

The Problem of Deforestation and Its Effects in Awi Zone: The Case of Banja Woreda for the Last Ten Years

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Abstract

Land use and land cover change, especially in Countries like Ethiopia, where an alarming growth of population is the day today phenomenon where it has received much attention in recent land use dynamics which are usually caused by a combination of large scale drivers of change such as demographic change and deforestation that results for climatic change. In the case study that I presented here, forests were replaced by agricultural lands. These processes were intimately linked with agricultural intensification and ongoing rural immigration. Analyzing the socio-environmental impacts of the agricultural transition process, I included my judgmental observations, where all focusing on the impact of gross margins of different crops as well as environmental impacts in terms of forest conversion and agricultural expansion. Results are communicated both to the scientific community and various stakeholders such as local farmers, political leaders and regional authorities. The aims of this study are to put the exact markings of border for the forest resource and to identify the underlying causes for deforestation. Although, many forest management decisions have been made all over the World, the developing Countries in particular, the political will of the government of Ethiopia is playing one of the important keys to ensure the sustainable use and management of forests. Besides outlying causes for deforestation, solutions for reducing the intensified problems are also indicated.

Keywords: population growth, deforestation, illegal logging, re-forestation.

1. General Background

1.1 Geographical setting

Banja Woreda, Where this case study has conducted is among the eight major Woredas¹ and three city Administrations in Awi Zone. Geographically, the study area lies within 10⁰ 52' to 11⁰ 3' North latitude and 36⁰ 38' to 37⁰ 8' East Longitude at a distance of 440 Km North West of Addis Ababa and 120km South east of Bahir Dar.²

As regards the location, Banja Woreda is bordered along North with West Gojam Zone, along south with Ankesha Woreda, along the East with Gogusa Shikudad and to the West with Guangua Woreda in the same zone. The study area is so named as "Banja" because it was the first site where the Agaw tribe also called "Banji"³ was settled their following the move of Awi Agaw from Lasta.

Altitudinally, the study area ranges from 1,800 to 2,953 meters above sea level. However, most of the eastern parts of the district has ranged more than 2,425 meters above sea level. As climatically, Banja Woreda is classified As Dega (85%) and Woina Dega (15%) respectively⁴. The area receives a higher rain fall at some parts of the year. The rain fall pattern is a bimodal, highly erratic and unpredictable in nature and its distribution most of the time extends from June to August. Whereas the annual average, maximum and minimum temperatures of the area varies from 21 0c, 260c and 160c respectively.⁵

1.2. Peopling

Based on the evidence of the Ethiopian Central Statistics Agency (2007), the demographic figure has clearly indicated about the total population of the study area. In line with this, in Banja Woreda alone, the number was estimated at 111, 954 out of which 55, 995 are males and 56,359 are females. However, the number varies from the total 111,954 in to 112,354 since there were peoples who were moving in and out during actual counting (census) days.

Furthermore, the number of households in the study area during census was 22,066 out of which 24.94% are female-headed. Each house hold is with an average family size of 6 persons.⁶

Banja Woreda has an average population density of 354 p/km² of land. The population number is increasing at an alarming rate and this has a negative effect on agricultural growth and resource management;

¹ Woreda/s stands for districts or administrations.

² Abiyot Yismaw, "Forest cover change Detection Using Remote sensing and GIS Techniques": A case of Banjaworeda, Awi Zone, school of Graduate studies (Bahir Dar university, 2010), p. 22.

³ *Banji*, stands for the area where this case study has conducted.

⁴ Banja Woreda, Environmental Protection, Land Administration and Use Office/Injibara, 2010/p.11.

⁵ Banja woreda, *Ibid*, p.11.

