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To cite this article: Haomiao Du, Kim Khoi Dang, Hong Quan Nguyen & Helena F.M.W van Rijswick (2023) A framework for reviewing laws and policies for climate resilience: the case of the Vietnamese Mekong Delta, Journal of Environmental Planning and Management, 66:6, 1280-1304, DOI: [10.1080/09640568.2022.2026308](https://doi.org/10.1080/09640568.2022.2026308)

To link to this article: <https://doi.org/10.1080/09640568.2022.2026308>



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Published online: 01 Feb 2022.



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A framework for reviewing laws and policies for climate resilience: the case of the Vietnamese Mekong Delta

Haomiao Du^{a*} , Kim Khoi Dang^b , Hong Quan Nguyen^{c,d}  and
Helena F.M.W van Rijswijk^a 

^a*Utrecht Centre for Water, Oceans and Sustainability Law (UCWOSL), Faculty of Law, Economics and Governance, Utrecht University, Utrecht, The Netherlands;* ^b*Institute of Agricultural Market and Institution Research, Vietnam National University of Agriculture, Ha Noi, Vietnam;* ^c*Center of Water Management and Climate Change (WACC), Institute for Environment and Resources (IER), Vietnam National University - Ho Chi Minh City (VNU - HCM), Ho Chi Minh City, Vietnam;* ^d*Institute for Circular Economy Development (ICED), VNU - HCM, Ho Chi Minh City, Vietnam*

(Received 6 May 2021; final version received 10 December 2021)

This article proposes a framework for reviewing to what extent laws and policies of a legal system support climate resilience. This article adopts the social-ecological system (SES) resilience theory and translates its core features into an operational framework which consists of four legal dimensions crucial for promoting climate resilience – adaptiveness of law, distributive justice, broad participation, and cross-scale interactions, and further identifies several indicators below each dimension. Then this article operationalizes the four legal dimensions via reviewing current Vietnamese climate adaptation laws and policies to assess to what extent they promote a climate-resilient Vietnamese Mekong Delta (VMD). While various barriers can be found in the current legal framework and policies which impede climate resilience, the latest National Climate Change Adaptation Plan demonstrates great improvement in facilitating climate resilience in a just, participatory and coordinated manner.

Keywords: climate resilience; Resolution 120; Vietnamese climate adaptation law; Vietnamese climate policy; SES resilience

1. Introduction

The resilience approach has been proposed to deal with the occurring or predictable climate change as well as uncertainties related to climate change scenarios and impacts. This approach is normatively interrelated with other regulatory or governance approaches, e.g. adaptive (co-)management (Tran, Pittock, and Tuan 2019; Huitema *et al.* 2009; KimDung, Bush, and Mol 2017), adaptive governance (Pahl-Wostl *et al.* 2007; Folke *et al.* 2005; Fournier *et al.* 2016; Walker *et al.* 2004; Termeer *et al.* 2011), adaptive policymaking and adaptation pathways (Haasnoot *et al.* 2013), the precautionary approach (McDonald 2011; Demange 2012), and policy experiments (Chu

*Corresponding author. Email. h.du@uu.nl

2016; Reed *et al.* 2015). The resilience approach has become popular in the form of “flood resilience” (Liao, Le, and Nguyen 2016; McClymont *et al.* 2020), or “urban resilience” (Reed *et al.* 2015), to deal with climate-related disasters.

The role of law in promoting climate resilience is mainly reflected in rules, principles, and mechanisms that: facilitate climate adaptation, such as climate hazards reduction and disaster recovery; enhance the adaptive capacity of individuals, households, communities, and institutions at different scales; incentivize market-based and network-based adaptation methods; and establish liability and compensation mechanisms for climate impacts (McDonald 2010, 2011). Earlier studies mainly focus on the conceptual design of principles of climate adaptation laws that promote social-ecological system (SES) resilience (Cosens *et al.* 2017; Wenta, McDonald, and McGee 2019; Demange 2012), or on the role of law in promoting the resilience of specific systems, such as the water system (Cosens and Williams 2012; Green *et al.* 2013) and endangered species (Benson 2012). Some other studies develop the concept of “adaptive law” – the resilience and adaptive capacity of the legal system *per se* (Arnold and Gunderson 2013; Craig 2010; Ruhl 2010b; Ruhl 2010a). Besides, the concept of “reflexive law” is proposed to deal with the problem of scale mismatches in SES by, among others, allowing legal experiments, incorporating bottom-up feedback and iterative review (Cumming 2013; Garmestani and Benson 2013; DeCaro *et al.* 2017). Moreover, legal geographic scholarship connects spatiality to law, stressing the central relevance of “place” to climate adaptation in the co-constitutive relationship of people, space, and law, which enriches the understanding of how law can promote climate resilience in different social, cultural, and political contexts and at different scales. (Bartel *et al.* 2013; Braverman *et al.* 2014; O’Donnell 2021). Among the rich literature on the role of law in climate adaptation and resilience to date, a gap can still be found with respect to an operational framework for assessing to what extent the laws and policies of a jurisdiction facilitate different dimensions of SES resilience.

Regarding law and resilience within a domestic legal context, the US jurisdiction is most frequently examined (Arnold and Gunderson 2013; Green *et al.* 2014; Craig *et al.* 2017), while similar studies from developing countries are much less available (Humby 2014). Against this background, the recent development of Vietnam in pursuing climate resilience as a prominent case from developing countries merits attention. Resolution 120/NQ-CP on Sustainable and Climate-Resilient Development of the Mekong Delta of Vietnam (Resolution 120 below), issued in November 2017, marks the paradigm shift in the development model of the (Vietnamese Mekong Delta, VMD) to a sustainable and climate-resilient one via a long-term, low-regret, cross-sectoral and inter-provincial approach. The term “climate resilience” has become a keyword in the development goals of the future VMD.

Currently, although there have been some reviews of climate change policies in Vietnam, a comprehensive review of Vietnamese laws and policies dealing with climate adaptation remains unavailable, and the limited literature on a review of Vietnamese laws dealing with climate change in general is no more up-to-date (Whitehead 2013; Nachmany *et al.* 2015). Most commonly, legal discussions on climate adaptation in Vietnam are scattered in governance or public management analyses of the VMD (Tran, Pittock, and Tuan 2019; Nguyen *et al.* 2020), or partly included in the transboundary water governance of the Mekong River Basin with a focus on the relationship of Vietnam and other riparian countries (Boer *et al.* 2015). In the past decade, Vietnam has experienced unprecedented development of

environmental laws and policies: a number of laws with provisions on the responses to climate change and its impacts were enacted or amended; many new policies were issued, most of which expired at the end of 2020, while a few include a long-term vision until 2050 or 2100 (see [Section 3](#) for details). The current legislation and policies will largely shape the objectives, tasks and rules associated with climate change action in Vietnam for at least one or two decades.

