Impact of Poverty Alleviation and Forest Land Allocation and Sustainable Forest Practices on Community Forest Management in Vietnam

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Abstract: Community forest management actively promotes the rights of individual living in the areas nearby forest through participation in equitable benefit sharing and decision making practices. Community forest management in Vietnam has been active part of research since many decades but still there is a lot of room to find the solutions regarding the sustainable forest practices. The present research has highlighted the impact of several factors which impact the community forest management practices in Vietnam which includes Forest Land Allocation, Sustainable forest practices and poverty alleviation. It is understood by the review of past research that strong community forest practices aid societies to protect their forest rights and minimizing GHF emissions causing from deforestation and enhancing forest health. To analyze the impact of these factors on community forest management in Vietnam, the real data has been collected and analyzed with the help of statistical tools. The results of the study indicates the poverty alleviation, forest land allocation and sustainable forest practices have significantly and positively impact of community forest management in Vietnam.

1. Introduction

Over the last few decades, there has been rapid development which has made in community forest management significantly contributing to sustainable practices in forest management, local democracy, poverty alleviation, and the preservation of local cultures[1]. These elements are the key priorities of Vietnam as reflected by the considerable budgets made available for poverty alleviation and forest management as well as different legislative actions taken in support of cultural recognition and grassroots democracy.

The government of Vietnam has to established strong foundations for the progress of community forest management through forest land allocation. According to the government, by the end of 2021, local communities will have the tenure rights for about 46 percent of the total forest area in Vietnam

[2]. It can be in any form either it is household groups, individual households and village collectives. It will be the most crucial step of the government of Vietnam towards the promotion of community forest management [3]. It is essential for local communities to get benefit and manage forests' sustainability, develop their own customized practices of forest management, and participate in decision making practices regarding forest [4].

This research will be comprised of three sections to evaluate the key issues in community forest management in Vietnam. The first part of this research document will discuss the issues regarding the transfer of forest rights to local community with the help of Forest Land Allocation [5]. This part will consist of the case study regarding community forest management in Vietnam. Moreover, the research will be progressed with influential policy frameworks which is related to the forestry sector in Vietnam. In this part, the research will highlight the new financing mechanism for managing forests in Vietnam and argue for the significance of community forest management [1]. In the last section of the research, the steps taken by the government of Vietnam for community forest management. It is crucial for the trusting local people to handle a large stock of the Vietnamese forest. The legal framework also be recognized and highlighted in the research to identify the governance structure of community forest management including household groups.

From 1976 to 2009, the forest cover of Vietnam drastically decreased as shown in the below figure. Forest cover had also decreased rapidly. Between 1976 to 1990, Vietnam lost more than 2.6 million hectares of natural forest [6]. After the implementation of Forest land allocation policies, the forest cover increased rapidly from 11 million ha to over 13 million ha in early 2009(Figure 1).
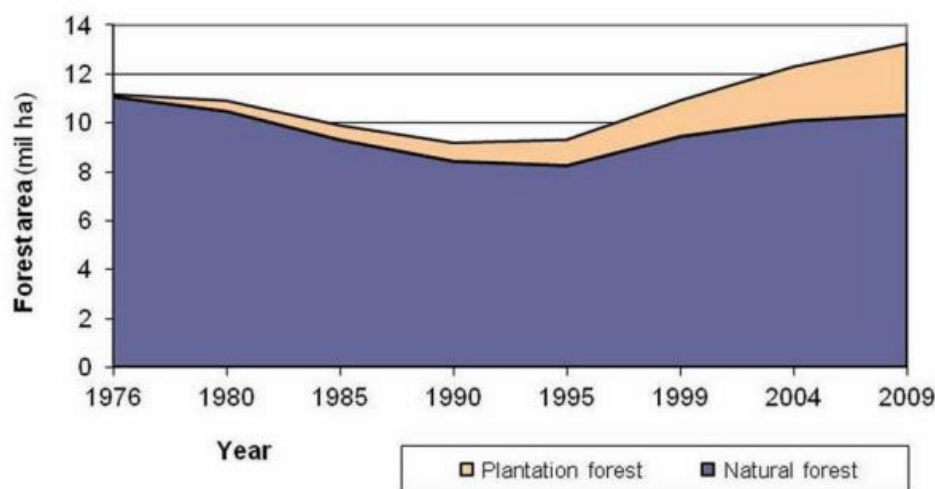

