

ORIGINAL ARTICLE

Changing roles of women in community forest management: A case study of a Cotu ethnic minority village in Central Vietnam

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ABSTRACT Women are essential to community forest management (CFM) in Vietnam because of their knowledge of forest resources. However, there is a lack of research explaining how recent socio-political conditions, including the CFM program, affect changes in gender roles. This study examined changes in women's participation and roles in the CFM program in a village in Central Vietnam that originated in the patriarchal society of the Cotu ethnic minority. Through an oral history approach combined with literature reviews, we analyzed how macro-, meso-, and micro-scale socioeconomic and policy factors influence gender roles in village societies, including CFM. The first finding shows that the introduction and recent implementation of tighter forestry regulations have unintentionally provided conditions that discourage men's economic activities in forested areas. Second, the transformation of the socioeconomic landscape in the upland region, including the development of the non-timber forest product market and out-migration, promotes women's income generation and forest protection. Third, village-specific agency factors are crucial to changing women's roles. In this village, a woman gained the trust of local authorities and villagers who nominated her to the executive committee of the CFM program. At the same time, the men's leadership failed to show effectiveness and fairness.

Key words: Gender relations, Community history, Forest governance, Upland livelihoods, Vietnam

INTRODUCTION

Community Forest Management (CFM) programs are an influential approach for tropical forest management in developing countries worldwide (FAO 1978; Arnold 2001; Wiersum 2009). CFM considers sustainability and local benefits, with shared authority granted to communities (Charnley and Poe 2007). Its participatory nature can foster social equity and democracy among community members (Edmunds and Wollenberg 2003). Interestingly, this bottom-up participatory style does not inhibit the application of CFM in authoritarian regimes preferring top-down governance.

Vietnam is regarded as a top-down regime that is rich in ethnic diversity, home to 54 ethnic groups residing in remote areas where forestland holds cultural and political value and customary institutions are key to governance (Sikor and Tan 2011). Therefore, managing these forested areas is closely associated with the socioeconomic development of ethnic minorities. For this purpose, the

Vietnamese government implemented a CFM program under the Forest Protection and Development Law in 2004 (Huy 2006). This is regarded as a form of collective forest management that involves local community participation (FAO 1993) and has long been in place among ethnic minorities (Sunderlin 2006) to empower local communities to manage, protect, and benefit from ancestral forests through land-use certificates (Thang et al. 2010). These communities clearly articulate their rights and benefits (Phu 2008), share responsibility for forest protection, and gain advantages in forest protection and management (Wobe and Huy 2009). However, given Vietnam's dominant patriarchal social/family system, the role of gender in CFM, an emergent topic in social equity, has not been sufficiently addressed. In general, sex disparities were evident in forest activities. Therefore, this issue is important for social equity and forest management.

A growing body of literature outside Vietnam explores women and forest issues, including their roles in community



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forestry, decision-making, and non-timber forest product (NTFP)-based forest protection (Agarwal 2000; 2009; 2010; Bingeman 2003; Bolanos and Schmink 2005). Studies have highlighted the effects of gender biases on global forest outcomes (Elias et al. 2017) and examined how gender roles shape community forestry conservation (Nightingale 2002; Leone 2019). In Vietnam, studies focusing on gender roles in forest resources have emerged, including those on gender equity in forest management (Thuy and Maria 2016), women's empowerment through forest conservation (Ty et al. 2023), and access to forest resources (Tuyen and Dien 2011; Minh 2015).

However, few studies have examined the changing roles of women in CFM programs, which are still limited. Particularly in Vietnam, the impact of long-term development on their role in governance, including CFM and policy implementation in mountainous areas, has not yet been answered. Therefore, this study examines the changing process of women's roles in CFM through a village case study in central Vietnam, which has experienced significant shifts in gender roles due to CFM and village administration. Given the focus on one village, the cases reported here are rare. However, we highlighted the shared conditions and differences among upland villages in Vietnam. We argue that macro- and meso-scale changes in an area unintentionally provide shared conditions that encourage women's active engagement. However, village-specific micro-scale factors limit women's role changes to other villages.

MATERIALS AND METHODS

Research framework and methodology

Our approach was based on the Gender Box framework developed by Colfer and Minarchek (2013). This framework highlights the factors influencing gender's role in forest management, including macro- (e.g., formal laws/policies and cultural/religious trends), meso- (e.g., access to natural resources, norms of behavior, access to education, and access to cash), and micro- (e.g., day-to-day economic roles, demographic issues, domestic roles, intra-household power dynamics, and available economic alternatives) scales. We assumed that changes in women's roles in the village, including CFM, were shaped by interactions among macro- and meso-scale structural conditions and micro-scale local contexts, practices, and agencies (Fig. 1).

The analysis proceeded in three steps. First, we review existing studies on traditional gender roles among the Cotu ethnic minority. In the second step, we explain the key social, political, economic, and institutional changes that occur both inside and outside the village to demonstrate the relevance and applicability of the adapted framework. In the third step, we examined the macro-, meso-, and micro-scale factors that contribute to changes in gender roles.

On the macro-scale, we describe national/global contexts, focusing on the transition of the social structure and the influence of national forestry policies and economic development programs on ethnic minorities in Vietnam's mountainous regions, based on a literature review. At the

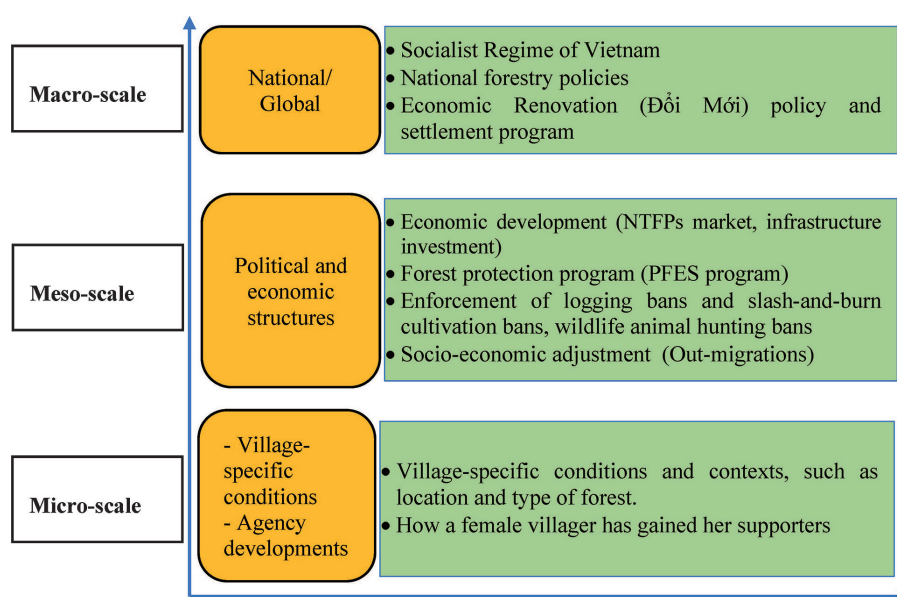


Fig. 1. Scales influencing women's participation in CFM programs (Adapted from Gender Box by Colfer and Minarchek (2013)).

meso-scale, we analyzed policy implementation and economic changes at the village level and in nearby areas, which shape the conditions under which gender roles change at the study site. We highlight the development of the NTFPs market, forest policy implementation, and the socioeconomic adjustment of men's out-migration at the meso-scale. At the micro-scale, we investigated villagers' agency development that adapts to and benefits from the above structures and local conditions. We examine how a female villager gained support to take the initiative on public issues, including CFM. Through this multi-scalar and chronological analysis, we argue that the interaction of macro-, meso-, and micro-scale factors has created an "occasional alliance" between village women and the authorities, driving changes in women's roles in the village.