The aim of this article is to transfer the SES resilience theory into an operational framework for reviewing the legal and policy framework for climate adaptation and resilience, and to take Vietnamese laws and policies, with a focus on the VMD, as an illustration. This article is based on a desk study, combining a literature review of the resilience theory and a doctrinal analysis of Vietnamese laws and policies. [Section 2](#) addresses the theoretical framework – the features of climate resilience and its translation into four legal dimensions. [Section 3](#) briefly introduces the current Vietnamese legal system and provides an overview of climate adaptation laws and policies which are applicable to promoting climate resilience of the VMD. [Section 4](#) operationalizes the four legal dimensions of climate resilience in a categorized review of Vietnamese climate adaptation laws and policies. [Section 5](#) critically discusses the restricting factors that impede laws and policies from promoting climate resilience in the VMD. [Section 6](#) reflects on the limitedness of this article and concludes.

2. Theoretical framework – identifying the features of climate resilience and translating them into legal dimensions

2.1. The features of climate resilience

The concept of climate resilience is an application of resilience theory to the climate system. This section does not aim to review the numerous definitions of resilience, but rather, attempts to extract the core features of climate resilience, and thus provides the conceptual basis for the legal analysis.

In the 1960–1970s, the resilience theory emerged to challenge the dominant view of “stability” in the realm of ecology, which represents the ability of a system to return to an equilibrium state after a temporary disturbance (Holling 1973). The concept of *ecological resilience* was proposed to emphasize the persistence of a system that can absorb disturbances and retain the system functions (Holling 1996; Holling 1973). Then, the concept of *social-ecological systems resilience* further complemented the theory by emphasizing the ability of the system to learn and to adapt or to transform via the dynamic interplay between humans and nature (Folke *et al.* 2010; Folke 2006). In this article, we mainly adopt Folke’s resilience theory, because the integrated thinking of resilience, adaptability and transformability is cogent to explain the legal responses to different types and severity of disturbances.

Over the past decades, the theory of resilience, in the context of the SES, has been applied beyond ecology to describe the dynamic interactions between humans and nature, where gradual changes interplay with rapid changes across temporal and spatial scales (Folke 2006). Given that climate change is such an interactive and cross-scale process – the climate system is disturbed by the increasing concentration of greenhouse gases due to human activities, and the impacts of climate change range from weather pattern changes and sea level rise to the changes of livelihood patterns and living conditions – the concept of climate resilience undoubtedly fits in the context of SES resilience (Garmestani *et al.* 2019).

The concept of resilience is particularly relevant to climate adaptation law in three aspects: (1) the dynamic SES and the adaptive cycle; (2) the flexibility of development models that combine resistance, adaptation and transformation; and (3) cross-scale interactions (panarchy) (Gunderson 2001). Each aspect has different but interconnected implications for climate adaptation law.

The dynamic SES shows complex and unpredictable changes of the climate system and their impacts on ecosystems, infrastructure, social and economic systems, etc. The heuristic model of an “adaptive cycle” recognizes that the SES changes over time over four phases – rapid growth, conservation, release, and reorganization (Walker *et al.* 2004). Among the four phases, “release” and “reorganization” phases constitute “back-loop” of the “adaptive cycle”, i.e. crises and collapses, but in the meantime provide opportunities for humans to review, learn and innovate, transferring crises into new development models. The implications of the adaptive cycle for climate adaptation law are that laws need to be adaptive to changes and uncertainties via the rules and procedures regarding social-economic planning, monitoring and periodic reviewing of plans and permits, cost-benefit assessment, etc. (Demange 2012).

According to Folke’s SES resilience framework, flexibility of development models embraces not only methods aiming at absorbing shocks and retaining the current system functions (adaptation) and methods aiming to reconfigure the system (transformation), but also the methods aiming to resist the disturbance (called *engineering resilience*), such as flooding defence works (Folke *et al.* 2010; Folke 2006). Law can contribute to the flexibility of development models in multiple ways, such as setting thresholds for either sustaining the current system or triggering a regime shift (Cosens *et al.* 2017), and the fair distribution of benefits among various actors who are impacted by climate change, in particular the vulnerable groups who are sensitive to climate change and reliant on natural resources (Driessen and van Rijswick 2011).

Under the SES resilience framework, “panarchy” is the term to describe the cross-scale interactions in the interrelated SES. The concept of panarchy advanced the model of the adaptive cycle by demonstrating the interplay between a set of adaptive cycles nested at different scales (Gunderson 2001; Folke 2006). The tool of *adaptive co-management* is proposed to facilitate the learning process via broad collaboration between public and private sectors (Huitema *et al.* 2009; KimDung, Bush, and Mol 2017). The implications of panarchy for law are, for instance, the participatory mechanisms for stakeholders across scales, and the rules of state management for different departments to coordinate river basin management across boundaries (Gunderson *et al.* 2017) or land use planning (Garmestani *et al.* 2020) in response to climate change.

2.2. Legal dimensions of climate resilience

The three aspects of climate resilience identified in Section 2.1 are translated into four legal dimensions: adaptiveness, distributive justice, broad participation and interactions across sectors and scales.

2.2.1. Adaptiveness

Climate adaptation law needs to be adaptive. The making and application of law is an iterative process, which allows *ex ante* legal and policy experiments and *ex post* adjustment (Garmestani, Allen, and Benson 2013; Garmestani and Benson 2013). The

adaptiveness of law relates to two aspects of SES, i.e. the dynamic SES and the adaptive cycle, and the flexible development models which include resistance, adaptation and transformation.

First, the adaptiveness of law relates to climate resilience by recognizing the dynamic SES and the adaptive cycle. For instance, the requirement for social-economic planning and various sectoral planning reflects the adaptiveness of law, because it applies *forward-looking goals and tasks* in which future trends and challenges are taken into account. Similarly, legal rules and procedures that reflect *back-end adjustments* also represent the adaptiveness of law (Garmestani, Allen, and Benson 2013), because they require or encourage learning and reorganizing activities based on lessons learned as well as changing circumstances.

Second, the adaptiveness of law relates to the flexibility of development models, because law enables or facilitates climate resilience by setting the thresholds in the legal framework for either preventing or triggering the regime shift to new development models in response to natural and societal changes. The rules can be designed to support the current status by requiring strict compliance, if absorbing and recovering from shocks without changing the current regime is evaluated to be the optimal choice. Alternatively, rules can also support actions that adapt or accommodate to changes by allowing greater discretion, e.g. permits on land use changes in response to climate change. If necessary, rules should co-evolve to allow deliberate transformation to a new equilibrium, should unlawful but desired activities be helpful for achieving it (Folke *et al.* 2010; Heldeweg 2017b).

Note that the law needs to be responsive and adaptive to the continuous changes of the SES. Against this backdrop, policy or regulatory experiments are proposed as a useful approach, in order to test and modify innovative policies, regulations and social-technical systems and finally either duplicate the successful models to broader areas or abandon them. (Termeer *et al.* 2011; Heldeweg 2017a).