Figure 1: Change in forest area from 1976 to 2009

Though with the benefits, FLA also experienced some shortcomings as well. Because in many locations, individuals lack of awareness regarding community forest management [7]. In most places, local people only knew about the basic concept of community forestry but they did not know how to implement the policies. The research is mainly entailed about which sustainable forest management practices are vital for community forest management practices and what the impact of government policies on community forest management are.

2. Literature Review

2.1 Impact of Sustainable Forest Management Practices on Community Forest Management

According to the research in this area, sustainability can be clearly defined as a very complicated or complex concept. Instead of elaborating more complications regarding thoughts of sustainability and aiming to create more complex networks among the ecological, economic and social components, the main focus must be on the research on the problems of land allocations and access, and shuffling in the systems of production with respect to the livelihoods of the forestry in the selected area of communities of Vietnam [8]. This characteristic of sustainability is vital due to the very close relations with the neighborhood techniques and strategies and the systematic change in the environment with proper use of resources. Resources from the forest are harvested and used for the growth of the population [9].

2.2 Forestry Based Livelihoods

According to the study of Liverman (2014), the most part of Southeast Asia, a massive change in the strategies of the livelihood in the forest is happening in a few portions because of the extensive privatization and commodification of human, social, knowledge, physical, financial, and natural capital linked with the initiatives from the world[1]. The economic transformation in Vietnam has many along with new opportunities regarding economics, which is associated with the livelihoods of the forest[5]. Also the farmers of the upland have been given the benefits in addition whose jobs are to harvest the products of non-timber forestry, but the issue arises because it is a matter that is outside of the range of the research study.

However, as Le & Scott (2018) stated the advantages of forest plantation can never be equally divided and the revenues are separated as the border between the rich people and the poor people, who the residents are in the communities of rural uplands has gained [10]. Moreover, in Vietnam, at the first stage of economic reforms badly affected the resources of the common property, increased the arrears of the farmers of the upland, and contributed in ruining all the natural resources of Vietnam including the mangrove forests[11]. According to the research of Le & Scott (2018), the people who suffered a lot were the poor people of Vietnam, who have faced difficulties due to the declining economic reforms, as they are uneducated or have less education and few substitute source for the survival of their families.

According to the research of CPR Research (2017), in all aspects, the strategies of the livelihood of forestry in the highlands of Central Vietnam are same as the livelihood strategies in other areas of Vietnam. Absorbing the processes and the terms and conditions is essential as the resources of forestry offers livelihoods with sustainability to many of the population of the village[6]. The rural stakeholders and the experts of development in the highlands of Vietnam have continuously searched for techniques for the continuous improvements of health of the community people of rural areas and for the fragile ecosystems as well, they kept on favoring the programs of transferring which will obviously offer opportunity for the villagers to access the land area which are already interested in pursuing livelihood of forestry[9]. Balooni & Inoue (2017) state that, Decentralization refers to the transfer of the power of attorney on some conditions which are granted by the central government of the specific state to the subornation governmental levels e.g. local and provincial governments. It is essential to take notice that all the transferred powers might be only temporary and that the government has the rights to cancel the overall decision in all matters[12].

2.3 Forest Land Allocations in Vietnam: An Overview of Policy Framework

The dominant policy for forest management is the centralized state management which was implemented in Vietnam till the late 1980s. In the early 1990s, the government of Vietnam sought to involve both non-state and state shareholders in forest management. In August 1991, the Forest Development and Protection Law was passed which provided a legal framework for the allocation of resources for forest management. FLA became a vital component of the policies of the Vietnamese government over the following years. The government passed the policies regarding transfer of tenure rights to local households, organizations, and individuals similar to the allocation mechanism of the agricultural sector. In 2000, the government of Vietnam identified the importance of community forest management under whole communities and household groups against the reaction of initiatives taken by some provincial governments. The following pie chart reflects the forest land allocation by stakeholder groups in 2019.

