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Abstract

Purpose: The purpose of the study is to investigate the extent of forest governance effectiveness in Gamo Zone, South Ethiopia Regional State, Ethiopia.

Methodology: The study employed a descriptive survey research design with quantitative and qualitative methods. Primary data was collected through a questionnaire, semi-structured interview, and document analysis. The sample for quantitative data consisted of 402 rural households in six kebeles and two Woredas in the Gamo zone. Data was collected using nine forest governance effectiveness indicators with their respective components. To examine the extent of forest governance effectiveness and to determine the statistically significant relationship between the variables, *a*symptotic significance in the chi-square test was used. Finally, to arrive at valid conclusions, the study findings from the quantitative survey were triangulated with in-depth qualitative data, other secondary sources, and empirical studies.

Findings: According to the findings, the implementation of and attachment to these nine key indicators of forest governance effectiveness were found to be insufficient and poor, and this study arrived at the conclusion that forest governance was ineffective in terms of the majority of the components of the key indicators.

Unique Contribution to Theory, Practice and Policy: The study findings have unique contributions in identifying the relevance of theories applied in this study and bridging the wider knowledge and research gaps in the study area with respect to forest policy narrations and its governance practices at local community level in Ethiopia, particularly in the Gamo Zone of South Ethiopia Regional state. Therefore, the researcher recommends the importance of ensuring independent forest institutions from top to bottom that are legally and politically empowered to coordinate the concerned sectors in the protection, governance, and sustainable utilization of the resources by realizing strong practice of the rule of law, a clear accountability line for all stakeholders, ensuring transparency, responsible public participation that enhances equity, fairness, effectiveness, and efficiency, and creating opportunities to make use of local knowledge and experiences of managing conflicts that are arising among the forest-dependent communities and the government bodies.

Keywords: *Forest, Governance, Forest Governance, Governance Effectiveness, South Ethiopia*

INTRODUCTION

Forests, whether they are tropical, temperate/boreal, or woodland, etc., are multifaceted ecosystems and provide multiple products, benefiting many stakeholders (FAO, 2010). Forests provide private goods for commercial trade (e.g., round wood, some NTFPs, and tourism services), private goods for subsistence use (e.g., many NTFPs, fodder, fuel wood and construction poles, and medicinal plants), local public goods (e.g., watershed management and soil conservation), and global public goods (e.g., biodiversity and carbon sequestration) (Melkie, 2020). In addition, forest land often has potentially different valuable uses such as for agricultural and pasture and for plantations (e.g., rubber or oil palm) (National Forest Sector Development Program (NFSDP), 2018). Ensuring sustainable forest management (SFM), characterized by balancing multiple uses among many different users, rests critically on high-quality governance for the sector (WB, 2009).

Forest Governance is defined as the modus operandi by which people, stakeholder groups, and institutions (both official and informal) get and apply power in the protection of forest assets, to sustain and improve the quality of life for those whose livelihood depends on the sector (WB, 2009). Good forest governance is characterized by the prevalence of the rule of law, low levels of corruption, strong institutions, high competency of officials and other stakeholders who implement rules, willingness to address forest sector issues, purity of critical legal elements such as implementation of property right and voluntary contracts, etc. (World Bank, 2008b). There is growing evidence that good forest governance (FG) is a significant determinant of Forest sector success (Piabuo, 2018). Forest governance is a pillar of sustainable forest management, and reducing deforestation and forest degradation (FAO and PROFOR, 2011). As countries progress towards reducing deforestation and forest degradation readiness by developing national strategies and emission reductions programs, forest governance is a critical foundation for designing effective programs that can achieve results. Potential drivers of deforestation and forest degradation, such as illegal logging, forest conversion, land tenure issues, can be a signal of weak forest governance (FAO, 2016; World Bank (WB), 2009).

Forest governance is considered to be one of the major instruments in forest conservation and management. Conflicting demands for food, fuel and profit are driving the loss and degradation of the world's remaining forests demands effective forest governance. Governments, the private sector and citizens in many countries are struggling to manage the conflicts between these priorities while also protecting long term public interests (FAO, 2010; WB, 2009). The publication of World Bank, Department of Agriculture and Rural Development (2009) identified "Poor forest governance as a major impediment to achieving the development outcomes of the forest sector." It results in losses of income, employment, government revenues, and local and global environmental services." Poor forest governance can have significant negative impacts on development outcomes in all the three Pillars of the forest strategy of World Bank: the environment, poverty reduction and social development and economic growth (World Bank, 2004).

However, land-based resources and natural forests in particular are under increasing pressure globally, and it is extremely challenging in developing countries, particularly in Africa, due to economic and population growth as well as associated shifts in consumption (Scholes et al., 2018; Nkonya et al., 2016). Ethiopia is an agrarian developing country where renewable natural resources constitute the foundation of its economy (Colby Environmental Policy Group, 2011; EPA, 1997). Forests are one of the indispensable renewable properties that support the means of life for millions of people in Ethiopia. Despite their importance, Ethiopia is recklessly

dropping its forest assets due to deep and unmaintainable human uses coupled with institutional and policy insufficiencies as well as weak governance arrangements and processes unlike the policy and governance narrations (Alemayehu, 2019; Ayana, 2014; Melaku, 2003). Hence, there are gaps in policy and practice and research in the context of Gamo Zone of south Ethiopia Regional State, Ethiopia. Thus, based on the foregoing background information, the major goal of this research was to investigate to what extent forest governance is effective in the study areas using globally accepted forest governance effectiveness indicators.

Concepts and Theoretical Framework

To analyze and explain the dynamics in the forest governance domain within the framework of the broader political and economic process in Ethiopia, this thesis employed institutional theory and the theory of governance and change in governance as an analytical framework. Institutional theory focuses on the formal and informal rules, norms, and organizations that shape behavior within a given context. Institutions include legislatures, executives and judiciary and they are the places where political life generally revolves around and public policy is authoritatively formulated and executed by them. In the context of forest governance, it examines how institutions, including government policies regulations, and community-based management systems, affect the sustainable management of forests.

In relation to the present study, institutional theory can help analyze the role of government policies and community-based institutions in governing and managing forests. The theory can shed light on how these institutions influence forest resource use, conservation efforts, and the allocation of rights and responsibilities among stakeholders in Gamo Zone, South Ethiopia region, which are highly related concepts to forest governance effectiveness . In addition, the concept of governance and change in governance is also the other theory used to explain the dynamics in the forest governance in the study area. Historically, the development of forest policy and governance in Ethiopia experienced changing trends of institutionalization and deinstitutionalization characterized by frequent institutional instability. These trends were shaped by a multifaceted interaction of conflicting ideas, interests and structural factors that have evolved over time. According to Treib *et al*. (2007), governance encompasses the process of policymaking (politics), a system of rule (polity), and steering instruments (policy). The political dimension concerns the ways and means in which citizens' divergent preferences are translated into effective policy choices. The polity dimension represents the institutional structure or system of rule that shapes actors' actions, for example, as hierarchical, centralized, or dispersed styles of decision making. The policy dimension is about instruments that define how particular policy goals should be achieved. This conceptualization of governance in the three dimensions of politics, polity, and policy is particularly appropriate for this study as it links together the broader political processes and system of rule with the policy outcomes in a specific domain – in this case, the forestry sector in Gamo zone South Ethiopia Regional State.