In this article, the assessment of the adaptiveness of law will be illustrated by reviewing legal and policy documents associated with the delta planning process of the VMD (Section 4.1).

2.2.2. *Distributive justice*

Distributive justice is an ethical issue which receives increasing attention in the discourse on climate change (Driessen and van Rijswick 2011; Thomas and Twyman 2005; van Doorn-Hoekveld *et al.* 2016; Byskov *et al.* 2021; Barrett 2013). Besides, since the 1990s, distributive justice has been recognized in the discipline of criminology, especially because the problem of unequal distribution and social control of environmental harm indicated a bias against minority communities (Lynch, Stretesky, and Long 2015). In the context of climate adaptation, distributive justice encompasses the distributional effects of climate change impacts as well as the allocation of natural resources and economic advantages in adaptation activities (Klinsky and Dowlatabadi 2009). The legal dimension of distributive justice is mainly related to one aspect of SES resilience: flexible development models. Different models for pursuing climate resilience – resistance, adaptation, or transformation – contain common problems of distributing environmental hazards and benefits at the local level.

The first contribution of law in pursuit of distributive justice is to reduce the vulnerability of the communities who are sensitive to ecosystem changes and heavily

exposed to disasters (Thomas and Twyman 2005; Maru *et al.* 2014) via numerous measures, such as enhancing food security, eradicating poverty, improving housing, financial compensation. In many cases, it is impossible to distribute adverse impacts in an even manner for physical reasons; it is only possible to reduce the vulnerability of affected people and places. When a decision is made to transform dwellings into forests, distributive justice issues are often embedded in deliberate migrations of residents (Lindegaard 2020; Dai *et al.* 2019; Gibbs 2019).

Law can also contribute to promoting distributive justice in climate adaptation by setting rules for fairly allocating resources and benefits. For instance, the adaptation to new livelihood patterns (from rice to aquaculture) or competing interests in utilizing irrigation facilities (some for flood prevention while others are for water supply) may raise the unequal distribution of land or water resources as well as economic benefits (Suhardiman and Giordano 2014; Tran, Pittock, and Tuan 2019; Waibel *et al.* 2012).

In this article, distributive justice will be assessed with a focus on how Vietnamese laws and policies reduce vulnerability and recognize the significance of fair distribution of benefits in the VMD (Section 4.2).

2.2.3. *Broad participation*

The legal dimension of broad participation is linked to the feature of “adaptive cycles” and the flexibility of development models in the SES as identified in Section 2.1. By allowing a wide range of citizens to provide opinions and local knowledge, it not only expands the source of information concerning the signal of early changes, and controls risks at an early stage, but also facilitates the learning from “backward loops” when crises nevertheless occur (Wenta, McDonald, and McGee 2019).

Broad participation also serves as a significant element toward procedural justice, because inclusive decision-making can affect the adverse impacts of climate change as well as the distribution of benefits in adaptation activities (Wenta, McDonald, and McGee 2019; Thomas and Twyman 2005; Pieraccini 2019). In this article, laws regarding broad participation will be investigated in the context of Vietnamese political culture – “people know, people discuss, people do, and people monitor” (Section 4.3).

2.2.4. *Cross-scale interactions*

The legal dimension of interactions across sectors and scales responds to the feature of “panarchy” in the SES. Mismatches between the scale of SES and scale of institutions have been identified as a prominent problem which leads to a decrease in social ecological resilience (Cumming 2013). Legal geographers also identified that multiscale conflicts occur when (il)legalities at each scale do not neatly align (Bartel *et al.* 2013). Therefore, cross-scale interactions are required to collaboratively solve the problems of scale mismatches. Climate adaptation laws can promote cross-scale interactions by providing rules of state management for dividing tasks between institutions to coordinate and collaborate in, for instance, making adaptation plans and managing natural resources spanning multiple geographical scales (e.g. coastal management and river basin governance). Beyond the public sectors, law can promote cross-scale interactions by providing for participatory mechanisms for private stakeholders’ engagement in adaptation projects at all scales (Cosens *et al.* 2014).

Table 1. Legal dimensions and indicators of climate resilience.

Features of climate resilience	Legal dimensions of climate resilience	Indicators of each legal dimension
Dynamic SES and adaptive cycles	Broad participation	(1) Information sharing and discussion
	Adaptiveness of law	(1) Forward-looking goals and tasks; (2) periodic review of plans and permits
Flexibility of development models	Adaptiveness of law	(3) Preventing or supporting the regime shift to another development model; (4) regulatory and policy experiments
	Distributive justice	(1) Reducing vulnerability from inequitable distribution of adverse climate impacts; (2) fair distribution of resources and benefits in adaptation action
Cross-scale interactions (panarchy)	Broad participation	(2) Participatory decision-making
	Interactions across sectors and scales	(1) Rules of state management for coordination across sectors and scales; (2) synergies between sectors under the climate adaptation regime

Climate adaptation laws can also promote climate resilience by synergising sectoral laws under the climate adaptation regime. Legislative objectives of one legal instrument can be multi-dimensional and interconnected with other instruments under the climate adaptation regime, so as to protect a variety of environmental benefits associated with climate resilience. In addition, specific rules under different laws may complement each other and sometimes even overlap for the “diversity” and “redundancy” of protective methods in response to disturbance (e.g. diversifying flood-proof methods via regulating water resources and irrigation works) (Tyler and Moench 2012).

In this article, cross-scale interactions in climate adaptation action in the VMD will be addressed in the context of the Vietnamese bureaucratic network, including horizontal interactions between line ministries and between provinces and vertical interactions between national and local levels (Section 4.4).

The legal dimensions of climate resilience are summarized in Table 1.

3. The legal and policy regime for climate adaptation and resilience in the VMD

The current legal system in Vietnam is based on the socialism legal theory, and is inherited from the civil law system, in which the source of law comprises mainly written legislation. The Constitution stands at the top of the hierarchy and provides for the fundamental rules for the entire legal system. The Constitution and national laws are passed by the National Assembly, which is the highest legislative body. Under the Constitution and laws, there are ordinances, resolutions, decrees, orders, decisions, and circulars. Table 2 presents the Vietnamese legal system.

To comprehensively understand the legal system of Vietnam, it is important to note the significant influence from the Communist Party of Vietnam, which is the only party in power (Constitution of the Socialist Republic of Vietnam 2013). The Party has decisive influence over all major decisions. The most influential documents issued by the Party are the Social-Economic Development Strategy (SEDS) and General Social-Economic Development Plan (GSEDP), which play the overarching role to guide the economic and political direction of the state, as well as guiding the direction

Table 2. The Vietnamese legal system.

