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Survey sustainability Biomass

Appendix:
Results of the
international respondents

Report

Delft, September 2006

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Publication Data

Bibliographical data:

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Appendix: results of the international respondents

Delft, CE, June 2006

Biomass / Sustainability / Production / Import /

Publication number: 06.8992.47

CE-publications are available from www.ce.nl

Commissioned by: SenterNovem.

Further information on this study can be obtained from the contact person Margret Groot (015-2150150).

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1 Introduction

1.1 Background

Many think there is a great future in store for the use of biomass. Both in the transport sector, the energy sector and in the chemical sector biomass offers chances for the conservation of the Dutch economy. However, the Netherlands is too small for the production of large quantities of biomass. Therefore, in the case of large-scale application, by far the greater part of the biomass will have to be of foreign origin. The last few years the import of biomass is an important subject under discussion. Many NGO's criticise the production of palm oil very much, for example. Therefore the Ministry of Economic Affairs set up the project group 'Sustainable Import Biomass', which consists of representatives of trade and industry, social organizations, financial institutions, and the government. The task of the project group is to formulate a set of sustainability criteria for the use and the application of biomass in energy, fuels and chemistry. The point here is the sustainability of biomass with regard to production and transport. For practical reasons the sustainability of biomass in the application phase will be left out of consideration. As a matter of fact, when drawing up the sustainability criteria the project group does not wish to make any distinction between imported biomass and biomass originating from the Netherlands.

1.2 Aim and method

It is important that the criteria to be drawn up should have a broad social support base. That is the reason why the project group has decided to test the draft sustainability criteria by means of a survey among approximately 200 Dutch key persons, coming from various sections of society. The results of this survey are described in the CE report 'Resultaten enquête duurzame import biomassa'. In addition to this Dutch survey, a small consultation has been carried out among some international key persons. An English version of the survey (see appendix A) has been sent by e-mail to eight persons, coming from the European Commission, the industry sector and the university. After two reminders (by e-mail and by phone) the total respondents add up to six. The two EC employees that not responded, thought it was inappropriate to fill in the questionnaire while the policy making process is in progress. The results of this international consultation are described in this report.



2 Results

2.1 Response

In the end of May 2006 the survey was sent to eight persons, of which four persons responded eventually in the begin of July. These four respondents work for the government, the industry and consultancy organisations, as you can see in Table 1. They consider themselves as expert in the field of sustainability of biomass import. Namely, these persons indicate for this proposition on a scale of 1 to 5 to what extent they disagree (1) or agree (5) with it. They all scored between the 3 and the 5.

Six respondents are far from representative for the total group of international experts in the field of sustainability of biomass. Therefore it is not justified to draw conclusions in general for this group. In this report we describe the most important answers of the six respondents and assign to the most notable similarities and differences with the outcome of the Dutch survey.

Table 1 Respondents

	Number	Percentage
Government	2	33%
Private sector (food, etc.)	2	33%
Knowledge and advisory organizations	2	33%
Total	6	

2.2 Method for assessing the sustainability in general

The respondents were asked to indicate for different general propositions around the sustainability on biomass on a scale of 1 to 5 to what extent they disagree (1) or agree (5) with them. The answers on this question are summarised in Table 2.

In general the respondents scored very differently, and it is hard to recognise trends. Only on proposition 1 'It will only be necessary to make sustainability demands on biomass for the energy and transport sector, but not for other sectors as the chemical and the food industry' they agree with each other very much. Just like in the Dutch survey all the respondents think that it is good to make sustainability demands for all kinds of biomass, subsidized or not. Furthermore the results show that the persons representing the industry scored rather extreme (only 1 en 5) and argue with his answers for a clear and feasible system. For example they both totally agree with proposition 4 (whether biomass is sustainable can be determined on the basis of 10 general criteria). In the Dutch survey most of the respondents also agreed with this proposition.