⁶ Central Statistics Agency. *Population and Census* (Addis Ababa, 2007).

leading to poverty. Besides, the cultivated land per house hold is estimated at about one hectare.¹

According to the evidence from Banja Woreda Agricultural and Rural Development Office, Socio-economically, the community is agrarian whose means of subsistence is basically agriculture and agriculture related activities and most crops are grown with rain fed farming system. The major crops growing in the area are; cereals, potatoes, root crops, maize, pulses and others. In addition to crops, major live stocks like cattle, sheep, goat and other pack animals like horse, donkey and mule are reared, These all are providing for drafting power, food, cash income, manure for fertilizer, fuel (economic Security at the time of crop failure).²

2. Causes and Impacts of Deforestation

2.1 Global Causes and Its Impact.

The twenty –first century may be the trash hold century for humans, their quality of life, and the quality of life for many other organisms over the planet. The signs of whole sale environmental change and in the eyes of some observers, impending disaster are all around us.

As population and farming expanded, soil erosion increased dramatically in the 2nd half of the twentieth century. This is because of the intensification of desertification.³

Regarding the facilitating factors for enormous population growth, culture has enabled humans to spread well beyond their natural bio-geographic elements and to inhabit environments to which they are not purely suited biological organisms.⁴

Without question, the most wide Spread and environmentally significant human impact on the environment results from food production. As a result, most of our land scopes bear the imprint of crop or livestock production. Indeed, in areas where soils and climate are most favorable, the managed food production system that we call agriculture defines the land scape.⁵

Today, nearly 37 percent of the world’s land area is given over to agricultural production as crop land, pasture, or range land. Without a permanent cover of plants to protect the soil surface and roots to bind the top soil, erosion increases significantly with cropping. Therefore, following the disturbance or removal of vegetation, no matter whether it is grass or trees, erosion increases.⁶

It is obvious to understand that population growth affects land use mainly through intensification and intensification of agricultural production. In this perspective, there is both historical and empirical evidence that different population densities and different population growth rates produce different land use patterns and changes over time. According, more people need more food, which can come only from either expansion of agriculture in to new lands, or use of existing agricultural land more intensively.⁷

Hence, the relationship between expanding human population and receding forests, has received a serious attention, since forests play a key role in water and soil conservation, wild life habitat, biodiversity protection and the carbon cycle, as well as being a source of raw material for the timber industry and livelihood for local communities.⁸

2.2 National Causes and Its Impact

The northern and central highlands of Ethiopia are bare and broken lands in which sometimes seeing as desert at high altitudes. There is a rugged topography, which is eroded by torrential down pouring of rain, almost zero vegetation cover, back word land use practices and visible and traceable erosion.⁹

The cause for this had been designated as being the result of an almost national deforestation. As in the national case, deforestation in Ethiopia occurs because of tremendous reasons. For instance, uncontrolled cutting for consumption, arable land use by the peasants, fire and the creation of grazing lands and striping the barks of live trees for the construction of beehives and roofing.¹⁰

Furthermore, the land use pattern observable in most parts of Ethiopia is the animal traction dependent mono cropping of “*Teff*”¹¹ for the subsistence use. This system is characterized with an over –cultivation. This form of traditional agriculture, which is employed mostly in the north and central parts of the country

¹Banjaworeda, Environmental protection, Land Administration and Use Office (Injibara, 2009)

²Banja Woreda, Agriculture and Rural Development Office (Injibara, 2010).

³William M.Marsh, *Environmental Geography, Science, Land use, and Earth systems, 2nded.* (British Columbia University press, 2001), pp. 2-4.

⁴ Marsh, P.44

⁵Marsh, p.131.

⁶Marsh, pp.328-329

⁷Theodrepanayotou, *Population and Environment, working paper No.54.a* (Harvard university press, July, 2000).p.15

⁸Panayotou, p.25

⁹ Assefa Abegaz, “ The status and Dynamics of Natural Resources in Ziquala Area, North wollo.” MA Thesis (Addis Ababa university, 1995), p.5

¹⁰Melaku Bekele, “ Forest property Rights, the Role of the State and Institutional Exigency”: The Ethiopian experience. Doctoral Dissertation (Sweden University, 2003), p.83.

