FUNDACIÓN AMBIENTE Y RECURSOS NATURALES

POLICY BRIEF

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CHALLENGES FOR SUSTAINABLE POLICY ON BIOFUELS

THE IMPORTANCE OF STRENGTHENING ENVIRONMENTAL MEASUREMENTS

As all productive activities, the extraction of biofuels causes environmental impacts, which should be prevented, mitigated, and/or corrected. At national level, the government drives a policy for the promotion of biofuel production. However, these policies remain empty in relation to environmental criteria for their production and sale. This poses the need to establish clear environmental standards for an industry that has important characteristics from an economic perspective. This requires the inclusion of environmental aspects in which a policy is considered green but could generate negative externalities. Therefore, the purpose of this document is to emphasize the need to incorporate criteria for sustainability in the production of fuels derived from primary resources.

KEY MESSAGES

1. **Importance of the promotion policies in the biofuel industry**
2. **Environmental biofuel impact**
3. **Promotion of the efficient use of natural resources (land use planning)**

The internal demand for fuels in our country, throughout 2013, kept growth in a context in which the production of petroleum and gas decreased 5.99% and 3.12%, respectively, in comparison with 2012; this is in turn connected to a growing demand not only in the transportation sector but also in electricity generation (Lapeña, 2013).

- In 2013, the consumption of gas for private cars increased (in relation to the previous year) by 8.35% and the gasoline consumed by public transport and the farming sector increased by 0.27%.
- The demand for gasoline for generating electricity increased since 2008 by 21% with a consequent increase in the import of this product.

In this context, the promotion of biofuel production has diverse objectives: replacement of the use of fossil fuels and maximization of the aggregated value of soy, whose internal consumption is low.

This report is intended for actors in the governmental and social sectors that promote sustainable policies as much for the agricultural sector as for the energy one. It is because of this that we present below useful information for decision makers at the national, provincial or municipal levels in the political framework of biofuels in a context where the generation of

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energy plays an important role on the long-term planning agenda. The report is based on an exploratory research about the institutional framework and policy on biofuels and the farming sector in Argentina. This research is available on FARN website.[1]

Within this framework, we consider some questions:

1	**Which measures promote the use of biofuels?**
2	**What is the impact of biofuel production on natural resources?**
3	**What environmental criteria should be considered? Can we promote alternative measures that guarantee a minimum environmental impact?**

1 Importance of the policies that promote the biofuel industry

It is estimated that in the year 2010 the biodiesel industry added value to the soybean chain by US$ 94/ton, which implies a contribution of the biodiesel industry to gross domestic product of US$ 170 million. However, it is worth mentioning that the tax benefits to promote such industry are estimated in US$ 309 million (Perez Martin, 2012).

National development of the biofuel industry, mainly biodiesel, prioritized the internalization of immediate economic benefits provided by the soybean complex, which lacks environmental sustainability criteria in the actions taken (Fulquet, 2012).

Law N° 26093[2] (published in 2006), together with its Regulatory Decree N° 109/2007[3], establishes the regulatory and promotional framework for the introduction of biofuels in the Argentine energy matrix over the course of 15 years. In 2007, Law N° 26334[4] was enacted (Bioethanol Production Plan) with the objective to incorporate the beneficiaries of the promotional plan established under Law N° 26093 into the production of sugar cane and the sugar industry. This regulatory framework establishes a mandatory mix of biofuels with fossil fuels after January 1, 2010: gasoline and gasoil should contain at least 5% of bioethanol and 10% of biodiesel[5], respectively, while biogas will be used in systems, lines of transportation and distribution, according to what the authority provides. The promotion plan, as provided for by law, is based on tax incentives (exemptions, anticipated depreciation or reimbursement) regarding taxes and fees for the projects on biodiesel and bioethanol production. This measure generates an internal demand that did not exist until that time, so becoming a key factor in creating the domestic market whose supply was driven by the mandatory use established by law.

At institutional level, the enforcement authority of Law N° 26093 is the Ministry of Federal Planning, Public Investment and Services, through the Secretary of Energy, except in aspects of a tax nature, for which the said role is exercised by the Ministry of Economy and Production. At the same time, under such Law, the National Advisory Commission for the Promotion of Sustainable

1 Available at: http://www.farn.org.ar/wp-content/uploads/2014/04/Biocombutibles_Finalweb.pdf

2 http://infoleg.mecon.gov.ar/infolegInternet/anexos/115000-119999/116299/norma.htm

3 http://www.ambiente.gov.ar/?aplicacion=normativa&IdNorma=843&IdSeccion=0

4 http://infoleg.mecon.gov.ar/infolegInternet/anexos/135000-139999/136339/norma.htm

5 Mandatory use increased from 5% to 7% in September 2010 through Resolution 828/2010, issued by the Secretary of Energy. In April 2013, a new gradual increase was established to reach 10% in June of that year (Note 1723 of the Secretary of Energy, April 2013).

During 2012, 2.4 million tons of biodiesel were produced, 33% of which was used in the internal market (with a compulsory use of 7%) and the remaining 1.56 million tons were sold to the external market with a value of US$ 1,774 million. This places Argentina as the main exporter of biofuels globally, with the main destination being the EU. In terms of bioethanol, during the year 2012, the production reached 199,454 tons, which represented a volume less than the volume established by law (the 5% required accounts for 250,000 tons), with all the production used for the domestic market.

Production and Use of Biofuels is created, whose function is to assist and give advice the enforcement authority. However, as of February 2013, in response to a request for information presented by FARN, this Commission was not yet set up.[6]

Such a regulatory framework as the Participatory and Federal Strategic Plan on Agri-Food and Agro-Industry (PEA, a document that marks tendencies in the national agricultural production for the next 10 years) does not mention any environmental impact or diversification of the production in the search for diverse sources for their generation.