2.4 The Causes of Deforestation

According to the research of Douglas (2016), a massive research study concludes that a massive change has taken place because in the world market, global integration has been started, a small part is known as the environment of local community areas of rural side in Southeast Asia are affected [6]. A massive number of laborers that are approx. millions have migrated just to seek new opportunities in their field of work and this results in an increase in the risk of deforestation in southeast rural areas because of the lack of management strategies for the land forest a long time ago no one focused on it (Douglas, 2016). Proper care and use of the land area are very important for the dispossession of the land and shifting the labor is also moving the practiced activities of agriculture by proper shifting of the labor, which will be beneficial for the plantation of the crops which will be helpful to decrease the fertility of the soil and secure the soil by the previous techniques of preservation of the soil by the previous residents [13]. It has stated that overall in Vietnam, the beautiful natural forests are always been switched by the new plantation forests. Moreover, Douglas (2016) stated that we know the fact of advantages of the conservation of forests, the migration of the laborers are always in pressure of involved in the activities of deforestation as this is the only way to earn for their families.

2.5 Impact of Poverty Alleviation on Community Forest Management in Vietnam

Meanwhile, Doi Moi is the reforms of economics which were introduced by the government of Vietnam in the year 1986, the living standards are now very much improved in rural side areas because of introducing schemes of privatization, the extra payment for 10 to 50 years old agricultural sector and the rights of use of land, and abashment of the monopolies of forestry and agriculture, which was supported by the cooperatives of the community[8]. It is stated that many of rural families are totally on the mangrove forests for their survival and they are required the facilities strong materials for building their houses, electricity, mobile phones, and a lot more luxuries[14]. The main objective of this fear is Doi Moi has opened the doors for economic opportunities for the rich people, but the poor people are left behind because they are uneducated, they have fewer skills and abilities to grow in the field, they have fewer capital, strength, and skills of managing tasks, so they have been left behind and not qualified for the new opened opportunities[15].

2.6 Land Ownership and Tree Harvesting Rights in Vietnam

It is stated that the rights of the property are between the famous institutions which teach about how to run the families by using natural resources[9]. Those who use certain natural resources will only be affected by the rights of the property, and in other words, they also make paths for the labor class who totally rely on it and invest on the resources where they live. But the fact is that these rights don't mean of ownership, this also highlights the persons who have access, exploit, or withdraw the specific resource[8]. There are a lot of research and techniques to have a better understanding of the rights of the property which mistakenly rewarded them as unitary, static, and bundled, instead of changing and diverse[7]. However, it is proved that these techniques are not perfect, as these have all governmental rights, because they are least interested in exploring the bundles of land rights or claims to the land areas which exist in the real world[5]. The strict nature although fails to absorb the different and unique doubts which can usually be found in the transactions of the resources throughout the different location areas[16](Figure 2).

	Northwest region	Of which:			
		Dien Bien	Lai Chau	Son La	Hoa Binh
Total pop (thous. people)	2857.2	519.3	397.5	1134.3	806.1
Rural pop (thous. people)	2448.3	441.6	345.0	976.6	685.0
% of rural population	85.7	85.0	86.8	86.1	85.0
Total land area (km^2)	37,451.8	9,569.9	9,112.3	14,174.4	4,595.2
Population density (people/km^2)	76	54	44	80	175

Source: General Statistical Office of Vietnam (2012).

Figure 2: Basic situation of Northwest Vietnam

2.7 Relation between Poverty Alleviation and Community Forest Management in Vietnam

There are three association of poverty alleviation and community forest management in Vietnam which are: First, There are significant causal linkage between the dramatic changes in forest cover and the transformation of rural livelihoods as they cover accommodated geographical space and occurred in the same time period[2]. Second, People who reside in remote rural region of Vietnam tens to have comparatively high level of dependence on environmental services and goods from natural forests for their nourishment[6]. Third, Instead of their dependence on forests, some people who reside in rural region of people have derived greater advantage from the minimization of forest cover through increased access to arable land and through conversion of timber and other related products into capital and income[1].

