



# NTA 8080-1 (en)

Sustainably produced biomass for bioenergy and  
bio-based products – Part 1: Sustainability requirements

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Netherlands technical agreement

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Replaces NTA 8080:2009 (en), together with NTA 8080-2:2015 (en)

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ICS: 03.100.50; 13.020.20; 27.190; 71.100.99; 75.160; 83.140.99

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December 2015

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**NEN**



Netherlands technical agreement

# **NTA 8080-1**

(en)

Sustainably produced biomass for bioenergy  
and bio-based products – Part 1: Sustainability  
requirements

Duurzaam geproduceerde biomassa voor  
bio-energie en biobased producten –  
Deel 1: Duurzaamheidseisen

Replaces NTA 8080:2009 (en), together with NTA 8080-2:2015 (en)

ICS 03.100.50; 13.020.20; 27.190; 71.100.99; 75.160; 83.140.99

December 2015



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## Foreword

Ambitious objectives for the share of renewable energy in the total energy consumption are being set all over the world. In many countries the use of biomass plays an important role in generating electricity and heat and in producing transport fuels. An important social consideration for the use of biomass for energy purposes is that the biomass can be demonstrated to have been produced sustainably. This is the reason why in 2009 the first edition of NTA 8080 was published. The sustainability requirements in this NTA were derived from the final report *Testing framework sustainable biomass*, that was drawn up by the “Sustainable production of biomass” project group, chaired by Jacqueline Cramer.

NTA 8080 has been used as the basis to develop a certification system that offers organizations an instrument to demonstrate that they comply with the sustainability requirements of NTA 8080. Organizations can show their compliance with NTA 8080 through a certificate issued by a certifying body following a positive assessment. The European Commission has recognized the NTA 8080 certification system as a voluntary scheme to demonstrate that the sustainability requirements for biofuels and bioliquids as laid down in Directive 2009/28/EC are fulfilled.

NTAs are reviewed at least once every three years for their being up to date and valid. In this regard, various interested parties indicated that NTA 8080 should be reviewed. The following considerations, which are presented in a random order, are some of the reasons why NTA 8080 was revised:

- The scope of NTA 8080:2009 was sustainably produced biomass for application in bioenergy. The increasing use of biomass in the chemicals and fine chemicals industries to replace fossil resources has also created the need in this sector to be able to demonstrate that the biomass to be used was produced sustainably. Keeping in mind that, in principle, the same biomass can be used for bio-based products as for bioenergy, it would be easy to extend the scope of NTA 8080 to sustainably produced biomass for application in bio-based products.
- To further the recognition of the NTA 8080 certification system by the European Commission, as referred to earlier, interpretations of the text of NTA 8080:2009 were necessary to make it fully comply with the statutory provisions of Directive 2009/28/EC. It is desirable that these interpretations should become an integrated part of NTA 8080 instead of having been laid down in an interpretation document.
- In the European context, CEN/TC 383 “Sustainably produced biomass for energy applications” developed the four-part EN 16214 series for biofuels and bioliquids. All CEN members are under the obligation to adopt European standards as national standards and to withdraw any conflicting national standards. The scope of, and the sustainability aspects in, the EN 16214 series are more limited than those in NTA 8080. However, it is important that NTA 8080 is compatible with, and makes use of, European standards. As the scope is being expanded to bio-based products, the standards published and under development by CEN/TC 411 “Bio-based products” should also be taken into account, acknowledging that the standards under development might be subject to changes.

**NOTE** This NTA includes references to EN standards. These standards are adopted as national standard by all countries that are a member of CEN, and are available as such (e.g. as NEN-EN in The Netherlands, DIN-EN in Germany, NF-EN in France and BS-EN in the United Kingdom).

- In international context, ISO/PC 248 “Sustainability criteria for bioenergy” has developed ISO 13065 that specifies principles, criteria and indicators to facilitate assessment of environmental, social and economic aspects of sustainability of the bioenergy supply chain. This international standard should be taken into account.
- NTA 8080:2009 referred to calculation tools to calculate greenhouse gas emissions, which have since been replaced by calculation tools that were developed for the purposes of the Biograce I and Biograce II projects. In addition, it is preferred to specify the calculation method for greenhouse gas emission calculations with an informative reference to the calculation tools that can be used.

- Various projects, including pilot projects, have revealed that the requirements for some sustainability aspects in NTA 8080:2009 could be defined more concretely. For example, this concerned requirements in which it was stated that practices should be implemented according to ILO conventions and the *Universal Declaration of Human Rights*. Some aspects from that have been clarified by means of an interpretation. It was therefore recommended to draw up NTA 8080 to be more unambiguous, so that organizations know better what is expected of them and so that auditors have more actual points of reference with which to assess organizations' compliance with the requirements. The interpretations have been taken into account.
- NTA 8080:2009 included a clause on certification requirements. In principle, certification requirements should be described in another document, which is compatible with the ISO practice. NTA 8081 describes the requirements for certification based on NTA 8080 and this has made the relevant clause in NTA 8080:2009 redundant.
- The traceability requirements were briefly described in NTA 8080:2009. When developing the certification system, the traceability requirements were elaborated in detail and laid down in the interpretation document linked to this system. It is desirable that these interpretations should become an integrated part of NTA 8080 instead of only being laid down in an interpretation document.
- The applicable sustainability requirements for biomass flows on the list of exceptions (residual flows) in Annex A to NTA 8080:2009 did not match those of Directive 2009/28/EC as regards primary flows. This has been resolved by means of an interpretation which should preferably become an integrated part of NTA 8080. As the use of residual flows is increasing, it was recommended to study the list of exceptions more closely as well.
- There is new understanding and there are new developments as regards sustainability aspects that should be considered. These concern issues such as cascading, indirect land-use change, carbon debt, how sustainable forest management certificates are handled and laws on the illegality of woody biomass.

A working group, composed of a broad spectrum of members, drew up the second edition of NTA 8080 considering the above and other points. During the revision, the working group concluded that, given the nature of the requirements and the strong link with certification as regards chain of custody, the sustainability requirements and the chain-of-custody requirements should be laid down in two separate documents. This is why NTA 8080 has been divided into two parts. This part of the NTA describes the sustainability requirements; part 2 of the NTA describes the requirements on chain of custody. In addition, general requirements and guidelines that exceed individual sustainability aspects have been placed in a separate clause in this part of the NTA. One of the effects of this is that it also shows more clearly that continuous improvement is part of the business operations.

