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The Political Economy of Deforestation and Forest Degradation in Ethiopia: Review Article

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Abstract
This paper is aimed to review the political economy of deforestation and forest degradation in Ethiopia. Deforestation and forest degradation is a serious problem of the country and it results several socioeconomic and biophysical problems. It affects the capacity of forests to provide ecosystem services; it causes the disappearance of species, declines in carbon stock, shortage of fuel wood, soil erosion and subsequently it has affected agricultural productivity and food security in the country. There are multiple interacting factors of deforestation and forest degradation. They can be direct or indirect causes. The major direct causes are: agricultural expansion, illegal extraction and collection of forest products, investment and resettlement programs and forest fire. The major indirect causes are: population growth, poverty, unstable and inefficient tenure security, limited institutional setup and capacity. The problems are highly associated with the previous and the current political economy of the country. It has been experienced three distinctive socio-political-economic systems. Such as: the *Feudal/Imperial regime* (pre-1974), the *Socialist/Dergue* regime (1974-1991) and *the Federal government* (since 1991). Even if they have their own unique political and economic ideologies, they have failed in implementation because; they have paid less attention to the local or majority people. In addition, the changes from one regime to the other were destructive to the previous system. For instance, land tenure system was changed from absolute private property rights to the communal. In combination, these political-economic approaches have adversely impacts on natural resources, especially the forest resources of the country. To insure sustainable natural resources management and utilization in the country: it must be understand both the biophysical and socio-economic characteristics of the area, any interventions should be in an integrated, flexible, multi-sectoral and multi-disciplinary approaches, both scientific and indigenous knowledge should be equally paid attention, strengthening awareness creation, capacity building, real community participation and equitable benefit sharing is also required attention. Finally, any developmental activities should be evaluated in terms of an environmental soundness, economically viable and social acceptable.
Keywords*:* Ethiopia, Deforestation, Forest Degradation and Political-Economy

1. Introduction

Deforestation and forest degradation is a serious problem in many parts of the world, particularly in developing countries like Ethiopia. Globally, total forest area was declined by 3%, from 4128 million ha in 1990 to 3999 million ha in 2015 (Rodney 2015). The history of progressive deforestation in Ethiopia was dated back to 3,000 years ago though it has accelerated tremendously during the last century (Badege 2009). According to several reports, forest coverage before a century was approximately 40% but currently it was declined to less than 3.4 million ha (2.9%) in 2005. The average annual rate of deforestation is greater than 0.25% (FAO 2010). From this left country's high forest cover about 94% was only located in three regions such as: Oromia, SNNPR and Gambela (WBISPP 2004). A few studies are indicated as the rate of deforestation was higher than the estimation. For instance: the natural forest cover in Central Rift Valley of Huluka Watershed about 22% in 1973 was declined into 1.5% in 2009 (Hagos 2014); in Northwestern highlands of Gojam-Dembecha area about 27% in 1957 was declined into 0.3% in 1995 (Gete and Hurni 2001); in Benshangul-Gumuz of Mandura district about 5.17% in 1957 was became almost non-existent in 2006 (Tegegne and Aklilu 2012). Consequently, deforestation is not only alteration in scale of forestland into other land use types but also it has significant impacts on sustainable development. It is an obvious that forests can play an important role for the livelihood of local communities as well as in the national economy. The forest has been used for construction materials, fuel wood, agricultural tools, food, fodder, medicines, and other NTFPs. In addition, it provides a habitat for wild life, site for recreation, wildness, watershed protection, absorb atmospheric carbon dioxide and many other benefits. However, deforestation and forest degradation results several socioeconomic and environmental problems. It has been strongly affected the capacity of forests to provide ecosystem services, the disappearance and loss of important flora and fauna species, declines carbon stock, increases shortage of fuel wood, limits incomes from forest and non forest products, causes land degradation in the form of soil erosion and greatly affects agricultural productivity. Moreover, deforestation is described as one of the main proximate causes of drought and catastrophic floods, and subsequent recurrent malnutrition and famine problems in Ethiopia. There are multiple interacting factors of deforestation and forest degradation in the country. According to Bekele *et al*. (2015) five major direct drivers and four underlying causes have identified. The major direct drivers include: forest

