

## INTERNATIONAL BIOENERGY MARKET: ASSESSING INSTITUTIONAL STRUCTURES

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Figure 1. Illustration of a multilateral market:  
Commodity Exchange in Brazil (BM&F)

The fast-growing global bioenergy market, and the particular features of its demand bring into question the production and trade of renewable products and how they should be regulated in the years to come. Institutional structures governing renewable energy trade are costly and still vaguely defined. That is the most likely reason why the majority of international trade of bioenergy products (mainly ethanol) is based on bilateral and idiosyncratic long-term contracts instead of multilateral transactions. Different from regular commodities markets, the emergence of market institutions in the international trade of bioenergy products requires mechanisms that transmit information about socio-environmental sustainability, inasmuch as this is an essential feature of its growing demand.

We propose to analyze the institutions for the emerging global market of bioenergy products, in particular the capability of those institutions to encompass the production of a broader range of third world countries, so as to increase the number of suppliers and to mitigate risks associated to regional supply shocks, such as draughts or political instability. A more reliable supply of bioenergy products seems a necessary condition for fostering the international demand by

energy consumers, particularly for the adoption of mandates and other mandatory consumer measures.

This task is complex because bioenergy products are by large credence goods, i.e., they must carry the information of environment sustainability, which drives the demand for bioenergy products. As a consequence, specific coordination is required in order to establish international standards, and to build institutional arrangements to transact information about the credence aspects of those products, both oriented to the reduction of transaction costs in this emerging market.

This research work aims to understand how institutions of international bioenergy markets will develop in the next years, and what the most relevant impacts will be on the competitiveness and production sustainability in Brazil and other potential producers, particularly in Latin America and África. By understanding better the factors involved in the development of bioenergy market institutions, we expect to support public policies oriented to the sustainable development of third world countries, as well as to stabilize the geopolitics tensions derived from the regional concentration of oil-based energy.

## SUMMARY OF RESULTS TO DATE AND PERSPECTIVES

This research began in late 2009 with the following expected results.

We first intend to map the current governance structures observed in bioenergy international transactions. Preliminary evidence suggests that those transactions are mainly governed by means of idiosyncratic bilateral contracts, with several monitoring devices in order to guarantee that bioenergy products meet socio-environmental required standards. There are also several certification mechanisms now that are likely candidates for assuring the social-environmental features of bioenergy products. The competition among certification mechanisms is based on network externalities and interest groups coordination failures, which make it possible to foresee the ones that will prevail in the near future.

The next step is to measure the transaction costs of current governance structures, and those of the multilateral exchange based on certifications, by means of two distinct methodologies (World Bank's and Ronald Coase Institute's). At this stage of the research, it will be possible to predict if the international bioenergy trade will move to a multilateral market, if this path will benefit from specific public policies, and what will the expected gains be from this new institutional arrangement. It is noteworthy that the available methodologies for estimating transaction costs actually focus on observed costs, providing just a partial (although important) picture of governance structure efficiency. The need to take a broader perspective on the dynamics of the competing institutional mechanisms takes this research to the third set of expected results.

The development of multilateral market institutions based on certification mechanisms will depend not only on the features of current governance structures, and on the availability of inputs for bioenergy production. The conversion of other countries into bioenergy suppliers – a relevant variable to increase supply reliability and, as a consequence, to foster the international demand for bioenergy products – depends also on the institutional environment in those countries. This research will confront the social-environmental standards demanded by international consumers and the institutional structures of third world countries – mainly from Africa and Central America – in order to access the likelihood of the dissemination of the Brazilian successful experience and the constitution of a multilateral bioenergy market.

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