During the revision an expert group as part of the Dutch Energy Agreement <sup>1)</sup> started to develop sustainability criteria for solid biomass for co-firing in coal plants, as agreed in the Energy Agreement. The working group has decided to adopt the results of this expert group to ensure that this NTA can also be used to demonstrate compliance with the sustainability criteria of the Energy Agreement. This has resulted in the adoption of a reference date for conversion of natural forests to forest plantations that differs from the reference date that is used elsewhere for sustainability requirements related to land-use change.

The new understanding and new developments as regards sustainability aspects have been included in this part of the NTA where possible. It has not been possible to formulate requirements at the organizational level for all themes, since the developments have not sufficiently crystallized out or they exceed the organizational level (effects at macro level, also referred to as indirect effects).

This NTA recognizes that organizations have responsibilities at a corporate level for preventing indirect effects. Since the risk of indirect effects depends on factors that exceed the corporate level, such as the total demand for a certain raw material or the government policy with regard to land-use planning, an individual company is not able to fully map the potential indirect effects and this is therefore a task for governments.

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1) The Energy Agreement is an agreement for sustainable growth that has been endorsed by more than forty organizations including government, employers and unions, nature conservation and environmental organizations, and other civil-society organizations and financial institutions. The core feature of the Energy Agreement is a set of broadly supported provisions regarding energy saving, clean technology, and climate policy.

Where possible, this NTA offers organizations some suggestions for improving awareness and taking mitigation actions.

This NTA is intended for all organizations in the biomass chain for bioenergy and bio-based products, regardless of the size, geographical location and types of raw materials. This NTA offers organizations room to decide for themselves what shape they will give the actions they should take in order to comply with the requirements while considering the nature and extent of their activities. The organization is expected to justify its choices. This is also important if the organization chooses to have a third party assess its compliance with the requirements of this NTA.

The text of this NTA was drawn up by the “Herziening NTA 8080:2009” (NTA 8080:2009 revision) working group. A draft version of the NTA has been presented to a wider group of people for their comments, such as to the members of the “Duurzaamheidscriteria voor biomassa” (Sustainability criteria for biomass) standards committee and representatives of industries that are also focussing on the primary or other production of biomass, both internationally and on a small-scale level. When publishing this NTA, the working group consisted of the following members:

- Jeannette Hofman-Züter (chair person), NEN
- Chris Arthers, Essent
- Silvan de Boer, Eneco
- Corné Boot, E.On
- Arjen Brinkmann, Branche Vereniging voor Organische Reststromen (‘Dutch Association of Biowaste Processors’; BVOR) and Brinkmann Consultancy
- Jorn Bronsvoort, Quality Services Certification
- Harry Croezen, CE Delft
- Bart Dehue, Vattenfall
- Eric Evers, DEKRA Certification
- Timo Gerlagh, Netherlands Enterprise Agency (RVO)
- Marieke Harteveld, IUCN-NL
- Lawrence van Hevelingen, CNG Net
- Ria Kalf, Platform Bio-energie (‘Platform Bioenergy’)
- Miriam Knörzer, GDF Suez
- Harold Martina, GMSP Sustainability & Management Consultants
- Roel Nozeman, FSC Netherlands
- Leo Posthuma, National Institute for Public Health and the Environment (RIVM)
- Bianca Rombout-Hage, Vereniging Afvalbedrijven (‘Association for Waste Companies’)
- Arjette Stevens, World Wildlife Fund the Netherlands (WNF)
- Leo van der Vlist, Netherlands Centre for Indigenous Peoples (NCIV)
- Henk Wanningen, Staatsbosbeheer (‘State Forest Service’)
- Harmen Willemse, NEN
- Willem Wiskerke, Greenpeace
- Jarno Dakhorst (secretary), NEN

# Sustainably produced biomass for bioenergy and bio-based products – Part 1: Sustainability requirements

## 1 Scope

This part of this NTA describes the requirements for sustainably produced biomass for application in bioenergy (electricity, heating, cooling, and transport fuel) and bio-based products. Biomass and products made from biomass can occur in a solid, liquid or gaseous state.

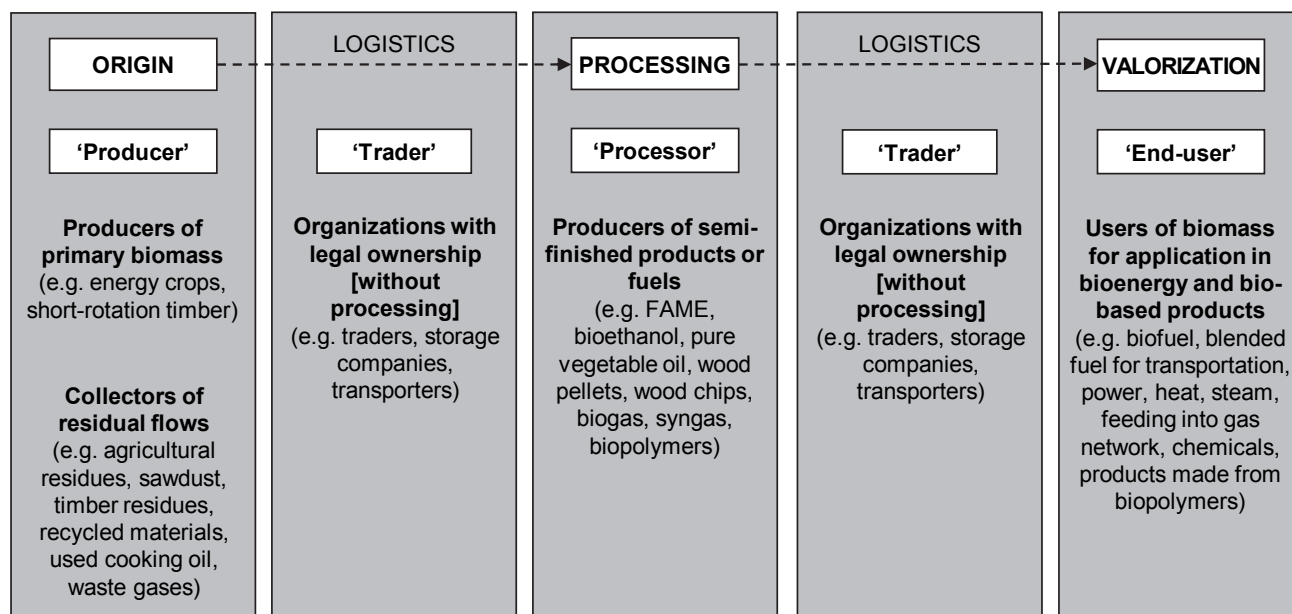
This NTA applies to organizations that:

- wish to produce biomass or collect residual flows for application in bioenergy or bio-based products and wish to sell such products as sustainably produced products (also referred to as ‘producer’);
- wish to process biomass and wish to market this as sustainably obtained and sustainably processed (also referred to as ‘processor’);
- wish to trade (processed) biomass while having to be able to demonstrate that (part of) the biomass delivered has been produced, processed and obtained sustainably (also referred to as ‘trader’);
- wish to use (processed) biomass for application in bioenergy or bio-based products while having to be able to demonstrate that (part of) the biomass has been produced, processed and obtained sustainably (also referred to as ‘end-user’).