clearance and land-use conversion for smallholder agricultural expansion, promotion of large-scale commercial and development investments in forest frontiers, illegal extraction and collection of forest products, governmental led human settlement programs in the forest areas and forest fires. The indirect drivers/underlying causes include: poverty and heavy dependence on exploitation of natural resources; rapid population growth; unstable and inefficient tenure and property right arrangements; and limited institutional capacity to manage forests. The same authors also suggested as these causes have been closely associated with the political economy of the country. Therefore, this paper is aimed to review the political economy of deforestation and forest degradation in Ethiopia.

2. Results and Discussion

The country experienced three distinctive socio-political and economic systems. These are the Feudal/Imperial regime (pre-1974); Military/Marxist/ Socialist Market Economy/ Dergue regime (1974-1991) and Federal/Free Market Economic System/EFDR government (since 1991). All political regimes have been recognized the importance of agricultural development and since the agricultural sector is the mainstay of the country's Economy. But, they have resulted in very different outcomes in agricultural and rural development. Besides, agriculture is proving to be the most complex sector to understand in the country. On the one hand, it contributes the largest share to GDP (45%)), export trade and earnings (90%) and employs (85%) of the population. On the other hand, the performance of the sector is very low and the country has been portrayed as a food deficit at national level and food insecurity at household level. The most memorable disasters and the famine in the 1984/5 affected 8.7 million people and leading to about one million deaths can be the crucial example (Sharma 2005). Furthermore, agricultural expansion (land-use change) has been closely associated with deforestation and forest degradation in the country. The central underlying cause of the problem is the political economy. Therefore, the political economy of the three regimes in the country was analyzed in the following section.

2.1. During Imperial/Feudal regime [Pre-1974]

During this period the country had a complex land tenure system. It was absolute private ownership of land and highly centralized by monarchical rules. There was a variety of arrangements/relationships across the country. It was a tenant-landlord in the Southern and South-western parts and rist-kinship in the Northern. All unoccupied land (including forest, native and nomadic lands) which covered about 47% total land of the country was considered as state ownership and it was divided up or distributed among the local chiefs (*balabbats*), royal families, the church, the nobility, warlords, individual clergymen and soldiers. People relocation/resettlement has also begun during this regime since 1958. About 20,000 households were involved from northern and relocated them into the southern parts (Messay and Bekure 2011). High forests were remained victims of war and conflict. They have intended to set fire into dense forest in order to easier battlefields and to destroy strategic hiding grounds of the enemy soldiers. Harvesting of forest honey, charcoal making, hunting and pastoral activities are also the major causes of forest fire. As few evidences informing that railway construction has used huge amount of acacia sp. charcoal from woodlands of the central rift valley. The land under private ownership has sold or exchanged without any restrictions and this was facilitated conversion of forest land into agricultural land. The tenants had been earned low yields and to pay the expected tax, so they intended to shift their cultivation into nearly fertile lands or they looked into other newly given natural forests from their landlords. Due to the fact, high natural forest cover was reduced from 16% in 1950's to 2.8 % in 1982 (Badege 2009). The regime has tried to initiate different strategies to overcome the problems of low agricultural productivity, loss of biodiversity and tenure insecurity. In 1960s, the imperial has granted various incentives to national and foreign investors who were willing to invest in agriculture. These incentives include exemption from import duty for agricultural machinery, provision of credit, and grace period on income tax payment. The development of infrastructures like road and rail transportation offered additional attractions to the investors and these were resulted in the establishment of large-scale private commercial farms. Forest plantation (introduced Australian Eucalyptus species) was started during Minillek II in order to alleviate the shortage of fuel wood. Various protected areas (national parks, wildlife reserves, sanctuaries, forest priority areas) were established though it heavily excluded local communities from their natural environments. Imperial government has established the Ministry of Land Reform and Administration in 1966. It was due to domestic opposition and softens international pressure to the land tenure system. The ministry has established to study the land tenure patterns and to prepare policy recommendations for the reform. Then it has prepared a bill for the regulation of agricultural tenancy relationship in 1968, and submitted to the Parliament in 1972. But, the bill did not decided until the end of the regime. Because, the bill did not include the fundamental issue of land ownership rather it only specified forms of tenancy relationship, the parliament was dominated by feudal landlords where none of the tenant representatives, the parliaments were only protect their class interest and they could not willing to withdrawn the old tenancy system. In general, the feudal tragedy can be dictated by two major factors: the political and economic desires. *Politically*, the regime was meant to effectively control the conquered territories by the newly