Research site

Data were collected from Village T, Tay Giang District, Quang Nam Province, Central Vietnam (the name has been changed for anonymity). Village T is located northwest of the border in Quang Nam Province (Fig. 2) and is geographically isolated and nestled deep within a

natural forest with limited connections to other villages. The village is approximately 10 km from the central Tay Giang District and is difficult to access via forest roads. By 2024, it will comprise 60 households belonging to the Cotu ethnic minority. As in many other villages, the traditional society of Village T, inhabited by the Cotu, is patriarchal, with men playing a dominant role in formal and community activities. However, women's roles have changed since 2014, when villagers elected a woman as the village head, marking a significant step in changing women's roles in Village T. Furthermore, the village head was nominated as chairwoman of the CFM program in 2018. Therefore, we selected Village T as a case study because it provides a relevant site for examining changes in women's roles and participation in CFM programs.

The villagers' primary occupations are upland agriculture (rice, maize, rubber, etc.) and forestry (acacia, cinnamon, etc.). Regarding Community Forest Management (CFM), villagers currently manage 1,452.69 ha in total, which is divided into two plots with different backgrounds. The first plot (568.38 ha) was assigned when Quang Nam Province introduced its national CFM policy in 2006. However, communities at the time were not formally recognized as forest owners¹. When the province started Payment for

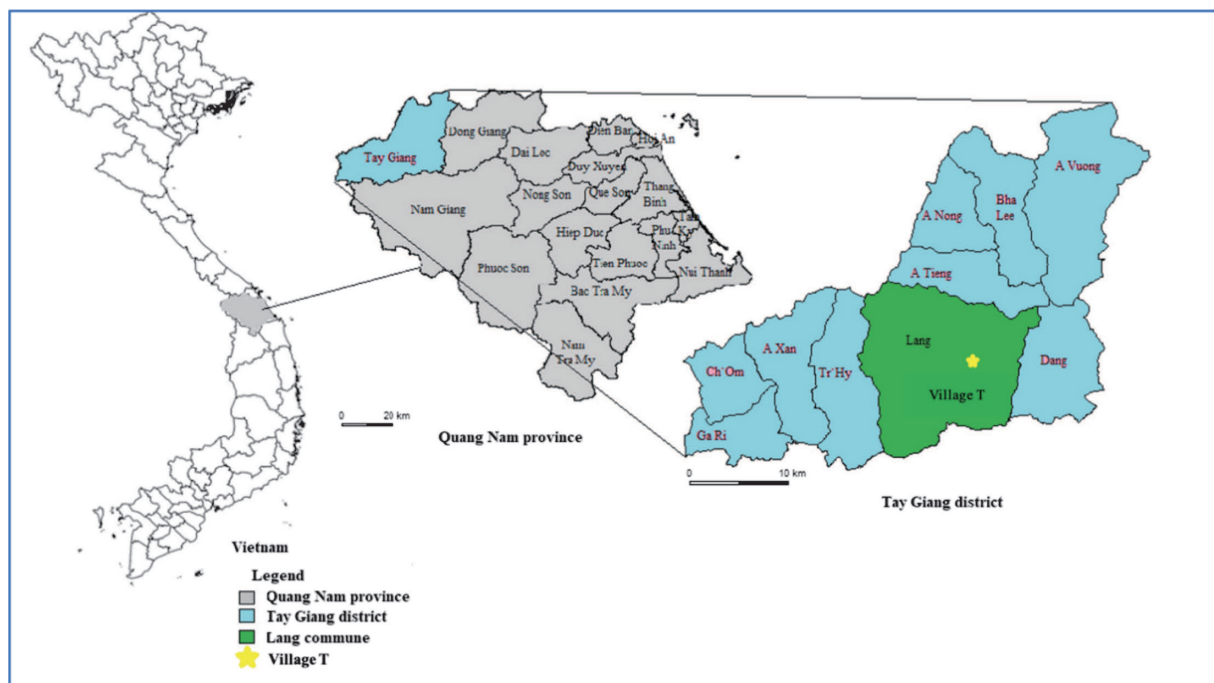


Fig. 2. Map of Village T, Tay Giang District, Quang Nam Province, Central Vietnam.

¹ Being a socialist country, forests in Vietnam belong to the state. The state allocates long-term usufruct rights to various forest users, granting them the right to possess, use, and manage forests through Red Books or Land Use Right Certificates. A forest owner defined here, is based on this de facto ownership: an organization, household, individual, or community that is allocated or leased forest land by the state under the 2017 Law on Forestry in Vietnam.

Forest Environmental Services (PFES) in 2012², the villagers made a contractual arrangement with Forest Management Board 1 (FMB 1)³, from which they received PFES payments indirectly in return for forest protection activities (i.e., patrolling).

The second plot (884.31 ha) was allocated through two projects, the KFW10⁴ and the Business Cooperation Contract (BCC)⁵, in 2015. Thanks to these projects, villagers will be formally recognized as legal forest owners by receiving a community forest land use certificate in 2022. Villagers were acknowledged as eligible recipients of PFES payments directly from the Quang Nam Forest Protection and Development Fund (Quang Nam FPDF)⁶. Since 2023, villagers have received PFES payments amounting to approximately 213.87 million VND (approximately 8,132 USD)⁷.

During the 2024 household survey, 20 households in Village T, comprising 41 working-age individuals, were interviewed. Most households were male-headed (90.00 %), while female-headed households accounted for 10.00 %, primarily due to the deaths of their husbands. The male and female respondents were equally represented (50.00 %). Among the working-age population, females constituted a slightly higher proportion (51.22 %) than males (48.78 %). Among working-age individuals, high school was the most common level of educational attainment for both men (70.00 %) and women (47.62 %). In contrast, higher education remained limited, with only 4.76 % of women having completed university education. Agricultural production was the main livelihood for most men (55.00 %) and women (85.72 %). In contrast, a much higher proportion of men (30.00 %) engaged in factory work outside the village than women (4.76 %). Poverty remained widespread, with 75.00 % of the households classified as

poor. Household incomes from agricultural production, NTFP gathering, and PFES payments for forest patrolling were uniformly low, with all 20 households (100.00 %) earning less than one million VND (approximately 38 USD) per month from each of these sources. Income from non-farm activities was limited. Only one household (5.00 %) earned between one million VND and five million VND (38 USD and 190 USD) per month from factory work, while six households (30.00 %) reported monthly earnings exceeding five million VND (> 190 USD). Overall, non-farm income sources included small businesses (5.00 %), factory workers (35.00 %), and government agencies (10.00 %), with higher income levels concentrated primarily among factory workers and government employees (Table 1).

Data collection and analysis

The research method selected was oral history analysis, which collects stories and reminiscences of those with first-hand knowledge of various experiences (Janesick 2010). Following Rubin and Babbie (2013), we relied on primary sources from knowledgeable individuals (e.g., village elders and relevant government officers in charge) inside and outside the village by collecting individual stories and memories. Secondary sources included primary and secondary documents, such as government reports, statistics, and related academic papers. Field data were collected during a sequence of pilot trips from May to June 2024, followed by an official household survey from August to September 2024.

The first trip focused on preparation, identifying

² PFES is the Vietnamese version of Payment for Environmental Services (PES), which has been in place since 2010, when the government issued Decree No. 99/2010/ND-CP (VNFF 2014). This program is a service-payment mechanism between forest environmental service users and providers, aimed at mobilizing funding for forest protection and enhancing the economic value of forest ecosystems (Ubukata and Hoang 2020).

³ Forest Management Boards (FMBs) are state-run agencies responsible for managing and protecting protective forest and special-use forests. They contracted with local communities and collaborated with them to monitor and evaluate community forest areas. In this paper, the names of the FMBs were changed for anonymity.