**NOTE** Organizations that only transport produced and or processed biomass, but do not own this material, are not included in the scope of this NTA.

Figure 1 shows the scope of this NTA and provides examples across the supply chain.

The application of the requirements in this NTA depends on the activities of an organization and its position in the supply chain. Annex A provides a summary of the applicability of the requirements in this NTA to organizations.



NOTE 1 This diagram is a simplified representation of the supply chain. Often more processing steps ('processors') and thus logistics ('traders') between the origin of biomass ('producer') and the final valorization ('end-user') are involved. Chains can be long and complex, and in the case of bio-based products the 'end-user' will be less clearly to determine than in the case of bioenergy. EN 16760 can be applied for conducting life cycle assessments for bio-based products.

NOTE 2 Organizations that only transport produced or processed biomass, but do not own this material, are not included in the scope of this NTA.

**Figure 1 — Schematic representation of scope**

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NTA 8003:2008      *Classification of biomass for energy application*

## 3 Terms and definitions

For the purpose of this standard the following terms and definitions apply.

### 3.1

#### **protected species**

species of living organisms (plants, animals, fungi, bacteria) that have been designated as protected species by national legislation or, in the absence of national legislation, species that are classified as 'vulnerable', 'endangered' or 'critically endangered' on the IUCN Red List

### 3.2

#### **protected area**

clearly defined geographical space, recognized, dedicated and managed, through legal means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values

[SOURCE: International Union for Conservation of Nature (IUCN)]

**3.3****bio-based**

derived from biomass

Note 1 to entry: Biomass can have undergone physical, chemical or biological treatment(s).

Note 2 to entry: The correct spelling of 'bio-based' is with a hyphen ('-'). It is however in common usage sometimes spelt without a hyphen.

Note 3 to entry: The methods to determine and communicate 'bio-based' as a characteristic are detailed in specific standards.

[SOURCE: EN 16575:2014, 2.1, modified – 'of CEN/TC 411' has been omitted in note 3 to entry.]

**3.4****bio-based product**

product wholly or partly derived from biomass

Note 1 to entry: The bio-based product is normally characterized by the bio-based carbon content or the bio-based content.

Note 2 to entry: Product can be an intermediate, material, semifinished or final product.

Note 3 to entry: 'bio-based product' is often used to refer to a product which is partly bio-based. In those cases the claim should be accompanied by a quantification of the bio-based content.

Note 4 to entry: 'bio-based product' focuses on areas other than food, feed and energy applications.

[SOURCE: EN 16575:2014, 2.5, modified – Note 1 to entry has been shortened by removing the second sentence and note 4 to entry has been added based on the note in the scope of EN 16575:2014.]

**3.5****biofuel**

liquid or gaseous fuel for transport produced from biomass

Note 1 to entry: Standards often use a broader definition for biofuel, which includes solid fuels and other purposes than for transport as well.

[SOURCE: Directive 2009/28/EC, modified – Note 1 to entry has been added.]

**3.6****biodiversity**

biological diversity

variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

[SOURCE: Convention on Biological Diversity (CBD), United Nations (1992).]

**3.7****biomass**

biodegradable fraction of products, waste and residues from biological origin from agriculture (including vegetal and animal substances), forestry and related industries including fisheries and aquaculture, as well as the biodegradable fraction of industrial and municipal waste

Note 1 to entry: Other definitions for 'biomass' are used in standards.

Note 2 to entry: This NTA refers to 'waste and residues' as 'residual flows'.

[SOURCE: Directive 2009/28/EC, modified – Notes 1 and 2 to entry have been added.]

**3.8**

**bioenergy**

energy derived from biomass

Note 1 to entry: Biomass can be processed into solid, liquid or gaseous fuels or stored energy in biomass can be directly converted into other forms of energy (e.g. heat, light).

[SOURCE: ISO 13065:2015, 3.3]

**3.9**

**greenhouse gas**

gaseous constituent of the atmosphere, both natural and anthropogenic, that absorbs and emits radiation at specific wavelengths within the spectrum of infrared radiation emitted by the Earth's surface, the atmosphere, and clouds

[SOURCE: ISO 14064-1:2006, 2.1, modified – Note 1 to entry has been omitted.]

**3.10**

**greenhouse gas emission**

total mass of a greenhouse gas released to the atmosphere over a specified period of time

[SOURCE: ISO 14064-1:2006, 2.5]

**3.11**

**cascading**

chain of processes based on one raw material

Note 1 to entry: In this NTA, cascading signifies the efficient use of biomass as a raw material, also considering the final application.

**3.12**

**chemicals**

substances that are a potential health or environmental hazard or that can cause material damage

**3.13**

**alien species**

species that does not naturally occur in the area concerned

Note 1 to entry: Genetically modified crops are also considered to be alien species.

**3.14**

**actual value**

greenhouse gas emission saving for some or all of the steps of a specific bioenergy production process calculated in accordance with the methodology defined by the governing authority

Note 1 to entry: The European Commission is the governing authority for applications within the European Union.

[SOURCE: Directive 2009/28/EC, modified – 'biofuel' has been changed to 'bioenergy' and 'laid down in part C of Annex V' has been changed to 'defined by the governing authority'; note 1 to entry has been added.]

**3.15**

**gaseous biomass**

gaseous fuel for energy purposes other than for transport, including electricity, heating and cooling, produced from biomass, or gaseous material for application in bio-based products

Note 1 to entry: Gaseous biomass is often referred to as biogas.

Note 2 to entry: The definition has been derived from the definition of bioliquid (3.31).

**3.16****grassland**

terrestrial ecosystem dominated by herbaceous or shrub vegetation for at least five years continuously

Note 1 to entry: It includes meadows or pasture that is cropped for hay but excludes land cultivated for other crop production and cropland lying temporarily fallow. It further excludes continuously forested areas as defined in 6.2.2.1 b), unless these are agroforestry systems which include land-use systems where trees are managed together with crops or animal production systems in agricultural settings.

