Article

The Vietnamese Legal and Policy Framework for Co-Management in Special-Use Forests

Nguyen KimDung [1,2,*], Simon R. Bush [1] (iD) **and Arthur P. J. Mol [1]**

[1]   Environmental Policy Group, Wageningen University, Hollandseweg 1, 6706 KN Wageningen, The Netherlands; simon.bush@wur.nl (S.R.B.); arthur.mol@wur.nl (A.P.J.M.)
[2]   Department of Ecology and Evolutionary Biology, University of Science—Vietnam National University HCMC, 227 Nguyen Van Cu Street, District 5, Ho Chi Minh City, Vietnam
*   Correspondence: kimdunguyen@gmail.com or ntkdung@hcmus.edu.vn

Abstract: Co-management has been introduced into Special Use Forests (SUFs) of Vietnam for more than 10 years. However, the extent to which Vietnamese laws and policies support co-management remains unclear. This paper reviews existing policies and laws from the national to commune levels and assesses their facilitation of co-management in SUFs. The review demonstrates there is support for co-management, albeit scattered and uncoordinated across a range of policies and laws. Modifications to policy on ownership and use rights would support the development of SUF co-management. Additionally, clearer legislative underpinning for benefit sharing in SUFs could better incentivize the participation of local people and private sector actors to engage in more effective co-management arrangements.

Keywords: co-management; nature conservation policy; protected areas; special-use forests; Vietnam

1. Introduction

Special-use forests (SUFs) are considered the "backbone" of the national nature conservation strategy by the Vietnamese government [1]. The SUF system, which covers 164 sites that extend across terrestrial forests, wetlands and marine habitats, is further broken into five categories all designed to provide differing levels of protection over a 50-year designation period [1,2]. First, national parks are based around the protection of ecosystems containing high values for science, education, and tourism. Second, nature reserves are wilderness areas designed to maintain ecological processes through the restoration of natural resources and biodiversity. Third, species and habitat reserves for endemic or valuable flora and/or fauna. Fourth, landscape protected areas protect natural and cultural sites with a high aesthetic value. Finally, fifth, scientific forests are specifically designated to protect sites used for scientific research [3].

Despite the diversity of SUFs and their current coverage of 12% of the national territory of Vietnam [4], biodiversity and forest density continues to decline [5]. According to the Ministry of Natural Resources and Environment, there are more than 882 critically endangered, endangered or vulnerable species in Vietnam, up from 161 in 1992 [2]. The drivers of this biodiversity loss are varied. By 2010 1 million ha of fast growing monoculture plantations, such as rubber, acacia, eucalyptus and pine, were established in SUFs [6]. In addition, up to 80% of SUFs are inhabited, either by communities who had historical claims on land or by those who have encroached on buffer areas [7]. As seen in other parts of the world, the failure of the government to engage these communities has not only led to ineffective surveillance and control of SUF resources, but also to conflict with forest-dependent local communities living in and around surrounding SUFs [8,9].

To mitigate these conflicts the Vietnamese government has sought various forms of community engagement in SUFs. Since the de-collectivization of land and forest resources in 1986 the government has gone through various rounds of land-titling and forest right allocation [10,11]. From the mid-2000s the government developed collaborative or "co"-management approaches in SUFs under the guidance of the Convention on Biodiversity's Programme of Work on Protected Areas with funding from the Global Environment Fund and the European Union (MARD 2005). The Vietnamese interpretation of co-management draws on international norms on the distribution of rights and responsibilities for resource management from the state to non-state actors, including resource users, local communities, environmental NGOs, to foster adaptive decision making in response to (environmental, economic, political and social) uncertainty and change [12,13]. However, the extent to which these liberal-democratic norms are achievable in the context of a centralized or "mono-organizational" state like Vietnam [14], where decision making and the executive functions of government are centralized to a very large extent, remains unclear. The extent to which the Vietnamese political system can accommodate co-management is likely to differ from western countries, given core concepts of "ownership" of nature resources and the essence of democracy differ considerably [15]. Following Carter and Gronow this difference in turn opens up questions on the extent to which co-management can be institutionalized in context of mono-organizational states [16].

This paper responds to this knowledge gap by reviewing existing policies and laws from the national to the commune level and assesses their effect on facilitating co-management in SUFs. In doing so the paper builds on recent studies on the site specific implementation of co-management in SUFs [17,18] by taking a macro-institutional perspective goes beyond the institutional design of co-management arrangements to understand the degree to which state policy and legislation enable or constrain the emergence and type of co-management. By focusing on Vietnam the paper also outlines the specific challenges centralized, mono-organizational states face in transitioning to co-management of natural resources.

The following section provides an outline of current thinking around co-management and identifies five criteria against which we structure the review of Vietnamese policy. We then present an overview of the ministries and departments responsible for SUFs in Vietnam before outlining the methodology adopted for the review and presenting the results. The final two sections of the paper discuss and conclude on the results of the review, explaining the extent to which co-management is supported in current Vietnamese policy and law and identifying future opportunities for overcoming the major bottlenecks for co-management in the SUF system.

2. Policy Related Variables for Analyzing Co-Management

The conceptual basis of co-management stems from the early 1990s when a core group of scholars addressed the perceived mismatch between community and state led management of common pool resources such as fisheries and forestry [13,19,20]. Central to co-management is the meaningful participation by resource users who are subject to regulations in a joint decision making process [21,22]. By institutionalizing interaction between resource users and the state co-management is thought to improve compliance by jointly defining regulation, providing more locally relevant management plans, and even reduce poverty by developing shared plans for diversifying economic activities [23]. A further assumption is that the more open co-management arrangements are to two-way interaction between the state and communities, the more "adaptive" decision-making will become in dealing with environmental decline and/or social change [23,24].

Co-management has emerged largely from Western liberal democracies where deliberation and the sharing of authority with non-state actors is part of much wider trajectories of decentralization and devolution of state functions [25–27]. The assumption is that the greater autonomy non-state actors have in taking over traditional state functions, the more adaptive they will be in decisions over the management and control of national parks and conservation [12,24,28–30]. However, in mono-organizational states (see [31]), where decision making and executive functions of government

are centralized to a very high extent, there are fewer assumptions made about the capacity of co-management arrangements to allow adaptive decision making. As noted by Sikor and Nguyen [32], this is largely because of an apparent paradox associated with co-management in centralized states which, on the one hand take steps to formalize collaboration with resource users, but on the other hand are less willing to decentralize and devolve decision making either within the state or to non-state actors to foster more adaptive decision making.

Central to the adaptive co-management literature is the extent to which both government and resource users engage with and institutionalize reflexive forms or "learning" [22,29]. Later frameworks have elaborated these five categories into a wider list of success conditions (e.g., [26,27]) and simplified models of measuring collaboration as a specific focus on social learning and as an output and impact on livelihoods and ecology [33]. To analyze the degree to which state policy and legislation enable or constrain the emergence of adaptive forms of co-management in Vietnam this paper draws upon the five characteristics of co-management of Plummer and FitzGibbon's [34]. These are pluralism, communication and negotiation, social learning, transactive decision-making and shared actions and/or commitments. These variables were selected because they go beyond single dimensions of learning alone and allow for document analysis in legislation and policy. Additionally, the framework has been used extensively to assess adaptive co-management across a range of countries and political systems, ranging from central to decentral and mono-organizational to poly-centric (e.g., [17,18,35–37]), and in doing so offers a means of generalization and comparison.

Pluralism relates to the inclusion of various interests and/or inputs in the process of co-management. As outlined by USAID [38], governments can foster pluralism in policy and legislation, simultaneously across multiple levels, and either mandated or made voluntarily. For example, national legislation can authorize and legitimize the rights of resource users to organize and enforce co-management arrangement [39]. Legislation can also shape decentralized management by recognizing and devolving responsibility to community-based management systems [40,41]. Provincial and district level government can also establish policy and legislation for providing technical assistance, requiring accountability of co-management partners and dealing with abuses of local authority [41]. Local government can play a more immediate role in policing local co-management partners to meet responsibilities, as well as support community involvement and mandating enforcement by local regulators.

Communication and negotiation are seen as key functions of co-management that can be enabled through information exchange and feedback to gain consensus and common understanding among stakeholders [34]. Policy and legislation can be used by government to set clear requirements for establishing a shared understanding around relevant issues and the creation of a shared vision through deliberative processes [42]. Finkbeiner and Basurto [39], for instance, claim that establishing responsibility for these deliberative processes across multiple levels can assist in voicing divergent perceptions, needs, and goals both between actors at the same level (e.g., resource users) and/or between resource users and the state. It is also expected that legislation and policy around communication and negotiation can be set at any of the levels outlined above.

