

SURVEY ON THE SUSTAINABILITY OF BIOENERGY

Dear respondent,

This survey is part of a research project that aims to know people's opinion on the sustainability of bioenergy production. It is conducted by the Potsdam Institute for Climate Impact Research (PIK) in Germany in collaboration with the University of the Philippines at Los Banos (UPLB), Ateneo de Davao University and Visayas State University (VSU) in the Philippines.

But first, what is "sustainability"?

Sustainability is the potential for long-term maintenance of economic, social and environmental wellbeing.

Sustainability of bioenergy is not simple because its production involves different products (e.g. food and non-food crops), interacts with different sectors (e.g. energy, environment, food), and occurs at different levels (i.e. local, national, international). The promotion of bioenergy production through various policies has thus the potential not only to improve the well-being of the society, but also to cause economic, social and environmental problems due to this complex production structure. Experiences in recent years showed that bioenergy policies in one country can have impacts not only on its own but also on other countries' social, economic and environmental sustainability.

In this survey, we thus would like to ask you few questions that will help us assess your opinion on how sustainable is the production of bioenergy in your country. We are conducting the survey in different countries, thus it is important that you take into consideration the current economic, social and environmental condition in your own country when answering these questions. There are no 'right' or 'wrong' answers; we are simply interested in your opinion.

Sincerely yours,
Bioenergy project team

CONFIDENTIALITY:

The IRDR Project Team supported by UPLB guarantees confidentiality of all information contained in this questionnaire.

CALL RECORD			
	FIRST VISIT	SECOND VISIT	THIRD VISIT
DATE			
TIME STARTED			
TIME FINISHED			
RESULT c/			

c/ Codes for Result: 1 - Completed, 2 - Partially completed, 3 - Respondent temporarily out

CERTIFICATION

I hereby certify that the data set for were obtained / reviewed by me personally and in accordance with the instructions given.

Signature Over Printed Name of Enumerator

Date Accomplished

Signature Over Printed Name of Reviewer /Supervisor

Date Accomplished

A. KNOWLEDGE ON BIOENERGY

1. Where are you presently working?

- a. government office
 b. private company
 c. farm, field
 d. university/research institution
 e. others, please specify: _____

2. What is(are) your present line(s) of work? You can choose more than one.

- a. agriculture
 b. forest/environment
 c. business
 d. industry
 e. education
 f. engineering
 g. commerce
 h. transport
 i. energy
 j. services
 k. others, please specify: _____

3. Please select the location of your work:

- a. Luzon
 b. Visayas
 c. Mindanao

4. Please provide below the name and address of the institution where you are currently working:
(For example: University of the Philippines, Los Banos, Laguna. If working on the farm, please give name of town and province)

5. Are you familiar with the term "bioenergy" (also known as biofuels)?

- a. Yes
 b. No

NOTE: If your answer in "No" please skip questions 6-7 and proceed to question 8.

6. Is your work related to bioenergy?

- a. Yes
 b. No

7. How is your work related to bioenergy? You can choose more than one.

- a. bioenergy research/study
 b. government policy/program
 c. bioenergy crop production
 d. local extension services
 e. bioenergy production (diesel, ethanol)
 f. bioenergy market/sales
 g. bioenergy foreign import/export
 h. bioenergy transport/distribution
 i. bioenergy technical support
 j. technology development
 k. technology commercialization
 l. others, please specify: _____

8. Which crops are you concerned with in your work? You can choose more than one.

- a. maize
 b. cassava
 c. potato
 d. soybean
 e. rapeseed
 f. palm tree
 g. coconut
 h. jathropa
 i. grasses
 j. sorghum
 k. other wheat products
 l. sugar (i.e. cane or beets)
 m. crop residues
 n. trees or forest
 o. algae
 p. rice
 q. others, please specify: _____

9. In your opinion, is bioenergy good or bad for your region/country?

- a. Good
 b. Bad

10. Below are possible sources of information on bioenergy. How important are these sources in building your opinion on bioenergy?

SOURCES OF INFORMATION	Least important	Relatively important	Most important	Not important
media (television, newspaper)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
internet	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
family and friends	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
work colleagues	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
neighbours	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
public officials	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
academe/science	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
business partners	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
others, please specify: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

B. OPINION ON BIOENERGY

There are two main types of energy -- Fossil and Renewable.