Note 2 to entry: The dominance of herbaceous or shrub vegetation means that their combined ground cover is larger than the canopy cover of trees.

[SOURCE: Regulation (EU) No 1307/2014]

**3.17****renewable source**

natural source that is naturally replenished as time goes by

**3.18****high conservation value area**

HCV-area

area with high conservation value, being a biological, ecological, social or cultural value of outstanding significance or critical importance, according to one or more of the following values:

- HCV1: concentrations of biological diversity including endemic species, and rare, threatened or endangered species, that are significant at global, regional or national levels;
- HCV2: large landscape-level ecosystems and ecosystem mosaics that are significant at global, regional or national levels, and that contain viable populations of the great majority of the naturally occurring species in natural patterns of distribution and abundance;
- HCV3: rare, threatened or endangered ecosystems, habitats or refugia;
- HCV4: basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes;
- HCV5: sites and resources fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc.), identified through engagement with these local communities or indigenous peoples;
- HCV6: sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance, and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures of local communities or indigenous peoples, identified through engagement with these local communities or indigenous peoples.

Note 1 to entry: HCV national interpretations are available at <https://www.hcvnetwork.org/resources/global-hcv-toolkits>.

Note 2 to entry: HCV areas generally correspond to the following categories of areas as well:

- Conservation International - Biodiversity Hotspots (<http://www.conservation.org/how/pages/hotspots.aspx/>);
- Birdlife International - Important Bird Areas (<http://www.birdlife.org/datazone/site/>);
- WWF List of Ecoregions ([http://wwf.panda.org/about\\_our\\_earth/ecoregions/ecoregion\\_list/](http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list/));
- High nature value farmland ([http://www.eea.europa.eu/report\\_2004\\_1/](http://www.eea.europa.eu/report_2004_1/)).

### 3.19

#### **indirect land-use change**

##### **ILUC**

principle that, as a result of the use of land being changed to another application, other land, somewhere else in the world, is converted to the original application of the land whose use was changed

Note 1 to entry: ILUC is often related to the production of biofuels on land in arable use on which food crops used to be grown and, as a result thereof, new agricultural lands are created somewhere else in the world, in areas with high carbon stocks and/or high biodiversity values.

### 3.20

#### **indigenous people**

descendants of the earliest inhabitants of a territory, who are now subjugated by another, dominant culture.

Note 1 to entry: Indigenous peoples are non-dominant groups in a particular (non-state) area, and they are the descendants of the original inhabitants of that area. They identify themselves as indigenous and are regarded as such by others. They have distinct social, political and cultural identities, and languages that are distinct from those of the dominant group in the country they live in. Besides this, they have a special relationship with the land and natural resources, which is fundamental to their cultural identity and therefore their survival as distinct peoples. They are generally not industrialized, but tend to focus on self-sufficiency. They are often marginalized by the dominant society.

[SOURCE: United Nations Declaration on the Rights of Indigenous Peoples]

### 3.21

#### **land-use right**

form of land tenure, whether formal or informal, including customary rights or traditions

Note 1 to entry: There is great variability in land-use rights in different parts of the world as they relate to systems of ownership and property rights.

[SOURCE: ISO 13065:2015, 3.29]

### 3.22

#### **provider**

supplier

organization or person that provides a product or a service

EXAMPLE Producer, distributor, retailer or vendor of a product or a service.

Note 1 to entry: A provider can be internal or external to the organization.

Note 2 to entry: In a contractual situation, a provider is sometimes called 'contractor'.

[SOURCE: ISO 9000:2015, 3.2.5, modified – 'or person' has been added.]

### 3.23

#### **organization**

company, corporation, firm, enterprise, cooperative, authority or institution, or part or combination thereof, whether incorporated or not, public or private, that has its own functions and administration

Note 1 to entry: For organizations with more than one operating unit, a single operating unit may be defined as an organization.

[SOURCE: ISO 13065:2015, 3.33]

### 3.24

#### **production location**

demarcated area for producing, processing, trading and/or valorizing biomass and/or derived products

Note 1 to entry: Producing includes agricultural and forestry activities.

**3.25****residual flow**

biomass flow which is released during the production of other (main) products and which represents an economic value of less than 10 % of the value of the main product, or biomass flow which is released during a process other than a production process

Note 1 to entry: Examples of biomass flows which are released during the production of other (main) products and which represent an economic value of less than 10 % of the value of the main product include sawdust, straw, rice chaff and crude glycerine. Examples of biomass flows that are released during a process other than a production process are biomass flows released during service provision, maintenance and management such as landfill gas, sludge, wood from pruning and maintenance activities, roadside grass, etc.

Note 2 to entry: Directive 2009/28/EC refers to 'residual flows' as 'waste and residues'.

**3.26****smallholder**

person, or organization where at least two-thirds of the structural labour in FTEs consist of direct relatives, with the possibility of people being hired temporarily at peak times, that has a total cultivation area that does not exceed 50 hectares to the extent that agriculture is concerned and does not exceed 100 hectares to the extent that forestry is concerned

Note 1 to entry: In the event of combined agriculture and forestry, the total cultivation area may not exceed 100 hectares, a maximum of 50 hectares of which is allowed to be used for agriculture.

Note 2 to entry: The cultivation area can be enlarged based on internationally recognized standards that have been determined according to a multi-stakeholder approach (e.g. FSC for forestry).

Note 3 to entry: It is not necessary to use the entire cultivation area for biomass production for bioenergy or bio-based products.

Note 4 to entry: Region-specific interpretations of 'smallholder' can become available in due course.

**3.27****stakeholder**

individual or group that has an interest in any decision or activity of an organization

[SOURCE: ISO 26000:2010, 2.20]

**3.28****default value**

value derived from a typical value by the application of pre-determined factors and that may, in circumstances specified by the governing authority, be used in place of an actual value

Note 1 to entry: The European Commission is the governing authority for applications within the European Union.

[SOURCE: Directive 2009/28/EC, modified – 'in this Directive' has been changed to 'by the governing authority']

**3.29****typical value**

estimate of the representative greenhouse gas emission saving for a particular bioenergy production pathway

[SOURCE: Directive 2009/28/EC, modified – 'biofuel' has been changed to 'bioenergy']

### **3.30**

#### **solid biomass**

solid fuel for energy purposes, including electricity, heating and cooling, produced from biomass, or solid material for application in bio-based products

Note 1 to entry: The definition has been derived from the definition of bioliquid (3.31).

### **3.31**

#### **bioliquid**

liquid fuel for energy purposes other than for transport, including electricity, heating and cooling, produced from biomass, or liquid material for application in bio-based products

[SOURCE: Directive 2009/28/EC, modified – The definition has been expanded to applications in bio-based products.]