Social learning refers to on-going knowledge creation by sharing values, jointly implementing actions and reflecting upon feedback [34,43]. Social learning occurs when actors involved learn to incorporate knowledge generated from a given experience into new collective practices of resource management [39,44]. Government can facilitate social learning by either suggesting or mandating that experiences with co-management be reflected on and fed back into new projects, thereby enabling gradual improvement. It can also shape more flexible legal frameworks for co-management ensuring that amendments are possible without placing too much of a procedural burden on those involved [45]. In this way, the process of social learning can be shaped by the state with input from those involved directly in co-management.

Transactive decision-making focuses on the process through which information from multiple types of knowledge contribute to more equitable and efficient co-management processes [34].

Co-management can alleviate conflict by enabling deliberative decision making among user-groups and government agencies. It can also facilitate discussion on the inclusion of customary practices, norms, and institutions into state policy. Government policy can enable more or less transactive decision making by regulating the extent to which participatory decision-making is required in practice. Transactive decision making also then plays a direct role in determining the level of legitimacy of a given co-management arrangement [46]. Finally, as argued by Macfadyen et al. [45], legislation can support more transactive decision making by protecting individuals against the abuse of local power.

Shared actions refer to the willingness of all actors to undertake joint activities under collaborative forms of management [34]. There is often a strong need for incentives for stakeholders to participate in co-management. Policy and legislation can encourage or mandate co-management arrangements to include such costs and benefits in such a way that commitment is created for direct support for management. For example, by mandating that fees are collected for local enforcement [19]. By balancing such costs with demonstrable benefits from enforcement and dispute resolution, or improved reference to measures for reducing poverty or vulnerability, greater commitment for participation can be fostered [47]. Likewise, mandating the provision of technical assistance and administrative, technical, and financial services is also noted as increasing the longevity of co-management institutions [39,48].

3. The National Legal and Policy Framework for SUF Management

The national legal and policy framework for SUFs is hierarchical and fragmented, spread across a range of laws, ordinances, decrees, circulars, directives, and decisions to impart legal instruments [11]. As illustrated in Figure 1, the Ministry of Agriculture and Rural Development (MARD) and the Ministry of Natural Resource and Environment (MONRE) are the two executive branches of government responsible for the management of forest, forest resources, and forestlands. Under MONRE, the General Department of Land Administration is responsible for the enforcement of the forestland law. MARD and the Vietnam Administration of Forestry and Forest Protection Department is responsible for consultation and legitimately enforcing forest and forest resource protection across the country, as well as concurrently managing six inter-provincial national parks (Cuc Phuong, Tam Dao, Ba Vi, Yok Don, Cat Tien, and Bach Ma) (Decree 119/2006/ND-CP). MARD is also responsible for most aspects of SUF management, including the establishment, policy review and adjustment, management supervision and resource inventorization (Decree 117/2010/ND-CP).
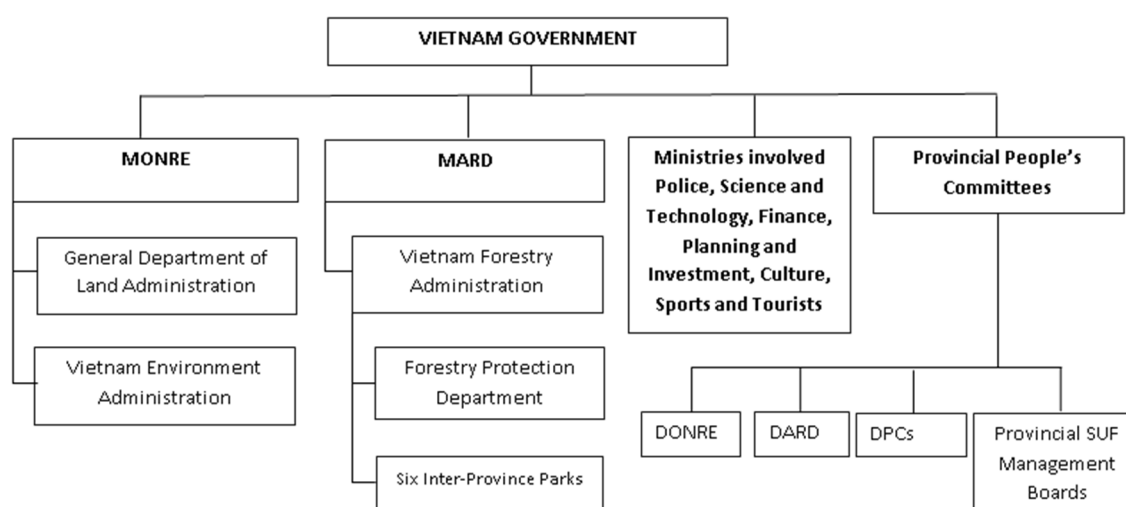

Figure 1. Vietnamese state organizations responsible for biodiversity and nature conservation (Source: Adapted from Ministry of Natural Resource and Environment 2011).

The SUF system is regulated through a national master plan implemented by MARD and the Provincial People's Committees (PPCs). At the national level the master plan is based directly on parallel master plans for national social-economic development, the national defense system, land use, and forest protection and development. At the provincial level SUF management is based on the national master plan, as well as the provincial social-economic development plans and the provincial defense system plan (Decree 117/2010/ND-CP).

Each SUF also has an individual operational plan made up of an initial status and planning report (Decree 117/2010/ND-CP). This report provides an inventory of the status of natural resource utilization and management, and an evaluation in local livelihoods in the surrounding area. The results are used to set objectives for the SUF, including a description of its boundaries, action programs, measurements for project implementation and management, and information related to investments and management costs. Changing SUF plans is only possible when changes are made to national or provincial planning for social-economic development or defense (Article 19 Law on Forest Protection and Development). To make these changes permissions are required from relevant authorities such as MARD, MONRE, and Provincial People's Committees (Decree 117/2010/ND-CP).

The lowest level of control over SUFs is through management boards responsible for ensuring "holistic forest management" (Law on Forest Protection and Development 2004). Reflecting a degree of community engagement, management boards lacking personnel are permitted to delegate forest protection to households and individuals. Management boards are also permitted to engage with "economic organizations", for instance related to ecotourism development investment. However, they are legally prohibited to transfer ownership (Law on Forest Protection and Development 2004) because they bear responsibility as the main legal authority over SUFs (Circular 18/2004/TT-BTNMT; Decree 117/2010/ND-CP).

4. Methodology

Using the government structure outlined above, the review uncovered and analyzed 51 publicly available national-level policy and legal documents in 2015 (see Appendix A, Table A1). The search was based on four pre-determined categories of documents. First, SUF strategy documents and action plans were targeted because they hold information on the SUF development and processes of policy improvement related in particular to social learning. Second, operational documents of SUFs were reviewed which focus specifically on the designation of responsibilities and the authorities of different actors. Third, policy documents related to public communication and reporting requirements and to civil society involvement. Finally, administrative guidelines for forest management, civil society, village organization and operation, and the Commune People Councils.

Information in these documents was systematically coded using the five characteristics of co-management outlined above (see Table 1). Pluralism was coded in terms of the actors responsible for SUF management, and policy and legislation related to their position and legitimation in the SUF arrangement. Communication and negotiation was coded using mechanisms of information exchange and feedback among stakeholders across scales and levels. Transactive decision-making was coded as reference to multiples types of knowledge/actors and its/their contribution to SUF management. Social learning was coded as information relating to legislation mandating or facilitating feedback from experiences with SUF management and the investment of this feedback into the design of new mechanisms, governmental interventions, and policy modifications. Shared actions and/or commitments was coded as information relating to incentives (financial/political/welfare/social functions) for stakeholders to participate in SUF management, and to the distribution of costs and benefits from SUF management.

Table 1. Outline of questions asked across all document categories in systematic review.

Variable	Operational Question
1. Social learning	• Which lessons associated with SUF management are mandated in the process of policy development? • What policy modifications have been taken in the development of the SUF legal framework? • How is customary system of knowledge, culture, and ownership treated in management?
2. Pluralism	• Which actors are to participate in the management of SUFs? • What are the roles of these mandated actors (steering/directing and cooperating) in the structure of SUF management? • How are civil society related to SUF management? • How is cooperation mandated between stakeholders of SUF management guided?
3. Transactive Decision-making	• How is information from multiples types of knowledge/actors collected and contributed to SUF management process of decision making? (scientific/local knowledge) • Who is mandated to make final decisions relating to different elements of SUF management?
4. Communication and Negotiation	• What information and feedback are publicly communicated and negotiated for SUF management? • How is information and feedback exchanged among stakeholders across administrative levels? • Who are the main actors ensuring the mechanism of Communication and Negotiation among actors?
5. Shared Actions and Commitments	• What are incentives (financial/political/welfare/social functions) for stakeholders to participate in SUF management? • How are the costs and benefits of SUF management shared?