Table 2 Frequency table 'general propositions' (total number of respondents = 4)

Proposition		Frequencies				
		1	2	3	4	5
1	It will only be necessary to make sustainability demands on biomass for the energy and transport sector , but not for other sectors such as the chemical and the food industry.	4	1	0	0	1
2	It will only be necessary to make sustainability demands on biomass stimulated by the government with the aid of instruments such as subsidies and obligations.	3	1	2	0	0
3	The amount of the subsidy on the use of biomass would have to be dependent on the degree of sustainability of biomass.	0	2	1	1	2
4	Whether biomass is renewable can be determined sufficiently reliably on the basis of a standard test with a maximum of 10 criteria.	2	0	1	1	2
5	Whether biomass is renewable cannot be determined on the basis of a standard test with generic criteria. Each specific biomass flow has to be evaluated separately	2	0	1	1	2
6	The sustainability criteria must be dependent on the country of origin, since each producing country has its own problems with regard to sustainability which cannot be generalised.	2	1	0	3	0

1 = disagree 5 = degree

The project group would like to select some aspects for the assessment of the sustainability of biomass import. Per aspect the project group wishes to define two levels of requirements for all sustainability criteria. The first level is the minimum level, which simply will have to be met as from 2007. The second level makes higher demands on sustainability. At the moment achievements at this level are awarded bonus points as part of government incentives policies. As from 2010 this level will be in force as the minimum level for the label sustainability and government incentives arrangements. In the survey the respondents were asked what they think of this system. As you can see in Table 3 they all agreed with this system, dependent on the criteria that will apply for the different aspects.

Table 3 Back up for the method to assess sustainability of biomass, which the project group has in mind

Answer	Frequencies
A first-rate system	0
A good system, dependent on the criteria that will apply for the different aspects	6
Not a good system, because as from 2007 sustainability criteria should be opted for that will be valid for a long time	0
Not a good system, because sustainable import of biomass for energy and transportation applications will not be possible anyway.	0
Otherwise	0



Conclusion

All six respondents back up the method, which the project group has in mind for assessing the sustainability of biomass. However one note has to be made: there are two respondents who definitely do not agree with the proposition that sustainability can be determined on the basis of a test with a maximum of 10 criteria.

2.3 Aspects of the sustainability test

For the present the project group has selected eight aspects for the assessment of the sustainability of biomass import. The respondents were asked to indicate for each aspect whether, in their opinion, this should carry weight when determining the sustainability of biomass. The back up for the selected aspects is large as you can see in Table 4. The respondents scored 'yes' for almost all the aspects. This is very much in line with the results of the Dutch survey.

Table 4 Back up for the aspects in the sustainability test, temporarily selected by the project group

	Issues proposed by the project group	Number of respondents	Frequencies	
			Yes	No
1	CO ₂ balance	6	6	0
2	Food supply:	6	6	0
3	Nature and biodiversity:	6	5	1
4	Prosperity and well-being:	6	5	1
5	Working conditions:	6	5	1
6	Internal environmental management:	6	6	0
7	Soil quality and nutrient balance:	6	5	1
8	Water quality:	6	6	0

More aspects can be thought of than those selected by the project group. However the project group does not consider it necessary or possible to include these (explicitly) in the testing phase. The respondents were asked whether these aspects must be given a distinct place in the sustainability test for biomass. Table 5 shows the answers on these question. The back up for these aspects is not very large, except from the back up for aspect 12 (prevention of corruption) and 14 (self determination and landrights). Three of the six respondents would like to have these aspects in the sustainability test. In the Dutch survey there was some obvious back up for the aspects 10 (shifting effects), 12 (prevention of corruption) and 14 (self determination). Furthermore: the respondents gave three additional aspects in total:

- Technology transfer: developing country should benefit from new and modern infrastructure to process the biomass locally; processed biomass should be exported not the raw material.
- Equity: all stakeholders, including farmers should benefit from the production and export.
- Observance of water-use limitations and water use efficiency of bio energy crops.