¹¹ *Teff*, the most important and staple cereal food crop in Ethiopia.

contributed to the deforestation and depletion of the forest resources. This cause is therefore related with the expansion of population from north to southern parts of Ethiopia.¹

The poverty situation in Ethiopia is a vicious cycle, and requires key entry points for intervention. Accordingly, the following flow of recurrences reflects how poverty is linked to and aggravated by various factors. Population growth (leads to aggravate)→ agriculture and livestock in to marginal land and deforestation→ land and water degradation→poor productivity→ food insecurity → deepening poverty →poor health→ malnutrition→in ability to invest in maintaining or improving land productivity →further degradation and population growth .²

Forest cover change is the direct reflection of the dynamics of socio- economic development. Concerning this, Badege Bishaw states that forest cover change has occurred since an early time where a small level expansion of agriculture by the deforestation of the land that covered by the natural forest.³ In line with this, numerous factors inspired by the action of human beings are accountable for the dynamic changes of the forest cover land in to other land cover and land use units in the study area⁴.

2.3 Local Causes and Its Impact

Before the recent ten years, Banja woreda was covered by ever green natural forests with various types of vegetation, such as higher trees, riverine trees, small trees, shrubs and ground cover grasses. The entire high lands of the district are believed to have been covered once with very dense forest resources which serve as the home of giant and macro species.⁵

Based on personal observation on the study area, the only areas still with having jungle forest with different species in it are; *Grania / Dikuma*), *Apni* and *Wugeti* Axis, *Tsenkassa-Sikui-Axis* , *Bari* and some others in some scattered areas of the woreda . In order to cross-check about the amount of forest cover change and its overall nature of Banja woreda(the case study area), the practitioner or the researcher of the case study area has compared the present natural forest status with the 1973, 1986 and 2003 based on the remote sensing, satellite image and GIS system as cited within the work of Abiyot, the research paper presented for his MA graduate study, in 2010. Based on the evidence from the remote sensing and GIS system methodologies, during the last 30 years, forest cover in Banja woreda declined from 6044 hectare in 1973 E.C. to 2,855.9 hectare in 1986 E.C. and 2446.9 hectare in the year 2003.E.C. accordingly, the annual rate of forest cover change between 1973 and 2003 was 120 hectare /year. Why the difference can be huge is because of the socio-economic factors.⁶ For instance, as I have mentioned above on the cause category; population growth, the demand for the expansion of agricultural land, fuel wood and construction materials were the major driving forces for the observed forest cover changes in Banja woreda, the case study area. As an illustration, the 1973 Satellite image interpretation on land cover classification on Banja woreda clearly indicates that Agricultural land (25%), Forest (48%), Settlement (2%), shrub land (11%) and Marshy land (13%) respectively.⁷

2.4. Observation

The land use pattern observable in most Woredas of Awi Zone is characterized by an overall cultivation. This form of traditional agriculture which employed mostly with in the study area contributed to the deforestation and depletion of the forest resources. In line with this, the cutting down of trees for logs during *Mesqal* celebration is the worst culture generally in Awi Zone particularly in Banja Woreda and its surroundings. Traditionally, the culture of Awi people in case of *Damara*⁸ Celebration is very strong. I myself was directly intervened with in the forest eco- system before ten years past. That is why, desertification tries to knock every home at every where now on. Ecological and environmental problems such as soil degradation, erosion and decrease in biodiversity as well as the loss of potential natural resources are just some of the negative effects resulting from the destruction of forests. The depletion of the forests in Banja woreda has also led to the threat and decline in number and area of the distribution of many plant species surprisingly. Now days, the Banja people in particular, are optionally relied on artificially grown forests during *Damara* (Cross) celebration because of the natural forest cover change⁹

¹Melaku, P.4

²Seleshi Bekele, Water -Centered Growth Challenges, Innovations and Interventions in Ethiopia. *Senior Researcher, International Water Management Institute, East Africa and Nile Basin office* (Ethiopia: Addis Ababa press, 2005),p.20.