Legal instruments and their hierarchical levels		Issuing bodies
National level	Constitution	National Assembly
	National laws	
	Resolutions	
	Ordinances	Standing Committee of the
	Resolutions	National Assembly
	Orders and decisions	President
	Decrees	Government
	Regulations and resolutions	
	Decisions	Prime minister
Regional level	Resolutions and decisions	Circulars
		Ministers; heads of ministerial agencies
		People's Councils of municipalities and provinces
		People's Councils of cities, towns, and districts
		People's Councils of communes, wards, and townships

of legislative and regulatory development. The GSEDP is developed for 10 years, with a vision for 15–20 years and descriptions for each 5-year period. The GSEDP is checked, adjusted, and improved based on the general socio-economic situation in each period of time, which well reflects the adaptiveness of their policies.¹

In Vietnam, currently no individual “climate law” is available to address climate change and the responses thereto in a systematic manner. Instead, the common way of providing legal responses to climate change is through the mainstreaming of climate change concerns into the declaratory provision of sectoral laws, or stipulating specific measures with the aim of fulfilling the objective of those laws and with a co-function of addressing climate change. One example is the Law on Irrigation, which deals with the irrigation infrastructures and the use of water resources for irrigation purposes. But the concern on climate change and disasters are undoubtedly embedded in the design of “flood-proofing” irrigation works. As a result, the scope of the so-called “Vietnamese legal and policy regime for climate adaptation and resilience” embraces a range of relevant sectoral laws and policies which either directly touch upon climate change concern in their objectives, or have indirect legal intersections with climate adaptation and resilience (Scotford and Minas 2019).

The selection of legal and policy instruments in this article is therefore based on their relevance for dealing with the *major issues* contained in climate change adaptation in the VMD regarding, among others, delta planning (as a meta issue), disaster prevention and control (in particular relating to floods) (Tran, van Halsema, Hellegers, Phi Hoang, *et al.* 2018), and the intersection between climate adaptation and livelihood patterns (in particular relating to rice-based food security in the upper Delta and the expansion of shrimp production and mangrove depletion in the coastal area) (Truong and Do 2018; Tran, van Halsema, Hellegers, Ludwig, *et al.* 2018; Nguyen, Pittock, and Connell 2019).

To deal with each issue, the applicable instruments are multi-dimensional and inter-related, ranging from substantive rights and obligations (e.g. the use of land, water

resources and irrigation works) to procedural mechanisms (e.g. disaster monitoring, grassroots participation and financial compensation). A list of national laws which constitute the core of the legal regime for climate adaptation is presented in Table 3. Decrees, regulations, decisions etc. for implementing some parts of each national law are not listed in the Table, but rather mentioned in later sections where relevant.

Compared to laws, policies enjoy greater efficiency and adaptability in keeping up with socio-economic development, and sometimes play a complementary role when there are legal lacunas. Climate change adaptation has been incorporated under the framework of the National Strategy for Climate Change (NSCC), the national action plan on climate change, action plans of ministries, central agencies and local governments, climate change response target programmes, schemes/projects of ministries, central agencies, regional and local governments, and international cooperation projects. A summary of key policy documents and their relevance for climate adaptation and resilience is presented in Table 4. The selected policy documents are the key ones representing the main policy areas which have intersections with climate adaptation. Among others, the NSCC has been taking the leading role, since 2011, in shaping the goals, distributing the tasks, and guiding the actions and procedures related to climate change adaptation. Regarding policies for promoting climate resilience in the VMD, Resolution 120 and its Action Plan (i.e. Decision 417) play the leading role, followed by implementation plans issued by ministries as well as provincial People's Committees.

It is worth noting that, although this case study focuses on the VMD, most legal and policy instruments reviewed are at the national level, not only because national instruments are applicable at the regional level as well, but also because of the tradition of directly adopting national laws without much tailoring to their local conditions in Vietnam. This is also one of the main barriers that impede the promotion of climate resilience due to the lack of vertical interactions in the hierarchical system (see Section 5).

4. Operationalizing the legal dimensions via a critical legal and policy review

4.1. Adaptiveness

This section reviews how Vietnamese climate adaptation laws and policies reflect one or more of the four indicators for adaptiveness, namely (1) forward-looking goals and tasks; (2) back-end adjustment, (3) regime shifts to other development models, and (4) legal and policy experiments.

First, the forward-looking goals and tasks are widely available in policy documents. The common chain of strategy – action plan – target programme in one policy area provides a proper combination of long-term certainty and short-term flexibility. For instance, the National Green Growth Strategy includes a long-term vision to 2050, and the first action plan spanned between 2014–2020. The core task of developing “new rural models” under the Strategy and its action plan was further detailed to a National Target Program (see Table 4). Although owning the feature of “forward-looking” does not guarantee the appropriateness of those long-term goals, at least such a policy-making technique has already been deeply rooted in Vietnam.

Second, the Law on Planning as well as planning-related provisions under sectoral laws require periodical review and update of plans in order to enable “back-end adjustment” of a plan. Among the various indicators applied in reviews and updates, “climate change scenarios” is a crucial one for the *adjustment* of national, regional or

Table 3. A list of national laws relevant for climate adaptation.

Title of the legal instrument	Main relevant provisions
Constitution of the Socialist Republic of Vietnam, 2013	The prevention of natural disasters and responses to climate change (Art. 63.1).
Law on Biodiversity (No. 20/2008/QH12)	Ex-situ conservation of species (Art. 4.3).
Law on Water Resources (No. 17/2012/QH 13)	Warnings and forecasts about the impacts of climate change on water resources (Art. 12.2.h); mainstreaming climate change concern into strategies and master plans for water resources (Arts. 14.1.d & 17.3); reservoirs' tasks for preventing and controlling floods (Art. 60.3).
Law on Natural Disaster Prevention and Control (No. 33/2013/QH13)	Mainstreaming climate change impacts into strategies and plans on disaster reduction (Arts. 14 & 15).
Land Law (No. 45/2013/QH13)	Mainstreaming climate adaptation into master plans and plans for land use (Art. 35.4).
Law on Environmental Protection (No. 55/2014/QH13)	'Response to climate change' as a significant element in all activities relating to environmental protection (Arts. 4.2, 5.9 & 6.4); prediction of the trend in climate change and its impacts in planning for environmental protection (Art. 9.1(a)) and in the report on strategic environment assessment (Art. 15.7); mainstreaming climate change responses into SEDS & GSEDP (Chapter IV).
Law on Meteorology and Hydrology (No. 90/2015/QH13)	Hydrometeorological forecasting and warning activities for the purpose of climate change monitoring (Art. 20 & Chapter V); mainstreaming results of climate change monitoring into development strategies and plans (Art. 37).
Law on Irrigation (No. 08/2017/QH14)	Climate change adaptation as an indispensable part in the design and operation of irrigation works and facilities (Arts. 3.2 & 4.1); the management and operation of irrigation projects and the interactions with water management (Chapter IV); integrating the scenarios of water resources in the situation where they are impacted by climate change and natural disasters in irrigation plans (Arts. 12.3 & 13.2 (b)).
Law on Forestry (No. 16/2017/QH14)	Preparedness for climate change (Arts. 3.1, 10.1(b) & 96.3); improving the genetic quality and promoting new varieties of plants for the purpose of climate change adaptation (Article 44.3).
Law on Planning (No. 21/2017/QH14)	Broadly applicable to delta planning.

sectoral development plans as well as action plans in response to the changes in the SES. For instance, paragraph V of the National Climate Change Adaptation Plan (NCCAP) requires the first review after two years of implementation and the second review based on the implementation of the 2021–2025 period based on, among others, the latest assessment of climate change.