Table 5 back up for other aspects in the sustainability test, than selected by the project group

	Possible additional aspects	N	Yes	No
9	Participation and human rights:	6	1	5
10	Deterioration of nature due to shifting effects:	* 5	2	3
11	No GMO	6	1	5
12	Prevention of corruption:	6	3	3
13	Cascading usage:	6	1	5
14	Self-determination and land rights:	6	3	3

* One respondent thinks that aspect 10 was a very weak statement, and therefore would not like to answer it.

To have insight in the relative importance of the different aspects according to the respondents, they were asked to divide 100 points among them. Table 6 shows the mean score per aspect. Respondents definitely consider the first aspect “CO₂ balance” to be the most important. After that “food supply” and “nature and biodiversity” follow. In general the results are quite similar to the Dutch results as Table 6 shows. Although the aspect “CO₂ balance” scored lower in the Dutch survey, and some more points are assigned to the aspects which are not temporally selected by the project group.

Table 6 Relative importance of the different aspects

	Issues proposed by the project group	Mean score INT. survey (n = 4)	Mean score Dutch survey (n = 104)
1	CO ₂ balance	31	20
2	Food supply:	13	11
3	Nature and biodiversity:	12	13
4	Prosperity and well-being:	4	7
5	Working conditions:	4	7
6	Internal environmental management:	9	7
7	Soil quality and nutrient balance:	11	7
8	Water quality:	9	8
	Possible additional options	Mean score INT survey (n = 4)	Mean score Dutch survey (n = 104)
9	Participation and human rights:	0	3
10	Deterioration of nature due to shifting effects	0	4
11	No GMO:	0	1
12	Prevention of corruption:	0	2
13	Cascading usage:	0	2
14	Self-determination and land rights:	1	3
15	Additional 1	2	3
16	Additional 2	3	1
	Sum total	100	100



Conclusion

The six respondents subscribe that the aspects which are temporally selected by the project group, should be part of the sustainability test. Fifty percent of the respondents would like to have the aspects 'Prevention of corruption' and 'self determination and land rights' in the test too. Respondents definitely consider CO₂ balance to be the most important aspect in the test. In general the results of this survey are in line with those from the Dutch survey, although lower points were assigned to "CO₂ balance" in the Dutch survey, and some more points to the aspects which are not temporally selected by the project group.

2.4 Requirements per aspect in the sustainability test

As written before, the project group wishes to define two levels of requirements for all sustainability aspects. The first level is the minimum level, which simply will have to be met as from 2007. The second level makes higher demands on sustainability. As from 2010 this level will be in force as the minimum level for the label sustainability and government incentives arrangements.

In the following tables we show the desired weight of the requirements in 2007 and 2010, for all 8 aspects that have been selected by the project group. The requirement in the first row is the lowest in order and the requirement in the last row highest. Table 7 and Table 8 show the preferred weight of the requirements for biomass applications in the energy and transport sectors *only*, since these will receive government support as part of climate policy. Table 9 up to and inclusive of Table 13 show the desired weight of the requirements for biomass use in general.

Concerning the CO₂ balance the respondents scored differently. The answers varied from 10% to 60% emission reduction. The mean score (calculated by multiplying the emissie reduction with the accompanying frequency) are 33% and 48% for respectively 2007 and 2010. These values are rather similar to the values calculated on the basis of the Dutch survey. These values were respectively 33% and 55%.

Table 7 Preferred criteria for the aspect 'CO₂ balance'

		Frequencies	
		2007	2010
1	Emissie reduction > 0%	0	0
2	Emissie reduction > 10%	1	1
3	Emissie reduction > 20%	1	0
4	Emissie reduction > 30%	2	0
5	Emissie reduction > 40%	0	1
6	Emissie reduction > 50%	1	1
7	Emissie reduction > 60%	1	2
8	Emissie reduction > 70%	0	1
9	Emissie reduction > 80%	0	0
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		4	6

Regarding the preferred requirements for the aspect 'food supply' it is conspicuously that the international respondents preferred lower requirements than the most preferred requirement in the Dutch survey (see last row of Table 8). The four respondents scored rather similar.