coming northern peasants, landlords and political authorities. Besides, it intended to strengthening the imperial power, preserving the political loyalty of the aristocracy and buying off the opposition (local chiefs). *Economically*, the regime pursued a market-based economy as means of free access, and they interested to have access to resources such as: gold, ivory, even slaves and agricultural products via securing tax collection. Subsequently, it was motivated to improve the living standard of the grantees and to make them to be the owners of the properties. Besides, during the imperial period millions of hectares of land were owned by absentee landlords whilst millions of people including indigenous peasants turned into tenants; arbitrary peasant evictions, great inequality, lack of relevant institutions, tenure insecurity and high rate of tenancy, severe drought and famine were revealed. In combination, these all caused the political grumbles and led to the over throw of the regime and the Military government took the power in 1974.

2.2. During Socialist/Dergue regime [1974-1991]

The 1974 land reform has been considered as the most radical change of land tenure system in Ethiopia. The Dergue has eradicated a tenant-landlord relationship, and it has nationalized all rural land of the country. It introduced identical tenure system over the country and it has tried to reallocate equal landholdings among farming households. It restricted the holdings no more than 10 ha per household. It prohibited land transfer/tenancy in any form by any means. In addition, using hire labour in the cultivation of land was considered as forbidden. It aimed to accommodate the needs of new claimants through land redistribution system. To achieve this provision, Peasant Associations (PAs) were formed by 800ha each. Each of PAs has a number of functions related to land administration. These have to allocate/redistribute of land to member of PAs, to implement land use directives, to administer and conserve public property as well as to settle land cases through their judicial tribunals. However, the capacity of land allocation/redistribution system was deteriorated because of rapid population growth and land fragmentation (Belay 2003). A number of restrictions to use rural land have introduced elements of land tenure insecurity. There were little incentives for the peasants to invest long term activities like SWC because of uncertainties in land expropriation. Besides, agricultural productivity was retarded due to land degradation (deforestation) and climate change (drought). Subsequently, these were highly aggravated the most memorable disasters and the famine in 1984/85. Due to the fact, in 1980's the regime has highly committed to set different strategies to cope with these problems. The strategies include collectivisation policies: resettlement and villagization programs, natural forest protection, and massive plantation and SWC movements. The Dergue regime has recognised socialist/command economic system. So that, it discriminated against smallholder farms and favoured to co-operatives or collective farms (Belay 2003). In addition it has expanded large scale state farms into more than 216,000 hectares. These land was obtained from the previous large scale commercial farms, expanded to the communal lands (including woodland forests) and it has converted from individuals farms of who unwilling to a member of cooperatives. At that time the collective/state farms were received the lion share of subsidised agricultural inputs and extensional services from the government. On the other hand, the peasants' grain price was controlled and fixed by the state. Due to this bad economic approach, finally the government was forced to change command economic system into mixed market economic reform in 1990. Land reform proclamation has responded the government in reallocation/resettlement programme but, it highly implemented after the 1984 drought. The resettlement has also used to resolve drought problems and population pressure on the degraded lands. Other evidences indicated as resettlement was used to depopulate areas of unrest/conflict, specifically from Eritrea and Tigray. Hence, the regime has announced its intention to resettle more than 1.5 million people from the drought-affected northern regions (Wollo, Shoa, Tigray) to the southern and south-west, in the area where arable land (including forest resource) was abundant. For example: in 1986 the government has hastily, forcibly and pitilessly resettled more than 600,000 people in Welega, Gambela, Illubabor, Kaffa and Shoa (Mulatu 1991). Another relocation program initiated by the Dergue government is known as villagization. It was the process to group the scattered farming communities into small village clusters which consisted about 200-300 households. The program was aimed to promote rational land use, to provide access to clean water, health and education services as well as to strengthen security guards. Hence, about 4.6 million people have relocated into more than 4,500 villages. Unfortunately, both the resettlement and villagization programs were remaining fail due to financial constraints, limitation in negotiation with the settlers and native communities, lack of health attention in resettlement centres and villages, none of consultations with multi-discipliners such as: ecologists, agronomists, economists and anthropologists. Then the human right violation and negative reactions faced from domestic and international communities. Finally, the programme disrupted agricultural production and negatively impacted on nearby natural forests. Massive Plantation and SWC Movements was well known during this regime. It has also started since 1980's, especially after the 1984 drought. At that time, 116 watersheds and about 1.5 million hectares treated by different physical soil and water conservation measures such as: hillside terraces, stone bunds, check-dams, micro basins, etc. In addition, about 162,000 hectares of plantation forests and 36,000 hectares of urban fuel wood plantations were established (Million 2011). However, these large-scale efforts mostly unsatisfactory and remained fail due to lack of

