

The Viability of Biofuels in Developing Countries: Successes, Failures, and Challenges

In the last few decades, finding alternatives to fossil fuels has become a hot issue across all international frontiers. The Intergovernmental Panel on Climate Change (IPCC) has shed light on the feasibility of using biofuels to meet the growing energy demand as well as to reduce CO₂ emissions which are a major cause of global warming, especially in the transportation sector. The production and use of biofuels in developing countries have further advantages, including social and economic benefits. On the other hand, the biofuel industry in some developing countries is facing critical challenges related to food security, land availability, production cost, etc. In this regard, several studies have recently been conducted to address these issues, and this paper comprehensively reviews these cases with respect to the successes, failures, and challenges faced by developing countries, such as Brazil, Africa and India, in expanding their biofuel production. It is clear that all the efforts devoted to promoting the biofuel sector are still insufficient to come over the challenges associated with biofuel production despite the achievements realized in some experiences as Brazil. However, the Brazilian experience cannot be spread over other countries. Implementation of policies with regard to the specifications of each country that integrate with the other sector without intersection is highly recommended. Moreover, further efforts are needed from scientists to reduce biofuel production costs, which may promote the biofuel market as an alternative to fossil fuel.