

The impact of water shortage on forest resources – the case of Uganda

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In Uganda, the reduction of water resources due to climate change has weakened hydropower generation, leading people to turn to woodfuels for energy – and fueling deforestation.

In recent years the effects of climate change have been observed in Uganda in increased frequency of extreme weather events such as prolonged droughts and heavy rainstorms resulting in floods and landslides. After the extreme and prolonged drought of 2004/05, the water level of Lake Victoria dropped by one whole metre in 2006. This dramatic fall was attributed to high evaporation from the lake surface, low rainfall in the headwaters of the rivers draining into the lake, and the excessive removal of water for power generation from Owen Falls dam to meet the growing demand for electricity in the country.

With reduced water availability for power generation in Lake Victoria (the only source of water for the Owen Falls dam), the country experienced unprecedented power rationing which affected the industrial and domestic sectors. The shortage of power caused the interruption of economic activities and had an overall negative impact on the country's economy and the livelihoods of its people. To meet the demand for electricity, the government resorted to using expensive thermal power, which escalated electricity tariffs from 216 to 426 shillings (US\$0.13 to \$0.25) per unit of domestic consumption.

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One result of higher electricity prices has been increased pressure on forest resources. Almost all households (95 percent) in the country use woodfuel (fuelwood or charcoal) to meet some part of their energy needs. With the exorbitant power tariffs, dependence on tree and forest products for fuel was heightened even further. Urban populations that generally used electricity for cooking reverted to use of woodfuel. The demand for woodfuel then surpassed the supply, causing the prices of charcoal and fuelwood to skyrocket.

An offshoot of this dynamic has been increased deforestation in unsustainably managed forests, especially private natural forests, as woodfuel suppliers seek to meet the increased demand and take advantage of the price boom. Many rural households have resorted to cutting their trees, including fruit-trees, to get fuelwood as forests become more and more depleted. The heavy cutting of the forest, coupled with unsustainable slash-and-burn practices, has contributed to land and

soil degradation, which in turn is responsible for poor food-crop yields, further threatening food security.

As the country has experienced abnormally high rains in 2007, with almost no recognizable dry season during the period July to September, the lake levels have slowly risen. However electricity generation levels have not recovered, and hydropower is still being supplemented by thermal generators. Thus power tariffs have remained excessively high for the poor and middle-class Ugandans that make up the largest part of the population. Tree cutting and deforestation thus continue unabated in response to the increasing scarcity of woodfuel. The heavy rains further wash away the bare soils into the lake and rivers, increasing the problem of siltation. It is feared that if and when the extreme dry conditions set in, the vicious cycle will be further exacerbated, posing a threat to human life in Uganda in the present generation and that to come.

Recent lowering of the water level of Lake Victoria has reduced water supply to the Nalubaale power station (Owen Falls dam), resulting in power shortage



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Along the shore of Lake Victoria in Uganda, fishermen bag charcoal for smoking fish; fuelwood and charcoal are widely used in the country, and unsustainable woodfuel production, especially from private natural forests, is a cause of deforestation



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