community participation and negotiation, tenure insecurity, disincentives and lack of adequate institutional arrangements, top-down and rigid planning approach, unmanageable watershed planning units. Moreover, it highly focused only on sector driven, single medium, technical intervention, on-site effects and short term projects. These all limited sense of responsibility over assets created. The local farmers have become to implemented poorly, unwilling to maintain the schemes, even they have removed and destroyed a large scale of forest areas and SWC structures during governmental change (Meshesha and Birhanu 2015; Simeneh 2015; Lakew *et al*. 2005). To conclude, the Dergue regime was also dictated by the political and economic desires. *Politically*, it was known by restrictions and rigid approaches. *Economically*, it was known by nationalization and collectivization and it has limited attention to privatization. At the end the Dergue regime has seized power over by EFDR in May 1991.

2.3. During Federal/Free Market/EFDR government [Since 1991]

The Ethiopian Federal Democratic Republic government (EFDR) overthrown the Dergue regime and it has been stated a free market economic system. Regarding to the issue of land ownership, the EFDR constitution is restated that "The right to ownership of rural and urban land, as well as of all natural resources, is exclusively vested in the State and in the peoples of Ethiopia. Land is a common property of the Nations, Nationalities and Peoples of Ethiopia and shall not be subject to sale or to other means of exchange" (Article 40, Sub. Art. 3). Due to the fact, this land ownership policy is not fundamentally different from that of the Dergue regime. But, the current constitution and subsequent proclamations allow the right to transfer his/her title, use of hired labour and capital, land tenancy like renting, crop sharing, claim compensation, alienate and bequeath, and there is no upper limit of land holding size and time of use. On the other hand, it decreed as land administration has been decentralized to the regional governments (EFDR Proc. No 89/1997). Then the regional governments have been affirmed their own proclamations on Land Administration and Use. For example: Amhara No. 46/2000, Tigray No. 55/2002, Oromia No. 56/2002 and SNNPR No. 53/2003. Besides, they have been provided holders with land security through land registration and certification program. This also could be showed positive results on long-term SWC investments, renting, transferring, gender equality as well as reducing land dispute. The current government has also given a high priority on agricultural development via Agricultural Development Led Industrialization (ADLI) Strategy. And then it highly focused to increase agricultural production. This could be either of expanding agricultural area into arable/marginal lands (expansion) or by increasing yield per hectare (intensification). The latter was held by promoting improved agricultural inputs and technologies; such as: hybrid seeds, fertilizers, modern agricultural tools and machines; and providing other extensional packages and services (Derek *et al*. 2014). The former approach was intended to expand both smallholder and large scale commercial agriculture into other cultivable land use types including forest lands. It is no doubt as this expansion was at the expense of natural forest areas (the main causes of deforestation). Even though an absence of regular forest assessment and lack of detail studies, a few isolated studies showed agriculture as driving deforestation by identifying area of expansion (either of small or large scale agriculture), changes in number of smallholders and type of crops (either of staple or cash crops). For instance: the total land covered by the major staple crops (Cereals, Pulses, and Oil seeds) was expanded from 9.80million ha in 2004/05 into 13.45 million ha in 20011/12 (CSA 2013). Cash crops (coffee, chat, oil seeds and vegetables) also play a significant role in land use and land cover change, particularly in the more forested parts of the country. About 88.6% of cash crop expansion was shared by four forested regions (Oromia, SNNP, Benishangul-Gumuz and Gambela). Due to the fact, cash crops are superior in their economic return and they are more suitable to cultivate inside the forest frontier. For example, *chat* contributed to the loss of 30% of the forest cover in chat producing sites, and the rate of *coffee production* area per holder was increased by 25% on average (Bekele *et al*. 