Third, regarding the policy-making that reflects “regime shifts”, the evolution of the Mekong Delta planning policies well exemplifies the learning process of the government in optimizing the balance among flood control, rice cultivation and ecological

Table 4. Key policies relevant for climate adaptation.

Applicable area	Title of the policy document	Time	Issuing bodies	Main relevant content
National level	Resolution 24-NQ/TW on strengthening proactive adaptation to climate change and natural resources and environmental management (2013-2020)	June 2013	11th Central Committee of the Communist Party	Forecasting, warning, preventing, and mitigating natural disasters and adapting to climate change; mitigating greenhouse gases and increasing carbon sinks.
	Decision 2139/QĐ-TTg on the national strategy for climate change	December 2011	Prime Minister	Warning and forecasting natural disasters; preventing or mitigating damage caused by natural disasters; guaranteeing food security; guaranteeing water resources; and actively responding to sea level rise in vulnerable regions.
	Decision 1216/QĐ-TTg on the national strategy on environmental protection to 2020 with visions to 2030	September 2012	Prime Minister	Improving resistance and adaptability of the ecosystem and environmental protection works to impacts of climate change and sea level rise (para. II.4).
	Decision 1393/QĐ-TTg on the national green growth strategy for the period 2011-2020 with a vision to 2050	September 2012	Prime Minister	Adapting infrastructures in urban area to climate change to minimize economic loss; developing 'new rural models' to adapt to climate change (paras. 11(b) and 12).
	Decision 1600/QĐ-TTg on the national target program on new rural development for 2016-2020 period	August 2016	Prime Minister	Reducing vulnerability by mobilising resources for rural communes to achieve new rural development.
	Decision 1722/QĐ-TTg on the national target program on sustainable poverty reduction 2016-2020	September 2016	Prime Minister	Reducing the vulnerability of communities in remote areas and ethnic minority groups via financial support, improved infrastructure, and livelihood options to adapt better to climate change.
	Decision 1670/QĐ-TTg on the target program on climate change adaptation and green growth for the period of 2016-2020	October 2017	Prime Minister	Some key climate change projects (forestation, dykes, dams, climatic monitoring, action plans for climate change adaptation) and green growth projects with a total budget of VND 15,866 billion.
	Decision 633/QĐ-TTg on the national action plan for the implementation of the 2030 sustainable development agenda	May 2017	Prime Minister	Target 13 on climate change, in particular increasing capacity in responding to disasters and raising awareness on adaptation; ensuring food security (Target 2.4); water supply, water quality and flood prevention (Target 6); and climate-resilient urban planning (Target 11.9).

(Continued)

Table 4. (Continued).

Applicable area	Title of the policy document	Time	Issuing bodies	Main relevant content
	Decision No. 1055/QĐ-TTg on promulgating the national climate change adaptation plan for the 2021-2030 period, with a vision toward 2050	July 2020	Prime Minister	Three main tasks (strengthening state management of climate change; improving the resilience and adaptation capacity; and reducing disaster risks) implemented in three periods (2021-2025, 2025-2030 and 2030-2050)
The VMD	Resolution 120 NQ-CP on sustainable development in Cuu Long River adapting to climate change Decision 417/QĐ-TTg on the overall action plan on the implementation of government's resolution 120/NQ-CP Decision 1864/QĐ-BNN-KH on issuing action plan to implement Decision 417/QĐ-TTg on 13 April 2019 of Prime Minister on implementing R120/NQ-CP about sustainable development of Mekong River Delta to adapt with climate change.	November 2017 April 2019 May 2019	Prime Minister Prime Minister Ministry of Agriculture and Rural Development (MARD)	Core national policy documents for building climate resilience in the VMD. Core ministerial policy documents on implementing R120.
	Decision 2678/QĐ-BTNMT on issuing action plan to implement R120/NQ-CP about sustainable development of Mekong River Delta to adapt with climate change	August 2018	Ministry of Natural Resources and the Environment (MONRE)	
Provinces in the VMD	Decision No. 1330 on implementing R120 for Ben Tre province Decision No. 3110 on implementing R120 for An Giang province	March 2019 December 2019	Ben Tre People's Committee An Giang People's Committee	The only two available documents at the provincial level on implementing R120.

benefits. Since the 1990s, the government has been learning from the adverse environmental effects arising from “hard” adaptation with dykes and dams (Tran, van Halsema, Hellegers, Phi Hoang, *et al.* 2018; Nguyen, Pittock, and Connell 2019) and making a transition to a more sustainable approach. For instance, the 2013 Mekong Delta Plan (Royal HaskoningDHV *et al.* 2013) acknowledged a “no-regret approach”, which discouraged triple rice farming and allowed controlled seasonal flooding. Also, more nature-based approaches have (partly) replaced engineering approaches to enhance flood resilience, taking into account the ecological benefits in addition to agricultural benefits in flood management (van Staveren, van Tatenhove, and Warner 2018). In 2017, Resolution 120 recognized the inevitable trend of climate change and sea level rise in the region, encouraging *flexible and adaptive development models* in order to “turn challenges into opportunities”. Among others, with the recognition of “saline water” as a valuable resource, Resolution 120 has pivoted the strategic agricultural development pillars from rice dominance to a diversified “aquaculture – horticulture – rice” system.

In the policy area of climate adaptation, regulatory or policy experimentation is rarely available. The National Agricultural Insurance Pilot Program may be the most prominent policy experiment, which resulted in a Decree on Agricultural Insurance.² Besides, although some sporadic pilots can be found, such as on cross-provincial collaboration on irrigation planning in the VMD^{3 4}, no evidence shows any institutional changes arising from any successful experiment. The recent NCCAP, however, demonstrates a trend of broader application of piloting in all policy areas of climate adaptation (List of Tasks enclosed in the Plan, expected outcomes between 2022–2025).

4.2. *Distributive justice*

This section examines the availability of legal rules and policies which facilitate (1) reducing vulnerability from inequitable distribution of adverse climate impacts; and (2) fair distribution of resources and benefits in adaptation action.