## **4 Abbreviations**

ASEAN	Association of Southeast Asian Nations
BOD	Biological Oxygen Demand
CBD	Convention on Biological Diversity
CITES	Convention on International Trade in Endangered Species
FSC	Forest Stewardship Council
GISD	Global Invasive Species Database
GRI	Global Reporting Initiative
HCV	High Conservation Value
IBAT	Integrated Biodiversity Assessment Tool
ILO	International Labour Organization
ILUC	Indirect Land-Use Change
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
NTA	Netherlands Technical Agreement
SOM	Soil Organic Matter

## **5 General requirements and guidelines**

### **5.1 General**

This clause contains overarching elements that apply to the sustainability aspects described in this NTA. This clause contains both requirements that have to be fulfilled when applying this NTA and guidelines that offer users of this NTA specific input for better implementation of this NTA. The following verbs are used in this NTA:

— 'shall' indicates a requirement;

- 'should' indicates a recommendation;
- 'may' indicates permission;
- 'can' indicates a possibility or suitability.

## 5.2 Description of processes

**5.2.1** When applying this NTA, the organization shall clearly describe its processes and the sustainability requirements that apply in accordance with Annex A.

**5.2.2** The organization shall establish the geographic position of its production location(s) and the stakeholders affected by the activities related to the processes.

**5.2.3** The organization shall establish the influence of its processes on the environment and indicate the principles used for this. The scope of this influence can vary, depending on the sustainability aspect.

## 5.3 Time periods

**5.3.1** When assessing sustainability aspects, the organization should consider the relevant time period in the life cycle of its products. This time period can vary, depending on the sustainability aspect.

**NOTE** Where the production of primary biomass is concerned, the crop rotation periods can vary from a couple of months for some agricultural crops to over a hundred years for long rotation forest crops. The time period for handling residual flows can vary greatly, depending on the time needed for transport, storage and processing.

**5.3.2** When selecting the time periods for collecting data, the organization should consider the possible variations within and between years and, if applicable, make use of values that represent the trend for the time periods selected.

**5.3.3** The organization should document and justify the time periods selected.

## 5.4 Data and information

**5.4.1** The organization should collect primary data for all individual processes under its direct control. Primary data shall be representative of the processes for which it is collected. Primary data can be collected from a specific production location or an average can be determined for all production locations that contain these processes, such as described under 5.2. Primary data can be measured or modelled.

**5.4.2** The organization should only use secondary data if collecting primary data is not possible or not practicable. Secondary data can include data from literature, calculated data, estimates or other representative data. The organization shall document the use of secondary data and justify this with references.

**5.4.3** When making assumptions or selecting data or methods for use when applying this NTA, the organization should give priority to natural science (such as physics, chemistry, biology) or other kinds of sciences (such as social and economic sciences), or to documented practices, based on conventions, that are relevant and that are in force within the scope of this NTA.

**5.4.4** The organization may aggregate data. The level of aggregation shall be relevant and suitable for the purpose. Aggregating data shall be consistent with the processes described in 5.2, the extent of the activities and the conditions of stakeholders, and shall be representative of the activities under assessment.

**5.4.5** The organization shall justify and document the data, sources of information and assumptions used and retain them for at least five years.

## 5.5 Stakeholder consultation

**5.5.1** The organization shall consult the stakeholders who have some interest in the area where the production location is or will be established. These stakeholders often have a clear say in the way in which the organization can and may operate the production location. The stakeholder consultation shall at least cover the following areas of attention, to the extent that they are applicable:

- establishing local biomass flows or natural resources that are essential to the basic needs of the local population (see also 6.3.1);
- establishing the areas, within the organization's span of control, that are considered to be high conservation value areas (see also 6.4.1.1, b) iii) and 6.7.4.3);

NOTE The organization's span of control relates to the area (and the stakeholders in the area) where changes occur due to the activities being carried out. These changes can be both tangible, due to changes in land use and the installation and construction of infrastructure and buildings, and intangible, due to changes taking place in the relationships between the local population and the organization.

- establishing local essential functions of residual flows that are released when producing and processing biomass from agriculture, aquaculture, fishery or forestry (see also 6.5.1.2);
- establishing which parties obtain control of the land use and management in the area where the biomass producer is or will be established and what the extent of such control will be (see also 6.7.4.1 and 6.7.4.2);
- enlarging the involvement of the local population (see also 6.7.5).

**5.5.2** For the purpose of an effective and adequate contribution of stakeholders to this consultation, the organization shall:

- a) identify and register national and local stakeholders and invite them to participate in the stakeholders consultation;
- b) enter into consultation with the stakeholders who have been identified and have stated that they were willing to participate in such consultation;
- c) consult every stakeholder or group of stakeholders identified as often as necessary, but at least once every five years;
- d) ensure that the stakeholders are informed about all matters the need for which is made known, unless this demonstrably seriously affects the organization's competitive position;
- e) take measures in order to solve any substantive differences of opinion with stakeholders.

These requirements can be (partly) fulfilled:

- if (parts of) the areas of attention in 5.5.1 have been laid down in laws and regulations, established by local and/or national governments in the country of establishment of the production location, for which the organization shall demonstrate that the laws and regulations concerned have been complied with;
- if (parts of) the areas of attention in 5.5.1 are incorporated in a permit procedure, established by local and/or national governments in the country of establishment of the production location and including a complaints procedure and/or a procedure for lodging objections, for which the organization shall demonstrate that these areas of attention have been addressed.

NOTE 1 To perform a stakeholder consultation, the organization can use the guidance in *How to execute a stakeholder consultation? A guidance note* (NL Agency).

NOTE 2 In case of free, prior and informed consent, the organization can use guidance such as *Guide to Free Prior and Informed Consent* (Oxfam) or *Guidelines on Free, Prior and Informed Consent* (UN-REDD Programme).

**5.5.3** The organization shall document the outcome of the stakeholder consultation.

## **5.6 Laws and regulations**

**5.6.1** The organization shall, as far as applicable, demonstrably be acquainted with laws and regulations that relate to the sustainability aspects in this NTA. In this context the organization shall at least consider laws and regulations related to:

- land ownership and land-use rights;
- human rights;
- protected areas;
- biodiversity;
- forest and plantation management and operation;
- legality of the origins of raw materials;
- reimbursements, royalties, taxes and other assessments;
- preventing soil erosion;
- the use of ground and surface water (for irrigation or other processes);
- the use of chemicals (e.g. pesticides);
- mineral balance;
- emissions into the soil, water and air;
- wildlife management and hunting;
- town and country planning;
- environmental effects reports;
- waste management and waste water cleaning;
- labour conditions;
- transport of, and trade in, raw materials and consumables;
- rules resulting from the signing of international conventions;

NOTE Examples of international conventions are *Convention on biological diversity*, *Convention on international trade in endangered species*, *Tripartite declaration of principles concerning multinational enterprises and social policy* of ILO and the *Universal Declaration of Human Rights* of the United Nations.