⁴ KFW10 project (Integrated Protection and Management of Forest Ecosystems), funded by the Government of the Federal Republic of Germany, was approved by the Prime Minister under Decision No. 1879/QĐ-TTg dated 16 October 2014. The project aims to maintain ecosystem integrity and forest biodiversity while improving the livelihoods of local ethnic minority communities in three provinces: Quang Nam, Kon Tum, and Gia Lai. Since 2014, the project has specifically supported forest land allocation to local communities in Quang Nam Province.

⁵ Biodiversity Conservation Corridors (BCC) Project in the Greater Mekong Subregion was funded by the Asian Development Bank (ADB) and implemented in Quang Nam, Quang Tri, and Thua Thien Hue provinces, with the overall objective of promoting the sustainable management of biodiversity corridors in Viet Nam. In Quang Nam Province, the BCC Project (2011–2020) focused on strengthening community capacity and establishing biodiversity corridors, thereby improving the livelihoods of local upland communities.

⁶ Quang Nam Forest Protection and Development Fund (Quang Nam FPDF) was established in 2012. It serves as the financial intermediary responsible for collecting PFES payments from service users and disbursing them to participating forest owners.

⁷ Currency conversion in this study is based on the exchange rate of 1 USD = 26,300 VND as of February 2026

Table 1. Demographic profiles of the interviewed households.

Characteristics	Frequency	Percentage	Characteristics	Frequency	Percentage
<i>Household (N = 20)</i>			<i>Monthly per income</i>		
Male's head	18	90.00	Agricultural production		
Female's head	2	10.00	< 1 million VND (< 38 USD ³)	20	100.00
<i>Household Classification (N = 20)</i>			1–5 million VND (38 USD-190 USD)	0	0.00
Poor	15	75.00	> 5 million VND (> 190 USD)	0	0.00
Non-poor	5	25.00	Small business		
<i>Respondents (N = 20)</i>			< 1 million VND (< 38 USD)	1	5.00
Male	10	50.00	1–5 million VND (38 USD-190 USD)	0	0.00
Female	10	50.00	> 5 million VND (> 190 USD)	0	0.00
<i>Working-age population</i>			Government agency		
Male	20	48.78	< 1 million VND (< 38 USD)	0	0.00
Female	21	51.22	1–5 million VND (38 USD-190 USD)	0	0.00
<i>Educational Attainment¹</i>			> 5 million VND (> 190 USD)	2	10.00
Not educated/illiterate			Factory worker		
Male	2	10.00	< 1 million VND (< 38 USD)	0	0.00
Female	0	0.00	1–5 million VND (38 USD-190 USD)	1	5.00
Primary school			> 5 million VND (> 190 USD)	6	30.00
Male	1	5.00	NTFPs gathering		
Female	1	4.76	< 1 million VND (< 38 USD)	20	100.00
Secondary school			1–5 million VND (38 USD-190 USD)	0	0.00
Male	3	15.00	> 5 million VND (> 190 USD)	0	0.00
Female	9	42.86	PFES payment for forest patrolling		
High school			< 1 million VND (< 38 USD)	20	100.00
Male	14	70.00	1–5 million VND (38 USD-190 USD)	0	0.00
Female	10	47.62	> 5 million VND (> 190 USD)	0	0.00
University					
Male	0	0.00			
Female	1	4.76			
<i>Occupation Type²</i>					
Farmer					
Male	11	55.00			
Female	18	85.72			
Small business					
Male	2	10.00			
Female	1	4.76			
Government agency					
Male	1	5.00			
Female	1	4.76			
Factory worker					
Male	6	30.00			
Female	1	4.76			

¹ Education levels between working-age men and women² Occupation type of working-age population³ 1 USD = 26,300 VND (as of February 2026)

Source: Household surveys, 2024

Table 2. Detailed steps of the applied methodology.

Time	Fieldwork	Detail contexts	Number interviewed
May–June 2024	Pilot trips and initial preparations	Looking for research gaps and selecting the case studies.	Quang Nam FPDF (1)
		Collecting the secondary data.	FMB 2 (2)
			Tay Giang Forest Ranger (1)
August–September 2024	In-depth interviews	Understanding the context of the local community.	Village elder (1)
		Collecting underlying information on traditions of the Cotu ethnic minority.	Village head (2)
		Unstructured interviews with key informants.	Lang Commune
			People's Committee (1)
			The executive committee of the CFM group (2)
			Tay Giang Forest Ranger (1)
			FMB 2 (3)
	Intra-village household survey	Collecting stories and memories related to the women's role changes in each household.	20 respondents
	Field observation in the local community	Living one month in the village, observing daily activities, labor division, and Cotu ethnic minority customs, supported by diaries, photo records, and follow-up interviews.	

research gaps, and selecting the study site. Secondary data were collected from the Quang Nam Forest Protection Development, Quang Nam FPDF, FMB 2, Tay Giang Forest Ranger, and Lang Commune People's Committee (CPC). During the second one-month trip to the village, qualitative and quantitative data were collected using ethnographic methods, including household surveys, individual stories, and memories related to the gendered division of labor in the household, production, and community work. The survey took approximately two hours to complete. In-depth interviews with 10 key informants lasted for approximately one hour. The 10 key informants were selected using a purposive, information-oriented sampling approach based on the specific information required for the study. The selection criteria included: (i) individuals directly involved in village administration or the CFM program; (ii) individuals with long-term knowledge of the history of Village T and the Cotu ethnic minority; and (iii) representatives of local authorities were purposively selected to provide secondary data on the CFM program, based on their administrative roles and responsibilities for managing such information. In-depth interviews with the village elder and head focused on exploring the traditions of the Cotu ethnic minority, the history of Village T, and its key characteristics. Representatives from the Lang CPC, FMB 2, the Tay Giang Forest Ranger, and the chairwoman of the CFM program provided information on the program. We used participatory and

observational methods that followed household and community activities, focusing on gendered labor division and community habits, which were recorded daily in a diary, to understand the internal and external factors affecting women's participation in the CFM program. All the photographs documenting specific community activities during the survey were saved on individual smartphones. Twenty households in Village T were selected using simple random sampling. Qualitative data on gender roles in household, production, and community activities were collected using questionnaires. Relevant chronologies were used to examine changes in women's roles in the CFM program within individual households (Table 2).

RESULTS

Drawing on oral history analysis and household survey data, this section first analyses the history of the social structure in Village T through a chronological description. Subsequently, the factors that have influenced changes in women's roles in CFM programs are identified and divided into structural and agency factors, which reflect systemic impacts on the social framework and demonstrate the capacity of social actors to change these structural influences.

The traditions of the Cotu ethnic minority and the transformation of the village society

Traditions of the Cotu ethnic minority

The Cotu (or Katu) ethnic minority, to which the T villagers belong, originated from the Cham ethnic minority, who have long lived in the Truong Son-Tay Nguyen Mountain region located in Quang Nam Province, Da Nang, and Hue City in Central Vietnam (Van et al. 2000; Thong 2004). In Quang Nam province, the Cotu ethnic minority lives in the old Hien and Giang Districts (Manh et al. 2001; Hong 2002). Each village consists of several dozen houses that surround a community house (guol). The administrative-cultural-social center of this ethnic group, living deep in primary forest areas, is typically situated near water sources. They use the Cotu ethnic minority language, which belongs to the Mon-Khmer group in their community (Bayrak 2010; Thang et al. 2010). Similar to other ethnic minority groups living in the Truong Son mountain range, the Cotu's customary laws and livelihoods depend on forest resources (Tuan 2006). They believe in the spirit of the forest and the spiritual essence of all things, leading to their culture having deep roots in forest resources (Bayrak et al. 2013).