In the VMD, one of the most prominent challenges of climate change to vulnerable households or communities is the threat from flooding to rice yield and safe housing, as well as the corresponding poverty in rural areas (Nguyen *et al.* 2021). As a result, versatile solutions for housing improvement, food security, poverty eradication, as well as disaster recovery encouraged by laws and policies can contribute to reducing vulnerability. The government has been reiterating the priority of building the adaptive capacity of vulnerable people and areas in its law- and policy-making. Article 5.3 of the Law on Disaster Prevention and Control emphasizes actions on investing in infrastructure, supporting the adaptation of livelihoods to disasters and giving priority to areas frequently affected by natural disasters and vulnerable groups. The National Target Program on Sustainable Poverty Reduction 2016–2020 stresses the requirement for reducing the vulnerability of communities in remote areas and ethnic minority groups via financial support, improved infrastructure, and livelihood options to adapt better to climate change. The National Target Program on New Rural Development 2016–2020 successfully mobilized various resources ranging from households, enterprises to state budget in order to improve the climate adaptation capacity locally.⁵ The latest NCCAP also lists reducing vulnerability as one of the core tasks.

Second, with respect to the fair distribution of resources and benefits associated with climate adaptation and resilience, the rationales behind the arrangement and

distribution of social-economic activities, infrastructure development and natural resource uses within an area first and foremost reflect whether and how distributive justice is integrated into laws and policies. Earlier understanding of distributive justice is much prone to “harmonising” interests of different parties and avoiding conflicts. The typical formulation of such values is that the Law on Planning lists the harmonization of interests between organizations or people, with the national interest placed at the highest level, as one fundamental principle in planning (Article. 4.4). In contrast, the NCCAP indicates a progressive understanding by realizing that ensuring *equal* benefits will encourage relevant parties to actively participate in climate change actions, effectively manage, extract and use natural resources, and protect the environment (para. II.1(d)).

A more specific example in the VMD related to distributive justice is the benefit-sharing mechanisms in the payment for undertaking shrimp farming in mangrove forests (Chapter VI, Section 4 of the Law on Forestry). Although the basic legal framework is available, the improper way of calculating payments, a lack of detailed guidelines for spending the payment for forest environmental services are identified as main barriers to fairness in benefit-sharing (Pham *et al.* 2013).

Besides, a survey on the judicial practice of Vietnamese environmental law demonstrates that implementing the principle of distributive justice is helpful for resolving disputes between companies and local people, as they are prepared to accept modest harm with compensation as the tradeoff (Gillespie *et al.* 2018). However, one problem that strongly impedes effectively regulating distributional effect in climate adaptation is the shortage of public participation in planning and policy-making, which will be further addressed in Section 4.3.

4.3. Public participation

This section examines to what extent the current legal and policies can enhance climate resilience by promoting (1) inclusive information-sharing and discussion, and; (2) participatory decision-making.

The Ordinance on the Implementation of Democracy at Communes, Wards and Townships (the Ordinance below) as well as provisions on public participation under sectoral laws provide the legal basis for public participation in climate adaptation activities in Vietnam. The slogan “people know, people discuss, people do, and people monitor” (dân biết, dân bàn, dân làm, dân kiểm tra) specified in Article 2.2 of the Ordinance shows the strong Vietnamese characteristics in public participation (Nguyen 2017, 34–35). The elitism tradition and monolithic political power largely determine that ordinary people mainly “exercise” their participatory rights through the representatives at the People’s Council as well as the Committee rather than be involved in planning and decision making.

Sectoral laws provide for different patterns of participation, which represent different levels of grassroots democracy. Some laws allow a greater level of public engagement. Chapter VII of the Law on Irrigation enables grassroots institutions to manage small-scale irrigation projects, while the Law on Forestry enables individuals, households and communities to participate in forest planning (Article 10), forest management in general (Article 14) and operating buffer zone programs or projects in reserve forest management in particular (Article 54). In contrast, under the Law on Disaster Prevention and Control, the form of public engagement is limited to sharing

information, receiving training, and taking initiatives in response to instructions (Chapter III), while inclusive discussion and participatory decision-making are still lacking. A justification could be that, due to the nature of disaster management, there seems to be little room for grassroots participation.

Under the Law on Environmental Protection, the involvement of the public is limited to “communication, education and mobilisation” (Articles 6 & 82.5), and autonomous environmental organizations undertake no further action than supporting the People’s Committee to facilitate the implementation of the law by households and business units (Article 83). However, environmental impact assessment (EIA), as a widely proved useful mechanism for identifying environmental risks at an early stage, and therefore significant for promoting the adaptive capacity of the environmental system (Gillespie *et al.* 2018), provides room for public consultation under the 2015 Decree on environmental planning, strategic environmental assessment and EIA⁶. This is prominent progress in public participation, compared to earlier findings on the top-down and technocratic approach in EIA (Hostovsky, MacLaren, and McGrath 2010).

Although formal institutionalization of good practise lags behind, informal bottom-up initiatives, as well as the preference of foreign stakeholders for a participatory approach, have positive implications for improving public participation in adaptation action. Regarding the former, mass organizations play a crucial role in communicating policies and facilitating farmer access to services. For example, 63 “Society’s premises” in Dong Thap province (Hoi Quan), with the participation of thousands of farmers, has become an effective forum for exchanging information and requests between provincial leaders and the business community.⁷ Regarding the latter, the North Vam Nao project in An Giang province demonstrates a successful experience of decentralized irrigation management facilitated by an international partner (AusAID) (Tran and Tuan 2020).

4.4. Cross-scale interactions

As stated in Section 2.2.4, from a legal perspective, there are two indicators of cross-scale interactions: (1) rules of state management for coordination across sectors and scales; (2) synergies between sectors under the climate adaptation regime.

The current state management for climate adaptation action in Vietnam is fragmented. One major problem lies in the division of tasks between the Ministry of Natural Resources and Environment (MONRE) and the Ministry of Agriculture and Rural Development (MARD). The MONRE takes the leading role in implementing the NSCC; it is also mandated by law to take the primary responsibility for monitoring climate change (Law on Meteorology and Hydrology) and distributing water use in response to climate change (Law on Water Resources). Meanwhile, the MARD takes the primary responsibility for the construction and management of flood prevention and control works (Law on Disaster Prevention and Control), irrigation water uses and water infrastructure (Law on Irrigation), and forest protection, restoration and rehabilitation (Law on Forestry). Inconsistencies of state management often occur at the interface between agricultural water use, irrigation works and flood prevention (Tran, Pittock, and Tuan 2019).

Notably, the recent development is that strengthening state management has been recognized as a key area in the NCCAP. In the sector of disaster prevention and

control (List of Tasks enclosed in the NCCAP, part C), for instance, the clear and detailed division of tasks is listed for the MONRE and the MARD.

The lack of coordination between sectors further penetrates into the provincial level (Nam *et al.* 2015). The VMD covers 13 provinces, all of which have their own policies with respect to land use functions and water management, and the provinces implement national policies along sectoral lines with rare integration (Hamer 2017). As Phuong, Biesbroek, and Wals (2018) described, “departments stick to their legally determined tasks and responsibilities and hardly share information or coordinate actions”. Despite a few good models of cross-provincial collaboration on irrigation planning,⁸ collaboration on delta planning is limited to some pilots on regional linkage schemes for agricultural production, irrigation systems and infrastructure projects since 2016,⁹ and inter-provincial linkages merely exist in the form of information sharing.