Table 8 Preferred requirements for the aspect 'food supply'

		Frequencies	
		2007	2010
1	No requirement needed	4	2
2	Locally no scarcity of food, energy, medicine and building materials due to biomass production	2	4
3	Locally no scarcity and disruption of food, energy, medicine and building materials supply	0	0
4	The preceding requirement plus financial compensation of any rise in prices in other sectors than the food, medicine and building materials sectors.	0	0
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		2	3

Table 9 shows the preferred requirements for the aspect 'nature and biodiversity'. The four international respondents don't agree with each other very much. The Dutch respondents preferred requirement 3 and 4 the most, for respectively 2007 and 2010.



Table 9 Preferred requirements for the aspect 'nature and biodiversity'

		Frequencies	
		2007	2010
1	No requirement needed	2	0
2	Businesses must report on the biodiversity effects of the biomass they produce or purchase	2	2
3	The preceding requirement plus that the growing of biomass must not be at the expense of valuable nature reserves	1	2
4	The preceding requirement plus active protection of the local ecosystem where biomass production is taking place.	1	1
5	The preceding requirement plus active development of the local ecosystem	0	1
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		3	4

Regarding the aspect prosperity and well-being: five of the six international respondents preferred very low requirements, and one respondent preferred the highest requirement. The most preferred requirements resulting from the Dutch survey lie in between.

Table 10 Preferred requirements for the aspect 'Prosperity and well-being'

		Frequencies	
		2007	2010
1	No requirement needed	5	2
2	Businesses must report on the prosperity and wellbeing effects of the biomass they produce or purchase.	0	3
3	The preceding requirement plus that the rights of the local population will be respected	0	0
4	The preceding requirement plus that biomass production will in principle not be at the expense of the prosperity and the wellbeing of the local population. Any decline will be compensated	0	0
5	The preceding requirement plus that biomass production will increase the prosperity of the local population	1	1
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		3	4

Concerning the aspect 'working conditions' the answers tend to low requirements for 2007 and high requirements for 2010. Also for this aspect prevails: the most preferred requirements resulting from the Dutch survey lie in between.

Table 11 Preferred requirements for the aspect 'working conditions'

		Frequencies	
		2007	2010
1	No requirement needed	0	0
2	Working conditions meet local legal requirements	5	3
3	Working conditions meet local legal requirements and employees can organise themselves in trade unions for collective wage negotiations	0	0
4	The preceding requirement plus that working conditions meet ILO (International Labour Organization) requirements	0	2
5	The preceding requirement plus that working conditions comply with Fair Trade principles	1	1
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		3	4

Table 12 shows the preferred requirements for the aspect 'internal environmental management'. The preferences of the six national respondents are quite similar to the preferences of the Dutch respondents.

Table 12 Preferred requirements for the aspect 'Internal environmental management'

		Frequencies	
		2007	2010
1	No requirement needed	1	0
2	Compliance with local legislation in the field of waste materials, pesticides and herbicides, fertilizer, noise, stench and safety	4	3
3	Compliance with local and EU legislation in the field of waste materials, pesticides and herbicides, fertilizer, noise, stench and safety and the obligation of ISO 14001	1	2
4	The preceding requirement plus ecological cultivation	0	1
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		2	3

The same conclusion applies for the aspect 'Soil quality and nutrient balance'. The preferences of the national respondents are quite similar to the preferences of the Dutch respondents.