The below figure 3 shows the distribution of total forest area in Vietnam, it tends to overlap with the remaining area covered by natural forest. It is observed that the areas of higher incidence of poverty are much more concentrated in central and northern highlands which exist far from Hanoi and other coastal and urban areas. The northwest region of Vietnam is mainly comprised of forest resources as 43.9 percent of the land area was covered by forest in the year 2019 as shown in table below, in which 90 percent was natural forests[7]. Additionally, there was still an enormous land area for the expansion of forest. The northwest region of Vietnam has been allocated as forest land and most of the recent advancements is made due to the natural generation of a cover type of land[8]. It is also important to note that forests have been reduced and are in the process of recovery(Figure

3 and Figure 4).

Year	Total forested area (thousand ha)	Of which		Bareland/ shrubland (thousand ha)	Forest cover percentage (%)
		Total natural forest area (thousand ha)	Total planted forest area (thousand ha)		
2002	1239.2	1157.4	81.8	1,950	34.8
2003	1349.5	1265.1	84.4	1,470	36.1
2004	1402.1	1307.7	94.4	1,407	37.6
2005	1455.0	1377.0	78.0	1,394	39.0
2006	1487.0	1399.2	87.8	1,327	39.7
2007	1492.4	1399.9	92.5	1,300	39.9
2008	1519.6	1420.5	99.1	1,286	40.7
2009	1545.0	1422.4	122.6	1,258	41.3
2010	1555.7	1429.2	126.5	1,230	41.6
2011	1572.0	1442.4	129.6	1,221	42.0
2012	1632.7	1495.5	137.2	1,205	43.9
2013	1637.7	1507.9	129.8	1,141	45.2

Source: VNForest, MARD Statistical Database, 2002-2013 (VNFOREST 2002-2013).[10]

Figure 3: Distribution of total forest area in Vietnam from 2002 to 2013
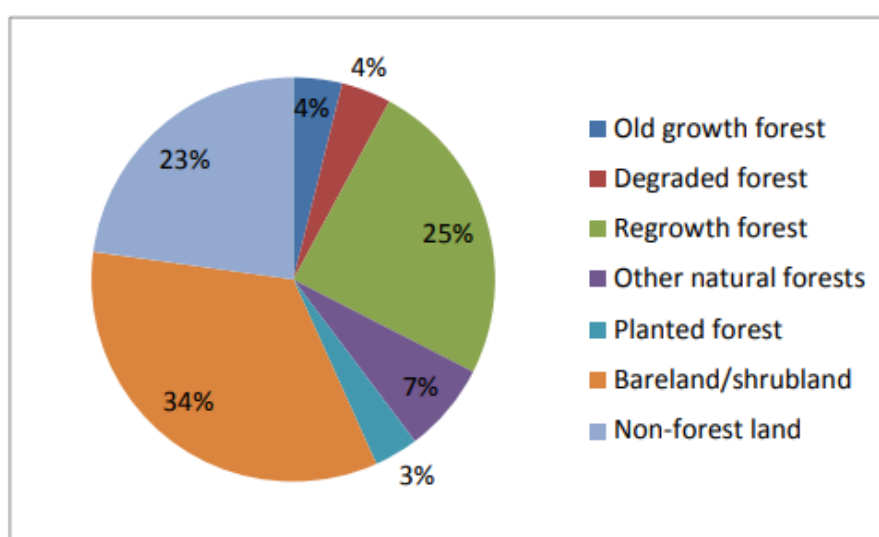
Source: Forest Inventory and Planning Institute (FIPI), Vietnam.

Figure 4: Proportion of each type of forest in Vietnam, 2013

2.8 Impact of Forest Land Allocation on Community Forest Management Practices in Vietnam

As reported by the Ministry of Agricultural and Rural Development, there was 39.5 percent rate of forest cover in Vietnam[1]. Particularly, the total area which was allocated for forest development was 16.25 million hectares. 85 percent of which are forested covered areas and 15 percent were allocated for afforestation and deforestation[6]. The 85 percent area of forest-covered areas are also allocated for different purposes. Production forests, special-use forests, and protected forests accounted for 6.4 million ha, 2 million ha, and 4.8 million ha respectively. Most of the forest-covered areas are natural forests.