Regarding the vertical coordination between governments or governmental agencies at different hierarchical levels, the top-down approach is always dominant, and cities and districts (other than central-affiliated cities), as well as towns and townships, have very limited autonomy in tailoring rules for their local situations (Phuong, Biesbroek, and Wals 2018). For instance, under the Land Law, a land use plan is prepared by the Department of Natural Resources and Environment and approved by the Prime Minister with consultation (to have consensus) with the MONRE, while the MONRE is responsible for the national land use plan, in which different land units are allocated to each province. Such a process includes “a kind of” negotiation between local provinces and the MONRE on land use units, but hardly covers actual land use situations from grassroot levels, i.e. communes and districts (Nguyen *et al.* 2020). The top-down policy-making without taking sufficient account of local conditions particularly harm the VMD, because decision makers are located in the North of the country (Hanoi), while the VMD is located remotely in the South.

With respect to the synergies between sectoral laws under the climate adaptation regime, a network of sectoral laws is available for climate adaptation. As already stated in Section 3, climate adaptation goals and tasks are not stipulated in an individual “climate law”, but rather scattered in a number of sectoral laws. In this way, the sectoral laws in an ideal case can collectively address climate change impacts insofar as the laws regarding environmental protection, water resource management, disaster reduction, land use, irrigation facilities and projects, and sustainable forestry take into account the impacts of climate change.¹⁰ For instance, diversified protective methods can be found in rules for conserving biodiversity in response to climate change. Article 44.3 of the Law on Forestry requires improvement of the genetic quality as well as promotion of new varieties of plants for the purpose of climate change adaptation. The Law on Biodiversity addresses adaptation strategies, such as *ex-situ* conservation of species (Article 4.3). However, only in “an ideal case” can the sectoral laws synergise as a network (commonly requiring effective institutional cooperation across scales as well as sectors, which is exactly the current shortage), otherwise they are merely fragmented rules which may cause conflicts.

For both indicators of cross-scale interactions, it is worth noting that the Law on Planning promulgated in 2017, together with the recently established Coordination Council of the VMD,¹¹ is expected to not only eliminate conflicts of planning between sectors as well as provinces, but also improve coherence between socio-economic development, environmental protection, and climate change adaptation. Moreover, the latest Mekong River Delta Master Plan for 2021–2030 with the vision to 2050 will be

the first regional master plan which integrates the planning of all of the 13 provinces of the VMD. The required coordination between different spatial plans (at regional or provisional levels) and sectoral plans, the reviewing mechanisms for a plan, etc. will hopefully have broad implications for climate resilience in the dimensions of adaptiveness and cross-scale interplay.

5. Discussion on the barriers in the current legal and policy settings for a climate-resilient VMD

This section addresses five disabling factors in the current legal policy settings that impede the promotion of climate resilience of the VMD.

The first one regards the adaptiveness of law. An individual climate law is required to underpin the climate resilient development of VMD. Until now, the NSCC is still playing a role of (temporarily) filling this legal lacuna. The NSCC points out that Vietnam needs to simultaneously adapt to climate change and reduce greenhouse gas emissions, while prioritizing adaptation in the early stage (part II, para. 3). This priority brings efficiency when resources and funding are limited, but it also leads to unbalanced policies on climate mitigation, which might have a “lock-in” effect for a long time even if Vietnam has been making a greater commitment to green growth and low carbon development in recent years. A new climate law is needed to adapt to socio-economic advancement in Vietnam, and to recognize the significance of climate mitigation and its synergy with climate adaptation.

The lack of laws on renewable energy and circular economy also limits the transformation of the development models of the VMD to be more sustainable. At present, there is fierce competition between renewable energy plants in coastal provinces with coal plants in the VMD. Decisions and circulars on wind, solar and biomass energy are rapidly developing,¹² which bring a favorable policy environment to boost Vietnam’s transition to low-carbon development, albeit lacking in enforceability compared to law. Given that climate adaptation is still dominant in current laws and policies, the significance of carbon mitigation in the legal system is yet to be recognized by legally-binding instruments in order to promote synergistic action in response to climate change.

Second, even if the legal reform in the past decade brings a great leap in “rules on paper” for promoting climate resilience, the poor operationalization is a ubiquitous problem in Vietnam. For instance, Article 134.2 of the Land Law provides the flexibility of livelihood models in response to environmental changes, in case the authority issues farmers’ permits to alter the land for rice cultivation to other long-term agricultural land uses. However, the administrative process of land use change approval is normally complicated, as it relates to the adjustment of the land use plans at communal, district and provincial level. Consequently, in practice, authorities often disregard farmers’ spontaneous land use change from rice to other purposes in their official reports (Nguyen *et al.* 2020). Such a conditional prohibition would contribute to ensuring food security, but discourage farmers from making adjustments based upon expected climate change and the associated risks.

Similarly, for the places where a combination of mangrove-shrimp farming is permitted (e.g. Ca Mau province) (Ha *et al.* 2012), the rule of keeping a minimum 60 percent of land plots covered by mangroves¹³ is poorly implemented by contracted enterprises due to economic pursuits, and the subsequent wastewater pollution from

excessive shrimp farming harms the health of local residents. Under this circumstance, however, the non-compliant contractors still remain contracted. The practice of mangrove forestation reflects an unlawful way to balance between local enterprises' economic benefits and the mangrove cover target set by the provincial governments, where the resources are limited while the target is ambitious. Also, it is not a surprise that there is no effective enforcement following non-compliance (Pham *et al.* 2013). Sometimes, the seeming "compliance" with the mangrove cover target by reforesting mangroves in remote areas to compensate for the coastal area occupied by shrimp ponds does not really recover the ecological system, and actually reflects the loopholes of the current laws.

Third, the elitism and bureaucracy, the high reliance on technical experts for making significant decisions, as well as the lack of awareness of grassroots for their rights, impede the development of grassroots participation mechanisms in the legal system (Suhardiman and Giordano 2014; Nguyen *et al.* 2020). To a certain extent, the participatory approach has been used as the "selling point" to gain support from international donors rather than a genuine endeavor to empower the grassroots. Moreover, the role of the grassroots in the VMD is quite vague, as they mostly participate in "building" and "contributing" rather than in "supervising and monitoring" governments' work. Despite the fact that communities have settled and exploited natural resources for generations, they are not assigned with regulating and management roles for these resources.¹⁴ Community actions tend to be ad hoc, local, and reactive, and are often based on immediate and visible economic and health threats, rather than institutionalized precautionary approaches to avoid long-term environmental damage (Fabres 2011).