**5.6.2** The organization shall have a process for registering changes to laws and regulations as referred to in 5.6.1, and the manner in which changes to operations are implemented.

**5.6.3** The organization shall keep a record of occasions where the applicable laws and regulations prescribe requirements that conflict the requirements contained in this NTA.

NOTE It is possible that this NTA places higher requirements than those that have been laid down in laws and regulations. If an organization will be obliged to violate any applicable laws and regulations when applying this NTA, the laws and regulations prevail.

## **5.7 Monitoring, measurement, analysis, evaluation and continual improvement**

**5.7.1** The organization is expected to take measures for the sustainability aspects in accordance with Annex A, which contribute to each of those sustainability aspects. The organization shall assess the effectiveness of these measures, taking into consideration its size and the nature of its activities, by establishing:

- a) what needs to be monitored and measured;
- b) the methods for monitoring, measurement, analysis and evaluation, as applicable, to ensure valid results;
- c) when the monitoring and measuring shall be performed;
- d) when the results from monitoring and measurement shall be analyzed and evaluated.

**5.7.2** The organization shall retain appropriate documented information as evidence of the results of monitoring, measurement, analysis and evaluation for a period of at least five years.

**5.7.3** Based on the evaluation, the organization shall:

- a) assess whether additional measures are necessary in order to achieve the effect envisaged and take these measures if and to the extent possible;
- b) assess whether additional measures are possible in order to achieve further improvements and consider these measures.

**NOTE** The organization can make use of best available practices, good practices, scientific publications and benchmarks to evaluate results and to formulate any additional measures.

## **5.8 Complaints regulation**

**5.8.1** The organization shall keep a registration of the complaints received that are related to the processes as described in 5.2. This registration shall include the way these complaints have been dealt with and the measures that have been taken to prevent repetition of these complaints. Response to complaints shall be within six weeks.

**5.8.2** The organization shall record at least the following data:

- a) owner of the complaint;
- b) description of the complaint;
- c) evaluation and/or cause of the complaint;
- d) solution offered;
- e) any (structural) measure to be taken;
- f) feedback to the one who filed the complaint;
- g) feedback to the one who caused the complaint;
- h) administrative transaction.

**5.8.3** Registered complaints shall contribute to system improvement.

## 6 Sustainability requirements

### 6.1 General

This clause covers the sustainability requirements the applicability of which to organizations has been described in Annex A. The sustainability requirements of this clause are derived from the principles, criteria and indicators from the *Testing framework sustainable biomass* that are included in Annex B.

### 6.2 Greenhouse gas emissions

#### 6.2.1 Greenhouse gas emission saving

##### 6.2.1.1 Greenhouse gas emission saving in case of application of biomass for bioenergy

**6.2.1.1.1** If biomass is used for bioenergy, a net emission saving of greenhouse gases shall take place in the whole chain, from cultivation to end-use. The saving is calculated in relation to the reference system with fossil fuels in accordance with the minimum percentages stated in Table 1. The greenhouse gas emission saving is determined at the chain level. An organization that develops activities in a biomass chain for application in bioenergy should make clear the extent to which contributions are made to reducing emissions in the chain in order to be able to determine the entire emission saving.

**Table 1 — Minimum net greenhouse gas emission saving relative to fossil reference system for application in bioenergy**

Product	Application	Reference greenhouse gas emission of fossil fuel CO <sub>2eq</sub> /MJ	Minimum greenhouse gas emission saving relative to reference fossil fuel	Maximum emissions of greenhouse gases CO <sub>2eq</sub> /MJ
Biofuel	Transport	83,8 g <sup>a</sup>	50 %	41,9 g resp. 33,5 g
Bioliquid	Electricity	91 g <sup>b</sup>	60 % for installations in which production started on or after 5 October 2015 <sup>d</sup>	45,5 g resp. 36,4 g
	Heating	77 g <sup>b</sup>		38,5 g resp. 30,8 g
	Cogeneration	85 g <sup>b</sup>		42,5 g resp. 34,0 g
Solid or gaseous biomass	Electricity	186 g <sup>c</sup>	60 % and 70 % as annual average for solid biomass <sup>e</sup>	74,4 g <sup>e</sup>
	Heating	80 g <sup>c</sup>		32,0 g <sup>e</sup>
	Cooling	47 g <sup>c</sup>		18,8 g <sup>e</sup>
Gaseous biomass	Feed into gas grid	72 g <sup>c</sup>	60 %	28,8 g

<sup>a</sup> This value comes from Directive 2009/28/EC and it may be used if no actual average emissions from the fossil part of petrol and diesel consumed in the Community as reported under Directive 98/70/EC, is available; this value can change in the future.

<sup>b</sup> This value comes from Directive 2009/28/EC and it can change in the future.

<sup>c</sup> This value comes from the 'Commission staff working document' *State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU* (SWD(2014) 259) and can change in the future.

<sup>d</sup> An installation is considered to be in operation if the physical production of biofuels or bioliquids is taking place.

<sup>e</sup> Considering the requirement that the greenhouse gas emission saving relative to reference fossil fuel is at least 70 % at annual basis for solid biomass, the maximum emissions of greenhouse gases as annual average are 56 g CO<sub>2eq</sub>/MJ for electricity, 24 g CO<sub>2eq</sub>/MJ for heating and 14 g CO<sub>2eq</sub>/MJ for cooling.

**6.2.1.1.2** When calculating the greenhouse gas emissions due to the production and use of biofuels, bioliquids, and solid and gaseous biomass, the organization shall use the calculation methodology in Annex C.

**6.2.1.2 Greenhouse gas emission saving in the case of application of biomass for bio-based products**

**6.2.1.2.1** When using biomass for bio-based products, the organization shall have access to the data on the own greenhouse gas emissions and the greenhouse gas emissions in the preceding chain.

NOTE 1 Access to the data on the greenhouse gas emissions enables the chain performance to be established and the biomass to be kept exchangeable with energy chains.

NOTE 2 No requirements are set on the net greenhouse gas emission saving for the time being, since no (unambiguous) fossil reference situations are available. Validated fossil reference values are often not available and in many situations the fossil reference cannot be determined unambiguously.