1. Fossil energy includes petroleum, coal, and natural gas.
2. Renewable energy includes solar, wind, hydro, geothermal, and bioenergy.

Bioenergy is a renewable energy from materials derived from biological sources (e.g. crops, trees, and residues). These biological materials are also known as "biomass".

1. How will you rate the potential contribution of the different energy sources in promoting economic growth in your region/country?

SOURCES OF ENERGY	Low	Medium	High	Very high	Do not know
Fossil energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bioenergy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other renewables	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Combined fossil & renewable energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

2. Do you think the use of biomass from food crops for bioenergy production increases food prices and thus affects food security (i.e. food affordability and availability) in your region/country?

a. Yes b. No c. Do not know

There are two types of bioenergy -- First generation and Second generation.

1. First generation uses biomass from food crops including sugar- and starch-rich crops to produce bioethanol and oil-rich crops to produce biodiesel. Technologies for first generation bioenergy are well developed and widely applied in countries like Brazil, USA, EU, etc.
2. Second generation uses biomass from non-food products including agriculture and forest residues, fast-growing trees, perennial grasses, and algae to produce biofuels (bioethanol or biodiesel). Technologies for second generation bioenergy are less developed and expected to mature only in 2020.

3. How will you rate the potential contribution of the following food crops for the sustainable production of first generation bioenergy in your region/country?

FOOD CROPS	Low	Medium	High	Very high	Do not know
sugar-rich crops (e.g. sugarcane, sugar beets)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
starch-rich crops (e.g. maize, sorghum, wheat, potato, cassava)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
oil-rich crops (e.g. soybean, rapeseed, palm, coconut)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

4. How will you rate the potential contribution of the following non-food crops for the sustainable production of second generation bioenergy in your region/country?

NON-FOOD CROPS	Low	Medium	High	Very high	Do not know
agriculture and forest residues (e.g. stalks, leaves)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
fast-growing trees (e.g. eucalyptus, poplars, jathropa)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
perennial grasses (e.g. switchgrass, miscanthus, bermudagrass)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

C. BIOENERGY CHOICE TASKS

In this section we present different "choice tasks" where you have to choose the most appropriate biomass for bioenergy production in your region/country. The choice tasks provide various scenarios for producing bioenergy using different biomass feedstock (i.e. food and non-food crops). They are scenarios that linked the biomass options to different economic, social and environmental conditions. In the bioenergy choice tasks, you are thus required to choose the biomass that you think is the best option for promoting economic, social and environmental sustainability in your region/country. These are the core of the survey so we kindly request you to spend some time assessing these choice tasks.

There are 5 choice tasks for each economic, social and environmental sustainability. Each choice task has three biomass options and you have to choose only one option.

Notes:

1. The first choice task is fixed but the remaining 4 are randomly generated by the computer, so some options may be inconsistent or contradictory. So kindly choose the best option based on the relevance of the presented conditions for your region/country.

2. Although only 5 choice tasks are presented for each sustainability dimension, all possible combination of scenarios will be covered across the respondents in the survey.

As a reminder, we present again below the different types and examples of biomass:

Food Crops

- (1) sugar-rich crops
Sugarcane
sugar beets
- (2) starch-rich crops
maize, sorghum
wheat, potato, cassava
- (3) oil-rich crops
soybean, rapeseed
palm, coconut;

Non-food crops

- (1) agriculture and forest residues
Stalks
leaves
- (2) fast-growing trees
eucalyptus, poplars
jathropa
- (3) perennial grasses
switchgrass, miscanthus
bermudagrass

Economic Sustainability

Let us assume that the government would like to promote the production of bioenergy in your region/country today.

Let us further assume that the economic sustainability of bioenergy production using a particular type of biomass will depend on three important economic conditions: (1) Contributions of bioenergy to energy security; (2) Progress in technology for bioenergy; and (3) Quality of market structure for bioenergy.

In this part of the survey, we provide you different imaginary economic conditions to develop bioenergy production. Given these conditions, which type of biomass would you choose to produce bioenergy in order to support economic development in your region/country?

Fixed task

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TYPES OF BIOMASS	Sugar-rich crops	Oil crops	Fast-growing trees
1. Energy security	Low domestic energy demand	High domestic energy demand	Low domestic energy supply
2. Technology progress	High R&D investment	Low R&D investment	High technology deployment
3. Market structure	High market incentives	Low market incentives	Good market infrastructure

Note: For example, if you think that sugar-rich crops have the potential to produce bioenergy in your region/country because energy consumption is low, R&D investments to develop technology are high, and market incentives are high, then you will choose the first option in the table.

