

Global Assessment of Biomass and Bioproduct Impacts  
on Socio-economics and Sustainability

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***Methodology and Guidelines for  
Assessing Public Perception on  
Biofuels and Bioproducts***

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# 1. Introduction

## 1.1 Why analyzing public perception?

The analysis of public perception (PP) is a prerequisite for future development of the biofuel/bioproduct sector in Europe and worldwide since PP determines the public acceptance, and thus the demand of biofuels/bioproducts as well as the possibility to develop their supply.

It is important to recognize that there exist significant differences on the way experts and the public perceive risks associated to environmental issues. Therefore, subjective decisions should take people's opinion into account (Beierle T. 1999). Decision makers legitimately consider public's opinions when making decisions. On the other hand, it is their duty to properly inform the public about benefits and possible drawbacks associated to biofuel projects to form well-informed perceptions or opinions.

Although public perception is recognized as an important determinant of success of renewable energy programs, there are few studies analyzing its real impact and how those perceptions are formed<sup>1</sup>. This lack of analysis has been identified by authors who attempted to assess the relationship between public's acceptance of biofuels and the sector's development (Rohracher et al., 2010; Rohracher,2010; Devine-Wright, 2010). The issue has been even less studied in countries with low levels of market development and technology adoption/innovation related to biofuels.

A clear differentiation must be done regarding differences in perception and beliefs. As Bleda and Shackley (2008) define it, perception is the result of current experiences and information and adapt over time while beliefs are formed based on past experiences and although they might evolve over time, are likely to cross time. Therefore, perceptions are relatively more superficial and therefore more easily influenced.

Public perception largely depends on cultural aspects, history and economy of the producing countries, objectives of importing countries, environmental and social targets, as well as on the positive or negative impacts on individuals and communities.

In order to harmonise sustainability efforts of biomass production and use, different public perspectives in Argentina, Brazil, Costa Rica, Indonesia, Mali and Tanzania will be assessed. The gained information will be used to propose recommendations on how to consider public perception in policies and sustainability certification schemes.

## 1.2 How to analyze public perception?

Public perception of biofuels is often tackled in a rather informal way ("people say ..."). This method gives a quick insight into the public perception, but risks being biased and too much influenced by the researcher performing the study.

A proper methodology for assessing public perception comprises statistically sound methods including representative samples of several thousand persons. Such methods are desirable since their results are less biased in describing the public perception of a whole country or region. However, a statistical approach requires large resources. In the Global-Bio-Pact project, a combination of the two methods was chosen in order to generate results in a short

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<sup>1</sup> The lack of research in the area is also evident in the definition given to public perception, which is regarded in the literature as public acceptance, public resistance, public opinion, public beliefs, public attitudes, public awareness, public understanding, social representations or risk perceptions (Devine-Wright, 2010).

timeframe and stay within the budgetary limits. For each case study in Africa, Asia and Latin America, the methodology of the Global-Bio-Pact project comprises two main phases. The first consists in a preliminary analysis of variables and parameters determining public perception in the country (descriptive part). The second phase involves surveys with a questionnaire to be applied to a small sample and experts' interviews.

The main objective is not only to describe the general public perception in different countries, but also to determine the drivers behind the evolution of this public perception. In order to fulfil this objective, several questions need to be considered:

- Who are the main actors influencing the public perception of biofuels?
- What are main incidents influencing public perception on biofuels?
- How are biofuel issues treated in the media?

Which cultural parameters determine the different standpoints in the public opinion on biofuels?

In relation to the characteristics of the Global-Bio-Pact project, the following two general decisions were made:

(1) Main focus on biofuels

Since the Global-Bio-Pact case studies focus on liquid biofuels, the public perception analysis will also focus on liquid biofuels. However, the public perception on bioproducts is not excluded since most of the investigated crops in the case studies are of multipurpose value.

(2) The scale of the survey shall include local case study level and the national level

The analysis should be nationwide since public perception on biofuel is affected by this broader context. However, also local variables and parameters linked to the case studies need to be analysed.

The final outcome of this survey are six individual reports on public perception for the Argentina, Brazil, Costa Rica, Indonesia, Mali, and Tanzania which will be prepared by Universidade Estadual de Campinas (Brazil), National Institute for Agricultural Technology (Argentina), Tropical Agricultural Research and Higher Education Center (Costa Rica), Tanzania Traditional Energy Development and Environment Organization (Tanzania), Mali-Folkecenter (Mali), and Greenlight Southeast Asia LLC (Indonesia).