METHODOLOGY

The study employed a descriptive survey research design to examine to what extent forest governance is effective in Gamo Zone, South Ethiopia Regional State using forest governance effectiveness indicators. Besides, the study followed a concurrent triangulation strategy that uses both quantitative and qualitative methods of data collection (Creswell, J.W. and Creswell, J.D., 2018). Methodologically, quantitative and qualitative research methods were used to obtain primary and secondary data. The research design is a cross-sectional study in which only ten years (2011/12 to 2021/22) of evidence were considered. The quantitative data sets were collected from six rural kebeles in the study site from key informants, experts, and community

focus group discussion participants in different tiers of the study areas using interview and focus group discussion guides and the researcher's personal observation using observation checklists. The survey data were collected from September 20, 2022, to December 30, 2022.

Generally, a sample of 402 respondents participated in filling out the questionnaire. Sex-wise, 323 (80.35%) of the respondents were males, and 79 (19.65%) were females. In view of the age structures of the respondents, 23 (5.72%) males and 5 (1.24%) females represented the age group of 20–30 years. While 103 (25.63) males and 26 (6.46%) female respondents were in the age group of 30–40 years, the rest, 197 (49.01%) male respondents and 48 (11.94%) female respondents, were in the age category of above forty. The education status of the respondents shows that 155 (38.56%) have attended basic adult education, followed by 133 (33.88%) illiterates. 79 (19.65%) of the respondents have attended between grade levels 1 and 11. While 15 (3.73%) were diploma holders, 16 (3.98%) of them were BA/BSC degree holders, two (0.5%) have obtained their master's degree, and the rest the two (0.5%) of respondents have completed their secondary education (completed grade 12).

For the determination of the content validity of the questionnaire, expert opinions using the Content Validity Index (CVI) were taken from six content experts from Ethiopian Civil Service University, Hawassa University, Arbaminch University, Wondo Genet College of Forestry, South Ethiopia Regional State Bureau of Forest and Environment Development, and bureau of Agriculture, Natural Resource Directorate. The Cronbach's alpha value for all of the variables was 0.788, which is high. A total of 53 component items were employed to address the objective of the study. Moreover, *a*symptotic significance in the chi-square test was used to examine the level of effectiveness of forest governance at the study site. The data from the questionnaires was coded and then analyzed with the help of the Statistical Package for Social Scientists (SPSS) version 25.

RESULT AND DISCUSSION

Quantitative Data Analysis

Table 1: Rule of Law in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Rule of Law	**N**	**%**	**N**	**%**		
The laws governing the use of forest resources is consistent and clear	192	47.76	210	52.2	0.806	0.369
The existing rules and regulations on forest resource conservation are easy for implementation	275	68.41	127	31.6	54.488	<0.001
Forest protection laws are implemented by participation of the local communities	252	62.69	150	37.3	25.881	<0.001
People who breach forest protection rules are punished according to the law in the locality.	143	35.57	259	64.4	33.473	<0.001
The law gives stakeholders opportunities for input in the creation of public forest management plans and supplementary rules	181	45.02	221	55	3.98	0.046
The formal forest rules are consistent with customary rights and other informal rules of the locality	253	62.94	149	37.1	26.905	<0.001
The forest protection laws are easy to enforce in the locality	280	69.65	122	30.4	62.1	<0.001
Forest related penal sanctions are appropriate, legal institutions are accessible, fair, independent, and affordable, and their judgments are enforceable in the locality	244	60.7	158	39.3	18.398	<0.001

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

The first forest governance effectiveness indicator is rule of law. Rule of law in forest governance effectiveness has been considered as the sum of eight components as indicated in in the table above. On the first component, 210 (52.24%) of respondents suggested that the laws governing the use of forest resources are consistent and clear while 192 (47.76%) reported the lack of consistency and clarity of the governing laws regarding the use of forest resources. The chi-square test for this component indicates an insignificant result with the value of $p = 0.369$ ($p > 0.05$). Regarding the implementation of the rules and regulations, 275 (68.41%) of respondents indicated that the existing rules and regulations on forest resource conservation are not easy for implementation while 127 (31.59%) reported that it is easy to implement the existing rules and regulations on forest resource conservation. The chi-square test for this

component has shown a significant result ($p<0.001$). Similarly, 252 (62.69%) of the Respondents have shown that local communities were not participated in the implementation of forest protection laws. The chi-square test for this component has also shown a significant result ($p < 0.001$). 259 (64.43%) have reported that there is a punishment according to the law in the locality in terms of breaching forest protection rules. The chi-square test for this component has also shown a significant result with the value of $p < 0.001$. Regarding the creation of public forest management plans and supplementary rules, 221 (54.98%) responses indicated that the law gives an opportunity to stakeholders for input in the creation of public forest management plans and supplementary rules. The chi-square test for this component has shown a significant result with less than 0.05 of p value ($p =0.046$). As indicated by 253 (62.94%) responses the formal forest rules are inconsistent with customary rights and other informal rules of the locality. The chi-square test for this component indicated that it has a statistically significant result with ($p <0.001$). Out of the total surveyed participants, 280 (69.65%) have reported that the forest protection laws are not easy to enforce in the locality. The chi-square test for this component has shown a significant result with the value of $p < 0.001$. It was also reported by 244 (60.70%) households that forest related penal sanctions are inappropriate, legal institutions are not accessible, unfair, not independent, and not affordable, and their judgments are not enforceable in the locality. While 158 (39.30%) of the participants have reported positively. The chi-square test for this component has shown a significant result with p value less than 0.001. Thus, the rule of law is implemented poorly in relation to forest resource conservation because there is inconsistency between formal and informal forest rules and low participation of local communities in the implementation of forest protection laws because forest protection laws are challenging for them to effectively implement. The exercise of the rule of law is low in the locality, as indicated by the survey result. In general, the practice of rule of law is poor in the study area, and hence, forest governance seems ineffective in terms of the indicator of rule of law.