5. Policy Review of Co-Management

The results of the policy and legal review are grouped into five sections, corresponding with the characteristics of co-management outlined above.

5.1. Pluralism and Legitimate Participation

Two groups of actors are defined in Vietnamese policy: (1) State actors involved in decision making, and (2) Non-state "cooperating" actors. Local communities, including villages and hamlets, are classified as cooperating actors (Law on Forest Protection and Development 2004; Decree 117/2010/ND-CP; Decision 218/2014/QD-TTg). However, central state agencies control the participation of community and other cooperating actors, with governmental actors decentralizing responsibility for actor engagement to the local commune level. The result for co-management is that policy both enables and constrains pluralism by limiting who is permitted to be involved.

The People's Committees at provincial, district, and commune levels are responsible for forest and forestland management under the jurisdiction of their administrative authorities. Accordingly, "professional organizations" such as DONRE, DARD, Provincial Department of Forest Protection, and the Department of Environmental Protection, are responsible for consulting local resource users and enforcing the forest law. The Provincial Department of Forest Protection is particularly important because it advises on the protection of forest and it ensures enforcement of forest protection and development at the local level. It also organizes and instructs commune level actors on forest

protection, and disseminates regulations on forest protection and development. Finally, it is responsible for ensuring and reporting on compliance to the guidelines of the Central Department of Forest (Decree 119/2006/ND-CP).

At the local level, the Community People's Committee (CPCs) is responsible for the implementation of laws and policies across their jurisdictions (Article 38, Law on Forest Protection and Development 2004). Every CPC is required to establish and manage contracts for forest and forestland allocation to both households and companies (Decision 1174/QD-TTg and Decision 57/QD-TTg). They are also required to guide the implementation of forest protection and management plans, and direct villages, hamlets and relevant units to construct and carry out forest protection and development. The CPCs also engage the public through forest rangers, police, and army for forest protection (Decision 1717/2006-QD-BNN-KL, Decision 147/2007/QD-TTg, and Decision 192/2003/QD-TTg). In addition, CPCs are in charge of monitoring ecotourism in SUFs (Decision 104/2007/QD-BNN) and also for managing the implementation of payments for ecosystem service programs (Decree 99/2010/ND-CP).

Direct participation in SUFs is controlled by management boards who are tasked with coordinating a network of key actors including forest rangers, CPCs, forestry companies, other organizations, individuals, households, groups of households and communities at the grassroots level (Law on Forest Protection and Development 2004; Decree 119/2006/ND-CP; Decree 117/2010/ND-CP; Decision 218/2014/QD-TTg). Management boards are also responsible for organizing the participation of communities in buffer zones for forest protection, conservation, "wise utilization" of forest products, and environmental services with a view to enhancing local livelihoods (Decision 186/2006/QD-TTg). Furthermore, any community forest management is also coordinated through SUF management boards (Official Document 1327/CV-LNCD dated 7/9/2007 issued by MARD).

National parks and special-use forests that have areas of 15,000 ha or above can have their own forest ranger unit—equivalent to the District Department of Forest Protection. However, smaller SUFs rely on collaboration with commune and district level groups. In these SUFs, daily management activities are centralized through the commune forest ranger service, which is assigned to work with CPCs and District Department of Forest Protection (Decision 1717/2006-QD-BNN-KL). Commune forest rangers also have legitimate roles in disseminating policies and laws to communities and villages (Decision 1717/2006-QD-BNN-KL). At the district level, the Forest Protection Department is responsible for cooperation and collaboration with government organizations, the army, and forest owners to implement forest protection in their administrative areas. At both commune and district level cooperation with communities is based on their relation with communities with training and guidance on planning forest protection and forest fire prevention, as well as information exchange and evaluation (Decree 119/2006/ND-CP; Decision 1717/2006-QD-BNN-KL and Decree 74/2010/ND-CP).

Community involvement in forest management is also centrally coordinated. The term "community" is defined in the 2005 Law on Forest Protection and Development as the households and individuals living in the same villages or hamlets (Article 3, Clause 3). Communities have the legal obligation to participate in constructing and implementing plans and methods of forest protection and management in direct collaboration with the local civil defense and forest rangers (Decree 74/2010/ND-CP). The law does, however, provide scope for the voluntary formation of cooperatives by farmers for the specific purpose of co-managing natural resources (Decree 151/2007/ND-CP). The government also demonstrates its commitment to promoting customary laws in forest management (Decision 192/2003/QD-TTg; Decision 1174/2005/QD-TTg; Decision 106/2006/QD-BNN; Circular 70/2007/TT-BNN) and has specifically prioritized the inclusion of ethnic minorities in forest allocation and protection (Decision 1174/2005/QD-TTg).

Collaboration with industry is primarily related to timber and eco-tourism. State forestry enterprises and forestry/timber companies are required to collaborate with local authorities and the PPC to apply for and check land administration and ownership status and any land-use issue relating to leasing and using land allocated to households, individuals or ethnic minorities

(Decree 135/2005/ND-CP and Decree 118/2012/ND-CP). Organizations and individuals are encouraged to invest money in ecotourism development through joint ventures, cooperatives, and contracts or rental agreements for the forest environment (Decision 104/2007/QD-BNN).

5.2. Communication and Negotiation

Government policy and legislation is clear on the rights of citizens to be informed about government activities, as well as the benefits of any activities and any impacts (positive or negative) that may ensue (Decision 30/1998/CT-TW). These rights extend to all plans on social-economic development, economic policies, government budgets, investment priorities, master and land-use plans, and infrastructure construction in their communes (Ordinance 34/2007/PL-UBTVQH11). Citizens also have the right to know about forest allocation in relation to areas assigned as forests, the duration of forest protection contracts, the allocation of tasks in forest protection, the conditions for assigning conservation expectations to households and communities (Decision 106/2006/QD-BNN); the lease of forest related to ecotourism (Decision 104/2007/QD-BNN); the development of budgets and activities related to forest protection and development across the country; and the agreements on benefit-sharing from forest resources (Decision 126/2012/QD-TTg). All groups and organizations involved in SUFs are held legally accountable for providing information on these activities (Decree 05/2008/ND-CP).

Responsibility for the delivery of information is state centric, multi-level and predominantly one-way. MONRE, PPCs, DPCs have responsibilities to provide information about national, provincial and district master plans on special use forests on their official government websites (Decree 117/2010/ND-CP; Article 43 of Land Law 2015). SUF management boards are legally required to spread information of the SUF master plans at on site level (Decree 117/2010/ND-CP). The responsibility for information provision to citizens is devolved to the forestry ranger service who can call village meetings to deliver information (Direction 3714/2011/CT-BNN-TCLN). However, bottom-up communication and negotiation is not directly mentioned in any specific SUF legal text. Instead it is only indirectly referred to in the Law on Complaints, in the regulation on Vietnam Fatherland Front, and in the Ordinance on Democracy.

The Vietnam Fatherland Front is indirectly responsible for boosting bottom-up communication and negotiation in SUF management. According to the 2015 Law, the Front is responsible for disseminating public information and mobilizing people in line with the policies of the Party and policies and laws of the State (Article 3). As such the Front is the political base of the people's administration, with the stated role of representing and protecting the lawful and legitimate rights and interests of the People, rally and uphold the strength of the great national unity, exercise democracy and promote social consensus. However, the Front is also a vehicle for state controlled feedback and protest, by coordinating feedback on concerns relating to the policy and legislation to the Party and the State.

By coordinating grassroots conciliation processes (Article 17), the Vietnam Fatherland Front is one of the ways through which non-state actors are able to provide feedback to governmental authorities. The consequence is that, following this feedback, the government and Party are legally obliged to evaluate their decisions and effects on the rights and benefits of the complaints at hand. In addition, governmental organizations and agencies are required by law to organize meetings for receiving complaints, denunciations, recommendations and feedbacks of the people (Article 59, Law on Complaints, and Law on Meetings with Citizens). In this case, the Vietnam Fatherland Front is responsible for overseeing the enforcement of the law on complaints and denunciations, and encourage and support the people in implementing their rights in this regard (Article 66 of Law on Complaints).

Two-way communication and negotiation at all levels is then executed by the CPC, who is responsible for putting representative processes in place and supervising the commune level to report to citizens and feedback any information to higher authorities (Direction 30/1998/CT-TW). Local people are also enabled to engage in communication with the state through the CPCs. However,

communication to and negotiation with resource users are limited to subjects related to carrying out governmental contracts, rather than issues nominated by local people themselves.