## 2. Descriptive part

The following descriptive part of the public perception survey shall be completed by the Global-Bio-Pact partners using desk and internet research methods.

### 2.1 Mapping biofuel stakeholders

The objective of the stakeholders' mapping is to identify the stakeholders intervening on the different variables influencing public perception of biofuels. This includes stakeholders promoting the use of biofuel, but also those who are blocking biofuel development, as well as those who have interest in some specific aspects of biofuels (e.g. environment protection, poverty alleviation).

The level of detail depends on the biofuel situation in each country. The analysis cannot be exhaustive in countries where the biofuel industry is already much developed. In that case a typology of main stakeholders is more relevant than a stakeholder list.

For example, stakeholder category can be: agro-industry, smallholders, project developers, environmental NGO's, regulatory public body, policy maker...

Besides the above mentioned proponents and opponents of biofuels, the stakeholders can be classified into stakeholders involved in top-down processes (policy/legislative/public interest) and stakeholders involved in bottom-up processes (project developers, affected population, NGO's).

For each stakeholder or category of stakeholder, please detail:

- What is his/her role or function/responsibility?
- At which level does his/her involvement take place: in policy areas or in project initiatives? Please detail
  - Policy areas: climate, rural development, renewable energy ...
  - Projects initiative: please characterize in a few words its scale, if successful...
- Is this contribution direct or indirect?
- Does (s)he stand in favour or against biofuels?

Stakeholder should be described in general and if possible in detail for selected examples.

### 2.2 External influences and crisis

The objective of this step in the assessment is to identify external factors that have or may have influenced biofuel perception in the countries of the Global-Bio-Pact case studies. The following questions should be answered in detail.

- Which cases of biofuel development in other countries are most known in your country? In each case, does it represent a good practice or a negative example?<sup>2</sup>

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<sup>2</sup> Examples for Costa Rica are: Brazil is described as ethanol success story, Colombia for adapted small-scale technologies and the United States for trade and agricultural policies.

- Which **crises** have occurred in the last 5 years that may have affected the perception of biofuels?

NB: a crisis is defined as “an unstable condition, as in political, social, or economic affairs, involving an impending abrupt or decisive change.”

Examples: food price crisis, oil price crisis, more locally: water shortage

For each crisis, please detail

- how hard it hit the country or the local economy
- how it affected the perception of biofuels
- if this influence was local, national or international
- if national, whether there has been some national or local specificities
- to what extent is the country perceived as vulnerable to future crisis

### **2.3 Media analysis**

The objective is to characterize the frequency and depth with which biofuel issues are treated in different types of media. Thereby the following questions shall be answered:

- How much attention is given by media to biofuel development, energy crop extension, innovations in the energy and transport sectors?
- What have been the major media of general information on biofuels?
- In what sections of newspapers and TV news information on biofuels is mainly found (science, environment, economy, events, etc.)?

For each case study country, examples for media coverage of biofuels should be collected and included in the report.

### **2.4 Cultural parameters**

Cultural parameters are important in explaining why some of the above-mentioned variables have more influence than others on the public perception of biofuels. The following questions shall be answered:

- Did any group take position in favour or against biofuels from a religious, ethical, moral, or socio-historical standpoint?
- What are the social and cultural arguments mostly used in the construction of public perception of innovations, changes of habits and customs, opening to international markets?

Examples of social and cultural arguments are progress, economic growth, natural capital, livelihoods, etc.

### 3. Surveys

Surveys complete the analysis on public perception conducted in the descriptive part by consulting non experts and experts on biofuel perception, its variables and parameters.

#### 3.1 Questionnaire

The idea of the questionnaire is to help to complement and validate the analysis of public perception.

##### 3.1.1 Sample choice

The 30 persons answering the questionnaire should not be involved in any biofuel activity.

Selection bias is unavoidable, but it can be limited to some extent. For instance make sure you have:

- Same proportions of men and women
- No overrepresented age class: for instance 10 persons in their 20's or 30's, 10 persons in their 40's or 50's, 10 persons older than 60
- Additional relevant distribution criteria (please specify)

Please detail your strategy to find 30 persons. Examples:

- o Randomly in a public place (please specify where)
- o During a specific event gathering people (please specify which)
- o Using your social network (please specify if this implies unavoidable biases, in terms of education level, social class, urban population...).