	Forest land (ha)	Natural forest land (ha)	Planted forest land (ha)
Total area	13,388,075	10,304,816	3,083,259
Forest management boards	4,487,813	3,954,911	532,902
State-owned companies	2,018,273	1,491,391	526,882
Armed forces	247,075	195,220	51,855
Private economic organisations	110,528	26,814	83,714
Households/individuals	3,431,555	2,012,653	1,418,902
Communities	258,265	227,506	30,759
Other organisations	726,409	628,686	97,723
Communal People Committee (unallocated)	2,108,159	1,767,636	340,522

Source: Decision 1828 dated 11/08/2011 by Vietnam Administration of Forestry, MARD (VNFOREST 2011).

Figure 5: Area of forest land holding subjects in Vietnam in 2010

Above table shows that forest allocated to commercial sectors and for special use are comparatively high quality forest. Forest which are allocated for forest management mainly falls in special use and protected forest[1]. Most of the production forests are allocated for a state-owned organization which is 73.9 percent and falls under high timber volume natural forest[2]. While, the non-state sectors which include individuals/households and private forestry organizations have been mostly allocated to production forests which comprises either degraded or poor natural forest for bare land for natural regeneration and for forest plantation(Figure 5).

2.9 Forest Land and Forest Classification

In Vietnam, the property rights regarding forests are regulated by the Law of Forest Protection and development and the Land law. Land law normally regulates land ownership and land utilization rights whereas the law of forest development and protection solely focuses on the property rights regarding forest resources[6]. This law was implemented by the Government of Vietnam and according to these laws, forests and forestland are classified. According to Land Law, there are three classifications of forestland which are special-use forestland, protected forestland, and production forestland[7]. Similar to this concept, the law of forest development and protection has categorized the forest in the same way as land law. There are three sub-classes of production forests category planted forests, natural forests, and reproduction forests.

3. Methodology

This chapter is based on the methods the researcher will use in this study to collect and analyze the data. Additionally, this chapter will lead to establish a hypothesis for the current study based on the studies review in the literature section. This chapter will also entail the research methodology, research design, research instrument, and research type used for the data collection.

3.1 Methodology

Now, after establishing the research hypotheses and the main objective of the methodology, the research design, research model, research instrument, and research type will be discussed to make the purpose and objective of the research methodology clearer.

3.2 Research Model

The research model for the recent research has been constructed after studying various types of research related to the research topic. The variables are selected on which the past researches are lacking to provide clear information and then these variables are included in the research model for the existing study. The research model for the current study has given below which shows the relation between the variables of the study.

3.3 Research Design

The research design of this study is the exploratory design in which the researcher has an objective to explore the different directions of variables that leads to the new research. Moreover, this research design will help the researcher to save time and conclude the research results effectively. The theories that are incorporated in this study are then incorporated to develop a questionnaire with different variables on the Likert scale. The reason behind collecting data with the help of a questionnaire survey is that the survey will be emailed only to the relevant target population which helps the researcher to conclude the research effectively. As the data has been collected primarily for most of the variables, the quantitative data type has been used in this study to evaluate the data effectively. It is important to analyze the data statistically with the help of different statistical techniques with the utilization of SPSS software.

3.4 Survey Questionnaire

The survey questionnaire have been disbursed to the target population in two ways either electronically or collected the data physically by filling out the questionnaire personally. The data will be collected with the target customers regardless of their religious background. The researcher has an objective to collect data equality from the target population. The survey is made on Google Forms online and then it is distributed to targeted customers via email and by using WhatsApp to collect data accurately. The questionnaire survey has returned from different sources and after evaluating each question different surveys are eliminated because of incorrect fulfilment of the survey. The final sample size of the questionnaire was 160 which is then used to analyze statistically.