In traditional society, Cotu people practice self-governance based on their customs, which are organized in a patriarchal society in which men play a dominant role in community and household activities. Men are the principal income earners, typically participating in high-value economic activities and holding decision-making power. In contrast, women work hard for their husbands' families to compensate for their brides' prices from their families (An 2002). Patrilineal land inheritance limits women's economic power and reduces their involvement in decision-making. Men have greater access to education and land assets than women. Being patrilocal, daughters move into their husbands' households after marriage. In traditional social institutions, the Cotu live in village units. Each village is headed by a village elder who has the highest power over ceremonies and village administration, is respected by villagers (Vinh 2009), and handles issues related to resolving conflicts or problems in the community (Bayrak et al. 2013). Men and women play important roles in various forest activities. Men were primarily responsible for hunting wild animals, logging timber, tending gardens, and creating rattan baskets. Women engage in reproductive work, shift upland rice, and harvest NTFPs (Costello 1991). The income-generating activities of timber-logging involve men, whereas women gather at NTFPs to provide household nutrition.

The transformation of the village society

Although Village T is rooted in the traditional culture of the Cotu, it has undergone cultural, economic, and social transformations under the influence of state policies and long-term economic development. Table 3 summarizes the chronological transformations of Village T's society shaped by external factors and the villagers' adaptations. Based on in-depth interviews, household surveys gathered villagers' memories and external sources, and classified them into four phases (and five sub-phases), as follows:

Phase I (Before 1975- 1990): In state-governed forest management, state policies gradually transformed village societies and villagers' forest use, which, in turn, affected gender roles in accessing forest resources. This process can be divided into three sub-phases distinguished mainly by changes in village society and forest policy.

Phase Ia (Before 1975): The village largely maintained its self-governance and patriarchal society, led by a village elder who played a dominant role in public and formal activities. The patriarchal structure excluded women from leadership roles and assigned them domestic and subsistence roles, including gathering NTFPs for household consumption, while men handled logging, hunting, and swidden farming activities. The state plays no role in village administration or forest resource use.

Phase Ib (1975-1985): After Vietnam's socialist regime was established, villages formed the Commune People's Committee (CPC) and held the position of village head. The state introduced formal village administration, gradually undermining the authority of traditional governance and the village elders. The government has opened access to natural forests and promoted timber logging. Consequently, men's roles are increasingly focused on commercial logging, whereas women are primarily responsible for gathering NTFPs for household use.

Phase Ic (1986-1990): Village governance operates formally through the CPC and the village head and informally through village elders. The state has introduced strict national-level policies on natural forest access, including bans on timber logging, slash-and-burn cultivation, and wildlife hunting. However, due to the area's remoteness, these bans have not yet been fully enforced in Village T. Men continue to engage in timber logging, hunting, and slash-and-burn cultivation. In contrast, women's roles have become increasingly important, as they gather NTFPs for household livelihoods.

Phase II (1990-2017): The Vietnamese economy and forest protection program began to surge, gradually affecting remote villages, including the emergence of

Table 3. From national/global to local transformations: the impact on social structure and gender roles in Village T.

Factor Types	Phase	Period	Macro-scale (National/ global)	Meso-scale (Policy/ regulation)	Micro-scale (Village T)	Impact on Social Structure and Gender Roles
State- governed forest management	Ia	Before 1975	Non-state spaces	Customary institutions governing forest access and social life	Self-governing, patriarchal society	Men play a dominant role in public/formal activities Women were limited to domestic and subsistence roles
	Ib	1975–1985	Socialist Republic of Vietnam Policy: Open forest for timber logging by the state	State control over forests Commercial logging permitted	Establishment of the Commune People's Committee (CPC) and village head under the socialist regime	Traditional leadership weakened Men engaged in commercial timber logging Women gather NTFPs for household consumption
	Ic	1986–1990	Policy: Closing the natural forest gate (Policy change at the national level)	Ban on timber logging Prohibition of slash-and-burn cultivation Prohibition of wildlife hunting, but the enforcement was weak	Dual systems operate: formal (CPC & Village head) and informal (Village elder) Due to the village's remoteness, the ban has not yet been enforced in the village	The banning policy did not affect villagers due to weak enforcement by the authorities Men continue timber logging, hunting, and slash-and-burn cultivation Women's role in gathering NTFPs became critical for livelihoods
Economic development & forest protection program	Ila	1990–2010	Economic Renovation (Đổi Mới) policy	Sedentarization and settlement program	New settlement locations Continued reliance on forest- based livelihoods More market exposure (NTFPs market development)	Men still could participate in timber logging, hunting, and slash-and-burn cultivation Women began trading NTFPs and increased household income
	Iib	2010–2015	Infrastructure investment, market expansion Forest protection program	Investment in roads, electricity, and schools Integration into regional markets The PFES program has strengthened the enforcement ability of the authorities	Forest protection policy implemented locally Participate in forest patrolling Receive PFES payments under a contract with the FMB 1 Bans on timber logging, slash-and-burn cultivation, and hunting applied at the village level First female village head elected	Men's access to timber and hunting was reduced due to monitoring by local authorities Women increasingly participated in household income-generating activities and leadership roles
Social- economic adjustment	III	2015–2017	Labor migration	Limited local employment opportunities	Rising male out-migration	Women take on more household and community responsibilities
Institutional reform	IV	2018–Present	Legal recognition of community forest rights	Implementation of the CFM program	The community is recognized as a forest owner	Women directly participated in CFM administration and practices Women participated in village administration

Source: In-depth interviews and household surveys, 2024

female agencies. This period reflects a gradual shift toward a market-oriented economy, with local villagers actively participating in forest protection programs and implications for women's roles. We classified the two sub-phases based on economic policy, situation, and infrastructure development in the village.

Phase IIa (1990–2010): The Economic Renovation (Đổi Mới)⁸ policy and the village's settlement program encouraged villagers, particularly women, to engage in small-scale trade in NTFPs. Women's contributions to household income have also increased.

Phase IIb (2010–2015): Infrastructure investment, market expansion, and forest protection programs create more opportunities for women in trade and leadership roles. Local forest protection policies have been implemented. Local villagers participated in forest patrolling and received PFES payments under a contract with the FMB 1⁹. The implementation of bans on timber logging, slash-and-burn cultivation, and hunting was monitored by FMB 1 staff. This period saw the election of the first woman to hold a village head position, signaling a shift in gender norms.

Phase III (2015–2017): During the socioeconomic adjustment phase, increased male out-migration for non-farm work outside the village led women to take greater responsibility for household and community activities.

Phase IV (2018–present): In this phase, the authorities recognized women's initiatives in the village through the introduction of the CFM program in 2018. In the future, women in villages are likely to continue playing key roles in village administration, forest management, and livelihood activities.

These transformations illustrate the drivers of change mentioned in the study framework. At the macro-scale, the establishment of state governance, forestry policy changes (especially the introduction of the PFES), and economic development. At the meso-scale, the village's remoteness and law enforcement capacity delayed the policy implementation. However, these structural factors do not necessarily alter gender roles. The micro-scale or agency factors proved crucial for changing women's roles in Village T. Women, traditionally confined to limited roles, gradually became active agents of livelihood, trade, and community activities, particularly through the CFM program. The next section combines a description of the macro-scale situation based on the literature with a description of the meso- and micro-scale situations based on a field survey. The report provides detailed accounts of how structural

(state governance systems, economic development, and forest policies) and agency (villagers' capabilities and village-specific social contexts) factors influenced changes in women's roles in Village T's CFM program.