**6.2.1.2.2** When calculating the greenhouse gas emissions from the production of bio-based products, the organization can use the calculation methodology in Annex C, taking into account the difference between bioliquids and solid or gaseous biomass. In the event of bio-based products, emissions from the fuel used do not apply.

**6.2.2 High carbon stock**

**6.2.2.1** The organization shall not produce biomass from land with high carbon stock, namely land that had one of the following statuses in January 2008 and no longer has that status:

- a) wetlands, namely land that is covered with or saturated by water permanently or for a significant part of the year;
- b) continuously forested areas, namely land spanning more than one hectare with trees higher than five metres and a canopy cover of more than 30 %, or trees able to reach those thresholds in situ; it does not include land that is predominantly under agricultural or urban land use, in which land under agricultural use in this context refers to tree stands in agricultural production systems, such as fruit tree plantations, oil palm plantations and agroforestry systems when crops are grown under tree cover;
- c) land spanning more than one hectare with trees higher than five metres and a canopy cover of between 10 % and 30 %, or trees able to reach those thresholds in situ, unless evidence is provided that the carbon stock of the area before and after conversion is such that, when the methodology in accordance with Annex C is applied, the greenhouse gas emission savings requirements in 6.2.1.1.2 would be fulfilled;
- d) peatland, unless evidence is provided that the cultivation and harvesting of that raw material does not involve drainage of previously undrained soil.

NOTE EN 16214-3 can be used to determine whether a peatland area is excluded from biomass production.

**6.2.2.2** Prior to installing a new production location, the organization shall establish which carbon stocks in the vegetation and in the soil are lost due to the production location being installed. If the organization shall use a for this purpose established and recognized procedure in order to establish the carbon stocks, such procedure shall comply with the 'guidelines for the calculation of land carbon stocks' according to the decision of the European Commission of 10 June 2010 (Commission Decision 2010/335/EU).

**6.2.2.3** Regarding solid biomass additionally the following types of biomass shall not be used from the viewpoint of carbon debt:

- stumps from sustainably managed forests, unless these should be removed for other reasons (for example construction of a road);

- round timber from sustainably managed forests with a rotation period of more than 40 years, if on average more than 50 % of the timber harvest (excluding thinnings) is processed into wood pellets for bioenergy;

**6.2.2.4** The organization shall have written proof for all solid biomass from forests that the production location from which the timber originates, is managed in order to maintain in the long-term or to increase carbon stocks by demonstrating that the carbon cycle remains at least maintained.

NOTE This proof can be provided in the form of a plan for (sustainable) forest management or similar evidence.

## **6.3 Competition with food and local applications of biomass**

### **6.3.1 Local prices**

If the organization makes use of local biomass flows or natural resources (e.g. land, water and raw materials) that are essential to the basic needs of the local population, it shall monitor the local prices thereof. In the event of significant increases in prices, the organization shall demonstrate that such increases are not due to its activities.

### **6.3.2 Raw materials-efficient use of biomass (cascading)**

In many events, biomass flows can be used for different applications, for example as raw material for food and materials and as fuel for energy production. The use of biomass for energy should not displace its application in food and materials. Biomass should be used in the most raw materials-efficient way possible throughout its entire lifecycle. To achieve this, the organization shall provide an understanding of the efficient use of biomass by:

- a) describing the choice of the raw materials used, justifying that use for food and materials is not self-evident, based on:
  - environmental considerations;
  - economic considerations;
  - logistic considerations;

NOTE The degree of justification of the choice of the raw material used should be proportional to the extent of the business operations regarding such material.

- b) describe which measures have been taken in order to use and to continue to use biomass as raw materials-efficiently as possible (cascading).

NOTE There are currently several interpretations of cascading, depending on the dimension that is considered (e.g. added value, social needs, raw materials efficiency). The policy framework on cascading has not been fully crystallized yet. That is why the choice has been made in this NTA to implement cascading by means of reporting requirements as regards raw materials-efficient use, which boils down to efficient use of biomass as a raw material, also considering the final use. Providing an understanding of the measures taken by organizations in order to use raw materials as efficiently as possible contributes to the awareness of such organizations and to data being made available.

### **6.3.3 'ILUC low risk'**

**6.3.3.1** Within the scope of this NTA it is possible to apply 'ILUC low risk'. The organization can opt or may be required to market its biomass as 'ILUC low risk'. By opting for 'ILUC low risk', the organization shows that the biomass it uses does not result in any indirect land-use change (ILUC).

NOTE 1 The underlying philosophy is that the production of biomass for energy generation or its application in bio-based products on existing arable land does not indirectly lead to conversion of land with high carbon stock and/or high biodiversity values elsewhere that was not previously used for agricultural purposes.

**NOTE 2** The requirement to apply 'ILUC low risk' can originate from supplier contracts or other agreements within the sector. For example, it is agreed in the Dutch Energy Agreement that 'ILUC low risk' shall be demonstrated for biomass originating from new cultivation systems with a short rotation period aiming at producing biomass for bioenergy, which have been taken into operation after 1 January 2015. Small forest management units are excluded from this requirement in the Dutch Energy Agreement.

**6.3.3.2** If the organization opts to or is required to market its biomass as 'ILUC low risk', it shall reduce the risk of ILUC in the biomass chain by choosing one or more of the following possible solutions:

- 1) growing biomass on previously unused land;

**NOTE 1** Unused land is taken to mean land that does not provide for the delivery of services, i.e. products obtained from ecosystems, including food, fibres, fuel, natural medicines, water and wood. Unused land is also designated as fallow land, degraded land, marginal land or abandoned land.

- 2) additional productivity increase, on top of the trend line, by actions such as:

- shortening the period that arable land is left fallow;
- intensifying the use of grassland;
- increasing the harvest frequency on arable land;

**NOTE 2** The harvest frequency is taken to mean the average number of crops that is harvested on a plot of arable land. The harvest frequency is represented by the multiple cropping index (Beets, 1982).

- 3) integrating existing agriculture or forestry with additional biomass production;

**NOTE 3** For example, stock farming combined with sugarcane production, with the bagasse serving as animal feed, additional crops in double cultivation with existing crops, etc.

- 4) use of waste and residual flows that had no other application before.

**6.3.3.3** The organization shall visualize the measures taken in order to implement this solution or these solutions using the most recent version of the 'Low Indirect Impacts Biofuels' (LIIB) methodology or an analogous method. 1 January 2015 shall be kept as the reference date.

