

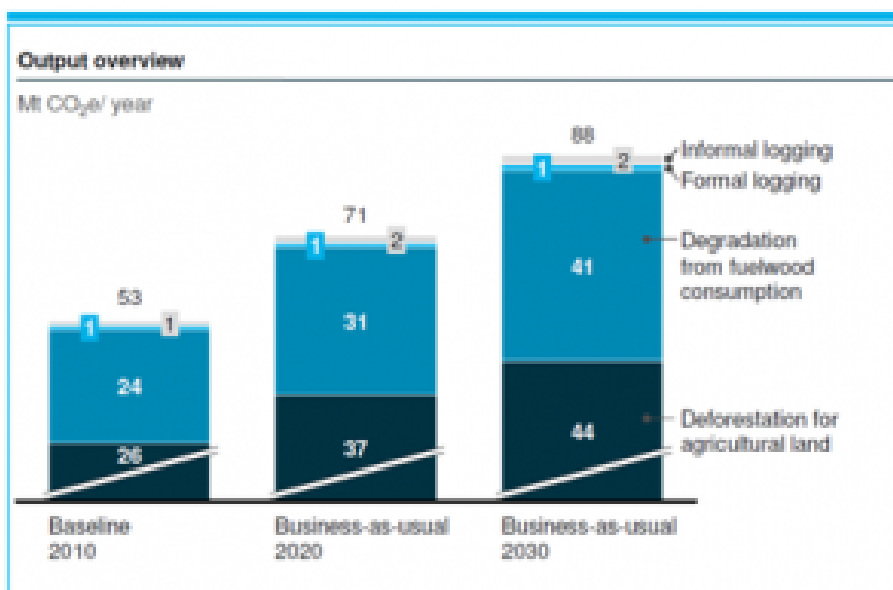
Ethiopia Forest Sector GHG Emissions

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GHG emissions baseline in 2010 and BAU up to 2030

Emissions from the Forestry sector are mainly caused by human beings, and are driven by deforestation for agriculture and forest degradation from fuelwood consumption and logging. Under the BAU (Business as usual) scenario, emissions from forestry will increase from 53 Mt CO₂e in 2010 to 88 Mt CO₂e in 2030.

Figure 1: Forestry – Level of GHG emissions will be increasing by more than 50% up to 2030 under a business-as-usual scenario

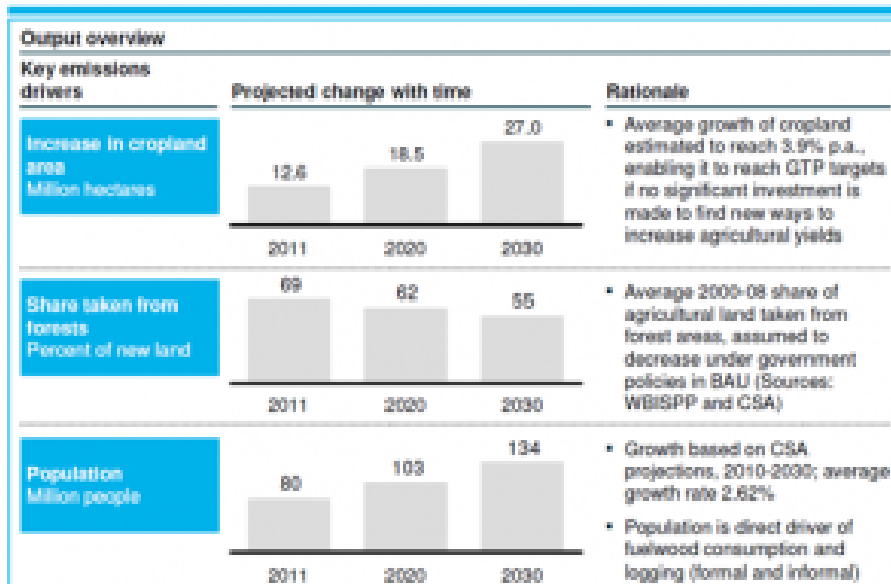


Main drivers of GHG emissions

The main drivers of GHG emissions as well as their assumed impacts are mainly the increase in cropland and the increase in the cutting of fuelwood to meet the needs of a growing population, as detailed below (Figure 2).

- Deforestation for agricultural land. Deforestation rates in Ethiopia historically correlate with the expansion of agricultural land. Based on STC calculations for soil-based emissions, total cropland is projected to gradually reach 27 million hectares by 2030, with an annual BAU growth rate of 3.9% between 2010 and 2030. This is the land expansion needed for the crop growth target of 9.5% p.a. in the GTP, which is essential to ensure food security and poverty alleviation in the face of demographic pressure. This 3.9% p.a. growth rate in agricultural land will be necessary to reach the 9.5% target, assuming that Ethiopia makes no significant progress in increasing crop yield and the value of yield beyond historically observed rates of improvement. As a consequence, the annual amount of land taken from forests for agriculture will need to increase gradually over the next 20 years, which will lead to a higher deforestation rate and more CO₂. Without any additional intervention, this agricultural expansion will affect the high woodland more than in the past, while the high forests will be less affected. However, it has been assumed that the proportion of new land for agriculture that is taken from forests will decrease from 70% to 55% (of the total new land for agriculture) in 2030, also as a result of current government policies, which are assumed to continue under the BAU scenario. As its main input sources, the Forestry STC used the GTP, the WBISPP report, and CSA cropland data as well as IPCC guidelines and benchmarks.

Figure: Forestry – Estimation of changes with time of the main emission drivers



- Degradation from fuelwood consumption. Ethiopia's rural energy needs are predominately satisfied by biomass (>90%). This includes traditional energy sources such as fuelwood, charcoal, and branches, leaves, and twigs. The development of fuelwood consumption is primarily influenced by population increase, unless a significant change in the energy mix takes place. The main sources used for projections were the WBISPP report (on current levels of degradation due to fuelwood consumption) and CSA population forecasts used for projecting future fuelwood demand.
- Authorized and unauthorized logging is currently a relatively minor driver of forest degradation. The STC used the 2010 FAO report that estimates the total amount of industrial logging (authorized) as well as the research work by Demel Teketay from 2002 that details unauthorized as compared with authorized logging volumes. To project the BAU development, the STC assumes that logging will increase on average at the same rate as population growth (2.6 % per year), reflecting the increasing demographic pressure on forest resources and experiences made in other developing economies.

GHG emissions baseline and BAU projection for 2030

The increase of emissions to 88 Mt CO₂e in 2030 (see Figure 37) will mainly be driven by deforestation for agricultural use and degradation from fuelwood consumption.

- Deforestation for agricultural land. Due to a growing need for agricultural land fuelled by demographic pressure and development needs as described above, the deforestation rate will progressively increase from around 280,000 hectares in 2010 to around 550,000 hectares in 2030. Emissions will go up from 26 Mt CO₂e in 2010 to 44 Mt CO₂e in 2030.
- Degradation from fuelwood consumption. In line with population growth, the total amount of woody biomass degradation is projected to increase from around 14 million tonnes in 2010 to 23 million tonnes in 2030. This will lead to a rise in GHG emissions from 24 Mt CO₂e to 41 Mt CO₂e in 2030.
- Formal and informal logging has been projected to undergo a similar growth (i.e., following the needs of a growing population), increasing GHG emissions from around 2 Mt CO₂e in 2010 to 3.5 Mt CO₂e in 2030.

Source: CRGE, November 2011