Table 13 Preferred requirements for the aspect 'Soil quality and nutrient balance'

		Frequencies	
		2007	2010
1	No requirement needed	0	0
2	Comply with local legal requirements	5	2
3	The preceding requirement plus the use of an erosion management plan / no decline of soil thickness, carbon storage and fertility	1	3
4	The preceding requirement plus ecological cultivation	0	1
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		2	3



Concerning the aspect 'Water quality': Five of the six respondents choose requirement two for the period until 2007 (this requirement was also most chosen in the Dutch survey). They don't agree very much on the requirement for the period after 2010.

Table 14 Preferred requirements for the aspect 'Water quality'

		Frequencies	
		2007	2010
1	No requirement needed	0	0
2	Comply with local legal requirements	4	3
3	The preceding requirement plus retaining the quality and availability of surface area and ground water	2	1
4	The preceding requirement plus ecological cultivation	0	2
Number of respondents		6	6
Most preferred requirement (number) in the Dutch survey		2	3

Conclusion

It is very hard to draw conclusions in general with responses of six respondents, but for several aspects the preferences are in line with the average preference of the Dutch respondents. This applies for the aspects CO₂ balance, internal environmental management and soil quality. Concerning the other aspects: the four respondents do not agree with each other very much, or preferred lower requirements (namely food supply).



3 Conclusions

The response to the survey (6 persons) is much smaller than the Dutch survey mainly because of the lower amount of persons who have been asked (8 persons).

The group of respondents in the international survey (6 persons) is too small to draw precise conclusions. Only some rough indications can be seen. Especially interesting is the question if the international respondents do agree with the Dutch respondents:

- International respondents agree with the Dutch respondents that sustainability criteria for biomass should also be used for the food sector and the biochemistry sector.
- International respondents support the development of a sustainability criteria system for bio-energy and biofuels.
- International respondents support the key aspects of sustainability selected by the commission Cramer.
- International respondents are in general not in favour of the extra aspects mentioned by Dutch NGO's with the exception of prevention of corruption and 'self determination and land rights'. The Dutch respondents are more in favour of the extra aspects especially for the factor 'Deterioration of nature due to shifting effects' which is supported by 74% of the Dutch respondents. This displacement discussion looks like a typical Dutch discussion coupled to the Dutch concern for deforestation by palm oil production.
- The minimum CO₂ reduction target suggested is 33% for 2007 and 48% for 2010. This is similar to the values suggested by the Dutch respondents (respectively 33% and 55%).
- For most other aspects the international respondents prefer slightly less strict criteria than the Dutch respondents.

In general this international responses are in line with the responses of the Dutch questionnaire.



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Appendix:
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Annex

Report

Delft, September 2006

Author(s): M.I. (Margret) Groot
G.C. (Geert) Bergsma





A Questionnaire

In accompanying mail

Dear ...

You are a key person in the discussion around the sustainability of biomass. That is why we would appreciate it very much, if you would take some time to complete the enclosed survey. It is a short survey, with closed questions. Answering these will take you about 15 minutes. We would like to receive the completed questionnaire before **12 May 2006**.

The survey has been composed under the responsibility of the project group 'Sustainable import biomass'. This project group has been set up by the Ministry of Economic Affairs and consists of representatives of trade and industry, social organizations, financial institutions, and the government. The task of the project group is to formulate a set of sustainability criteria for the use and the application of biomass in energy, fuels and chemistry.

It is important that the criteria to be drawn up should have a broad social support base. That is the reason why the project group has decided to test the draft sustainability criteria by means of a survey among approximately 100 key persons, coming from various sections of society. According to our information you are one of this group of key persons. The independent environmental consultancy CE has been commissioned to prepare the survey and to process your reaction. CE also guarantees that the information provided by you will be dealt with confidentially.

On behalf of the project group I wish to thank you in advance for your kind cooperation!



Jacqueline Cramer (chairperson project group Sustainable Import biomass)

Questionnaire

Welcome to the survey of the project group 'Sustainable Import of Biomass'. We are pleased that you wish to contribute in this way towards the assessment of the first draft of the sustainability criteria for biomass.