5.3. Transactive Decision-Making

Transactive decision-making processes are evident in a number of areas of policy and law. A series of rights are stipulated for citizens involved in SUFs to engage in decisions relating to: fee contributions to infrastructure and public welfare constructions in their communes (Ordinance 34/2007/PL-UBTVQH11); discussing and voting on decisions to be ratified by higher level government authorities (Ordinance 34/2007/PL-UBTVQH11); and monitoring and implementation of policies at the commune level through officially sanctioned "voter meetings" (Ordinance 34/2007/PL-UBTVQH11). However, to be implemented at the commune level, CPCs are mandated to send documents to DPCs for ratification. The documents might be returned for modifications until reaching the agreement with DPCs and these are ratified for implementation (Circular 70/2007/TT-BNN).

Communities have the right to construct their own local agreement/convention on forest protection and development. To reinforce this right, the central government has issued an instruction on community forest protection agreement development (Circular 70/2007/TT-BNN; Decision 550/2007/QD-QLR). Governments at all levels are therefore obliged to provide legal advice during the processes of developing management agreements (Circular 70/2007/TT-BNN). To this end, village leaders are required to gather household representatives to discuss, exchange ideas, and vote over the content of the proposed commune agreements on forest protection and development. If two third of the participants agree upon the proposals, CPCs have to take the documents into account and send them to DPCs for legal checks and ratification, and then implement the legitimated documents across the communities (Decision 106/2006/QD-BNN).

Yet despite these participative processes being in place, SUF decision-making remains centralized. Evidence from other research indicates that many SUF policies, despite appearing transactive on paper, remain top-down in practice. For example, Payment for Environmental Services (PES) schemes have been widely imposed on communities by Decree 99/2010/ND-CP and based on a central governmental recognition of PES benefits rather than on voluntary and/or demand-supply schemes as they are applied in other countries [49]. Similarly, SUF plans are made that cover long-term land-use of local people, with overlapping land use rights and conflicts (30% of 128 SUFs) across the country [50]. Overall, however, central top-down decision-making tends to overrule the more transactive forms of decision making that are outlined in policy. Systems of local custom, culture and the knowledge of resource-use groups are leaving unsolved how local communities are legitimately integrated and negotiated during processes of transactive decision-making.

5.4. Social Learning

The promotion of learning processes in SUF management is steered by mandates for research, training and policy review, all of which are steered by the state. However, unlike other co-management characteristics, the responsibility for coordinating learning processes in SUFs is devolved to management boards. The core tasks of management boards include cooperation with international nature conservation organizations with a view to transferring new knowledge and information and flexibly apply this knowledge in their own conservation work (Decision 08/2001/QD-TTg). Management boards are also mandated to ensure that eco-tourism activities provide education on nature conservation and raise wider environmental awareness through tourism activities (Decision 104/2007/QD-BNN). Although this process remains devolved, management boards are required to report any exchanges of knowledge and changes in activities to central authorities.

In facilitating learning processes, management boards are required to coordinate a wide group of stakeholders (including scientists, managers, conservationists, and communities), all of which have a reciprocal responsibility to provide knowledge of natural resource management and biodiversity

conservation (Decision 08/2001/QD-TTg). These actors are also responsible for reflecting on problems associated with SUF management and reporting to these problems to higher authorities (e.g., Ministry of Agriculture and Rural Development and Ministry of Home Affairs) in order to help them understand the practical circumstances and to ask for central solutions and responses (Decision 24/2012/QD-TTg). It is the responsibility of the management boards to document this process (Decision 08/2001/QD-TTg; Decision 192/2003/QD-TTg). As outlined in the above sections on communication and transactive decision making, information is then passed back to management boards and citizens.

This administratively devolved process of learning and reflection has led to changes in problem awareness in SUFs, and has also led to new regulation. For example, it includes the recognition of insufficient human resources, relating to the forest ranger services (Decision 1717/2006/QD-BNN-KL), the lack of professional skill of SUF staff (Decision 1717/2006/QD-BNN-KL; Decision 2740/2007/QD-BNN-KL), and a low awareness of some officers and authorities on tasks of forest protection, allocation and leases (Decision 2740/2007/QD-BNN-KL). Learning about these and other shortcomings has led to new policies, among others on the addition of more than 3000 regular forest rangers in 2015 (Decision 07/2012/QD-TTg), increasing the rights and responsibilities to forest rangers (Decision 57/2012/QD-TTg), and improving the quality of SUF staff (Decision 2370/2008/QD-BNN-KL). Other areas where changes have been made include financial arrangements for staff working in SUFs (Decision 192/2003/QD-TTg), and funds for SUF management and development (Decision 192/2003/QD-TTg). This has led to the allocation of more stable governmental budgets to SUF management boards (with an increase in average budget to 100,000 VND/ha/year (about US$4.50 per ha per year) and investments in SUF village community co-management of 40 million VND/village/year (about 1700–1800 USD/village/year). In addition, a decision was made to return 75% of the revenues from ecotourism to SUF funds (Decision 24/2012/QD-TTg).

Changes have also been made relating to the management of SUFs. Government decisions have highlighted the need for what is termed "interdisciplinary management" between central government and People's Committees at all levels and international organizations (Decision 192/2003/QD-TTg), as well as the need for improved coordination with relevant branches of government (Decision 192/2003/QD-TTg) and more effective law enforcement (Decision 192/2003/QD-TTg; Directive 1685/2011/CT-TTg). However, it appears that these changes have led to greater, and not less, control by the central government. MARD is now identified as the main government body in charge of SUF management (Decree 117/2010/ND-CP), while MONRE has been given greater control over land and biodiversity management (Law on Biodiversity 2008). This in turn has led to greater oversight on management measures and responsibilities (Decision 07/2012/QD-TTg).

5.5. Shared Actions and Commitments

Administrative control over co-management means that shared actions and commitments are mandatory rather than voluntary. "Benefit sharing" has emerged in policy and legislation in recent years to implement shared actions between the state and resource users. However, the implementation of schemes to ensure the shared use of these resources appear to run counter to strict controls over wood exploitation, forest product harvests, and wildlife animal hunting (Decree 32/2010/ND-CP and Decision 2243/2014/QD-TTg). Debates over benefit sharing have also been linked to the overexploitation of forest resources [4]. To address these potential contradictions the government has turned to providing income streams from indirect sources related to natural resources such as PES and ecotourism, and controlled forms of forest allocation and cultivation (Decision 104/2007/QD-BNN).

The implementation of benefit sharing mechanisms is directed by MARD and involves the SUF management boards, PPC, DPCs, CPCs and village communities. The implementation of these mechanisms represents a shift from a centralized national budget under what was known as the five-million-hectares program up till 2010 (Program 661), to an average budget of 100,000 VND/ha/year delivered to qualifying households, communities and security units (Decision 24/2012/QD-TTg; Article 191, Land Law 2013). The intention is to share benefits between the

government and local resource users with the goal of both SUF protection and livelihood development. The objective, however, is for local people to fulfill a perceived shortfall in human resources for SUF protection while they gain rights for resource use.

For local resource users to engage in benefit sharing they require a so-called "red book" land contract, which stipulates a long-term lease. All activities related to land-use is controlled by the government who documents allocation by defining and registering boundaries and benefits (Decision 106/2006/QD-BNN dated 27/11/2006). By having a contract, both households and communities are also able to participate in PES schemes (Decree 99/2010/ND-CP). However, these PES schemes are limited because "red book" contracts do not allow for the transfer of ownership rights, which remain with the state (Article 29 and 30 of Law on Forest Protection and Development 2004). Other activities like ecotourism are also a direct means of benefit sharing. Here the government defines the terms and provides direct support to community-based ecotourism development (Decision 44/2005/QH11-Law on Tourism; Decision 104/2007/QD-BNN dated 27/12/2007). Under the Law any stakeholder that engages in tourism related business involving SUF resources are required to provide local people with engagement in tourist services (Decree 23/2006/ND-CP; Decision 104/2007/QD-BNN) and support them to enhance their benefits, livelihood development, and responsibilities in nature conservation (Decision 104/2007/QD-BNN).

6. Discussion

The review shows existing policy and legislation that provides a foundation for the development of co-management in Vietnamese SUFs. In addition, all characteristics of adaptive co-management outlined by Plummer and FitzGibbon [34] are observable in policy and legislation, albeit to different degrees. The government has in place policies that distribute responsibility for implementation away from the central or national level towards commune level organizations and SUF management boards. There is also emphasis on the inclusion of non-government organizations, including extensive attention to citizen engagement and businesses. Overall, however, the policy and legislative basis remains far from state-of-the-art visions of co-management as an adaptive institution promoting devolution and institutional learning [39]. What is instead observed is an active strategy by the state to decentralize responsibilities for SUF management with limited devolution of decision making to subsidiary branches of government or to non-state actors, and few mandated processes of institutional learning.

