for the effectiveness of biodiversity governance globally [1,10], a more complete understanding of the complexity of this process is still needed [3]. This article has shown that important theoretical insights can be borrowed

from the various disciplines that have explored, explained or only partially treated issues of implementation. These insights can serve the objective of better understanding the functioning of international agreements and the conditions for successful implementation of MEAs, especially now that a new GBF has been adopted (Table 3).

Scholars of international relations (e.g., [19,24,25]) have had the merit of bringing to the attention of the academic readership one important fact: the most proximate causes of regime dysfunctions and their weak implementation are factors involving the country. Following this recognition, though, regime theories have identified only a limited number of variables at country level that affect implementation (e.g., civil society's participation and state capacity). The few regime studies that have done so have shown little interest in the accumulated knowledge that research on Europeanisation and policy implementation had produced.

Table 3. Main contributions from the literature reviewed.

Discipline	Main contributions
Regime theories	• Relevance of domestic implementation and domestic factors • Civil society participation and public support • State capacity and resources
Europeanisation research	• Implementation as adaptation and change (reform) • Adaptational pressure (fit/misfit) • Domestic politics: mobilisation/opposition of domestic actors
Policy science	• Policy content (or design) • State politics (statal actors and target groups) • State capacity (administrative resources and socio-economic context)
Development studies	• Policy characteristics • Arena of conflict • Resource requirements

Indeed, more has been said about the implementation of meta-national obligations by scholars specialising in the investigation of Europeanisation. The adaptational pressure [36] exercised by new EU policies during their penetration into national policy frameworks [30] is comparable in its dynamics (if not in the legally binding character) to the tension towards compliance exerted by international commitments [37]. It can then be argued that in the presence of a higher adaptational pressure, the change in national policy frameworks induced by international obligations (like those contained in MEAs) strongly depends on the mediation of domestic factors. Particularly, the mobilisation or opposition of state and societal actors determines the capacity of the state to reform [26,29].

The relevance of state-level mobilisation or opposition in the implementation of a policy content produced above the state is confirmed by studies on the implementation of intergovernmental policies, such as Goggin et al. [51]. Similarly to intergovernmental policies, the (policy)

content, or message, originating from international agreements reaches the national level, where implementation is influenced by the politics of the state together with its capacity.

State capacity, understood as resources, is crucial during policy-making particularly in developing countries where it constitutes a structural and organisational constraint. Among the studies focusing on the South of the world, Grindle and Thomas [68] put resource requirements in relation with the specific characteristics of a policy reform and the arena of conflicts that it determines. These concepts are similar to those used by Goggin et al. [51] and Winter [40]: message or design as the policy characteristics; state politics and the implementation process as the arena of conflict); and state capacity as resource requirements.

Certainly, many more aspects—beyond implementation—are at the origin of the success or failures of many MEAs and other international agreements. For instance, Ferraro and Failler [69] have identified the harmonisation of international laws, the coherence across national policies, the coordination of international organisations and the science-policy interaction as areas of possible improvements to address marine plastic pollution. Better coordination across international rules and organisations—also in terms of dialogue between scientific and political organisations—is also needed in the fight against biodiversity loss, for instance in the relations between the IPBES and the CBD.

Without the ambition of covering all the existing weaknesses of global biodiversity governance, this article has shed light on the journey that international institutions experience when travelling from global political arenas to national and subnational contexts where they have to be executed and enforced. This is beneficial for both the analytical reflection on the past (and past flaws) and as guidance for future endeavours like the recently adopted GBF.

DATA AVAILABILITY

No data were generated from the study.

AUTHOR CONTRIBUTIONS

GF designed the study. GF and PF analyzed the data. GF wrote the paper with input from all authors.

CONFLICTS OF INTEREST

The authors declare that there is no conflict of interest.

ACKNOWLEDGMENTS

The research leading to this work was conducted in the framework of the Project BlueGreen Governance (2024–2027). The project is co-funded by the European Union under the Horizon Europe Programme (Project number 101086091) and by UK Research and Innovation (UKRI) under the

UK government's Horizon Europe funding guarantee (Project number 10108603).

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How to cite this article:
Ferraro G, Failler P. Understanding the “Implementation Gap” to Improve Biodiversity Governance: An Interdisciplinary Literature Review. J Sustain Res. 2024;6(2):e240009. https://doi.org/10.20900/jsr20240009