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Table 2: Accountability in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Accountability	**N**	**%**	**N**	**%**		
The local community cooperates for the legal frameworks to be applied on those who violate the laws enacted to protect the forest resources	190	47.26	212	52.7	1.204	0.273
Government bodies are held accountable when the local people experience any harm due to forest governance decisions	195	48.51	207	51.5	0.358	0.55
Community Forest management committee is accountable to all Community Forest members.	204	50.75	198	49.3	0.09	0.765
There is easy access of information about decisions related to forest governance	251	62.44	151	37.6	24.876	0
The roles and responsibilities of the Woreda , Kebele and local communities are clear and unambiguous in terms of forest resource governance	219	54.48	183	45.5	3.224	0.073
Actions and decisions at all tiers of government (Kebele, Woreda , Zone and region) in terms of forest management are consistent with the needs of local people and the respective laws	250	62.19	152	37.8	23.891	0
The local /Woreda government timely responds to the community demands related to resource use (pasture, water, firewood, farming land).	289	71.89	113	28.1	77.055	0
Social values that support forest conservation are used in forest governance in the locality	248	61.69	154	38.3	21.98	0
Social watchdogs who are independent and are officially recognized are assigned in the locality to improve forest governance	284	70.65	118	29.4	68.547	0

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

Accountability in forest governance effectiveness has been considered as the sum of nine components, as indicated in Table 2. Out of 402 respondents, 212 (52.74%) responded for the first component that there is cooperation by the local communities for the legal frameworks to be applied to those who violate the laws enacted to protect the forest resources, while 190 (47.26%) reported the non-existence of cooperation by the local communities. The chi-square test for this component indicates an insignificant result with a p value of 0.273. The government bodies are held accountable when the local people experience harm due to forest governance decisions. To this end, 207 (51.49%) of the respondents indicated the existence of accountability, while 195 (48.51%) reported a lack of accountability. The chi-square test for this component also indicates a non-significant result. Regarding the community forest management committee, 204 (50.75%) responses indicated that the committee is not accountable to all community forest members, but 198 (49.25%) reported that they are. This shows the numbers of agreed and disagreed responses are almost equal. The chi-square test for this item indicates a non-significant result.

Similarly, 183 (45.52%) respondents have shown that the roles and responsibilities of the Woreda, Kebele, and local communities are clear and unambiguous in terms of forest resource governance, whereas 219 (54.48%) responses indicated that communities have no clear and unambiguous roles and responsibilities regarding forest resource governance. The chi-square test for this component also showed a non-significant result. 251 (62.44%) responses indicated that there is no opportunity to get information about forest governance-related decisions. The chi-square test for this component has shown a statistically significant result ($p < 0.001$). 250 (62.19%) of respondents indicated actions and decisions at all tiers of government (Kebele, Woreda, Zone, and Region) in terms of forest management were not consistent with the needs of local people and the respective laws. The chi-square test has shown a significant result with a value of $p < 0.001$. 289 (71.89%) of the participant respondents have shown that the local/Woreda government does not timely respond to the community demands related to resource use, such as demand for pasture, water, firewood, and farming land. The chi-square test for this component also has a significant result ($p < 0.001$). Social values that support forest conservation are not used in forest governance in the locality, as indicated by 248 (61.69%) responses, and 284 (70.65%) respondents also indicated that in the locality there are no independent and officially recognized social watchdogs who are assigned to improve forest governance. The chi-square test for these two respective components has a significant result ($p < 0.001$). Generally, the practice of accountability in terms of forest governance in the area is poor.

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Table 3: Transparency in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Transparency	**N**	**%**	**N**	**%**		
The local communities are aware of the effects of forest resource degradation on their livelihoods	157	39.05	245	61	19.264	0
The local people are clear with the effects of sustainable forest resource management	179	44.53	223	55.5	4.816	0.028
The distribution and allocation of benefits from forest resources is managed transparently	259	64.43	143	35.6	33.473	0
Decisions related to forest resource use and management are known to the local people and done openly	242	60.2	160	39.8	16.726	0
Local communities know what their roles and responsibilities related to forest resource protection	202	50.25	200	49.8	0.01	0.921

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

Transparency in forest governance has been considered as the sum of five components, as can be seen in Table 3 above. From the total of 402 respondent participants, 245 (60.95%) agreed that the local communities are aware of the effects of forest resource degradation on their livelihoods, but 157 (39.05%) respondents have no awareness regarding this component of transparency. The chi-square test has shown a significant difference between the two sets of responses ($p < 0.001$). Hence, there is a transparent understanding in the community of the effects of forest resource degradation on their livelihoods. Similarly, 223 (55.47%) of the respondents indicated that local people were clear about the effects of sustainable forest resource management, while 179 (44.53%) were not. This implies there is a practice of transparency in forest resource management and a significant chi-square test result with a value of $p < 0.05$. Transparent distribution and allocation of forest resource benefits are another component. To this end, 259 (64.43%) of the households reported that there was no transparency in the distribution and allocation of benefits from forest resources, while only 143 (35.57%) reported otherwise. The chi-square test has shown a statistically significant difference between the two sets of responses (p 0.001), and hence, there is a lack of transparency in the sharing of benefits from public and other forest resources in the locality. In terms of making open decisions that involve the local people, responses were also negative, indicating that there is no involvement of the local people in the open decision-making process, with a majority response rate of 242 (60.2%), which is statistically significant with $p < 0.001$. Regarding the clarity of the roles and responsibilities of the local communities in the protection of forest resources, 202 (50.25%) reported their absence, while 200 (49.75%) had a positive response. But the chi-square test indicated a non-significant result. Hence, the key components under transparency indicator has also been poorly implemented which is an indication of poor forest governance.

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Table 4: Participation in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Participation	**N**	**%**	**N**	**%**		
The local community have their own internal rules related to forest resource protection and governance	203	50.5	199	49.5	0.04	0.842
Community members attend community forest related meetings regularly and local decision making processes related to forest use	254	63.18	148	36.8	27.95	0
Local communities are involved in planning of forest governance measures	261	64.93	141	35.1	35.821	0
Local communities are involved in the implementation of forest governance measures	326	81.09	76	18.9	155.473	0
Local communities are involved in setting rules for forest protection	243	60.45	159	39.6	17.552	0
Local communities are involved in the enforcement of forest protection rules and regulations	259	64.43	143	35.6	33.473	0
Local communities take part in monitoring and evaluation of forest resource management activities	281	69.9	121	30.1	63.682	0