The results show that pluralism is promoted in a number of policies. The government has diversified the type and number of actors involved in SUF management, with particular emphasis on the participation of local resource users. This matches with the wider expectations of co-management [39]. However, the decision of who participates remains centralized and is not based on the mobilization of actors' self-interest. Instead the government maintains a centralized long-term planning model, and although input is sought from citizens and other groups, it is done through line agencies spanning multiple levels of government (in line with the vision of [38]). While the government does support the integration of customary with statutory laws, it is not clear how this integration should be practiced. For instance, the notion of "community" is represented as an instrument of management rather than a set of actors able to exercise rights over forest and forestland. The result is that any deviation from policy can result in modifications or withdrawal of land rights and forest ownership. Based on our analysis, we agree with Carter and Gronow [16] that for pluralism to be integrated in a meaningful way into SUFs the central government needs to reconsider co-management as a policy of shifting the cost of forest management to resource users, and instead frame it as a means of promoting full and equal engagement by the state with resource users.

The results also show there is no explicit requirement for two-way communication between the state and non-state actors in legal texts referring to SUFs. As a result, communication and negotiation engaged by local people remain limited in practice [51]. This legislative gap means that co-management remains limited to more informative modes of interaction. This in turn has opened up the possibility for NGOs to be more pro-active in facilitating the communication and negotiation between relevant

SUF actors [17]. As noted by Tan [11], the dominant one-way communication exerted around SUFs, as well as other areas of social existence in Vietnam, is limited by the lack of education and knowledge provided to people about their political rights, which compounds their ability to develop improved two-way communication and negotiation in SUF management. Fostering two-way communication would first require the development of an explicit legal basis. It would also require a political mandate for the CPCs to the more transactive modes of engagement with resources users on topics nominated by these users themselves.

The review identifies clear attempts in policy and legislation to integrate social learning into the co-management of SUFs. There are multiple legislated requirements for reporting and information exchange at all levels of government. However, these exchanges do not place emphasis on on-going knowledge creation leading to shared values and jointly implemented actions [34,43]. Instead it appears that information exchange, and especially feedback to government, aims to strengthen central planning and implementation. In that sense "learning" is limited to the development of administrative processes of, for instance, introducing benefit sharing mechanisms for non-timber forest product harvesting and PES schemes [52]. Some crucial requirements and lessons for co-management arrangements to learn and enable greater and more equal interactions among actors are not yet covered in policy or legislation. For social learning to be better instituted a clearer emphasis on integrating local and scientific knowledge (and demands made through civil society action) into SUF policies related to, for example, REDD+ [53] and land tenure allocation around SUFs [54].

There is also evidence of transactive decision-making in SUF policy and legislation, in terms of mandating various forms of meetings with resource users. However, here again the government stipulates consultation rather than developing an exchange of ideas through a shared decision making framework (cf. [42]). This means that the final decision on nearly all issues relating to SUF management are taken at the national and provincial levels. This has had serious implications for highly sensitive policy areas such as the weak allocation of (private and/or community) tenure arrangements around SUFs, which continue to undermine attempts by management boards to engage communities in co-management [55]. As argued by To Xuan Phuc, what is required is a clearer delineation in policy and law about who the "real SUF owners" are in order to overcome stagnation in policy areas such as benefit sharing [56]. To improve "transactive decision-making", requirements for two-way communication and negotiation between state at all levels and non-state actors, especially NGOs, around SUFs management are explicitly needed and mentioned directly in SUF legal texts.

The review demonstrates how the government has instituted the language of "benefit sharing" demonstrating progress towards building shared actions and commitments with resource users. However, in doing so the government has chosen for a narrow range of mechanisms such as PES and REDD+ rather than transformative approaches to planning and policy implementation at all levels of SUF management. As a result schemes like PES and REDD+ have enabled either even greater centralized control over SUFs and resource users. The state has maintained control over payments and/or failed to institute clear benefits because of weak investment in such schemes because of ongoing problems in tenure allocation [57–59]. The lack of shared action for SUF management is in this sense also limited by the slow transfer of wages to local people, as well as the weak policing of illegal exploitation of SUF natural resources [60], and conflicts over rights of SUF land use [61]. A clearer design and enforcement of policy and legislation around benefit sharing would come some way in fixing these issues. However, for benefit sharing to transform the application of co-management in SUFs, fundamental changes would be required to the allocation of tenure over SUF resources.

Although the review did not validate the findings with supplemental interviews the results still clearly indicate a fundamental tension across all five variables of adaptive co-management between decentralization and centralization of SUF management. In policy it is clear that decentralization and the delegation of authority is regarded as an important political task in a process of governmental administration innovation [62]. However, in practice the Vietnamese government appears to allocate management tasks without decision-making authority. Contrary to the liberal-democratic

perspective upon which co-management has been largely founded, centrally allocated management "obligations" reinforce, essentially relegate citizen engagement to instruments of the state rather than promoting self-managed communities with clear mandates for contributing to SUF sustainability. Under such conditions the emergence of an adaptive form of co-management in Vietnam, or indeed any other mono-organizational state, appears limited (cf. [39]). This does not mean, however, that co-management is a redundant mode of resource management. What it points to is an embedded understanding of how political conditions influence international ideal modes of co-management, and for scholars, NGOs and policy makers alike to seek arrangements that allow for adaptive forms of co-management (however how contradictory it may seem) in more centralized terms.

7. Conclusions

The review demonstrates there is Vietnamese support, albeit scattered and uncoordinated across a range of policies and laws, for the development of co-management. The five characteristics of adaptive co-management are also partially visible in policy and legislation. Overall, however, the results show that Vietnamese co-management is only weakly "adaptive". This is because of the continued predominance of centralized and hierarchical decision making processes in the SUF system that relegates subsidiary governmental bodies responsible for implementation rather than autonomous and reflexive decision-making. Similarly, resource users remain instruments of state management rather than partners in conservation. The implication is that it appears unlikely that the government will be able to overcome the limitations of centralized SUF management through partially implemented liberal democratic vision of adaptive co-management. This, however, does not mean that small steps cannot be put in place towards a pragmatic vision of co-management in the political context of mono-organizational states.

To develop a vision of co-management in mono-organizational states a clearer vision on communication and negotiation with local resource users is required which more clearly sets out the right of dialogue and the accountability of government organizations. A legal basis for the development of community conventions and agreements on forest protection would also be an important starting point for developing more consultative and interactive forms of co-management. Recognizing the central nature of the state, any amendments to co-management would remain in the hands of lawmakers, who maintain control over law enforcement and capacity building, mobilizing outside support, and creating mechanisms for information transparency. In the short term such a model of co-management in mono-organizational states may provide a useful starting point for both governmental agencies and NGOs attempting to install co-management. Over the long term, however, research and policy alike should reflect on whether co-management in mono-organizational states will remain a contradictio in terminus, or whether a new vision for centralized co-management is more desirable than the ongoing perpetuation of community conflict and resource decline.

Appendix A

Table A1. A summary of responsibilities and authorities of actors in SUF management.

Actors	Responsibilities and Authorities	Legal Document Mentioned
Central Level		
Ministry of Agriculture and Rural Development	• Organising SUF management, constructing strategies of, and planning on forest protection and development • Directing and instructing PPCs and SUF management boards to implement SUF laws, inventory, boundary definition, new mechanism pilots, allocation, checking and monitoring, financial supports, and information dissemination • Ratifying master plans and programs on SUF establishment and investment • Receiving documents of appeals and complaints during processes of SUF legal document implementation	Law on Fisheries 2003; Decree 109/2003/ND-CP; Decision 192/2003/QD-TTg; Law on Forest Protection and Development 2004; Decision 62/2005/QD-BNN; Decision 1174/2005/QD-TTg; Decision 106/2006/QD-BNN; Circular 70/2007/TT-BNN; Decision 104/2007/QD-BNN; Decision 2740/2007/QD-BNN-KL; Circular 22/2007/TTLT-BNN-BNV; Decision 2370/2008/QD-BNN-KL; Decree 99/2010/ND-CP; Decree 117/2010/ND-CP; Decision 262/2010/QD-TCLN-KL; Circular 78/2011/TT-BNNPTNT
Ministry of Natural Resource and Environment	• Implementing SUF lands, master plans, and plans on SUF protections and development • Checking policy and legal document implementation on wetland preservation and management across the country • Coordinating and hosting provincial governmental organisations to allocate forests, withdraw allocated forests, modify landuse directions and rights, check and monitor status quos of wetland management to make adjustment on time • Receiving documents of appeals and complaints during processes of SUF legal document implementation and solve the problems together with other governmental organisations	Decision 192/2003/QD-TTg; Circular 18/2004/TT-BTNMT; Decree 109/2003/ND-CP; Decision 1174/2005/QD-TTg; Decision 04/2004/QD-BTNMT