Factors influencing women's role in the Community Forest Management program

Macro-scale: National policy and institutions

As seen in Table 3, the Cotu societies that have maintained self-governance have experienced major changes under Vietnam's socialist regime, developing unique cultural, social, and institutional characteristics since Vietnam's reunification in 1975 (Bayrak et al. 2013). One of the most significant changes was the introduction of formal administration to strengthen government control. The Socialist Republic of Vietnam established the CPC and village heads, which served as formal representations of state authority at the village level. Since then, two systems, formal (by the CPC and village heads) and informal (by village elders), have coexisted in ethnic minority villages, and the roles of village elders have gradually been replaced by those of village heads (Tuan 2006; Bayrak 2010). Currently, the formal system takes on all administrative duties, including decision-making and conflict resolution, and village elders command respect for their roles during festivals and community events (Tuan 2006).

Alongside these transformations in village governance, state authority was consolidated through land and forest tenure. Under the Vietnamese socialist regime, land and forests belonged to the state (Pham 2000). Forest policies have been among the most influential state interventions affecting village life, as successive policy shifts have enabled the state to pursue either forest exploitation or conservation (Tran 2010). These policies provide a foundation for extending state control over both natural resources and local populations (McElwee 2016). This centralized control over forest resources directly shaped the patterns of forest exploitation in the post-war period.

After the end of the Vietnam War in 1975, the government promoted timber exploitation. State forest enterprises harvested and processed timber according to quotas set by forestry agencies, primarily for the timber market, from the 1960s to the 1980s. Forest cover declined sharply, decreasing from 14.30 million ha in 1943 to 11.10 million ha in 1976 (FSIV 1996). During 1976–1995, the forest coverage further

⁸ The Economic Renovation (Đổi Mới) policy, initiated in 1986, aimed to create a socialist-oriented market economy in Vietnam.

⁹ The village initially signed a contract with FMB 1 in 2014. In 2019, FMB 1 merged with FMB 3 to form FMB 2, which has held the contract with the village since then.

decreased by up to 8.15 million ha, with a deforestation rate of 1.27 % due to illegal timber extraction mainly by the state forest enterprises for domestic consumption and export (McElwee 2004).

Since 1990, Vietnamese policies have enacted bans on timber logging, slash-and-burn farming, and wildlife hunting (Jason et al. 2002). The Vietnamese Ministry of Forestry revoked existing roundwood and timber-logging permits and stopped issuing new export permits in 1992. The central government has ordered thousands of checkpoints along Vietnam's main roadways since 1993. A pivotal aspect of the new approach to rural communities was the 1993 Land Law, which significantly expanded the rights granted to local communities, calling them landlords (Sikor 2004). In 1995, forestry regulations transitioned from allocating natural forests to communities to directing State Forest Enterprises to engage in short-term protection contracts with households (Sikor 2001).

These sector-specific forestry reforms were embedded within broader economic and social transformations initiated under the "Economic Renovation" (Đổi Mới) program, launched in the late 1980s to address declining living standards and shifting local economic practices (Fforde and de Vylder 1996). Vietnam's policy toward ethnic minority groups emphasizes "equal development" and is implemented through a range of programs and projects that promote socioeconomic development in these areas. The Vietnamese government implemented resettlement programs that relocated ethnic minority groups to more accessible areas for administrative management and infrastructure investment in roads, markets, schools, and healthcare services (Huan 2013). Since 1998–2000, these include the Program 661, also known as the "Five Million Hectare Reforestation Program," which is implemented under Decree 327 on infrastructure development, forestry, and land settlement (Cuc 1992). Since 1998, other initiatives specifically targeting ethnic minority communities have included the settlement program (Program 133), Program 135, and the New Economic Zone program. The latter aims to adjust the population density, promote rural economic development, and "stabilize" society (Dang 1999). Following predominantly top-down development and forestry policies, forestry programs have gradually incorporated limited forms of community participation, primarily through forest protection contracts and community-based forest protection activities.

In the 2000s, the Vietnamese state promulgated various policies to involve local communities in sustainable forest

management. Notably, the framework of the CFM program was introduced in Vietnam in 2004 (Huy 2006), and the PFES policy has been implemented nationwide since 2010 (To et al. 2012). The PFES offers forest "owners" who are granted rights payments from "buyers" who use forest environmental services, through direct contracts between "buyers" and "sellers," or indirect contracting between forest "owners" and intermediaries (Ubukata and Hoang 2020). These reforms shifted forest policies toward legally recognizing local communities as "owners." In addition, the Vietnamese government stopped timber exploitation from natural forests nationwide in 2014 under Decision No.2242/QĐ-TTg of the Vietnamese Prime Minister.

These transitions in state-governed forest policies and stages of economic development have framed villages' livelihoods. In the following section, we examine how these national policies were implemented in the village and how they affected villagers' livelihoods.

Meso-scale: Economic integration and implementation of national policies in Village T

Transition of the village society from self-governing to state-governed

As shown in Table 3, Village T's society transformed under a socialist regime after 1975. Mr. A¹⁰, a village elder, explained that before 1975, his role involved presiding over traditional rituals within the Cotu ethnic group, such as ceremonies and village administration. He played a vital role in decision-making, conflict resolution, and guiding community production activities. Since 1975, villagers have reduced seeking guidance, even in times of difficulty, as the village administration was led by the village head, who assumed primary responsibility for managing internal affairs and resolving disputes. The village elders' roles focus on traditional Cotu ethnic minority ceremonies. However, all organizational responsibilities were handled by the village head¹¹. This village's incorporation into the formal state system can be considered a basis for state governance in ethnic minority areas, providing a precondition for Village T to increase its sensitivity to government policies, such as the socioeconomic development policy.

¹⁰ In the paper, we changed the informants' names for anonymity.

¹¹ In-depth interview with a village elder, conducted on 19 August 2024.

Impact of economic development on women's roles in the village society

The shift in village society accompanied a new economic situation that, to some extent, offered alternatives that supported household livelihoods. In the village, market development of NTFPs¹² was one of them. In Vietnam, NTFPs have become a central source of income for the locals living in nearby forests (Quang and Anh 2006). The natural forest area in the Tay Giang District is a diverse source of NTFPs, particularly medicinal plants (Quang Nam Statistical Office 2021). Villagers generate income from the NTFPs in natural forests. Mr. B, an ex-village head, explained that gathering NTFPs remains a regular source of income, and villagers harvest these products throughout the year. Women are the main NTFPs gatherers and collect bamboo shoots, mushrooms, fuelwood, rattan, and medicinal plants, whereas men harvest honey. As the NTFP-based economy gradually grew, women's contributions to village livelihoods became more apparent. He noted that the government-led settlement program had triggered this change. All villagers moved from remote forest areas to a site near the Lang Stream between 1995 and 1996. In 2008, an additional site was allocated to accommodate population growth, marking the first stage of livelihood transformation in Village T. Before 2000, villagers collected NTFPs solely for household consumption, in the absence of local traders.

Mr. B explained that since 2000, villagers have harvested and sold rattan from natural forests on a small scale to improve their livelihood. This was due to the limited market demand, with only one or two traders operating in the commune at that time. Between 2010 and 2015, the situation changed due to rural infrastructure. New roads and street lighting systems were built in 2014, followed by the establishment of the Lang Commune Market in 2015. These developments have increased the harvesting and sale of NTFPs by the villagers. By 2015, the number of local traders in the Lang commune had grown to nine or ten, and the range of marketable NTFPs had expanded to include honey, bamboo shoots, and medicinal plants such as *Morinda officinalis* How. Since 2020, villagers have had

easier access to NTFP markets in Village T because of the appearance of a small-scale trader within their community who serves as an intermediary. The trader bought NTFPs from villagers and resold them in larger markets such as Tam Ky Town and Da Nang City. Households began marketing and selling these products directly to consumers through Facebook¹³.