The biofuel industry sent a great portion of its production to the external market, mainly to the European Union (EU). However, the change in the export duties rates for biofuels in our country and the establishment of import tariffs in the EU resulted in a considerable reduction in the flow of sales, also dependent on the mandatory measures regarding the business partners.

The modification of the rules has caused uncertainty in the productive agents that are connected to the chain of biofuels, encountering difficulties when calculating their profits due to the fluctuation of the prices and sale conditions both internally and externally. At the same time, the tax benefits granted under Law N° 26093 and 26334 are awarded in a fixed quota rather than through a call for bids; and there are also incompatibilities with previous rules (Regúnaga, 2008). This normative framework creates an enthralled demand with prices fixed by the Secretary of Energy, which resulted in investments (in certain cases, distant from the main commercial ports) that would not have been made if said framework had never been in existence. Therefore, this industry, developed mainly for private investments, is viable in the context of high fossil fuel prices, low soy production cost and the use of the idle capacity of the sugar factories and oil production plants.[7]

How is the biodiesel industry today?

While, as per legal provisions, fuels should contain 10% of biodiesel (for which an estimated amount of 1.2 million tons would be necessary), only half is covered. The reasons are associated with the difficulties found in the industry related to a lack of updated prices by the Secretary of Energy (in February 2014, they published the prices for November 2013) and the increase in the soy price connected to the devaluation of the national currency against the dollar. At the same time, we should consider the import duties levied by the EU (the main business partner) for alleged dumping with a 24.6% average quota, valid for the next 5 years. This situation results in estimations indicating that the exports will fall by 39% and production by 12% if compared to 2013 figures.

6 Information request and its answer can be found at: http://www.farn.org.ar/newsite/archives/14509

7 The major inconvenience for the development of ethanol production comes from the lack of financing, as well as from the generation of a residue that is difficult to trea.

2 Environmental impacts of biofuels

An extra demand for the agricultural production increases the pressure on natural resources. The expansion of the agricultural activity has resulted in diverse impacts on the environment and society that has advanced into natural ecosystems of high conservational value, such as native forests (SAyDS, 2008, 2012) and/or wetlands (Herrera *et al.*, 2013) (for example, despite the Native Forests Act that intends to avoid deforestation in priority zones[8] and the resulting loss of ecosystem goods and services); also, there is reduced rotation diversity (decreased agricultural diversity), and only crops whose low cost and high international prices and technology result in more profitable economic margins but with a small replacement rate of soil nutrients (INTA, 2011) are produced.

The lack of production diversity results in the increase of prices of scarce foodstuff due to soil being used for planting energy crops (von Braun, 2007; FAO, 2008). This reinforces the controversy not only because of the competition for the use of natural resources, but also because of the link existing between the energy market and the food market, so creating a volatile feedback between them.

In terms of the potential reduction of greenhouse gases, it is difficult to estimate given the versatility of the values depending on the high variability among the production zones, the work used and the methods of calculation. At the same time, according to the estimations obtained, in many cases the reductions are not sufficient to compensate, for example, other impacts such as the loss of biodiversity derived from increased land use conversion (PNUMA, 2009).

It is also important to consider the impact on the water quality at the agricultural stage of production because of the inappropriate use of agrochemicals (in some cases linked to the eutrophication[9] of water courses), as well as the sedimentation from soil erosion and waste deposition. Another impact to consider is the increase in the cultivated areas that would enhance the evapotranspiration and in turn reduce the aquifer flow and recharge (Saulino, 2011).

3 Promotion of efficient use of natural resources (land use planning)

The energy crisis shows a need for new alternatives; however, it is necessary to keep in mind the negative externalities of some of them. With respect to biofuels, it would be important to give a normative framework that includes aspects related to their environmental impact in order to reduce the detrimental effects connected to the change in soil use and the reduction of greenhouse gases, among others, thus promoting renewable energy and efficient use of current sources.

Therefore, it is essential to lay down a biofuel policy, connecting four sectors of importance for the national economy: environment, agriculture, energy and transportation, in a joint effort by all the sectors to internalize the expenses associated with the negative externalities of the expansion of certain crops used as raw materials, as is the case with soy (including the controversy for the large use of agrochemicals).

8 For more information: Di Pangracio, A. (2013): "Ley de Bosques Nativos: implementación, implementación, implementación." Annual Environment Report 2013. FARN. Page. 365-382. Available at: http://www.farn.org.ar/archives/14865

9 Eutrophication is a type of chemical pollution of the water related to excessive nutrients (mainly nitrogen and phosphorus) in an aquatic water ecosystem.

Recommendations
Final words

It is necessary to analyze the production of biofuels from a broader perspective and within the framework of sustainability with its three branches: economic, environmental and social. Likewise, a regulatory institutional design is needed, plus an industrial agricultural chain configuration and research and development activities aimed at gaining such sustainability. This vision requires, therefore, a regulatory framework that considers a land use and planning policy and a promotion and development policy focused on such sustainability in a context where technologies for the production of second- and third-generation biofuels are not are mature enough to exploit them.

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About FARN:

The Environment and Natural Resources Foundation (FARN) was created in 1985. It is a non-governmental, not-for-profit and non-partisan organization whose principal objective is to promote sustainable development through policy, law and the institutional organization of society.

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This framework should consider using raw materials that do not create additional pressure on current farming land and food security, such as nonfood crops and second-generation crops (for example: sugar cane pulp, residual biomass). Another point to consider is the effective balance in the reduction of greenhouse gas emissions, taking into account also that the production does not come from land that has weathered some kind of natural ecosystem.

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