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
Ministry of Police	- Directing and instructing PPCs in forestfire precaution and fighting - Directing, instructing, and training forces of forest rangers and local forces of inter-sectors to against violations of SUF laws - Investigating or receiving local cases of SUF law violations and providing with measurements	Law on Forest Protection and Development 2004
Ministry of National Defense	- Managing and directing army forces and PPCs to implement their assigned SUF protection, management and development. - Directing and guiding local defense forces to SUFs patrols, forestfire fights, and protection - Supporting and collaborating with local forest ranger forces - Organising information dissemination and boosting local engagement in SUF protection	Law on Forest Protection and Development (2004); Direction 45/2007/CT-BNN; Circular 98/2010/TTLT-BQP-BNNPTNT; Decree 74/2010/ND-CP; Decision 07/2012/QD-TTg
Ministry of Culture and Information	- Directing and instructing PPCs to organise forest protection relating to cultural heritages and remains - Directing centers for culture to implement dissemination on SUF conservation, monitor and take responsibilities while carrying out tourist activities in areas of SUFs - Establishing tourist plans and implement the plans and tourist development in SUFs	Law on Forest Protection and Development 2004; Decision 04/2004/QD-BTNMT; Decision 104/2007/QD-BNN; Direction 24/1998/CT-TTg; Decision 08/2001/QD-TTg

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
Ministry of Planning and Investment	• Cooperating with Ministry of Finance to coordinate governmental budgets, donors, funds to invest in SUF management • Cooperating with MARD to construct mechanism and policy relating to SUF management • Cooperating with MARD and Ministry of Finance to check and monitor SUF investments • Instructing provincial governments to ensure budgets for SUF protection	Decision 08/2001/QD-TTg; Decision 192/2003/QD-TTg; Decision 1174/2005/QD-TTg; Decree 117/2010/ND-CP; Decision 07/2012/QD-TTg; Decision 24/2012/QD-TTg; Decision 1250/2013/QD-TTg; Decision 218/2014/QD-TTg; Decision 1976/2014/QD-TTg
Ministry of Finance	• Directing and instructing locals to cooperate with MARD and Minsitry of Defense to implement payments for costs of mobilising organisations and individuals engaged in forest protection • Cooperating with MARD to host and instruct local levels to implement fund management and expenditure • Cooperating with Ministry of Science and Technology to construct and distribute budgets for scientific and technology projects and programs • Cooperating with MONRE to manage governmentally environmental protection budgets	Decree 119/2006/ND-CP; Circular 25/2006/TT-BTC; Decree 05/2008/ND-CP; Circular 01/2008/TT-BTC; Cicular 58/2008/TTLT-BNN-KHDT-TC; Decision 2370/2008/QD-BNN-KL; Decision 24/2012/QD-TTg; Decision 07/2012/QD-TTg; Decision 218/2014/QD-TTg; Decision 1976/2014/QD-TTg
Ministry of Science and Technology	• Hosting development of scientific research and programs relating to natural resource conservation and management	Decision 192/2003/QD-TTg
Ministry of Education and Training	• Introducing nature conservation to education systems and outdoor education programs	Decision 192/2003/QD-TTg

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
Provincial Level		
PPCs	- Promulgating legal documents under their authorities in forest protection and orienting contents of village agreements/conventions - Planning and making decisions in provincial forest protection and development - Directing and instructing DARD and DPCs to define SUF boundaries and allocate forest and forestland - Checking SUF management, protection and utilization - Cooperating with all forces to prevent SUF law violations - Ensuring budgets for operation of forest rangers and coordinating budgets across provincial social economic development projects - Making decisions on which economic organisations can hire SUF lands for ecotourism business - Organising SUF information dissemination and law education - Monitoring lower governmental organisations under administration - Guiding and checking INGOs operations within boundaries of provincial administration	Direction 24/1998/CT-TTg; Law on Forest Protection and Development 2004; Circular 18/2004/TT-BTNMT; Decision 1174/2005/QD-TTg; Decision 2740/2007/QD-BNN-KL; Decree 99/2010/ND-CP; Decree 12/2012/ND-CP; Article 137 Land Law 2013
DARD	- Directing and instructing functioning organisations to cooperate with CPCs in terms of working out community forest management, agro-forestry enhancement, and community supports - Consulting PPCs with community forest management and development - Coordinating SUF projects, master plans, and modifications, and assessing SUF PES application and implementation	Decision 106/2006/QD-BNN; Circular 70/2007/TT-BN; Decree 99/2010/ND-CP; Decree 117/2010/ND-CP; Circular 78/2011/TT-BNNPTNT

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
DONRE	• Hosting investigation and doing research on wetlands • Receiving documents relating to SUF mater plans and SUF PES, assessing them and making relevant modifications	Decree 109/2003/ND-CP; Circular 78/2011/TT-BNNPTNT
Department of Forest Protection	• Consulting with authorities in charge of forest protection and law enforcement • Directing local forest protection and cooperation of CPCs, communities, district forest protection units • Information dissemination and forest protection law education • Enhancing capacity of forest protection forces • Applying advanced science and technology into forest ranger activities • Checking and inspecting forest protection law enforcement	Decree 119/2006/ND-CP; Decision 1717/2006/QD-BNN-KL; Circular 70/2007/TT-BNN; Circular 22/2007/TTLT-BNN-BNV; Direction 45/2007/CT-BNN; Circular 61/2007/TTLT-BNN-BTC
Department of Planning and Investment	• Adjusting and coordinating provincial government budgets • Consulting with PPC to support, assess, and finalise budgets for forest protection projects	Circular 58/2008/BNN-KHDT-BTC
Department of Finance	• Hosting and coordinating governmental organisations to assess budgets • Reporting forest protection fund management to MARD • Finalising provincial forest protection funds	Circular 58/2008/BNN-KHDT-TC

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
District Level		
DPCs	- Implementing provincial government directions - Instructing commune governments to planning forest allocation, implementing commune forest protection agreement/convention, applying technologies, training and educating forest protection laws, and collaborating with international organisations - Cooperating with forest rangers, other organisations and forces across district administration areas to enforce forest protection - Monitoring, checking and assessing ecotourism activities and community forest protection activities in SUFs across areas of district administration - Implementing PES - Reporting status quos of forest protection and community forest protection activities to Provincial Department of Forest Protection	Direction 30/1998/CT-TW; Decision 08/2001/QD-TTg; Law on Forest Protection and Development 2004; Decision 1174/2005/QD-TTg; Decision 106/2006/QD-BNN; Decree 119/2006/ND-CP; Decision 1717/2006/QD-BNN-KL; Circular 70/2007/TT-BNN; Circular 22/2007/TTLT-BNN-KL; Decree 117/2010/ND-CP; Decree 99/2010/ND-CP
CPCs	- Implementing higher authorities' directions - Directing and instructing local people to implement forest protection laws; construct and implement commune forest protection agreements/conventions - Managing commune forest areas - Implementing buffer zone and piloting projects - Cooperating with governmental levels to enhance local forest protection awareness and participation - Checking forest protection law implementation across areas of commune administration - Monitoring and inspecting uses of forest and forestland in areas of commune administration - Holding commune referendum on forest protection and development	Direction 24/1998/CT-TTg;Decision 08/2001/QD-TTg; Decision 192/2003/QD-TTg; Law on Forest Protection and Development 2004; Decision 1174/2005/QD-TTg; Decree 119/2006/ND-CP; Decision 1717/2006/QD-BNN-KL; Decision 104/2007/QD-BNN; Ordinance 34/2007/PL-UBTVQH11; Decree 99/2010/ND-CP; Decree 117/2010/ND-CP; Direction 3714/2011/CT-BNN-TCLN; Decision 57/2012/QD-TTg; Decision 126/2012/QD-TTg