Mr. C explained that local traders purchase NTFPs from all villagers, with prices varying by NTFP type¹⁴. During the harvest of bamboo shoots (August–September), villagers focus on gathering these products, earning an income of VND 1–2 million per household. Most local households rely heavily on forest resources, with the income from gathering NTFPs predominantly allocated to purchasing rice and other essential foods. He mentioned that the sale of NTFPs became more accessible to villagers because of the presence of traders in their communities¹⁵. Consequently, the development of the NTFPs market affected income groups in Village T differently. While high-income households often engage in the NTFPs market as small-scale traders, making it a primary source of income, lower-income households rely more on NTFPs for subsistence and supplementary income, which is a secondary source of livelihood, because collection depends on seasonal factors.

As shown above, the main beneficiaries of the NTFPs market development were women. Given this gender division in forest use, the shift toward an NTFP economy has enhanced women's income-generating opportunities, allowing them to simultaneously contribute to their household livelihoods.

Impact of forestry policies on women's roles in the village society

As seen in Table 3, the society of Village T has transformed closely in line with state forestry policies, but there was a time lag in policy implementation, mainly due to the remoteness and the state's monitoring capacity. In an in-depth interview, Mr. A, a long-term resident of Village T, explained that before the 1990s, villagers freely entered the forest for timber logging, wildlife hunting, and slash-and-burn cultivation. At the time, natural forest resources were used through customary practices without formal state control. After 1990, the state introduced timber-logging

¹² FAO (1999) defines NTFPs as forest goods of biological origin other than timber derived from forests, other forest lands, and trees outside forests. NTFPs are diverse and comprise various products that can provide food, wild food, medicines, construction materials (Quang and Anh 2006), and cash income (Beer 1993).

¹³ In-depth interview with a former village head (2010–2014), conducted on 16 September 2024.

¹⁴ There is a difference in prices, varying depending on the specific type of NTFPs gathering, specifically *Ganoderma lucidum* (Leyss. Ex Fr.) Karst is sold at around 1.50 million VND/kg, honey at 0.50–0.60 million VND/l, and dried bamboo shoots at 0.10–0.12 million VND/kg. It serves as a household business, generating a monthly income of approximately 4–5 million VND/month. Local villagers commonly sell these products directly, providing a stable supplementary income from forest resources throughout the year.

¹⁵ HH20, 48-year-old man, conducted on 15 September 2024

restrictions. However, the village's remoteness led to weak local enforcement, leaving their livelihoods largely dependent on natural forest logging and NTFP collection. According to Mr. A, villagers first became involved in forest protection in 2008 under Program 327¹⁶, which assigned them the responsibility for patrolling approximately 130 ha of forest. However, he described these patrols as both informal and symbolic. From 2014, villagers signed protection contracts with FMB 1, patrolled 568.38 ha, and received PFES payments under this contract. Despite this, illegal logging persisted, and Mr. A noted that some villagers secretly continued timber logging. In one case in 2014, the village head was involved in illegal timber harvesting but received only a verbal warning from FMB 1. Mr. A explained that villagers' attitudes began to change after the village obtained legal rights to manage approximately 884.31 ha of community forest in 2018. Since 2019, the establishment of FMB 2 and the Tay Giang Forest Ranger has further strengthened formal monitoring and evaluation activities in the community forest area of Tay Giang District. Mr. A observed that law enforcement has become stricter, with heavy penalties imposed for violations, including fines of 30 million VND for slash-and-burn cultivation and 130 million VND for illegal logging in the Tay Giang District in 2021. Under this strengthened monitoring system, villagers patrol their community forest four times per month under direct forest monitoring and evaluation by FMB 2 and Tay Giang Forest Rangers while continuing to receive PFES payments. Mr. A noted that stricter enforcement led men who were previously more involved in forest exploitation to comply more closely with forest protection regulations¹⁷.

Interestingly, this change transformed the village's occupational structure, leading to shifts in gender roles in forest use and livelihoods. During the in-depth interview, Mr. A remarked that in the traditional Cotu ethnic minority society, villagers engaged in activities such as timber logging, wildlife hunting, slash-and-burn farming, and NTFPs gathering, which were the primary sources of subsistence in their community. The men logged timber for house construction or sold it to other communities, hunted wildlife for nutrition and community activities, and harvested crops using slash-and-burn agriculture. Women gather NTFPs,

including medicinal plants and food resources, to sustain household nutrition. However, since 2014, after forest monitoring was implemented by the FMB 1, men have been prohibited from timber logging and wildlife hunting, whereas women have continued to collect NTFPs. Currently, villagers earn income from NTFP gatherings and receive payments for forest patrolling, amounting to approximately 1.4 million VND per year¹⁸.

For instance, Mr. D explained that in the past, he often went into the forest to hunt wild animals and harvest timber to build houses or support village activities. However, since 2014, under the forest monitoring and evaluation activities of the FMB 1 staff, these activities have been banned by the government, and he has rarely entered the forest. He relied primarily on farming upland rice, maize, and cassava. These practices are labor-intensive and fully dependent on natural conditions, producing harvests that are insufficient to feed families. After his health declines in 2022, he begins distilling alcohol. The government allows for the collection of NTFPs, which have become a family's main source of income. His wife was primarily responsible for this work, collecting different products depending on the season. For example, in July and August, she gathers orangutan seeds (*Sterculia lychnophora Hance*), earning approximately 1.5–2.0 million VND in 2024¹⁹.

These statements indicate that law enforcement and monitoring of the bans on logging, hunting, and slash-and-burn cultivation were drastically strengthened through the PFES program, as suggested by other studies (Ubukata and Hoang 2020, 2026). Because of this, men's roles in economic activities and their traditional access to forest resources have diminished in the village. In contrast, because NTFP harvesting is allowed, women continue to participate actively in forest resource utilization and forest protection initiatives.

Social-economic adjustment of out-migration impact on society

The "new economic framework" stated above not only includes NTFPs market development but also other economic opportunities. As new infrastructure, such as roads, electricity, and mobile phones, has integrated remote villages with lowland and urban economies, it has become common in the area to see outflows of labor seeking urban

¹⁶ Program 327 was launched by the Vietnamese Government in 1992. The program was a major national policy initiative focused on reforestation of barren lands and degraded hills, restoring forests, and improving the livelihoods of ethnic minority communities in socio-economically disadvantaged areas. This program had a significant impact on both environmental rehabilitation and local socio-economic conditions between 1993 and 1998.

¹⁷ In-depth interview with a village elder, conducted on 19 August 2024.

¹⁸ In-depth interview with a village elder, conducted on 19 August 2024.

¹⁹ HH19, 74-year-old man, conducted on 7 September 2024.

employment. During in-depth interviews, Ms. E, the current village head, mentioned that since the 2008 resettlement program, the younger generation has increasingly been leaving the village in search of employment opportunities. Migration began between 2010 and 2014; however, it remained limited in scale and was largely spontaneous. Since 2015, the number of young people migrating out of the village has increased, partly driven by state investments in rural infrastructure from 2010 to 2015. In particular, improved access to the Internet and the widespread use of personal transportation such as motorbikes have facilitated mobility and enhanced connectivity for villagers. In 2024, 20 working-age residents of Village T (15 men and five women) will move away and secure jobs as factory workers, earning approximately 4–5 million VND/month in Da Nang City, Dien Ban Town. With this income, many households are able to purchase items such as motorbikes, televisions, and mobile phones. By 2024, two households with members employed by companies could buy two new motorbikes²⁰.