3.5 Measures

The research questionnaire has closed-ended questions which provides an opportunity for research respondent to have different options to select in order to record their responses. The research questionnaire is based on the Likert-Scale type. It is one of the most reliable scales to measure the accuracy of each variable and also it provides with an opportunity to answer those questions without any bias.

4. Theoretical Framework

The theoretical framework of the study is given below which defines what are the factors which affects the community forest management in Vietnam (Figure 6).
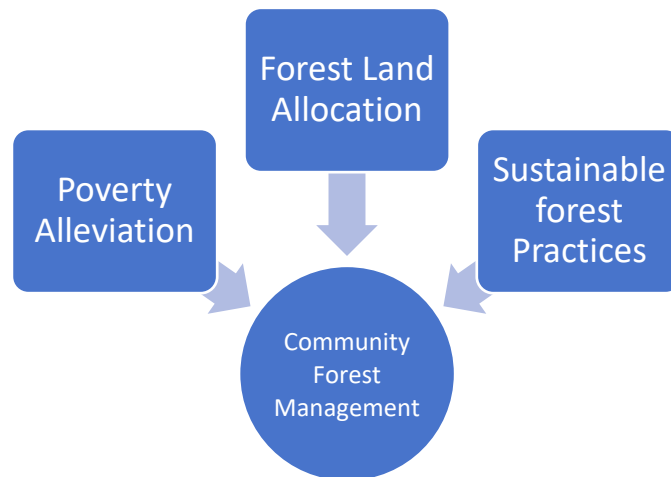
Figure 6: Community Forest Management

5. Data Analysis

5.1 Reliability Analysis

Reliability analysis is the most crucial and fundamental aspect of the research. It determines the reliability and validity of the data to conduct further research. The value of Cronbach's alpha estimated the percentage of reliability of the research data. It is said that the preferred value of Cronbach's alpha should be greater than 0.7 but the value of 0.5 is also acceptable for the research. The below table shows the value of each Cronbach's alpha for each variable of the study and it can be seen that all the values of Cronbach's alpha are greater than 0.5 or 50%. It can be interpreted that our research data is valid and reliable enough to conduct further research (Table 1).

Table 1: Results of Reliability Analysis

Construct	No of Items	Cronbach's Alpha
Sustainable Forest Practices	4	0.620
Poverty Alleviation	5	0.694
Forest Land Allocation	4	0.668
Community Forest Management	5	0.771

5.2 Pearson Correlation

Pearson correlation defines the direction, strength, and significance of each variable. It is the best statistical technique to measure the strength and direction of the research variables. The value of Pearson correlation ranges from -1 to 0 to +1. The value that is closer to the +1 defines that there is strong and positive correlation among each variable. The values of Pearson correlation which is closer to -1 reflect the negative strong correlation among variables. However, the value of 0 represents that there is no relationship among variables and the value of +1 reflects that variables are completely correlated with each other. The sig value in the Pearson correlation table defines the significance of the variable which should be less than 0.05. In the table below, all the values of Pearson's correlation are positive which means that all the variables are positively correlated with each other. All the sig values are less than 0.05 in the below table which means that all the variables have a significant impact on the variable(Table 2).

Table 2: Results of Pearson Correlation

		SFP	PA	FLA	CFM
SFP	Pearson Correlation	1	.492**	.535	.445
	Sig. (2-tailed)		.000	.000	.000
	N	383	383	383	383
PA	Pearson Correlation	.492**	1	.284	.314
	Sig. (2-tailed)	.000		.000	.000
	N	383	383	383	383
FLA	Pearson Correlation	.535**	.284	1	.527
	Sig. (2-tailed)	.000	.000		.000
	N	383	383	383	383
CFM	Pearson Correlation	.445**	.314**	.527**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	383	383	383	383
**. Correlation is significant at the 0.01 level (2-tailed).					

5.3 Regression Analysis

Regression analysis defines the relationship of independent and dependent variables statistically. The below three tables are the components of regression analysis.

