Economics of timber production and carbon sequestration in Cameroon: Implications for Forest Conservation and Green Economy Development

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INTRODUCTION

Cameroon’s forest is part of the Congo basin. It is both a major source of the world’s tropical timber and a reservoir for carbon. In 2007, over US$ 450 million worth of forestry products, accounting for 12 percent of total exports. The significance of the logging industry in the country is seen in its 12 percent contribution of the total export revenues, about 3 percent of GDP and the creation of more than 100,000 jobs. National data show 15% improvements in combined output volumes of logs, roundwood and sawnwood as well as for all primary timber. As shown in figure 1, in 2001, Cameroon exported 2 million cubic meters of tropical logs, roughly 8 percent of the global total. Cameroon reformed its forest sector with new rules and taxes in 1994, which led to a subsequent decline in production (ITTO, 2005). However, since the year 2000, production of hardwood has been rising steadily (figure 1), but exports of such raw logs have declined in relative terms. This is as a result of increased processing of wood exports (figure 2). Given the growth in hardwood production, Cameroon ranks among the world’s top five tropical log exporters, and it is the second largest exporter of tropical logs within the Congo Basin.

The need to diversify the country’s forest revenue is gaining currency in the advent of the Kyoto Protocol Clean Development Mechanism and recent climate-talks and consensus in the transfer of clean energy technologies. And this plays into the country’s strategy to combat climate change. Cameroon’s commitment to controlling global warming is packaged in a series of efforts from the Presidential statement on the creation of a national climate observatory in July 2007 at the 62nd Annual General Assembly of the United Nations on Climate Change, to the publication of the initial Climate Change National Communication, and other ongoing efforts to develop a National Adaptation Plan of Action, promotion of research efforts, and awareness creation and capacity building. This research attempts to evaluate the plausibility of optimal joint production of timber and carbon sequestration in Cameroon, and assess the implications of forest management as a significant carbon sink.

The success of a viable carbon market will largely be influenced by the price carbon commands. Existing projections of the optimal share of carbon sequestration in an overall portfolio of greenhouse-gas mitigation strategies almost all assume the carbon price to be constant over time.

Figure 4 demonstrates the theoretical plausibility for an equilibrium (q*) in an optimal tradeoff in timber exploitation and carbon conversion through reduced deforestation and/or afforestation, as part of an economic and stabilization (mitigation and adaptation) strategy. The scenario has implications on timber harvests and prices; and on total forestland area. Initially, the sole exploitation of timber for economic gain provide for unsustainable forest management.

However, as timber is withheld from the market in order to provide relatively rapid forest carbon sequestration possibly through aging timber. And over time, more forests imply a larger supply of timber, with the plausibility of timber harvests increasing and significantly depended on the growth function, biomass expansion factors, and economic conditions such as prices and costs.

RESULTS AND DISCUSSION

The margin q and qe show not only the opportunity but also the policy costs with and without forestry management (e.g. thinning and afforestation) and the equilibrium effects of including forestry management as an abatement strategy. Before q and beyond q, the deviation in prices and quantities of timber harvested and carbon sequestered in forests gradually shrink.