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
SUF management boards	- Allocating SUF areas to other actors for protection - Organising activities of ecotourism, scientific research, and joint-venture - Constructing and seeking for approvals on measures of SUF protection and development - Collaborating with international organisations under their assigned authorities and rights - Investigating and monitoring SUF natural resources - Mobilising governmental and international budgets for SUF investment - Disseminating and educating laws on SUF management and protection - Being responsible for all activities happening in SUFs - Documenting, recording and reporting activities of SUF management to higher authorities	Decision 192/2003/QD-TTg; Circular 18/2004/TT-BTNMT; Law on Forest Protection and Development 2004; Decision 104/2007/QD-BNN; Circular 01/2008/TT-BTC; Circular 58/2008/TTLT-BNN-KHDT-TC; Decision 262/2010/QD-TCLN-KL; Circular 78/2011/TT-BNNPTNT; Decree 117/2010/ND-CP; Decision 24/2012/QD-TTg; Decision 126/2012/QD-TTg
Economic organisations	- Exploiting forest products in SUFs under laws - Participating in designing measures for forest protection and development - Using and following rules of PES - Participating and implementing mechanism of forest co-management with local people - Reflecting constraints of regulation implementation processes to MARD	Decision 08/2001/QD-TTg; Law on Forest Protection and Development 2004; Circular 58/2008/TTLT-BNN-KHDT-TC; Decree 99/2010/ND-CP; Circular 80/2011/TT-BNNPTNT; Decision 07/2012/QD-TTg; Decision 57/2012/QD-TTg

Table A1. *Cont.*

Actors	Responsibilities and Authorities	Legal Document Mentioned
Governmental mass organisations	- Vietnam Father Front and Youth Union: disseminating and monitoring local implementation of grassroot democracy; manoeuvring community participation in SUF protection - Women Union, Farmer Union, and Youth Union: raising awareness in SUF protection - Centers for environmental education and museums: constructing networks for raising awareness in SUF protection - Education and research organisations: doing research, reporting research results, paying fees for SUF services, and contributing ideas for solving SUF management deficiencies - Mass media organisations: disseminating SUF information and knowledge, and good models of local forest protection	Direction 30/1998/CT-TW; Direction 24/1998/CT-TTg; Decision 192/2003/QD-TTg; Decision 04/2004/QD-BTNMT; Law on Inspection 2010 (Article 12); Circular 78/2011/TT-BNNPTNT
International organisations	- Registering and asking for permission of operations - Being compatible with the orientation of Vietnam social economic development in their activities and operation - Sharing and exchanging information with other stakeholders - Reporting their activities to the government	Decree 12/2012/ND-CP; Decision 40/2013/QD-TTg
Local people	- Exploiting and ustilising forest products under laws - Benefiting from their labor and financial investment - Participating in constructing community forest protection agreement/convention - Reporting situations of forest resources to government - Returning rights over allocated forests when being asked by government - Operating agriculture, forestry, fishery, and business activities in allocated SUFs under laws - Participating in activities of forest protection and development - Contributing ideas for better SUF management	Decision 08/2001/QD-TTg; Decision 192/2003/QD-TTg; Law on Forest Protection and Development 2004; Circular 18/2004/TT-BTNMT; Decision 62/2005/QD-BNN; Decision 1174/2005/QD-TTg; Circular 78/2011/TT-BNNPTNT; Decision 57/2012/QD-TTg

References

1. Protected Areas for Resources Conservation (PARC) Project. Policy brief: Building Vietnam's National Protected Areas System: Policy and Institutional Innovations Required for Progress. In *Creating Protected Areas for Resource Conservation Using Landscape Ecology*; Project VIE/95/G31&031; Government of Vietnam (FPD); UNOPS; UNDP; IUCN: Hanoi, Vietnam, 2006.

2. Ministry of Natural Resource and Environment. *2010 Vietnam Environmental Report: Overview of Vietnam Environment*; Ministry of Natural Resource and Environment: Hanoi, Vietnam, 2011.

3. Vietnam Government. *The Prime Minister on Issuing Regulations on the Management of Special-Use Forests, Environmental Forests, and Natural Productive Forests*; Decision No. 08/2001/QD-TTg; Government of Vietnam: Hanoi, Vietnam, 2001.

4. PanNature. *Handbook: Skills for Enhancing Community Participation in Forest Management*; Hong Duc Publishing House: Hanoi, Vietnam, 2014; p. 54.

5. Meyfroidt, P.; Lambin, E.F. Forest transition in Vietnam and its environmental impacts. *Glob. Environ. Chang.* **2008**, *14*, 1319–1336. [CrossRef]

6. Nambiar, E.S.; Harwood, C.E.; Kien, N.D. Acacia plantations in Vietnam: Research and knowledge application to secure a sustainable future. *South. For. J. For. Sci.* **2015**, *77*, 1–10.

7. Cuong, T.N.; Dung, N.X.; Trang, T.H.; Minh, P.B.; Le, P.Q. *Some Contents of Vietnamese Biodiversity Management*; Department of Biodiversity Conservation: Hanoi, Vietnam, 2009.

8. Zingerli, C. Colliding Understandings of Biodiversity Conservation in Vietnam: Global Claims, National Interests, and Local Struggles. *Soc. Nat. Resour.* **2005**, *18*, 733–747. [CrossRef]

9. McElwee, P. Resource use among rural agricultural households near protected areas in Vietnam: The social cost of conservation and implications for enforcement. *Environ. Manag.* **2010**, *45*, 113–131. [CrossRef] [PubMed]

10. Sam, D.D.; Trung, L.Q. Forest Policy Trends in Vietnam. *Policy Trend Rep.* **2001**, 69–73. Available online: https://pub.iges.or.jp/pub/policy-trend-report-2001 (accessed on 7 December 2014).

11. Tan, N.Q.; Chinh, N.V.; Hanh, V.T. *Evaluating Policy Barriers Impacting on Sustainable Forest Management and Equity: A Case Study in Vietnam*; IUCN: Hanoi, Vietnam, 2008; pp. 6–35.

12. Plummer, R. The adaptive co-management process: An initial synthesis of representative models and influential variables. *Ecol. Soc.* **2009**, *14*, 24. [CrossRef]

13. Sen, S.; Nielsen, J.R. Fisheries co-management: A comparative analysis. *Mar. Policy* **1996**, *20*, 405–418. [CrossRef]

14. Thayer, C.A. Mono-organizational socialism and the state. In *Vietnam's Rural Transformation*; Westview Press: Boulder, CO, USA, 1995; pp. 39–64.

15. Lai, T.P. Fisheries co-management in Vietnam: Issues and approach. In Proceedings of 14th Biennial Conference of the International Institute of Fisheries Economics and Trade Conference (IIFET 2008): Achieving a Sustainable Future: Managing Aquaculture, Fishing, Trade and Development, Nha Trang, Vietnam, 22–25 July 2008.

16. Carter, J.; Gronow, J. *Recent Experience in Collaborative Forest Management—A Review Paper*; CIFOR Occasional Paper No. 43; Center for International Forestry Research: Bogor, Indonesia, 2005.

17. KimDung, N.; Bush, S.R.; Mol, A.P. NGOs as Bridging Organizations in Managing Nature Protection in Vietnam. *J. Environ. Dev.* **2016**, *25*, 191–218. [CrossRef]

18. KimDung, N.; Bush, S.; Mol, A.P. Administrative co-management: The case of special-use forest conservation in Vietnam. *Environ. Manag.* **2013**, *51*, 616–630. [CrossRef] [PubMed]

19. Pomeroy, R. Community-based and co-management institutions for sustainable coastal fisheries management in Southeast Asia. *Ocean Coast. Manag.* **1995**, *27*, 143–162. [CrossRef]

20. Jentoft, S. Fisheries Co-Management Research and the Case Study Method. Presented at the International Workshop on Fisheries Co-management, Penang, Malaysia, 23–28 August 1999; p. 15.

21. Carlsson, L.; Berkes, F. Co-management: Concepts and methodological implications. *J. Environ. Manag.* **2005**, *75*, 65–76. [CrossRef] [PubMed]

22. Olsson, P.; Folke, C.; Berkes, F. Adaptive Comanagement for Building Resilience in Social-Ecological Systems. *Environ. Manag.* **2004**, *34*, 75–90. [CrossRef] [PubMed]

23. McBeath, J.; Rosenberg, J. *Advances in Global Change Research: Comparative Environmental Politics*; Springer: Dordrecht, The Netherlands, 2006; Volume 25.