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

The participation of communities in forest governance was broken down into seven specific components in order to capture the main ideas of participation in its real sense. In response to the first component, 203 (50.50%) of respondents reported the absence of their own rules related to forest resource protection and governance, while 199 (49.50%) of them reported their presence. The chi-square test for this component has shown a non-significant result. On the component regarding regularly attending forest-related meetings and decision-making processes related to forest use, 254 (63.18%) respondents indicated that they did not regularly attend forest-related meetings and did not make any forest use decisions in their locality. The chi-square test for this component has shown a statistically significant result ($p < 0.001$). Hence, community members did not participate in both forest-related phases. The participant respondents have also shown that there is no community participation in the planning and implementation of forest governance measures, as the respective reports of 261 (64.93%) and 326 (81.09%) respondents indicated. The chi-square test for these components has also shown a statistically significant result with a value of $p < 0.001$, and hence they did not participate both in the planning and implementation of planned measures of forest governance. With regard to participation in setting forest protection rules, 243 (60.45%) of respondents disagreed, while the rest 159 (39.55%) agreed, and the Chi-square test also indicated a statistically significant result with a p value of less than 0.05 (p 0.001). Similarly, the respondents' results indicated the non-existence of community participation in the enforcement of rules. In this

respect, 259 (64.43%) of the respondents have shown that the local communities do not actively take part in the enforcement of the rules. The chi-square test for this component has also shown a significant result (p 0.001), which is an indication of poor participation in rule enforcement. Regarding the last component, that is, whether local communities take part in monitoring and evaluation of forest resource management activities or not, 281 (69.90%) of the respondents reported the absence of community participation in monitoring and evaluation of forest management activities. The chi-square test has also shown a statistically significant result with a p-value of $p < 0.001$. Thus, participation of the local community in relation to engagement in monitoring and evaluation activities of forest management practices is found to be weak in the study areas, according to the surveyed data. In general, the responses of the participant respondents for all components under the forest governance effectiveness indicator of participation indicated a negative response (Table 4). Therefore, it can be said that there is a weak practice of community participation in forest governance in the study areas.

Table 5: Equity/Fairness in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Equity/Fairness	**N**	**%**	**N**	**%**		
Access to forest resources is fair for forest-dependent communities in the locality.	211	52.49	191	47.5	0.995	0.319
Benefits sharing mechanism from public forests is clear in the locality	244	60.7	158	39.3	18.398	0
The local forest management committee is made up of men, women, and minority groups	233	57.96	169	42	10.189	0
The benefit sharing mechanism is inclusive of all forest dependent communities	240	59.7	162	40.3	15.134	0
Forest wealth distribution is fair and equitable in the locality	259	64.43	143	35.6	33.473	0

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

Equity is broken down into five components, as can be seen in Table 5 above. Based on this, for the first component, 211 (52.49%) out of the total survey respondents indicated that there is no fair access to forest resources for forest resource-dependent communities, while 191 (47.51%) of the respondents indicated that there is fair or equitable access to forest resources for forest resource-dependent communities in the locality. The chi-square test for this component indicated the insignificance of the difference between the responses, and hence, this component of equity could not decide whether forest governance is effective or not. With regards to the clarity of benefit-sharing mechanisms from public forests, 244 (60.70%) households reported that benefit-sharing mechanisms are not clear to obtain benefits from public forests. The chi-square test for this component has shown a significant result ($p < 0.001$). That means the benefit-sharing mechanisms were not fair. In terms of forming local forest management committees, 233 (57.96%) participant respondents indicated the absence of fairness in ensuring the inclusion of gender equality and the participation of minority groups

in the localities. This implies men's, women's, and minority groups in the locality were not equitably engaged in the forest management committee, with a significant chi-square test result ($p < 0.001$).

With regards to the responses of the fourth component, 240 (59.70%) of the respondents` answers have shown that the benefit sharing mechanism is not inclusive of all forest-dependent communities. Likewise, as indicated by 259 (64.43%) respondents, there is no equal and fair forest-based wealth distribution in the locality. The chi-square test for both components indicated a statistically significant result ($p < 0.001$). Generally, the respondents' responses for equity and fairness indicator components have shown a negative response throughout the components, so it can be implied that there is a weak practice of equity and fairness in the study areas in terms of ensuring forest governance effectiveness.

Table 6: Effectiveness in Forest Governance

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Effectiveness	**N**	**%**	**N**	**%**		
Forest institutions in the locality are strong and adequate	272	67.66	130	32.3	50.159	0
Forest institutions in the locality are fair and responsive	246	61.19	156	38.8	20.149	0
Government actions in the locality show a commitment to sustainable forestry	127	31.59	275	68.4	54.488	0
Forest governance in the locality is bringing positive results	186	46.27	216	53.7	2.239	0.135
Forest governance in the locality is meeting the demand of the society	220	54.73	182	45.3	3.592	0.058

Correlation is significant at the 0.05 level (2-tailed).
Source: Own Field Survey, 2022

Effectiveness in forest governance has been considered as the sum of five components, as indicated in Table 6 above. In response to the first component, 272 (67.66%) of the respondents reported the absence of strong and adequate forest institutions in the locality. The chi-square test for this component indicated a significant result ($p < 0.001$). The result indicates that the forest institutions in the locality are inadequate, resulting in ineffective forest governance in the locality. Similarly, 246 (61.19%) of the respondents disagreed on the fairness and responsiveness of local forest institutions, while 156 (38.81%) of the respondents showed their agreement, which is supported by a statistically significant result with a value of $p < 0.001$. In terms of the government's actions, 275 (68.41%) reported that the local government is highly committed to the sustainability of the forest resources in the locality. The chi-square test for this component indicated a significant result with $p < 0.001$. But for the last two components regarding whether the forest governance practice in the locality has brought a positive result and met the demand of society or not, the responses for the components have shown that they could not decide the effectiveness of forest governance in the study areas as the chi-square test result of these two components has shown an insignificant result with p values of 0.135 and 0.058, respectively. Generally, it can be said that there is an ineffective practice of forest governance in the study areas.

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Table 7: Efficiency in Forest Governance

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Efficiency	**N**	**%**	**N**	**%**		
There are adequate forest protection professionals in the locality	293	72.89	109	27.1	84.219	0
The forest protection professionals in the locality exert their maximum potential to protect forest resources	280	69.65	122	30.4	62.1	0
Application of penalties for breaches of forest laws and regulations are consistent and appropriate in the locality	204	50.75	198	49.3	0.09	0.765
There is efficient forest revenue collection, expenditure, budgeting, accounting, redistribution and audit.	344	85.57	58	14.4	203.473	0
Measures and tools to prevent forest crimes are efficient to suppress, detect, and prevent forest-related crimes and ills	196	48.76	206	51.2	0.249	0.618

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

From Table 7 above, we can observe that efficiency is broken down into five components. As a result, the respondents` responses for the first component indicated that 293 (72.89%) confirmed that there are no adequate forest protection professionals in the locality, while 109 (27.11%) respondents reported the adequacy of forest management professionals. The chi-square test for this component indicated a significant difference between the responses with p 0.001, and hence, this component of efficiency could indicate that there are inadequate forest protection professionals in the localities. With respect to whether the forest protection professionals in the locality use their maximum potential to protect forest resources or not, 280 (69.65%) out of the total respondents indicated their disagreement. The chi-square test for this component has also shown a statistically significant result ($p < 0.001$). That means the effectiveness of forest governance in the study areas is negatively affected not only by the inadequacy of forest protection professionals in numbers but also by the fact that they do not exert their maximum efforts to protect forest resources in the locality from destruction and deterioration for different reasons. In relation to the application of penalties for breaches of forest laws and regulations, 204 (50.75%) responses indicated disagreement to show its inconsistency and inappropriateness in the locality, but 198 (49.25%) agreed.