³Badege Bishaw, "Deforestation and Land Degradation in the Ethiopian High lands": *A strategy for physical Recovery. North East African Studies, Vol.8 No.1* (Newyork, 2001), pp.7-25.

⁴Badege, *ibid*,PP.7-25.

⁵Banjaworeda, Agricultural and Rural Development office (Injobara, 2002).

⁶Abiyot,P.15.

⁷*Ibid*.

⁸*Damara*, stands for Cross Holly Day Celebration among the Ethiopian Christians.

⁹ Personal obserbation.

3. Deforestation and Its Overall Effects

It is obviously clear that when man influences the natural environment for the sake of fulfilling needs, in turn the natural environment influences man and vice versa. When the natural forests are extensively cleared out, carbon dioxide over the environment highly concentrated and can bring desertification.¹Not only intensify (increase) desertification but also reduces bio diversity, increases Green House Gas emissions because of the depletion of Ozone 3 gases (FCC), disrupting of water cycles, increases soil erosion, creating acid rain ,disrupting livelihoods². As the population growth and its consequence has concerned, the report from Banja Woreda Agricultural and Rural Development Office illustrates that the rural population who earn their livelihood from agriculture in Banja has increased from 93,253(in 2006) to 95,826 (in 2007) and 101, 049 (in 2009)³. Therefore, from this people to land ratio data, it is simple to predict that population growth in the study area was possibly a very crucial factor that caused the forest cover change⁴.

4. Methodology

This Case Study was conducted based on the qualitative and quantitative approach where both primary and secondary sources of data are significantly used. To mention some of them; key informants, focus group discussions, archival materials and analyzing both oral and written sources.

The main objective of this paper is to assess on the forest cover change (deforestation) in Awi Zone; the case of Banja Woreda. The then, the case study assesses major causes, impacts, effects and solutions to mitigate the catastrophic climatic change particularly in Banja Woreda and generally to Awi zone. Furthermore, for further clarification and reliability, I have included informants from different sectors of Awi Zone. For instance, Agricultural Administration and Land Management Officials, Subordinate workers, stake holders and farmers. My direct intervention was because of believing them to be having closest evidence for factors in reducing forest cover change more specifically on the study area. Therefore, this case study has developed based on Books, Thesis Dissertations, Journal articles, Document analysis, Internet sources and other proceedings.

5. Results and Discussions

5.1. Working to Reduce Forest Cover Change

There are several reasons for deforestation in Awi Zone, Banja Woreda. The rapid population growth is not only the problem of Banja Woreda, but also of all other related areas of the Zone. The demand for maximizing food to feed the alarming growth of population will continue to exert pressure on forest lands. One possibility for overcoming this problem is an intensification of production on existing agricultural lands⁵. The development of human resources is of prime importance in order to achieve sustainable forest management in Banja Woreda in particular and Awi Zone in general⁶.

In order to reduce the pressure on natural forests, the government should design a policy on reforestation of depleted and degraded forest areas. For instance, a major goal of the twenty – first century is to achieve more effective management of earth’s population, land use and environment .In line with this motive ,human beings have had made enormous changes in earth’s environment in the past several centuries. ⁷

In order to save forests, we need to know why they are being destroyed. Distinguishing between the agents of deforestation and its causes is very crucial to understand the major determinates of deforestation. ⁸ Therefore, the following solutions/measures /should be taken to reduce the alarming forest cover change in Banja woreda, Awi Zone. Creating awareness among the society regarding to optimum utilization of the forest resources and conservation systems by concerning bodies and NGOs who could play a per amount role in rehabilitation and minimizing of environmental degradation, population growth in the study area is identified as one factor for forest cover change⁹. Therefore, to halt population pressure and its influence on the forest resources, strong family planning awareness creation mechanisms should be created (introduced), in the study area, the level of illiteracy is high. Farmers should be encouraged to send their children to school .Therefore, both the government and the society in particular should take an immediate action to increase the number of students and their enrolment in schools.