The fourth disabling factor is the pervasive overlaps and inconsistencies between sectoral laws as well as policies. Between 2010–2020, a wide range of cross-scale policies were issued by the Prime Ministers to (partly) deal with climate adaptation, followed by numerous documents issued at lower hierarchical levels. As shown in Table 4 in Section 3, those key policies cover the objectives of environmental protection, green growth, sustainable development etc. and have intersections with climate adaptation. However, due to the poor cooperation between line ministries, between provinces, and/or between hierarchical levels, the "forest of policies" fail to nest a diversified network for promoting adaptation and resilience of the SES, but instead create repetitive or inconsistent documents (Whitehead 2013).

Last but not least, various policy innovations have not received sufficient support from policymakers. A large number of pilot projects related to climate adaptation, such as urban resilience (Chu 2016; Reed *et al.* 2015) and participatory irrigation management (Tran and Tuan 2020), were not upscaled as "successful experiences" for broader areas, let alone led to new regulations or policies. If the ubiquitous short-term pilot projects in the VMD were better governed to stimulate new policies, regulations, or institutions, it would bring greater opportunities for promoting innovative development models.

6. Reflections and concluding remark

This article transfers the SES resilience theory into an operational framework for reviewing laws and policies relevant for climate adaptation and resilience. The legal dimensions as well as their indicators provide a useful guide to assess climate resilience in domestic legal frameworks. This article also addresses the literature gap by

providing a review of climate adaptation laws and policies in Vietnam in the last decade, in particular between 2015 and 2020, with a focus on the VMD, given its development goal of a climate resilient and sustainable Mekong Delta stated in Resolution 120.

One major limitation of this article is that Vietnamese laws and policies relevant for climate adaptation and resilience cannot be examined exhaustively, but rather by providing the most prominent examples that respond to key problems of climate change in the VMD and demonstrate the key areas of adaptation action (Section 3). If the framework (Table 1) is applied to another jurisdiction, examples of legal and policy sectors under each legal dimension and indicator would be very different, depending on the identified key areas of adaptation action.

Another limitation of the article is the lack of empirical evidence for fully revealing issues associated with the implementation of climate laws as well as the overlaps or conflicts between legal instruments in practice. Therefore, further research will narrow down to one or a few enabling and restricting factors to analyze each dimension of the legal and policy setting more thoroughly. Another opportunity for further research is to follow the development of spatial and sectoral plans under the guidance of the Law on Planning and the upcoming Mekong River Delta Master Plan in order to explore whether the cohesion across plans will be improved.

The critical review of Vietnamese climate adaptation related laws and policies reveals various problems that restrict the pursuit of climate resilience, but the progress along with time is also evident. Seeing the prominent improvement of policy-making reflected in the NCCAP in many perspectives (recognizing equitable sharing of benefits; prioritizing reducing vulnerability and enhancing cooperation in state management), we can expect further progress in forthcoming policies (e.g. the new Mekong River Delta Master Plan). Besides, the new SEDS and GSEDP issued in 2021 are expected to make progress on the political guidance for climate change action, in particular on the synergy between climate mitigation and adaptation, the recognition of the significance of equity, justice and public participation.

Notes

1. Ministry of Planning and Investment, 'Guidance on Developing the 5-year Socio-economic Development Plan from 2016–2020'.
2. During 2011–2013, this programme was directed by the Prime Minister with the support of the Ministry of Finance and the MARD, as well as local governments at different levels. A hundred thousand farmers in 13 provinces of the VMD have participated in this programme within 4 years of implementation.
3. Decision 146/KH-UBND issued by Kien Giang Provincial People's Committee in 2019 on the irrigation plan to cope with salinity intrusion and support agricultural production in the dry season of 2019–2020 in Kien Giang.
4. Decision 593/QD-TTg on 6 April 2016 issued by the PM on a scheme to pilot connectivity programs for the socioeconomic development of the Mekong Delta region in the 2016–2020 period.
5. In the 2016–2020 period, the National Assembly has set aside VND 193,155.6 billion from the state budget for new rural development (NRD) construction, while also mobilising further resources from the community and enterprises. As a result, over the period 2010–2020, many communes in the VMD have achieved more sustainable livelihoods by reaching the NRD standards. Given the resources from NTP-NRD, communes were also able to move households to safe places in order to be more resilient to disasters. Besides, the communes enhanced the adaptivity of the production system by converting land use from inefficient rice crops to fruit trees, as well as water-saving irrigation.

6. Decree No. 18/2015/ND-CP on environmental protection planning, strategic environmental assessment, environmental impact assessment and/or environmental protection plans of the Law on Environmental Protection.
7. MARD 2019, 'Model of Society's Premises in Dong Thap province', online on 20/01/2019, <https://www.mard.gov.vn/Pages/dong-thap-mo-hinh-hoi-quan-nong-dan.aspx> (accessed 3/10/2020).
8. Decision 146/KH-UBND issued by Kien Giang Provincial People's Committee in 2019 on the irrigation plan to cope with salinity intrusion and support agricultural production in the dry season of 2019–2020 in Kien Giang.
9. Decision 593/QD-TTg on 6 April 2016 issued by the PM on a scheme to pilot connectivity programs for the socioeconomic development of the Mekong Delta region in the 2016–2020 period.
10. Examples can be found in Articles 14 and 15 of the Law on Natural Disaster Prevention and Control, Article 9.1(a) of the Law on Environmental Protection, and Articles 3.2 and 4.1 of the Law on Irrigation.
11. Decision 825/QD-TTg on 12 June 2020 issued by the PM on establishing the Coordination Council of the Vietnamese Mekong delta for the period 2020-2025.
12. PM, Decision No.13/2020/QD-TTg on mechanisms to encourage the development of solar power; Ministry of Investment and Trade, Circular 02/2019/TT-BCT on Project Development and Standardized Power Purchase Agreement for Wind Power; PM, Decision No. 24/2014/QD-TTg dated 24 March 2014 on support mechanisms for the development of biomass power projects in Viet Nam
13. Decree No. 156/2018 /ND-CP: Detailing the implementation of a number of articles of the Law on Forestry, Article 25.3.
14. For example, in the case of mangrove management, 2/5 provinces assigned all their mangrove land to the Mangrove Management Board (Ben Tre and Kien Giang), while one province assigned most of their mangrove land to Mangrove Management Board (73% of mangrove lands in Ca Mau). Coastal tidal flats are also mainly managed by the government. In some cases, the land is handed over to enterprises/individuals without the consent of the community.

Acknowledgements

The authors appreciate the research assistance provided by Luu Thi Tang in the early draft. The authors also appreciate the comments from colleagues at the Hub Water, Climate and Future Deltas at Utrecht University on the early draft.

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Haomiao Du  <http://orcid.org/0000-0002-0968-9516>

Kim Khoi Dang  <http://orcid.org/0000-0003-1668-7014>

Hong Quan Nguyen  <http://orcid.org/0000-0001-7685-8191>

Helena F.M.W van Rijswijk  <http://orcid.org/0000-0002-0492-1718>

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