The chi-square test for this component has shown an insignificant result. So, the component could not decide the efficiency of forest governance in the locality. Concerning revenue collection, expenditure, budgeting, accounting, redistribution, and audit of forest resource income, 344 (85.57%) respondents indicated that there is no efficient forest revenue collection, expenditure, budgeting, accounting, redistribution, and audit in the locality. The chi-square test for this component has shown a significant result ($p < 0.001$). As indicated by 196 (48.76%) respondents, the measures and tools to prevent forest crimes are not efficient in suppressing,

detecting, and preventing forest-related crimes and ills, but 206 (51.24%) respondents said the measures and tools are efficient. The chi-squared test for this component also showed an insignificant result. So, we cannot decide whether the forest governance in the locality is efficient or not based on this component of efficiency. In general, forest governance in the locality is inefficient in protecting forest resources, as the majority of the components have been poorly practiced.

Table 8: Conflict Management in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Conflict Management	N	%	N	%		
There are adequate and clear conflict resolution mechanisms for handling conflicts that arise over forest resources in the locality.	232	57.71	170	42.3	9.562	0.002
Usually, conflicts over forest resources are resolved fairly and quickly without any delay and bias in the locality	300	74.63	102	25.4	97.522	0
Conflict resolution mechanisms are set by public participation and widely known to them in the locality	283	70.4	119	29.6	66.905	0
There are informal ways that are socially acceptable and widely used to resolve conflicts over forest resource use in the locality	344	85.57	58	14.4	0.995	0.319

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

Indicators of conflict management are composed of four components, as indicated in Table 8 above, which were used to capture the extent of effectiveness of conflict resolution mechanisms to handle conflicts occurring in environmental and forest resource use and management. With regard to conflict handling, 232 (57.71%) of the respondents indicated that there were no clear and adequate conflict resolution mechanisms for handling conflicts that arise over forest resources, while some 170 (42.29%) reported their clarity and adequacy. The chi-square test has shown a significant result ($p = 0.002 < 0.001$), which indicates the absence of clear and adequate conflict resolution mechanisms in local forest governance. Concerning the fact that whether there are institutional mechanisms of dispute handling or not in the study areas, the vast majority, i.e., 300 (74.63%) of the respondents, indicated the lack of fairness and on-time implementation of institutional dispute handling in the surveyed localities, while 102 (25.37%) of the respondents agreed on this component. The chi-square test yielded a statistically significant result (p 0.001), which suggests a lack of fairness and timely institutional response in conflict resolution in the study area. Moreover, it was also reported by 283 (70.40%) of the respondents that the existing conflict resolution mechanisms were not set up with the participation of local people and were poorly known to them, while 119 (29.60%) of the respondents answered the opposite. The chi-square test has shown a statistically significant

result (p 0.01). Finally, with regards to the respondent's response in relation to whether there were informal ways that are socially acceptable and widely used to resolve conflicts over forest resource use in the locality or not, the overwhelming majority of the respondents, i.e., 344 (85.57%) out of the total participant respondents, indicated their absence, while the rest, 58 (14.43%), forwarded their agreement; however, the chi-square test result has shown an insignificant result for this component. Hence, the conflict resolution mechanism has neither been participatory nor widely known to the local people. In general, in addition to its absence at local levels, the conflict handling system was found to be unfair, untimely, non-participatory, and poorly known by the implementers in the study area.

Table 9: Corruption Control in Forest Governance Effectiveness

Measurement Items	Response				Chi-squared	Asymptotic Significance (2-sided)
	Disagree		Agree			
Corruption Control	N	%	N	%		
The police, local politicians and transport authorities are serious in controlling illegal movement of forest products in the locality	303	75.37	99	24.6	103.522	0
Local officials never use public power for gaining forest resources for their own benefit in the locality	224	55.72	178	44.3	5.264	0.022
Reports of serious forest crimes are routinely investigated in the locality	165	41.04	237	59	12.899	0
Forest crimes such as illegal logging, forest land grabbing etc. are reduced in the locality	283	70.4	119	29.6	66.905	0
Concession and sale allocation processes of forest resources are transparent and free of corruption	284	70.65	118	29.4	68.547	0

Correlation is significant at the 0.05 level (2-tailed).

Source: Own Field Survey, 2022

Corruption control indicators were broken down into five components. The responses of 303 (75.37%) households on the first component have shown that police, politicians, and transport authorities did not seriously control illegal movements of forest products in the study areas. The chi-square test of this component has shown a significant result (p 0.001), which indicates forest products freely move from the locality without any resistance or protection from the stakeholders, such as police, local politicians, and transport authorities. Regarding misuse of public power, 224 (55.72%) responses agreed that the local officials use public power to deliver forest resources for their own benefit. Though 178 (44.28%) of respondents reported differently, the chi-square test showed a significant result (p 0.05). Hence, local officials misuse forest resources and exploit public power for their own benefit. In terms of reports about routine investigations of forest crimes, 237 (58.96%) households agreed on their existence, while 165 (41.04%) did not. The chi-square test for this component indicated a significant difference between the responses with p 0.001, and hence, this component of corruption control could indicate that there are investigations into reports of forest crime in the locality. Moreover, the response of 283 (70.40%) households reveals that illegal logging, forest land grabbing, and

other forest crimes are not reduced in the locality. In addition to this, 284 (70.65%) respondents indicated that there is no clear concession and clear-cut sale allocation process for forest resources. The chi-square test of the last two consecutive components has shown a significant result (p 0.001). That means forest crime is a condition that is not reduced in the study localities, and the concessions and sale allocation processes of forest resources were not transparent and open to corruption. In general, corruption control is not appropriately practiced in the governance of forest resources in the study localities.