Explanation

Many think there is a great future in store for the use of biomass. Both in the transport sector, the energy sector and in the chemical sector biomass offers chances for the conservation of the Dutch economy. However, the Netherlands is too small for the production of large quantities of biomass. Therefore, in the case of large-scale application, by far the greater part of the biomass will have to be of foreign origin. The central question facing the project group 'Sustainable Import of Biomass' is what criteria must be laid down to guarantee the sustainability of the imported biomass. The point here is the sustainability of biomass with regard to production and transport. For practical reasons the sustainability of biomass in the application phase will be left out of consideration. As a matter of fact, when drawing up the sustainability criteria the project group does not wish to make any distinction between imported biomass and biomass originating from the Netherlands. We would like to present to you the draft list of sustainability criteria for assessment. For we think a broad public debate on this issue is important and will help us to arrive at a high-quality sustainability test.

Question 1:

To which of the following groups do you consider yourself to belong:

- NGO (for instance environment or development organisation)
- Government
- Private sector: energy sector (electricity and heat production)
- Private sector: transport sector
- Private sector: other (food, etc.)
- Financial institutions
- Knowledge and advisory organisations



Question 2:

Can you indicate for the following propositions on a scale of 1 to 5 to what extent you disagree (1) or agree (5) with them? You can do this by making the right number bold.

	disagree..... agree
It will only be necessary to make sustainability demands on biomass for the energy and transport sector , but not for other sectors such as the chemical and the food industry.	1 2 3 4 5
It will only be necessary to make sustainability demands on biomass stimulated by the government with the aid of instruments such as subsidies and obligations.	1 2 3 4 5
The amount of the subsidy on the use of biomass would have to be dependent on the degree of sustainability of biomass.	1 2 3 4 5
Whether biomass is renewable can be determined sufficiently reliably on the basis of a standard test with a maximum of 10 criteria.	1 2 3 4 5
Whether biomass is renewable cannot be determined on the basis of a standard test with generic criteria. Each specific biomass flow has to be evaluated separately	1 2 3 4 5
The sustainability criteria must be dependent on the country of origin, since each producing country has its own problems with regard to sustainability which cannot be generalised.	1 2 3 4 5
I consider myself an expert in the field of sustainability of biomass import.	1 2 3 4 5

Question 3a

For the present the project group has selected 8 aspects for the assessment of the sustainability of biomass import (for a brief explanation of each aspect: click on explanation). Can you indicate for each aspect whether, in your opinion, this should carry weight when determining the sustainability of biomass (then click on yes) or should not carry any weight (then click on no)?

	Sustainability aspect	Explanation	
1	CO ₂ balance	There must be CO ₂ emission reduction.	Yes / No
2	Food supply	Biomass import must not lead to food scarcity.	Yes / No
3	Nature and biodiversity	Biomass import must not lead to adverse effects on valuable nature.	Yes / No
4	Prosperity and well-being	Biomass must not lead to a decline of prosperity and well-being in developing countries.	Yes / No
5	Working conditions	Biomass production must take place in accordance with internationally accepted ILO (International Labour Organization) guidelines in the field of working conditions.	Yes / No
6	Environmental management	Compliance with local and international/EU legislation in the field of waste materials, pesticides and herbicides, fertilizer, noise, stench and danger.	Yes / No
7	Condition of the soil nutrient balance:	Depletion of the soil must be prevented.	Yes / No
8	Water quality	Preservation of availability and quality of water.	Yes / No

Question 3b

More aspects can be thought of than those selected by the project group. However, for the present the project group does not consider it necessary or possible to include these (explicitly) in the testing. What is your opinion on the aspects below? Must they be given a distinct place in the test (then click on yes), or do you think there is no need for them to be included (then click no)? You can also add two new aspects in the table yourself.