2015). Thus, smallholder agricultural expansion has cumulatively threatened the remaining forest in the country. On the other hand, large-scale commercial agricultural expansion is also considered as the most direct drivers of deforestation. For example: since 2013 about 3.7million hectares of land had identified from Oromia, Benishangul Gumuz, Gambela, SNNP, Afar and Somalia; and then transferred into the investors. This has been criticized as land grabbing in the name of investments because it highly displaced the local communities with minimum compensation; forced villagization in Gambella for example. The EFDR government has also sponsored (voluntary) resettlement programmes to tackle the chronic food insecurity problem. It has been drawing settlers from highly populated/ degraded areas to sparsely populated/unoccupied virgin land areas (usually the forest and lowlands areas). Some argued as it aimed to sedentary nomadic pastoralists and shifting cultivators, and to provide them with improved agricultural inputs and other services or for the sought of land for large scale investments. For example: during 2002 to 2009 about 198,896 households (1,317,054 peoples) have resettled in four major crop producing regions (Amhara, Oromiya, SNNP and Tigray). In fact, the resettlement programs during this government are somewhat various from the previous governments. Because, the current government considers voluntary/consultation of households; and the settlers are offered the right to return to their original homeland within 3 years; and the programme has carried out in intra-regional states. However, the resettlement areas have been alarming

conversion of natural vegetation into croplands. For instance: at Nono district of West Shoa resettlement site shrub-grassland was reduced from 41.3% in 1984 to 24.4% in 2007 (Messay and Bekure 2011); about 5613.7 hectares of forestland in Haro Tatessa resettlement site was removed (Ahmed, 2005); About 145 km^2 (42.4%) of the woodland has been converted into agriculture and settlement in Chewaka site (Berhanu 2007). These shortcomings could be occurring due to inadequate implementation of environmental policy like Environmental Impact Assessment/Analysis. In fact, the current government has been initiated different approaches and strategies on forest resource management and utilization. Even though there is no specific provision concerning to increase forest covers in the constitution, some of the existing policies and laws (rural land, environmental, energy, investment, wildlife and etc.) indirectly contributes forest cover increase in Ethiopia (Jonse *et al*. 2008). Currently, the council of ministers adopted a forest policy in 2007 (proclamation no. 542/2007). There is better institutional setup and arrangements, integration of concerned organizations and research systems. For example: establishment of Ministry of Environment, Forest and Climate; Regional Bureaus of rural land administration and Environmental Protection, Oromia Forest and Wildlife Enterprise, Basins Authority, etc. A number of federal and regional offices are involved in projects and programs that are related to forestry. For example: Participatory Forest Management (PFM), Productive Safety Net Program (PSNP), Sustainable Land Management (SLM), and Managing Environmental Resources to Enable Transition to Sustainable Livelihoods (MERET) project, Agricultural Sector Support Program (ASSP), Agricultural Growth Program (AGP), Reducing emissions from deforestation and forest degradation ($REDD^+$). International and local NGO's also have been significantly participated in forest development. Such as: GTZ, FARM Africa, SOS Sahel Ethiopia, JICA and the others. International agencies like WFP, FAO, SIDA, World Bank, African Development Bank are having crucial involvements in this regard. Besides, the government has identified Forestry as one the four main pillars of Climate Resilient Green Economy (CRGE) strategy of the country. Moreover, the massive watershed management practices used by social mobilization in the country also showed positive results in rehabilitating severely degraded land and becoming as a means of income sources for the local communities. According to recent data, about 11.5 million ha of Ethiopian land area is covered by forest, from which the plantation has been increased by 47.6% from 509,422 ha in 2000 into 972,000ha in 2015 (FAO 2015). In general, EFDR Government is also dictated by the political-economic desires. *Politically*, it described as democratic and decentralization governance. *Economically*, it described as developmental, free market and capitalism.