¹Worldwide Fund, “Conservationist Shot in Africa’s Oldest Nature Preserve”(April20,2014).

URL: <http://www.Google.com/gws-rd=ss/q=WWF+>

² *Ibid*

³ Banja Woreda, Agricultural and Development Office (Injibara, 2009).

⁴ Banjaworeda, Agricultural and Development Office (Injibara, 2009).

⁵ Banja Woreda, *Ibid*.

⁶ Banja Woreda, *Ibid*.

⁷ Marsh, P.42 .

⁸ GopalShukla, “Deforestation: Causes, Effects and Control Strategies”. *ICAR Research Complex for Eastern Region Research center* (Plandu: India publishing press, 2012),P.6.

URL: <http://www.intech.open.com>

⁹ Banja Woreda, *Ibid*.

Re-forestation program is an immediate requirement to protect the destruction of forest resources. Here, a single re forestation program that can be used as a model and organized by either the government or nongovernmental organizations has a sound contribution on forest protection and recovery processes in the area.

Finally, this alarming population increase led the clearing of natural forests for large scale farming in turn results in drought and hunger. This in turn again put pressure over the population which of the end made the victims of Discussion and Conclusion

The following diagram can indicate the Natural and Manmade forest cover of the study area through compare and contrast method by using hectare and percentage descriptions since the Millennium Revolution (2004/2005-2009/2010E.C./

No	Name of woreda	Total Area / Km2	Natural forest cover in hectare	Natural forest cover in %	Manmade forest cover in Hectare	Manmade forest cover in %	Total forest cover (Natural and manmade) in Hectare	%
1	Banja	47,915.82	2,679	5.59	11,947.60	24.93	14,626.6	30.53

Source : I assured that this evidence has been collected from Awi zone Land Administration Office and Banja woreda Environmental protection, Land Administration and Use Office / Translated from Amharic Version).

6. Conclusion

Forest cover change in the form of deforestation is a major environmental problem manifested at BanjaWoreda in Awi Zone. An increasing demand for agricultural land was the cause for the dynamic change of forest resources in the woreda. The socio- economic data was identified as major causes of forest cover change in Banja district. This precious resource has been exploited in unsustainable means due to population growth and together with other variables such as expansion of agricultural land, the demand for fire wood, charcoal production and for construction. These conditions lead to further depletion of forest resources in the study area. At the last, the problem of forest cover change together with other related factors and the expansion of agricultural land at the expense of forest resources lead to more severe land degradation in Banja district.

Informants: on Causes, Impacts, Effects and Measures taken and undertaking in a response to Deforestation in Banja woreda.

No	Name of informants	Sex	Age	Date of Interview	Place of Interview	Remark
1	Belayneh wondim	M	48	25/11/06	Injibara	As he is from the family of farmers, then he gave me first hand evidence about why the forested area is changed in to rocky land in Shashina Kebele.
2	Shitu Ayen	M	53	25/11/06	Injibara	He is among the stake holders, who narrated me about the Gagasta kebele in line with their migration because of deforestation.
3	Abiyotworku	M	46	26/11/06	Injibara	As heis Zonal Agricultural stake holder, he told me about causes, impacts and effects of forest cover change with solutions,i.eA forestation program.
4	Ayanawolle	M	47	26/11/2006	Banja area	He is agricultural stake holder and gave first hand evidence in case that the re-forestation is on the right way since Millennium Revolution (2000E.C)
5	YeshanawTerekegn	M	51	26/11/06	Injibara	He is one of Zonal agricultural professionals and then told me about why forestswere destructed connecting with its impacts and solutions to be under way.
6	Shifaraw Moges	M	63	05/12/06	Askuna	He is a farmer in Askuna Kebele since 1950 E,C . He clarified about the dynamic change of forests and nature due to their extensive move for over cultivation.

Conflict of Interests: The author has not declared any conflict of interests.

¹Banjaworeda, 2009

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