5.4 Model Summary

The model summary is a table which defines the amount of variation produced in the dependent variable due to the presence of the independent variable. The variance in the dependent variables is estimated by the value of R-square and it is stated that the value of R-square must be greater than 0.3 or 30 percent. This value reflects the percentage of variance in the dependent variable due to the independent variables. The table below reflects the value of 0.505 which means that there is a 50.5 percent variation produced in the dependent variable because of the independent variables(Table 3).

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.570a	.325	.320	.62046
a. Predictors: (Constant), SFP, PA,.FLA				

5.5 Anova Table

Table 4: Regression ANOVAa

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	70.275	3	23.425	60.849	.000b
	Residual	145.904	379	.385		
	Total	216.179	382			
a. Dependent Variable: CFM						
b. Predictors: (Constant), FLA,PA, SFP						

The ANOVA table in the regression analysis reflects the significance of the research model by

means of population. The significance of the model is determined by the sig value in the Anova table which must be less than 0.05. In the table below, it can be seen that the sig value is less than 0.05, which means that the research model of the present study is significant to conduct research (Table 4).

5.6 Coefficient Table

This table determines the relationship between the independent and dependent variables. The value of the unstandardized coefficient reflects the direction of the relationship either the relationship is direct or inverse between the variables. The significance of the relationship is represented by the sig value in the coefficient table which must be less than 0.05. The below table shows that all the values of the unstandardized coefficient are positive which means that variables have a direct relationship with each other. The direct relationship means that the increase in the independent variable will lead to an increase in the dependent variable. Moreover, all the sig values in the below table is less than 0.05 which means that all the variables are significantly related to each other (Table 5).

Table 5: Results of Regression Analysis

Coefficients[a]							
Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
1 (Constant)	.066	.294		.226	.822		
SFP	.254	.081	.173	3.139	.002	.588	1.700
PA	.163	.069	.115	2.375	.018	.758	1.320
FLA	.554	.069	.402	8.049	.000	.713	1.402
a. Dependent Variable: CFM							

5.7 Multicollinearity Test

Multicollinearity happens or occurs when two or more independent variables correlate with each other. The correlation between the independent variables may cause problems because the independent variable should remain independent. The variance inflation factor; VIF recognizes the relationship between the independent variables. VIF has a value from 1 and no upper limit. The value of VIF which is 1 indicates that there is no correlation between the independent variables. If the value of VIF ranges 1 to 5, it is said that there is a moderate relation between the variables. If the occurred value of VIF is like higher than 5, then there is a high correlation between the independent variable and it should be eliminated. In our analysis, no value of VIF here is higher than 5 which means that Multicollinearity doesn't exist between the independent variables.

5.8 Table 6: Results of Collinearity Statistics

The dependent variable of the results of collinearity statistics is CFM, and the SFP is 1.700, PA is 1.320 and the FLA is 1.402(Table 6).

Table 6: Results of Collinearity Statistics

Coefficientsᵃ			
Model		Collinearity Statistics	
		Tolerance	VIF
1	SFP	.588	1.700
	PA	.758	1.320
	FLA	.713	1.402
a. Dependent Variable: CFM			

6. Discussion and Conclusion

According to research results, it can be observed that there is a significant and positive relationship between poverty alleviation, sustainable forest practices, and forest land allocation with the community forest management practices in Vietnam. Vietnam is considered to be the most different country for getting education with regards to human rights and indigenous due to the history of conflict-ridden in the country and the most modified activities from the entities of transaction[17].

Commonly it is known as the rights for the group of people fostered by the country's government for the community was moved to subsequent in year 1989 by the rights of individual people that are their highest priority of common aspirations and interest. The temporary changes of the land of forest are allocated and are eligible for the community legal rights by the government to the villagers of Vietnam forestry[16]. In this study, it is observed that the common changes in the level of increase of neoliberalism in Asian and national government structures may affect trade communities and markets, and it shows that control limits the growth of services and products produced and must be finalized.

The transfer of natural resource management, especially Vietnam 's forests, became the most popular in the 21st century in response to the rapid degradation of Vietnam 's forests. The researchers have strongly believe on forest management and on its success and especially in the difficult and densely populated areas of the countries of South Asia in the area where caste, local religions, and strategies based on ethnicity of management of the forest often clash with the agencies of the state.

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