##### 3.1.2 Questions

In each country, the questionnaire will be elaborated in the appropriate language. All answers have to be noted and translated into English. All filled questionnaires have to be included in the Annex (finally, each report shall have 30 filled questionnaires in the annex). Here, question formulation is indicative.

#### Questions on knowledge about biofuels

What do you know about biofuels: which biofuel?

*Please classify answers in a few categories: from "know nothing" to "well informed" for instance.*

#### Questions on media and other means of information

How did you learn about biofuel? Where and when did you hear about biofuels?

*Please list responses and distinguish whether information on biofuel is linked to specific events.*

What are your major sources of information (TV, radio, newspaper, social events, workplace, meetings: please detail about the media or events mentioned, its category)

#### Questions on biofuel initiatives

Do you know about biofuel projects?

- locally?
- in the country?
- In other countries?

Are they successful?

### **Questions on the role of public policies**

What do you think is a priority for your region/your country? What are the main issues that policies should address first?

*Please carefully note the order in which issues are mentioned if any is mentioned spontaneously. Otherwise propose a list and ask the interviewee to rank policy areas. Ex.: air quality, climate change, rural development, non fossil energy development...*

### **Questions on appreciation of biofuels**

How do you appreciate biofuels? Do you think biofuel development is sustainable? Are you in favour or opposed to biofuel development? Why?

*Please evaluate the precision of the answer, whether a specific type of biofuel is mentioned*

### **Questions on criteria**

What aspects of biofuel development do you think are critical?

*Please carefully note the order in which issues are mentioned if any is mentioned spontaneously. Otherwise propose a list and ask the interviewee to rank the issues. Ex.: competition with food production, fuel quality for the motor, climate change mitigation, deforestation...*

### **Final open question**

What would you like to add on biofuels?

## **3.2 Expert interviews**

Experts will help you complete or improve your analysis of public perception

The selection of experts and the questions addressed to them should address possible uncertainties the Global-Bio-Pact partner might have found in her/his initial evaluation of variables and parameters determining public perception.

### **3.2.1 Selection of experts**

Involved in the local or regional case studies within the Global Bio-Pact project.

Covering some aspects of biofuel development for which you know little.

### **3.2.1 Interview guidelines**

Either you follow the same guidelines than yours (see 1. Descriptive part)

Or you focus on specific sections you need to complete and where the expert may have more knowledge/information than you

#### **4. Synthesis on the current state of PP and its dynamics**

The synthesis should provide both a summary of main findings from the above-mentioned steps and a highlight on most influential sources of changes in the future public perception of biofuels.

- Current public perception of biofuels, based on the analysis of the questionnaire
- Main variables influencing the public perception of biofuels (actors, events, specific cases...)
- Main cultural parameters influencing the public perception of biofuels (relative importance of difference standpoints)
- Evaluation of how public perception may evolve in your country.

## 5. Annex

### **Proposed format for the report on public perception in each of the 6 countries with case studies**

Each report will have 10 to 15 pages.

1. Introduction on the methodology (1 to 2 pages)
  - a. Brief description of internet and desk methods
    - i. Brief description of the context in which the analysis was conducted
    - ii. If any, existing studies on public perception and differences with this study
  - b. Selected experts for interview
  - c. Questionnaire design and sample selection
2. Stakeholder mapping (3 pages approx.)
  - a. Own analysis and complementary inputs from other experts
  - b. Actors highlighted by answers to questionnaire
3. External influences and crisis (2 pages appr.)
  - a. Own analysis and complementary inputs from other experts
  - b. Events highlighted by answers to questionnaire
4. Media analysis (2 pages appr.)
  - a. Own analysis and complementary inputs from other experts
  - b. Media influence highlighted by answers to questionnaire
5. Cultural parameters (2 pages appr.)
  - a. Own analysis and complementary inputs from other experts
  - b. Cultural references highlighted by answers to questionnaire
6. Synthesis (3 pages)
  - a. Current public perception of biofuels, based on the questionnaire's results and own analysis
  - b. Main variables influencing the public perception of biofuels (actors, events, specific cases...)
  - c. Main cultural parameters influencing the public perception of biofuels (relative importance of difference standpoints)
  - d. Evaluation of how public perception may evolve in your country
7. References  
Quoted documents, websites, personal communications

+ Possibly annexes with some results of the questionnaires or expert's interviews.