The growing out-migration trend highlights gender-based differences as men and women respond differently to livelihood challenges because of their traditional roles. Ms. E reported that since 2014, the enforcement of forest regulations has become tighter, reducing men's involvement in timber logging and wildlife hunting. However, agricultural production relies on traditional nature-dependent practices, which result in low economic efficiency. Men increasingly seek employment opportunities outside villages that offer a high income. In contrast, Cotu women remain engaged in household work, which limits their ability to migrate for employment. Since men began working away from home, women have assumed the role of household heads, taking on additional responsibilities previously managed by men, such as participating in community activities and joining forest patrol tasks when assigned²¹.

For instance, Ms. F explained that her husband had been working in a seafood processing factory in Da Nang City since 2020, while she stayed at home to take care of their three children in the village. He could only return home once or twice a month. Therefore, most household responsibilities, ranging from childcare to attending village meetings and participating in forest protection activities, fell on her shoulders²². The first author's observations also support this view: most men in the village work far from home and are rarely present. Consequently, daily life in Village T is primarily sustained by women, the elderly, and

their children.

These changes demonstrate the social impact of the "new economic framework": women have increased their participation in income-generating activities through NTFPs market development, whereas the PFES program has reduced men's traditional role through stricter forest regulations. The socioeconomic adjustment caused by male migration has increased women's participation in village administration and forest protection programs. These changes in upland societies appear to have unintentionally provided conditions that encouraged women's active engagement in community activities and forest protection programs, including the CFM program.

Micro-scale: Changing women's role in the Community Forest Management program in the village

As previously shown, the social structure of Village T has been shaped by political subordination under a state-governed system, particularly through changes in forestry policies, especially the introduction of the PFES, and economic structures that have provided conditions to encourage women to take the initiative in their household economies. However, this structure alone cannot explain how they gained political power, including the CFM, and why this happened in Village T. This section examines village women's agency shaped by these structural changes and how they influence women's roles in the CFM program.

In Village T, women participated directly in forest protection through the framework of the CFM program. Our study identified the story of a woman who served as village head and was nominated by the Executive Committee of the CFM program. Mr. A shared information about why a woman became the head of Village T. After 1975, men were nominated to committees responsible for village heads in the state-governed system because of the traditional patriarchal society of the Cotu ethnic minority in Village T. However, male leadership proved ineffective as the village head was frequently absent from community meetings, struggled with transparency, and failed to serve as a reliable intermediary between the state and villagers. Additionally, the village heads faced issues such as alcohol consumption, which further limited their ability to lead. The villagers became increasingly deprived of their rights and responsibilities and had few opportunities to participate in the decision-making processes of community activities. The villagers regularly

²⁰ In-depth interview with a village head, conducted on 17 August 2024.

²¹ In-depth interview with a village head, conducted on 18 August 2024.

²² HH13, 24-year-old woman, conducted on 1 September 2024.

receive livelihood support from the state, including seedlings and breeding stocks for agricultural production. However, the unfair distribution of these benefits to relatives of the male village head further reduced villagers' trust in male-led administrations²³.

Mr. A stated that decisions on communal assets and activities must be made with collective consent and transparency, in the tradition of Cotu ethnic minorities. The lack of such qualities contributed to the reduced villagers' trust in male leadership in Village T's administration. He mentioned that women's roles in household livelihoods and community activities were recognized, particularly through their access to and participation in the NTFPs market between 2000 and 2014. Since 2014, villagers have voted for a woman to become the village head, who is the highest authority in Village T²⁴.

During an in-depth interview, Ms. E, the current village head, reported that she had the opportunity to participate in village administration because she was born and married in Village T, which helped her understand the social and cultural characteristics of the community. She had strong leadership experience during a five-year tenure as a Communist Party Secretary from 2010 to 2014, and a deep understanding of local customs established her credibility and leadership capacity at the village level. She earned the villagers' trust by facilitating effective communication with higher-level authorities, promoting transparency in government programs, and ensuring equitable distribution of communal resources among the villagers. Her inclusive leadership style encouraged the villagers' participation, promoted fairness and unity within the community, and earned their trust. Consequently, after completing her duties as a leader within the Communist Party, she was trusted and elected by the villagers to become the head of Village T in 2014. She had completed lower secondary education, a relatively high level of education for women of her generation, which enabled her to access and understand state policies and official documents related to village administration and the CFM program²⁵. Ms. K explained

that her illiterate husband was unable to attend community meetings or training sessions. She emphasized that since 2014, female leaders' approachable and empathetic demeanors have encouraged her to share challenges more openly²⁶. During the first author's observation, the current village head demonstrated both enthusiasm and strong credibility among the villagers in her dual role as village head and chairwoman of the CFM committee²⁷.

During the in-depth interviews, FMB 2 staff shared that there was a shift toward women's initiatives in the CFM. Before 2018, the chairperson of the CFM management committee in Village T was ineffective, as confirmed by the staff of the FMB 2. He was directly involved in illegal logging, which encouraged other villagers to follow suit and exposed serious flaws in the forest governance²⁸. These issues severely undermine the transparency and effectiveness of forest management, leading to a significant loss of trust from local authorities in male leadership and raising concerns about men's roles in decision-making for forest protection.

Mr. F explained that a former village head participated in illegal logging in 2014, leading local authorities to raise concerns about illegal logging and ineffective leadership, and that the management of the CFM program in Village T has undergone reforms under female leadership since 2018. The CFM executive committee nominated the village head as a chairwoman based on the trust of the local authorities. The CFM program recognized villagers as forest owners, where both men and women participated in protecting and benefiting from the community forest boundaries²⁹.

Ms. G, a treasurer of the CFM program, explained that the benefit-sharing mechanism are currently transparent, 10.00 % of the funds are allocated to forest monitoring by FMB 2, 5.00 % of funds to CFM committee members, pays patrolling participants a daily wage of approximately 200,000 VND/day, and the rest is evenly distributed among households, providing each individual with an average annual income of 1.5–2.0 million VND, and NTFPs gathered within their community forest boundaries.

²³ In-depth interview with a village elder, conducted on 19 August 2024

²⁴ In-depth interview with a village elder, conducted on 19 August 2024.

²⁵ In-depth interview with a village head, conducted on 18 August 2024.

²⁶ HH3, 27-year-old woman, conducted on 10 September 2024.

²⁷ In the village meetings, she was responsible for informing, organizing, and coordinating activities, including disseminating state policies on forest protection, implementing forest patrol plans, and transparently reporting revenues from the CFM program. She fairly managed these activities, assigning households to take turns in forest patrols, while carefully recording villagers' opinions. During the meetings, she attentively listened, documented concerns and difficulties raised by village members, and encouraged broad consensus. In working with the research team, she showed clear knowledge of forest area, emerging issues, and relevant policies, and prepared well-organized and comprehensive reports. Her knowledge and skills were considerably stronger than those of many villagers who participated in the interviews.

²⁸ In-depth interview with FMB 2 staff, conducted on 18 August 2024.

²⁹ HH8, 32-year-old man, conducted on 28 August 2024.

Villagers actively protect their forests through regular patrols of 10–12 people one to two times a month. Moreover, she remarked that, unlike in many other areas, villagers living within defined forest boundaries facilitated women's greater involvement in forest protection and benefit-sharing activities³⁰.

This provides evidence that village governance has become more transparent under women's leadership, strengthening forest protection efforts and promoting social cohesion. Mr. H explained that since 2018, the chairwoman's attentiveness and adaptability in forest patrolling under the CFM program have been recognized for effectively organizing fair patrol rotations and reducing conflicts³¹. These perspectives reflect the strong community recognition of women's contributions to both village governance and implementation of the CFM program.