24. Butler, J.R.A.; Young, J.C.; McMyn, I.A.G.; Leyshon, B.; Graham, I.M.; Walker, I.; Baxter, J.M.; Dodd, J.; Warburton, C. Evaluating adaptive co-management as conservation conflict resolution: Learning from seals and salmon. *J. Environ. Manag.* **2015**, *160*, 212–225. [CrossRef] [PubMed]

25. Crowe, P.R.; Foley, K.; Collier, M.J. Operationalizing urban resilience through a framework for adaptive co-management and design: Five experiments in urban planning practice and policy. *Environ. Sci. Policy* **2016**, *62*, 112–119. [CrossRef]

26. Trimble, M.; Berkes, F. Towards adaptive co-management of small-scale fisheries in Uruguay and Brazil: Lessons from using Ostrom's design principles. *Mar. Stud.* **2015**, *14*, 14. [CrossRef]

27. Armitage, D.R.; Plummer, R.; Berkes, F.; Arthur, R.I.; Charles, A.T.; Davidson-Hunt, I.J.; Diduck, A.P.; Doubleday, N.C.; Johnson, D.S.; Marschke, M. Adaptive co-management for social-ecological complexity. *Front. Ecol. Environ.* **2008**, *7*, 95–102. [CrossRef]

28. Berkes, F. Evolution of co-management: Role of knowledge generation, bridging organizations and social learning. *J. Environ. Manag.* **2009**, *90*, 1692–1702. [CrossRef] [PubMed]

29. Olsson, P.; Folke, C.; Galaz, V.; Hahn, T.; Schultz, L. Enhancing the fit through adaptive co-management: Creating and maintaining bridging functions for matching scales in the Kristianstads Vattenrike Biosphere Reserve, Sweden. *Ecol. Soc.* **2007**, *12*, 28. [CrossRef]

30. Davidson, S.L.; Loe, R.C.D. The Changing Role of ENGOs in Water Governance: Institutional Entrepreneurs? *Environ. Manag.* **2016**, *57*, 62–78. [CrossRef] [PubMed]

31. Rigby, T.H. Introduction: Political legitimacy, Weber and communist mono-organisational systems. In *Political Legitimation in Communist States*; Palgrave Macmillan: London, UK, 1982; pp. 1–26.

32. Sikor, T.; Nguyen, T.Q. Why may forest devolution not benefit the rural poor? Forest entitlements in Vietnam's central highlands. *World Dev.* **2007**, *35*, 2010–2025. [CrossRef]

33. Plummer, R.; Baird, J.; Dzyundzyak, A.; Armitage, D.; Bodin, Ö.; Schultz, L. Is Adaptive Co-management Delivering? Examining Relationships Between Collaboration, Learning and Outcomes in UNESCO Biosphere Reserves. *Ecol. Econ.* **2017**, *140*, 79–88. [CrossRef]

34. Plummer, R.; Fitzgibbon, J. Co-management of Natural Resources: A Proposed Framework. *Environ. Manag.* **2004**, *33*, 876–885. [CrossRef]

35. Plummer, R.; Armitage, D.; de Loë, R. Adaptive comanagement and its relationship to environmental governance. *Ecol. Soc.* **2013**, *18*, 21. [CrossRef]

36. Fischer, A.; Wakjira, D.T.; Weldesemaet, Y.T.; Ashenafi, Z.T. On the interplay of actors in the co-management of natural resources—A dynamic perspective. *World Dev.* **2014**, *64*, 158–168. [CrossRef]

37. Dong, S.; Lassoie, J.; Shrestha, K.; Yan, Z.; Sharma, E.; Pariya, D. Institutional development for sustainable rangeland resource and ecosystem management in mountainous areas of northern Nepal. *J. Environ. Manag.* **2009**, *90*, 994–1003. [CrossRef] [PubMed]

38. USAID's Coral Triangle Support Partnership. *Guidelines for Establishing Co-Management of Natural Resources in Timor-Leste*; Conservation International for the Timor-Leste National Coordinating Committee: Jakarta, Indonesia, 2013.

39. Finkbeiner, E.M.; Basurto, X. Re-defining co-management to facilitate small-scale fisheries reform: An illustration from northwest Mexico. *Mar. Policy* **2015**, *51*, 433–441. [CrossRef]

40. Fisher, R.J. Decentralization and devolution in forest management: A conceptual overview. In *Decentralization and Devolution of Forest Management in Asia and the Pacific*; RECOFTC Report No. 18; FAO Regional Office for Asia and the Pacific: Bangkog, Thailand, 2000; pp. 3–10.

41. Dang, T.K.P.; Visseren-Hamakers, I.J.; Arts, B. The Institutional Capacity for Forest Devolution: The Case of Forest Land Allocation in Vietnam. *Dev. Policy Rev.* **2017**. [CrossRef]

42. Berkes, F. Devolution of environment and resources governance: Trends and future. *Environ. Conserv.* **2010**, *37*, 489–500. [CrossRef]

43. Pahl-Wostl, C.; Sendzimir, J.; Jeffrey, P.; Aerts, J.; Berkamp, G.; Cross, K. Managing change toward adaptive water management through social learning. *Ecol. Soc.* **2007**, *12*, 30. [CrossRef]

44. Pinkerton, E.W. Local Fisheries Co-management: A Review of International Experiences and Their Implications for Salmon Management in British Columbia. *Can. J. Fish. Aquat. Sci.* **1994**, *51*, 2363–2378. [CrossRef]

45. Macfadyen, G.; Cacaud, P.; Kuemlangan, B. Policy and legislative frameworks for co-management. In Proceedings of the APFIC Regional Workshop on Mainstreaming Fisheries Co-Management in Asia Pacific, Siem Reap, Cambodia, 9–12 August 2005; FAO/FishCode Review. No.17. Food and Agriculture Organization: Rome, Italy, 2005; p. 51.

46. Jentoft, S. The community: A missing link of fisheries management. *Mar. Policy* **2000**, *24*, 53–59. [CrossRef]

47. Arthur, R.I. *Developing, Implementing and Evaluating Policies to Support Fisheries Co-Management*; MRAG: London, UK, 2005; p. 12.

48. Pomeroy, R.; Berkes, F. Two to tango: The role of government in fisheries co-management. *Mar. Policy* **1997**, *21*, 465–480. [CrossRef]

49. Hoan, D.T. Thách thức triển khai các sáng kiến mới trong ngành lâm nghiệp. *Policy News PanNature* **2014**, *15*, 14–16.

50. Van, N.H. Nghiên cứu về chồng lấn quyền sử dụng đất rừng đặc dụng. *Policy News PanNature* **2014**, *15*, 32.

51. Thanh, D.H. Giám sát môi trường của các cơ quan dân cử: Có giám mà không sát. *Policy News PanNature* **2015**, *17*, 24–26.

52. Trædal, L.T.; Vedeld, P.O.; Pétursson, J.G. Analyzing the transformations of forest PES in Vietnam: Implications for REDD+. *For. Policy Econ.* **2016**, *62*, 109–117. [CrossRef]

53. Sunderlin, W.D.; Larson, A.M.; Duchelle, A.E.; Resosudarmo, I.A.P.; Huynh, T.B.; Awono, A.; Dokken, T. How are REDD+ proponents addressing tenure problems? Evidence from Brazil, Cameroon, Tanzania, Indonesia, and Vietnam. *World Dev.* **2014**, *55*, 37–52. [CrossRef]

54. Pinyopusarerk, K.; Tran, T.T.H.; Tran, V.D. Making community forest management work in northern Vietnam by pioneering participatory action. *Land Use Policy* **2014**, *38*, 257–263. [CrossRef]

55. Diem, D. Sắp xếp, đổi mới nông lâm trường: Đôi điều cần làm. *Policy News PanNature* **2014**, *15*, 11–13.

56. Phuc, T.X. Quản lý lâm nghiệp nhìn từ quy hoạch và thị trường. *Policy News PanNature* **2014**, *15*, 8–10.

57. Suhardiman, D.; Wichelns, D.; Lestrelin, G.; Hoanh, C.T. Payments for ecosystem services in Vietnam: Market-based incentives or state control of resources? *Ecosyst. Serv.* **2013**, *6*, 64–71. [CrossRef]

58. Kolinjivadi, V.; Sunderland, T. A review of two payment schemes for watershed services from China and Vietnam: The interface of government control and PES theory. *Ecol. Soc.* **2012**, *17*, 10. [CrossRef]

59. To, P.X.; Dressler, W.H.; Mahanty, S.; Pham, T.T.; Zingerli, C. The prospects for payment for ecosystem services (PES) in Vietnam: A look at three payment schemes. *Hum. Ecol.* **2012**, *40*, 237–249. [CrossRef] [PubMed]

60. Thuan, V.T.B. Evaluation of stakeholder participation in Special-use forest management in West North Vietnam. *For. Sci.* **2015**, *1*, 3717–3726.

61. Van, H.N.; Dung, N.V. *Overlapping Rights of Special-Use Forest Landuse: Challenges for Master Plans and Special-Use Forest Management in Vietnam*; Hong Duc Publication House: Hanoi, Vietnam, 2015; p. 16.

62. Phuong, N.M. The status quo of local decentralization and devolution in Vietnam. In Proceedings of The Organization of Local Governments in Vietnam: Issues of Concepts and Practices, Ninh Thuan, Vietnam, 6 April 2013.