3. Conclusion and Recommendations

Deforestation and Forest Degradation is a serious problem in Ethiopia. It was the historical progress of the centuries. The direct causes are agricultural expansion, resettlements and other developmental activities, illegal extraction and collection of forest products, and forest fires. The indirect but the fundamental causes are population growth, poverty, climate change, unstable and inefficient tenure and property right arrangements. In general, these causes are highly associated with the political economy of the country. The country experienced three distinctive political-economic systems. Thus, it has been moved from monopoly to command and then into the current free market economic system. Besides, land tenure system was reformed from absolute private property into state/communal ownership. Moreover, since agricultural sector is the mainstay of the country's economy, all political regimes have been recognized the expansion of agricultural land (small and large-scale). Unfortunately, due to human induced and natural catastrophic phenomena, the regimes have also intended to resettle people from scarce resources (highlands) into resource abundant areas (natural forest and lowland areas). In combination, these political economic tragedies have adverse impacts on the natural resources of the country. To insure sustainable natural resources management and utilization in the country: it must be understand both the biophysical and socio-economic characteristics of the area, any interventions should be in an integrated, flexible, multi-sectoral and multi-disciplinary approaches, both scientific and indigenous knowledge should be equally paid attention, strengthening awareness creation, capacity building, real community participation and equitable benefit sharing is also required attention. Finally, any developmental activities should be evaluated in terms of environmental soundness, economic viability and social acceptability.

References

Ahmed M. 2005. Resettlement, Socio-Economic and Environmental Impact Evaluation: The Case of Haro Tatessa Resettlement Site, Forum for Social Studies (FSS), Addis Ababa, Ethiopia. URL: http://www.fssethiopia.org.et.

Badege B. 2009. Deforestation and Land Degradation in the Ethiopian Highlands: A Strategy for Physical Recovery: Ethiopian e-journal for research and innovation foresight, Vol. 1, No 1, pp 5-18.

Bekele M., Gebre Y., Mohammed Z., Zewdie S., Tebikew Y., Brockhaus M. and Kassa H. 2015. The context of REDD+ in Ethiopia: Drivers, agents and institutions, Occasional Paper 127. Bogor, Indonesia: CIFOR.

Belay K. 2003. Question regarding rural land ownership rights in Ethiopia. Journal of rural development 26 (Winter 2003): 99~134.

Berhanu G. 2007. The Impact of Resettlement on Woodland Vegetation: The Case of Chewaka Resettlement Area, Southwestern Ethiopia. MSc. Thesis, Addis Ababa Univesrsity, Ethiopia.

[CSA] Central Statistical Agency. 2013. Report on Area and Production of Major Crops. Agricultural Sample Survey 2012/2013. Addis Ababa, Ethiopia: The Federal Democratic Republic of Ethiopia, Central Statistical Agency.