Qualitative Data Analysis

The following section is devoted to the discussion of the status of forest governance effectiveness based on the results of the descriptive analysis. As stated in the above description, the nine forest governance effectiveness indicators were discussed to confirm whether the current forest governance practice in the study areas is effective or not. Based on the scores of nine key indicators of forest governance effectiveness, which were further measured by the outcomes of fifty-three specific component items, the extent of the status of the dependent variable, forest governance effectiveness (FGE), was constructed. Thus, the dependent variable is forest governance effectiveness, and the indicators were rule of law, accountability, transparency, participation, equity or fairness, effectiveness, efficiency, conflict management, and corruption control.

Among nine major indicators with 53 specific components of effective forest governance, responses have confirmed that each indicator has not been free from irregularities and that forest governance effectiveness is far below average. For instance, in terms of the rule of law, the survey showed poor results where there has been terrible practice of the rule of law. Among eight component indicators of the rule of law, five components responded negatively. These findings are also consistent with the responses of the community groups during focus group participant discussions in the study areas. As stated by the participants of the focus group discussion, members of three kebele communities in Gerese woreda, legal institutions were biased and gave little attention to forest-related violations committed by individuals, which was also confirmed in a similar manner with the key informant and focus group discussion results in Arbaminch city and Mirab Abaya woreda. They further stated that in most instances, the police are reluctant to investigate forest-related crimes and bring the violators in front of the court in the locality. Even if the police routinely investigate and bring the violators to court, the judges release the culprits free of charge, or in some instances, they leave them with a simple warning. Thus, the study indicated poor practice of the rule of law in the forest governance system.

In terms of accountability, the survey showed poor results where there has been an appalling practice of accountability. Among nine component indicators of accountability, seven components were negatively responded to. Furthermore, social values that support forest conservation were not properly used in forest governance in the study areas. In relation to this, the key informants who participated in the interviews also verified that community values such as ‘‘gome’’ or taboo of cutting trees haphazardly, were not used in the locality for strengthening forest governance practices in the localities except for protecting a few sacred and burial places. According to the study's findings, there were no officially recognized social regulators or watchdogs assigned in the localities to improve forest governance activities. Thus, the study indicated a lack of clear accountability lines in the forest governance system in the study areas.

Similarly, in connection with transparency in forest governance in the study areas, the study indicated poor results. Among the five components of the transparency indicators, three were

negatively responded to. The distribution and allocation of benefits from forest resources are not managed transparently, and decisions related to forest resource use and management are not made openly and known to the local people. Moreover, local communities do not know their roles and responsibilities related to forest resource protection. In this regard, the community focus group participants in three ‘‘geja and sisote’’ forest adjacent kebeles in Gerese woreda have lamentingly indicated that ‘‘*in 2013/14 E.C. only, the woreda administration obtained ET birr 10, 000,000 (ten million) from sales of forest products in their locality. However, initially, they promised and convinced us that 30% of the revenue collected would be distributed to the kebeles who protected and preserved the forest resources, but the woreda did not give a single penny as a share of the revenue, and this created serious complaints among the forest-protecting people and the woreda administration*.’’ (Community focus group discussion, December 2022) Hence, there is no adequate practice of transparency in forest governance in the study areas.

In terms of participation, among the seven component indicators, all the components were not responded to positively by households. In general, the responses of the participant respondents for all components under forest governance effectiveness of participation indicated disagreement. The local communities have no internal rules of their own related to forest resource protection and governance; the community members in the study area never attend forest-related meetings regularly and local decision-making processes related to forest use; the community is not involved in the planning and implementation of forest governance measures; the community is not involved in setting rules and regulations and enforcing forest protection rules and regulations; and they do not also take part in the monitoring and evaluation of forest resource management activities, as verified by the results of the study findings. Moreover, the community focus group and the key informant interview results have also confirmed that there is no well-designed popular participation framework for forest governance in the locality except seasonal mobilization of tree planting and soil and water conservation activities once in a yearly basis as public participation in environmental protection activities which is also highly criticized for its lack of follow up for its sustainability. Therefore, the study has clearly shown that popular participation in forest governance was not adequately observed at any stage of the forest governance process in the study areas.

With regard to equity and fairness indicator components of forest governance effectiveness, five components were measured, and the respondents’ responses for all five equity and fairness indicator components have shown a negative response throughout the components. Hence, according to the results of the findings, forest-dependent communities did not have fair access to forest resources in the locality; benefit-sharing mechanisms from public forests are not clear; the local forest management committee formation is not inclusive of gender, minorities, and marginalized societies; the benefit-sharing mechanism is also not inclusive; and forest wealth distribution is not fair and equitable among the forest-dependent communities in the study localities. Therefore, these weaknesses show that forest governance effectiveness is negatively affected in terms of equity/fairness indicators in the study areas.

Moreover, concerning effectiveness in forest governance in the study areas, three items among the five components were negatively responded to. The study result has shown that forest institutions in the locality are weak, inadequate, unfair, and unresponsive, and forest governance in the locality is not meeting the demands of society, even though government actions in the locality show a commitment to sustainable forestry which is also supported by the qualitative study results in all the three study areas of Gamo zone.

In relation to the efficiency of forest governance in the study areas, among the five indicator components, four items were negatively responded to. In this aspect, the results of the study findings have confirmed that there were no adequate forest protection professionals in the study localities and those inadequate forest protection professionals who were assigned to the localities do not use their maximum potential to protect forest resources and improve forest governance in their localities. This indicates that forest governance effectiveness in the study areas is not only affected by the inadequacy of forest protection professionals in number but also by the absence of commitment to exert their maximum efforts to protect and improve forest resource governance effectiveness in the study areas. In addition, the study findings indicated a negative result for the appropriateness and consistency of the application of penalties for breaches of forest laws and regulations in the study localities. Furthermore, forest revenue collection, expenditure, budgeting, accounting, redistribution, and auditing activities were not efficient and clear in the localities, though measures and tools to prevent forest crimes were indicated as efficient to suppress, detect, and prevent forest-related crimes. However, the failure of legal institutions to give attention to implementing those tools weakens forest governance effectiveness in the study areas, as was further complemented by the responses to the discussion with the community focus groups and key informant interview participants.

The conflict management indicator of forest governance was measured by employing four components. The study indicated that all of them are full of flaws. Hence, conflict resolution mechanisms in the study areas were inadequate and unclear for handling conflicts that arise over forest resources in the locality; conflicts over forest resources were not usually resolved fairly and quickly without any delay or bias in the locality; mechanisms were not set by public participation and widely known to them in the locality; and there were no informal ways that are socially acceptable and widely used to resolve conflicts over forest resource use in the study locality. Thus, conflict management mechanisms and practices are weak and ineffective in forest governance in the study area.

