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Prospects and Challenges of Biofuels in Developing Countries

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Abstract

Two driving forces of global change will have a decisive influence on the future of world's agriculture and forestry, and therefore on poverty reduction, the environment and last, but not least, economic growth in developing countries. These are: the on-going climate change, and our increasingly pressing need to switch to renewable, i.e. sustainable energy. Progress towards substituting fossil with renewable energy will mitigate the risk of climate change. One principal source of future renewable energy will come from biomass, apart from wind, solar, water, and a few other sources. In this paper, we focus on biomass from agriculture and forestry. The objective is to review the current situation and likely future trends in developed and developing countries concerning the production of biofuels, i.e. energy produced from biomass. Biofuels hold a number of prospects, but also challenges, especially for developing countries. We provide a review of these potentials and challenges, and conclude that the production and use of biofuels in developed and developing countries can potentially provide a win-win-win proposal for economic growth, poverty reduction and environmental sustainability if appropriate policies and related institutional and technological innovations are promoted. Yet, biofuels also pose important challenges, which we identify and elaborate on, most importantly the exclusion of smallholders in producing biomass for biofuels, the issue of food security and rising food prices in global and local markets. We conclude that - in order to master the challenges and capitalize on the prospects of biofuels for sustainable development - massive investments in agricultural research and appropriate institutional and policy frameworks are required. While food and energy markets and therefore prices were somewhat weakly connected during the past two centuries of industrial revolution depending on fossil fuels, the link between food and energy prices will grow again in strength in the future.

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