Through this process, a woman gained the villagers' trust, was appointed as the village head, and finally took over leading roles in the CFM by receiving support from forest protection agencies such as the FMB 2 staff, who directly participated in forest monitoring and evaluation alongside the villagers.

DISCUSSION

The findings presented in the previous section highlight the dynamic interplay between macro-, meso-, and micro-scale factors that change women's roles in CFM programs. At the macro-scale, state forest policies and economic development have created the necessary conditions to influence both local institutional arrangements (meso-scale) and individual agencies (micro-scale). This chronological analysis reveals key structural shifts that have fostered a more enabling environment for women's participation in the CFM program and village governance in general. The following two points should be considered:

Structural factors influence women's roles in the village

In Village T, society once had distinct characteristics of the Cotu ethnic minority, with clear gender differences in their livelihoods, including land and forest resource utilization. However, the subsequent introduction of state governance through the CPC framework weakened traditional institutions, such as village elder groups, and introduced

electoral mechanisms that granted women equal rights of participation, including village administrations and the CFM. Women's roles expanded due to changes in local economic structures, such as the NTFP market, which increased women's involvement in NTFP gatherings and their responsibilities in forest protection activities. In contrast, men's role in forest use declined as forest protection programs (especially the PFES program) restricted timber logging, slash-and-burn cultivation, and wildlife hunting through direct forest monitoring and evaluation by local authorities. The decline in the role of men in this village seems to be somewhat common in other remote villages. For example, in another remote village that we visited, men were always idle and drank. Consequently, a considerable number of men suffer from diseases such as gout.

On the other hand, this reduction in men's roles serve as a socioeconomic adjustment, increasing male labor migration, particularly for factory work in larger cities. Interestingly, this story indicates that such non-gender-related state interventions altered gender-related customs and provided the necessary conditions for encouraging women to engage in various activities.

Although the study was based in one village, the findings suggest that macro-and meso-scale factors are necessary for changes in women's roles, from which two key implications can be drawn. The first is the state's unintentional contributions to gender change. Gender issues were largely overlooked by the Vietnamese government from 2006 to 2020, even though the Law on National Gender Equality (2006) stipulates that all ministries and institutions must address gender issues in their work. In national policies, particularly in forestry, there has been little focus on gender issues in forest management, with only the Forestry Development Strategy briefly addressing concerns related to women's roles. As McElwee (2016) mentions, Vietnam's environmental policy places social pressure on the assimilation of ethnic minorities into the ethnic majority. The transformation of gender roles in Village T is likely an unexpected by-product of non-gender policies.

Second, gender issues regarding upland societies in Vietnam have been overlooked in international academia. Historically, it has been said that upland communities, including the Cotu, avoided state governance and maintained traditional customs and autonomy for a long time until the 1950s (Scott 2009). Many studies on mainland Southeast Asian uplands have explored how the state has tried to

³⁰ In-depth interview with a treasurer of the CFM program conducted on 19 August 2024, and household interviews gathered during fieldwork, conducted from 20 August to 20 September 2024.

³¹ HH15, 43-year-old man, conducted on 3 September 2024.

integrate upland societies into state governance in the lowlands since the 1950s (or the 1970s in the case of Vietnam) and how the area has experienced rapid transformation (Scott 2009, Sikor et al. 2011; Friederichsen 2012; Hénin 1999; Hardy 2020). However, few studies have examined the gendered impacts of this transformation. Contrary to existing studies that hail stateless societies as self-autonomous, our findings suggest that the state interventions may have granted village women positive opportunities, although not intentionally.

Long-term economic and infrastructure development have also contributed to this transformation. Villagers have tried to adapt to new opportunities, such as NTFPs market development and out-migration, created by economic development trickling down to the area, which has also enhanced the possibility of the destabilization of gender roles in the village.

Agency factors influence women's roles in the Community Forest Management program

The above explanations of macro- and meso-scale factors may raise the question of why gender roles remain unchanged in other villages. This can be attributed to the local context and women's agency in the village. The story of the village-headed woman exemplifies this, reflecting the coincidental interaction between prior leadership contexts, social foundations, and individual capacity rather than gender alone.

One of the reasons the woman was selected as the village head and CFM leader was the failure of the male predecessor's village administration, which did not provide compliance and accountability to the villagers and authorities. Considering the above structural transformation, this may be partly due to the "everyday resistances" (Scott 1985) of male-led administrations. For instance, forestry policies that ban logging, slash-and-burn farming, wildlife hunting, and the PFES program have disrupted male-dominated livelihood practices and power structures. These restrictions generated tension among men, some of whom responded through acts of resistance such as illegal logging, foot-dragging in forest conservation, and unfair distribution of benefits. The example of the drunk men mentioned earlier could also be seen as this "everyday resistance." However, this "resistance" spurred the villagers' dissatisfaction, particularly that of women, with the status quo. Moreover, facing difficulties in mobilizing effective participation, local governments (such as the CPC and FMBs) have focused on women's involvement in CFM to

improve program outcomes. In most cases, everyday resistance refers to understanding and sympathizing with villagers' points of view vis-à-vis state intentions. However, it is important to note that not all villagers sympathized with this behavior. In this case, it may be appropriate to say that women and local authorities formed "an occasional alliance" with the male-dominated village administration.

Another important point is that the women in Village T became agents of change, not merely passive beneficiaries of the policy. They were also strategic actors who navigated and leveraged forest policy implementation, leading to a decline in traditional male leadership in forest management. The emergence of women in leadership roles cannot be solely attributed to state-governed regimes. At the micro-scale, a woman gained the villagers' trust through her local knowledge and everyday engagement with forest resources, eventually assuming formal leadership positions, including the village head position. Other men and women also supported these changes. Consequently, women's roles in forest protection have been transformed, and conventional assumptions about gendered authority divisions in upland communities have been challenged.

Although this study provides insights into the process of women's changing roles in the CFM program in the village, the findings are based on only one Cotu village, which may not reflect all upland communities. The village head may be somewhat exceptional in terms of location and context, as they mentioned that the proximity of households to forest boundaries inadvertently promotes women's participation in forest patrols. The agency appears to be a significant constraint on other villages. Additionally, we acknowledge that changes in gender roles do not necessarily lead to women's empowerment, but that the deterioration of men's lives may also affect women's lives. Further qualitative and quantitative studies are needed to confirm these findings. Nonetheless, we consider that some other villages may follow suit in the future because of the similarities in macro- and meso-scale conditions described above, if these villages meet micro-scale conditions.

In conclusion, this study examined the process of changing women's roles under the CFM program and identified the factors influencing these changes through adapting the "Gender Box" framework. As discussed, gender role transformation in the village is an interplay of macro-, meso-, and micro-scale transformations. The history of the forest-dependent Cotu Village was a political adaptation process to state governance that transformed forest policies and the broader economic structure. This transformation unintentionally provided a necessary condition that reduced men's traditional roles and promoted

women's roles in forest resource utilization in village society. These structural changes, combined with the support from local authorities, shaped distinct agencies in the village. Faced with unfairness and ineffectiveness, village women and local authorities formed "an occasional alliance" against the male-dominated village administration. Further quantitative and qualitative research is required to explore these shifts in other regions and assess gender equality and sustainable forest management.

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CONFLICT OF INTEREST

The authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

Data will be made available on request.

AUTHOR CONTRIBUTIONS

A.D.: Conceptualization, methodology, formal analysis, and writing the original draft. F.U.: Supervision, conceptualization, writing–review and editing, validation, funding acquisition. A.D. and F.U. made equal contributions to the preparation of this manuscript.

ETHICAL STATEMENTS

This study did not require ethical approval because it involved non-invasive household surveys and community interviews. The participants were informed of the purpose of the study and voluntarily consented to participate. All responses were kept confidential and used solely for academic purposes.

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