[CSA] Central Statistical Agency and ICF International. 2012. Ethiopia Demographic and Health Survey 2011.Addis Ababa, Ethiopia; Alverton, Maryland, USA: Central Statistical Agency; ICF International.

Derek H., Mekdim D., Alemayehu S. 2014. Land constraints and agricultural intensification in Ethiopia: A village-level analysis of high-potential areas. Food Policy 48 (2014) 129–141.

[FAO] Food and Agriculture Organization of the United Nations. 2010. Global Forest Resources Assessment 2010. Country Report, Ethiopia.

[FAO] Food and Agriculture Organization of the United Nations. 2015. Global Forest Resources Assessment 2015: Country report, Ethiopia.

Gete Z. and Hurni H. 2001. Implications of Land Use and Land Cover Dynamics for Mountain Resource Degradation in the Northwestern Ethiopian Highlands. Mountain Research and Development Vol. 21 No 2 May 2001: 184–191.

Hagos G. 2014. Land Use-Land Cover dynamics of Huluka watershed, Central Rift Valley, Ethiopia. Department of natural Resources, Adigrat University, Ethiopia. International Soil and Water Conservation Research, Vol. 2, No. 4, 2014, pp. 25-33.

Jonse B., Sisay N., and Alemu M. 2008. Policies to increase Forest cover in Ethiopia. Proceedings of a Policy Workshop held at Global Hotel, Addis Ababa, Ethiopia from 18-19 September 2007.

Lakew D., Carucci V., Asrat W. and Yitayew A. 2005. Community Based Participatory Watershed Development: A Guideline Ministry of Agriculture and Rural Development, Addis Ababa, Ethiopia.

Meshesha Y. and Birhanu B. 2015. Assessment of the Effectiveness of Watershed Management Intervention in Chena Woreda, Kaffa Zone, Southwestern Ethiopia: Journal of Water Resource and Protection, 7, 1257-1269.

Messay M. and Bekure W. 2011. The Impact of Resettlement Schemes on Land-Use/Land-Cover Changes in Ethiopia: A Case Study from Nonno Resettlement Sites, Central Ethiopia. Journal of Sustainable Development in Africa (Volume 13, No.2, 2011).

Million B. 2011. Forest Plantations and Woodlots in Ethiopia: African Forest Forum Working Paper Series. Vol. 1, issue 12.

Mulatu W. 1991. 'Resettlement and Villagization', in Ofcansky*, T. P. And Berry, L. (eds.), *Ethiopia A Country Study*, Whitefish (MT): Kessinger Publishing.

Rodney J. K., Gregory A. Reams, Frédéric Achard, Joberto V. de Freitas, Alan Grainger and Erik Lindquist. 2015. Dynamics of global forest area: Results from the FAO Global Forest Resources Assessment. 2015. Review and synthesis. Forest Ecology and Management 352 (2015) 9–20.

Sharma B. R., Samra J. S., Scott C.A., Wani S.P. 2005. Watershed Management Challenges: Improving Productivity, Resources and Livelihoods. Colombo, Sri Lanka: International Water Management Institute, xiv + 336 p.

Simeneh D. 2015. Perception of Farmers toward Physical Soil and Water Conservation Structures in Wyebla Watershed, Northwest Ethiopia: Academic Journal of Plant Sciences 7 (3): 34-40, 2015. DOI: 10.5829/idosi.ajps.2015.7.3.12822.

Tegegne S. and Aklilu A. 2012. Land use/cover dynamics in lowland Ethiopia since 1957: the case of Mandura district, Benshangul-Gumuz Regional State. Journal of Biodiversity and Environmental Sciences (JBES) ISSN: 2220-6663 (Print) 2222 3045 (Online)Vol. 2, No. 8, p. 36-49, 2012 http://www.innspub.net.

[WBISPP] Woody Biomass Inventory and Strategic Planning Project. 2004. Forest Resources of Ethiopia. Addis Ababa, Ethiopia: Ministry of Agriculture; WBISPP.