Finally, indicators of corruption control in forest governance were measured using five component items. Among the five components of corruption control in forest governance in the study areas, four items were negatively responded to by the respondents. The study result indicated that the police, local politicians, and transport authorities were not serious about controlling the legal movement of forest products in the locality; the officials used public power to gain forest resources for their own benefit; the concession and sale allocation processes of forest resources were not transparent and free of corruption; and forest crimes such as illegal logging, forest land grabbing, etc. were not reduced in the locality. Therefore, forest governance effectiveness in terms of corruption control was not effective in the study areas.

The above discussions of the findings which were also supported by the qualitative extracts collected from the three administrative tiers of the Gamo zone, relevant zonal departments. Qualitative responses from key informants from relevant regional institutions have also shown consistent results with the above findings. Key informants from the regional Environment and Forest development, Agriculture and Water, irrigation, and mine development sectors have reiterated that the governance practice was highly ineffective for different reasons. The KIs contend that environmental and forestry priorities were poorly understood by policymakers themselves, and in most cases, environmental protection was considered detrimental to economic development. Hence, the governance system was highly negligent in addressing the harms that were caused by the initiation of poorly planned industrial plants, agricultural investments, settlement programs and others since economic growth is the first priority undertaken at the expense of environmental quality (KI/2, 2022).

The KIs further noted that due to a lack of clearly spelt-out land use policies (LUP) at the national level, the country is experiencing gross damage to its natural and social environment. They further explained that the lack of the LUP has led to the arbitrary allocation of land for different investment projects. The case in point, as mentioned by KIs from the Gamo Zone Water, Irrigation, and Mines Development Department and Environment and Forest Development Office, was that the fertile agricultural land on the outskirts of Arbaminch city and Mirab Abaya woreda was blindly allocated for investors, neighboring kebele youth farmers, and displaced households because of the catastrophic flood and land slide in 2020 through massive clearing of forests (KI/3, KI/4, 2022). Due to a lack of responsible bodies to make a planned use of the country's land resources, the rift valley lakes of Chamo and Abaya have now been highly affected by siltation (KIs/5, KI/6, 2022).

Similarly, when agricultural expansion and settlement programs take place, they are done at the expense of massive clearing of dense forests in the study areas and the wetlands of lakes too (KI/7, KI/8, KI/9, KI/10, 2022). However, there is no clear policy that protects these ecosystems from damage due to the increasing population and cultivation of additional lands on a yearly basis. There is no clear demarcation of where and how to expand urbanization or not, where to cultivate or not, or where to plant industries or not. In general, there is no holistic policy approach that clarifies the proper and cautious use of resources in a way that does not undermine the social and ecological environment. In short, every economic and social plan is not done through the lens of land management, forest management, or natural resource protection (KI/11, KI/12, 2022).

The qualitative data also indicated a lack of transparency and poor practice of conflict handling mechanisms in the forest governance process, two of which are among the key indicators of effective forest governance. In general, according to the qualitative extracts across the three administrative tiers in the Gamo zone in the South Ethiopia Region, it became usual that development projects and settlement programs were initiated and implemented in and around densely forested lands and pristine nature areas, biodiversity hotspots, and sensitive and fragile ecosystems, often resulting in the destruction of habitats and the destabilization of the socio-ecological systems, further causing irreversible damage.

Similarly, there were empirical studies that supported the findings presented above. In this regard, studies recommend that forest resource governance decisions, either with regard to use rights or conservation measures, have been undertaken disregarding local people's rights of participation, resource use, and livelihood security, while government institutions have undertaken lopsided decisions with little or no accountability to the implications of their decisions and actions (Moreda, 2017; Kelboro & Stellmacher, 2015), which often result in poor resource governance that is always contested by the government's top-down approaches (Seifu & Beyene, 2014).

Other studies also indicated the prevalence of poorly designed governance architecture resulting in ineffectiveness (Ruffies et al., 2010), whereas forest laws were poorly enforced, experiencing weak inter-sectoral coordination and stakeholder participation and low synergy among actors in initiating development programs that affect the forest environment (Kruger et al., 2013; EPA, 2012). Moreover, studies conducted by Jones and Carabine (2013) indicated that failure to meaningfully involve stakeholders at all levels of society, particularly at the local level, was also one of the weak links in the governance system. To this end, it was evident that weak institutional arrangements, poor distribution of actor roles, and concentration of

governance mandates in the hands of state actors have led to substantial regulatory failure in general (Melese & Solomon, 2012; Melese, 2008).

Even though forest governance is considered a vital policy focus, little is known about the need to create a conducive setup for effective forest governance across the lower levels (Jones & Carabine, 2013), and forest and environmental management issues were included lightly in numerous rural development policies. There is also evidence that, because of poor governance performance, Ethiopia is not living up to its international commitments, as there are wide discrepancies between its international agreements and the actual implementation on the ground to improve environmental quality (Cesar & Ekbom, 2013). As mentioned above, failure to properly enforce forest laws was also another area of concern and was considered a hidden manifestation of institutional weakness (Adugna, 2016; Mulugeta, 2013; Dejene, 2012; Tesfaye, 2012; Ruffeis et al., 2010; Mellesie & Mesfin, 2008), which is an indication of failure to pursue transparency and accountability indicators. In general, the quantitative results and qualitative findings, as well as the empirical evidence, have shown clear ineffectiveness in the forest governance system in the study areas.

Furthermore, forest governance ineffectiveness results in severe environmental, material and human life damages. For instance, in May 2020, because of such devastating natural calamities in the Gamo zone, 42 kebeles in 10 woredas were affected by such a catastrophe. Figure 1 below indicates the damage caused as result.

Figure 1: Landslide & Flood risk in Gamo zone Landslide & Flood risk: To the left Gerese and to the right A/Minch zuriya woreda

Source: Gamo zone Disaster Risk Management Department, 2022

It resulted in the displacement of a total of 1730 households (1505 male and 225 female households) with a total of 8801 family members (4507 male and 4294 female family

members). In the last five years before the year 2020, the number of deaths registered because of similar recurrent disasters in the study area in three woredas and nine kebeles was 22 males and 21 female family members, but the number of deaths in 2020 was 31 (16 male and 15 female family members). This situation urged the zonal administration to look for options for internal settlement programs for moving the victims from those disastrous areas of their origin. Based on this, 10,000 hectares of forest land were prepared in lowland areas of three woredas in the Gamo zone (Gogora in Kucha, Qorga geramo (hamessa) in Mirab Abaya, and Koshale in Gerese woredas). A total of 1730 households (8270 family members) from ten woredas and 42 kebeles were internally settled in those three selected settlement sites in Gamo zone by clearing forest lands.