	Sustainability aspect	Explanation	
9	Participation and human rights	An active dialogue with the people living in the neighbourhood will be necessary plus the exclusion of countries that do not observe human rights.	Yes / No
10	Deterioration of nature due to shifting effects	Prevention of shifting effects: if the production of biomass takes place at the expense of the necessary agricultural land, then there is a good chance that elsewhere land will be cultivated in order to grow the required crops all the same. This must not be at the expense of biodiversity.	Yes / No
11	GMO	No use of genetically modified organisms (GMOs).	Yes / No
12	Integrity, fraud and corruption	Prevention of, or non-cooperation with corruption.	Yes / No
13	Cascading usage	Cascading usage: use biomass first for raw materials and after this for energy.	Yes / No
14	Self-determination and fundamental rights	Observing treaties in this field (International treaty with regard to economic and social rights (1966), ILO conventions 169 and Convention with regard to biological diversity (CBD).	Yes / No
15	Additional 1		
16	Additional 2		

Question 4

What relative importance do you attach to the different aspects? Can you indicate this by dividing 100 points among the different aspects?

Issues proposed by the project group	Divide 100 points
1 CO ₂ balance:	
2 Food supply:	
3 Nature and biodiversity:	
4 Prosperity and well-being:	
5 Working conditions:	
6 Internal environmental management:	
7 Soil quality and nutrient balance:	
8 Water quality:	
Possible additional options	
9 Participation and human rights:	
10 Deterioration of nature due to shifting effects:	
11 No GMO:	
12 Prevention of corruption:	
13 Cascading usage:	
14 Self-determination and land rights:	
15 Additional 1	
16 Additional 2	
Sum total	



Question 5

The project group wishes to define two levels of requirements for all sustainability criteria. The first level is the minimum level, which simply will have to be met as from 2007. The second level makes higher demands on sustainability. At the moment achievements at this level are awarded bonus points as part of government incentives policies. As from 2010 this level will be in force as the minimum level for the label sustainability and government incentives arrangements. What do you think of this draft?

- A first-rate system
- A good system, dependent on the criteria that will apply for the different aspects
- Not a good system, because as from 2007 sustainability criteria should be opted for that will be valid for a long time.
- Not a good system, because sustainable import of biomass for energy and transportation applications will not be possible anyway.
- Otherwise

In the following series of questions we examine the relative weight of the requirements in 2007 (minimum requirement) and in 2010, for all 8 aspects that have been selected by the project group. These are closed questions, in which we ask you to choose one requirement by clicking on the corresponding bullet, both in the column 'minimum requirement in 2007' and in the column 'minimum requirement in 2010'. The requirement in the first row is the lowest in the order and the requirement in the last row the highest.

In questions 6 and 7 we would like to know the desired weight of the requirements ONLY for biomass applications in the energy and transport sectors, since these will receive government support as part of climate policy. In questions 8 up to and inclusive of 13 we would like to know the desired weight of the requirements for biomass use in general.

Question 6

With regard to the CO₂-emission reduction of biomass for energy and transportation fuels compared with fossil alternatives the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
Reduction of greenhouse gas emission greater than 0%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 10%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 20%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 30%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 40%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 50%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 60%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 70%	<input type="checkbox"/>	<input type="checkbox"/>
Reduction of greenhouse gas emission greater than 80%	<input type="checkbox"/>	<input type="checkbox"/>

Question 7

Biomass for energy and transportation applications can compete with food production, local energy supply, medicine and building materials. With regard to this the following minimum requirements must apply for the use of biomass in the energy and transport sectors (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Locally no scarcity of food, energy, medicine and building materials due to biomass production	<input type="checkbox"/>	<input type="checkbox"/>
Locally no scarcity and disruption of food, energy, medicine and building materials supply	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus financial compensation of any rise in prices in other sectors than the food, medicine and building materials sectors.	<input type="checkbox"/>	<input type="checkbox"/>



Question 8

With regard to biodiversity and nature the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Businesses must report on the biodiversity effects of the biomass they produce or purchase	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that the growing of biomass must not be at the expense of valuable nature reserves	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus active protection of the local ecosystem where biomass production is taking place	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus active development of the local ecosystem	<input type="checkbox"/>	<input type="checkbox"/>