Random task 1

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 2

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 3

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 4

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Social Sustainability

Let us assume this time that the social sustainability of bioenergy production using a particular type of biomass will depend on three important social conditions: (1) Impacts of bioenergy on food security; (2) Contributions of bioenergy to social welfare; and (3) Impacts of bioenergy on social justice.

In this part of the survey, we provide you different imaginary social conditions that will result from bioenergy production.

Given these conditions, which type of biomass would you choose to produce bioenergy in order to support social wellbeing in your region/country?

Fixed task

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TYPES OF BIOMASS	Starch-rich crops	Agriculture/Forest residues	Perennial grasses
1. Food security	Increase food self-sufficiency	Increase purchasing power	Increase affordability of food
2. Social welfare	Increase livelihood sources	Increase job opportunities	Improve household lifestyle
3. Social justice	Hinder equal property rights	Cause home displacement	Cause land dispossession

Note: For example, if you think that it is important to increase purchasing power and job opportunities in your region/country to improve social well-being, then you will choose the second option (i.e. Agriculture/Forest residues) in the table although it will cause home displacement of affected people. You will thus trade-off one condition over the other depending on what you think is more important for your region/country.

Random task 1

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 2

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 3

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 4

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Environmental Sustainability

Finally, let us assume that the environmental sustainability of bioenergy production using a particular type of biomass will depend on three important environmental conditions: (1) Potential for increasing biomass production for bioenergy; (2) Impacts of bioenergy production on natural (i.e. land, water) resources; and (3) Availability of land management to improve land productivity.

In this part of the survey, we provide you different imaginary environmental conditions to develop bioenergy production. Given these conditions, which type of biomass would you choose to produce bioenergy in order to protect the environment in your region/country?

Fixed task

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
TYPES OF BIOMASS	Oil-rich crops	Fast-growing trees	Sugar-rich crops
1. Production potential	Very high potential	Moderate potential	Very low potential
2. Resource capacity	Potential affected by population pressure	Put more pressure on natural resources	Improve landscape and species diversity
3. Land management	Support nature conservation	Compatible with organic farming	Available good farming practices

Note: For example, if you think that your region/country have very high potential to produce oil-rich crops for bioenergy without degrading the environment because its production can support nature conservation, then you will choose the first option in the table. Choosing this option, you assume that the potential will remain high even though its production will be affected by population pressure.

Random task 1

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 2

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 3

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Random task 4

Tick only one choice	CHOICES		
	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Following the previous questions on economic, social and environmental sustainability, we now define here sustainable bioenergy production according to three sustainability dimensions:

1. Economic stability which depends on energy security, technology progress, and market structure
2. Social equity which depends on food security, social welfare, and social justice
3. Resource productivity which depends on production potential, resource capacity, and land management

Assuming that the government would like to make financial investment on the bioenergy sector to achieve sustainable bioenergy production, how do you think should the money be allocated to these three sustainability dimensions in your region/country?

	percent to increase economic stability
	percent to promote social equity
	percent to enhance resource productivity
	total investment (100%)

For example, 20 percent to increase economic stability, 30 percent to promote social equity, and 50 percent to enhance resource productivity.

NOTE: The total investment should equal to 100%. The use of decimals (e.g. 20.50) is allowed.

C. PERSONAL INFORMATION

We kindly request you to provide us some personal information which we need to organize the survey data from all respondents.
We will keep this information confidential and use it only for research purposes.

1. What is your name?

2. What is your gender?

- a. Male b. Female

3. How old are you?

- a. 30 years old & below c. between 41 & 50 years old e. between 61 & 70 years old
 b. between 31 & 40 years old d. between 51 & 60 years old f. 71 years old & above

4. What is your level of education?

- a. grade school c. undergraduate (bachelor) e. technical training
 b. secondary school d. graduate (master/doctor) f. others: please specify

5. How will you describe the location of your domicile/home?

- a. urban area/city d. mountain/forest area g. others: please specify
 b. suburban area/close to city e. farm/agriculture area
 c. industrial/commercial area f. riverside/coastal area

END OF SURVEY