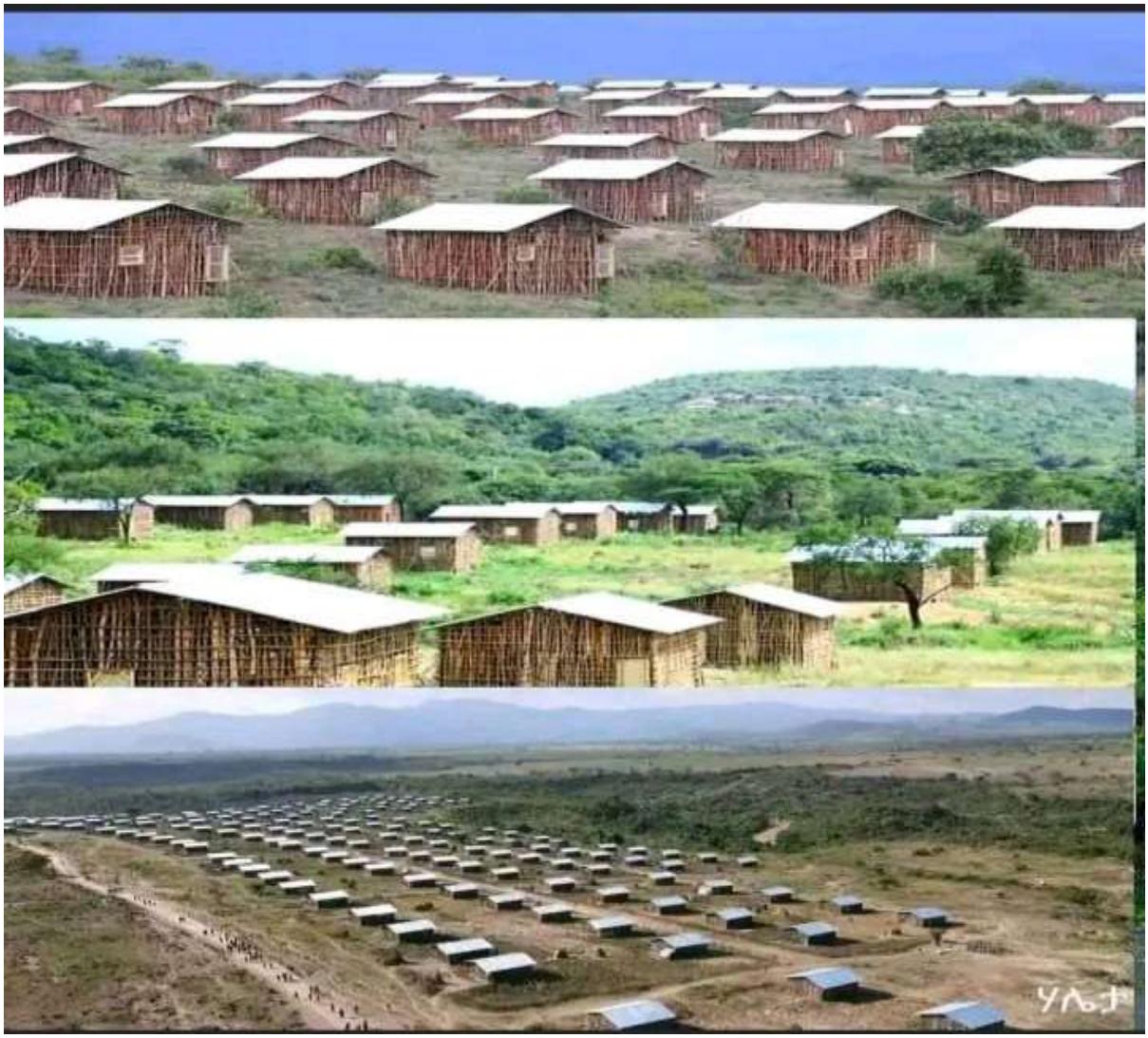

Figure 2: Gogora and Hamessa Internal Settlement because of Landslide and Flood Risk in Gamo Highland Woredas, Gogora (Kucha Woreda) and Qorga Geramo/Hamessa (Mirab Abaya Woreda) Internal Settlement Sites in Gamo Zone

Source: Gamo Zone Disaster Risk Management Office, 2022

Therefore, from the above detailed analysis and the results of the findings, it can be stated that the current forest governance in the study areas is not effective according to the results from the above descriptive statistics and the qualitative data analysis. Both the quantitative and

qualitative discussion results have indicated that there were clear flaws in the performance of forest governance effectiveness in the study areas.

CONCLUSIONS AND RECOMMENDATIONS

Forest governance effectiveness is an outcome of the synthesis of the interaction among a relevant and diverse set of actors, capable regulatory institutions, and clearly defined rules and regulations. To investigate the effectiveness of forest governance in the study areas, this study adapted key indicators of forest governance effectiveness based on the literature. The study also attempted to identify the extent of forest governance effectiveness in the study area using forest governance effectiveness indicators and the respective components described under each major indicator to measure the status of forest governance effectiveness. The findings indicated that the implementation of and attachment to these nine key indicators was found to be insufficient and poor and this study arrived at the conclusion that forest governance was ineffective in terms of the majority of the components of the key indicators.

Moreover, the qualitative data generated from different study sites across three administrative tiers of the surveyed zone and region and evidence from related empirical studies have substantiated the above finding that forest policy implementation and governance in Ethiopia has been facing a strenuous challenge in terms of weakness in exercising rule of law, accountability, lack of transparency, poor enforcement of forest laws, unchecked provision of forest land permits for other land use patterns, poor public participation in forest protection activities, and decisions that affect both communities and local resources. It also suffers from failure to involve key actors, characterized by a weak institutional setup and a lack of a transparent and just system to consider community interests in resource conservation and use; thus, massive environmental and social damages have been taking place, causing considerable harm to the socio-ecological systems in the study areas.

Hence, ensuring a robust independent forest institution from top to bottom that is legally and politically empowered to coordinate the concerned sectors in the protection, governance, and sustainable utilization of the resources by realizing strong practice of the rule of law, a clear accountability line for all stakeholders, ensuring transparency, responsible public participation that enhances equity, fairness, effectiveness, and efficiency, and creating opportunities to make use of local knowledge and experiences of managing conflicts that are arising among the forest-dependent communities and the government bodies is expected from the government. Moreover, the government should work on strengthening the existing forest policy with strong regulatory, legal, and institutional frameworks that prevent the prevalence of corruption in forest governance and misuse of forest resources so as to ensure the rule of law in the forest sector and create a visible sense of public ownership through continuous awareness-creation activities about the consequences of the unsustainable and irresponsible use of their forest resources. Lastly, the government should inform the law enforcement bodies and put in place strict oversight and control mechanisms so as to let them properly apply the forest protection laws to those individuals who are involved in violations of the forest protection laws.

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Conflicts of Interest

The author(s) declare no conflict of interest.

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