Question 9

With regard to prosperity and well-being the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Businesses must report on the prosperity and wellbeing effects of the biomass they produce or purchase.	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that the rights of the local population will be respected	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that biomass production will in principle not be at the expense of the prosperity and the wellbeing of the local population. Any decline will be compensated	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that biomass production will increase the prosperity of the local population	<input type="checkbox"/>	<input type="checkbox"/>

Question 10

With regard to the working conditions during the production of biomass the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Working conditions meet local legal requirements	<input type="checkbox"/>	<input type="checkbox"/>
Working conditions meet local legal requirements and employees can organise themselves in trade unions for collective wage negotiations	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that working conditions meet ILO (International Labour Organization) requirements	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus that working conditions comply with Fair Trade principles	<input type="checkbox"/>	<input type="checkbox"/>

Question 11

With regard to environmental management the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Compliance with local legislation in the field of waste materials, pesticides and herbicides, fertilizer, noise, stench and safety.	<input type="checkbox"/>	<input type="checkbox"/>
Compliance with local and EU legislation in the field of waste materials, pesticides and herbicides, fertilizer, noise, stench and safety and the obligation of ISO 14001	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus ecological cultivation	<input type="checkbox"/>	<input type="checkbox"/>



Question 12

With regard to soil quality/nutrient balance the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Comply with local legal requirements	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus the use of an erosion management plan / no decline of soil thickness, carbon storage and fertility	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus ecological cultivation	<input type="checkbox"/>	<input type="checkbox"/>

Question 13

With regard to water quality the following minimum requirements must apply (please, choose one answer per column):

	Minimum requirement in 2007	Minimum requirement in 2010
No requirement needed	<input type="checkbox"/>	<input type="checkbox"/>
Comply with local legal requirements	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus retaining the quality and availability of surface area and ground water	<input type="checkbox"/>	<input type="checkbox"/>
The preceding requirement plus ecological cultivation	<input type="checkbox"/>	<input type="checkbox"/>

Question 14

In your opinion are there any kinds of biomass that can be considered as renewable or not renewable **from the outset**:

Biomass that in your opinion can be considered as RENEWABLE:

Kind of biomass (for instance wood, rape, sugar cane, rice chaff or palm oil)	Country or region of production	Reason

Biomass that in your opinion canNOT be considered as renewable:

Kind of biomass	Country or region of production	Reason

Question 15

Do you have any additional suggestions for, or remarks with regard to the sustainability of biomass?

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.....

Question 16

If you are interested in the results of this survey, you can fill in your e-mail address here. We will send you the results.

e-mail address:

Question 17

The project group may wish to ask a number of respondents for further explanation by telephone. Would you be willing to cooperate?

- Yes
- No

My name is:

My phone number is:

Thank you very much for your kind cooperation!



B Additional suggestions

- Let it grow as a supplier and a market.
- Care must be taken not to give the impression that achieving sustainability in the production and use of biomass for energy is either impossible (too complex) or simple (too few criteria to be meaningful).
- The issue of sustainable biomass imports is a complex one and can be discussed from many different perspectives which are all well justified, but sometimes lead to contradictory results. Therefore it was difficult to fill in the questionnaire. Please find below some general comments:
 - Sustainability criteria have to be accepted by all stakeholders.
 - We talk about an existing, multi million tons market with in many cases already established political and legal framework (WTO, ISO/CEN/ASTM standards, etc.).
 - When discussing biomass trade this is a bulk, commodity market. We have to ensure that the criteria to be applied can be monitored easily.
 - In my view it does not make much sense to have stronger ecological criteria for an energy feedstock than a food ingredient, especially as both, in many cases, are not traded separately (e.g. vegetable oils).
 - We will have new players with high energy demands on the market very soon (e.g. China, India), which will influence the market rules considerably.