**NOTE** The LIIB method is available at <http://www.ecofys.com/en/project/low-indirect-impact-biofuel-methodology/>. Other methods that provide an understanding of the 'ILUC low risk' biomass in a comparable manner can be made available in the future.

## **6.4 Biodiversity**

### **6.4.1 Land with high biodiversity value**

**6.4.1.1** The organization shall not produce biomass from land with high biodiversity value, namely land that had one of the following statuses in January 2008, whether or not the land continues to have that status:

- a) primary forest and other wooded land, namely forest and other wooded land of native species, where there is no clearly visible indication of human activity and the ecological processes are not significantly disturbed;
- b) areas, or a zone of 5 km around these areas, designated:
  - i) by law or by the relevant competent authority for nature protection purposes;
  - ii) for the protection of rare, threatened or endangered ecosystems or species recognized by international agreements or included in lists drawn up by intergovernmental organizations or the International Union for the Conservation of Nature, subject to their recognition in accordance with the procedure laid down in Directive 2009/28/EC;

iii) as areas with high conservation value (see 3.18);

unless evidence is provided that the production of that raw material did not interfere with those nature protection purposes;

c) highly biodiverse grassland that is:

- natural, namely grassland that would remain grassland in the absence of human intervention and which maintains the natural species composition and ecological characteristics and processes;
- non-natural, namely grassland that would cease to be grassland in the absence of human intervention and which is species-rich and not degraded, unless evidence is provided that the harvesting of the raw material is necessary to preserve its grassland status.

NOTE 1 'Human intervention' means managed grazing, mowing, cutting, harvesting or burning.

NOTE 2 'Species-rich' means that the grassland is:

- i) a habitat of significant importance to critically endangered, endangered or vulnerable species as classified by IUCN's Red List of Threatened Species or other lists with a similar purpose for species or habitats laid down in national legislation or recognized by a competent national authority in the country of origin of the raw material; or
- ii) a habitat of significant importance to endemic or restricted-range species; or
- iii) a habitat of significant importance to intra-species genetic diversity; or
- iv) a habitat of significant importance to globally significant concentrations of migratory species or congregatory species; or
- v) a regionally or nationally significant or highly threatened or unique ecosystem.

NOTE 3 'Not degraded' means that it is not characterized by long-term loss of biodiversity due to for instance overgrazing, mechanical damage to the vegetation, soil erosion or loss of soil quality.

The following geographic ranges of the European Union are always regarded as highly biodiverse grassland:

- habitats as listed in Annex I to Directive 92/43/EEC;
- habitats of significant importance for animal and plant species of Union interest listed in Annexes II and IV to Directive 92/43/EEC;
- habitats of significant importance for wild bird species listed in Annex I to Directive 2009/147/EC.

Other grassland can fulfil the criteria for highly biodiverse grassland set out in c).

NOTE 4 EN 16214-3 can be used to determine whether certain categories of land with high biodiversity value are excluded from biomass production.

**6.4.1.2** The geographic positions of protected areas designated by the relevant competent authorities shall be verified using at least the following sources:

- UNESCO World heritage sites (<http://whc.unesco.org/en/list/>);
- categories I, II, III and IV from the List of protected areas of IUCN, according to the list available in the world database on protected areas (<http://www.wdpa.org/>);
- Ramsar areas, i.e. 'wetlands' covered by the Convention on wetlands (<http://www.ramsar.org/>), according to the available list or more up-to-date summaries or national data;
- the integrated biodiversity assessment tool (IBAT) (<http://www.ibatforbusiness.org/>).

NOTE New and better sources may become available in the future. These sources can then replace some or all of the above publications.

**6.4.1.3** For the purpose of preserving biodiversity, the organization shall leave at least 10 % of the cultivation area of the production location, which has the highest conservation value to the landscape concerned, covered in the native vegetation, when installing a new production location that was or is converted from its natural state to agriculture on or after 1 January 2008.

NOTE An example of this is creating an ecological corridor or a buffer zone around a freshwater hole.

**6.4.1.4** Forest plantations shall not have been installed through conversion of natural forests as from 1 January 1997. The organization should give preference to native species in the case of forest plantations and at least 5 % of the cultivation area shall be able to regenerate to natural forest.

## **6.4.2 Restoration, preservation and strengthening of biodiversity**

**6.4.2.1** The organization shall record:

- a) the type of land-use zone that the production location is located in;
- b) the degree to which the biomass production contributes to the restoration of degraded areas within the production location.

**6.4.2.2** The organization shall take measures that are necessary in order to:

- a) preserve, and where possible improve, biodiversity within the production location;
- b) prevent natural grounds becoming fragmented and scattered by the production location;
- c) ensure that it is prevented that the environment is disturbed by people accessing it, by the use of chemicals, and by noise from the production location;
- d) ensure that it is prevented that the environment is disturbed by invading alien species (including genetically modified crops) by:
  - i) obtaining adequate information on the invasiveness of alien species before using them. If an alien species is classified as highly invasive under equal conditions (climate, ecosystem), its use is not allowed. In order to determine the possible risks of invasiveness under specific conditions in the other situations, a risk analysis shall then have to be carried out. If the risk analysis demonstrates that, under the specific field conditions, the alien species is still highly invasive, it shall not be used either.

NOTE 1 Adequate information on the invasiveness of alien species can be obtained by using the *Global Invasive Species Database* (GISD) (<http://www.issg.org/database/welcome/>).

- ii) laying down production methods in a management plan that minimize the risk of invasiveness, including mitigating measures in the event that a plant species spreads outside the production location.

NOTE 2 The precaution principle applies to 'high conservation values' within the production location. In accordance with the scale of the production location, parts of the production location will be designated where no operation takes place and where disturbance due to other activities is minimized, for the purpose of those 'high conservation values'. The 'high conservation values' that occur in the production location need to be described and, if possible, identified on a map.

If the organization cannot take any measures that specifically lead to an improvement of biodiversity, the organization shall indicate the grounds on which it came to this conclusion.

NOTE 3 External factors can also influence the biodiversity within the production location of the organization.

**6.4.2.3** Where riparian vegetation zones are concerned, the organization shall determine whether a functional buffer of riparian vegetation is present. If this is the case, the functional buffer shall be maintained. If this is not the case, a restoration plan in order to create a functional buffer shall be drawn up. Restoration of a functional buffer shall begin within one year of the start of production and shall be completed within five years.

**NOTE** In this context, a functional buffer is an area covered with vegetation near water (a 'riparian buffer'), usually afforested, that provides shade that partially protects the water from the influence of adjacent land use. The riparian buffer plays an important role in improving the water quality of brooks, streams, rivers and lakes, thus causing environmental benefits to be achieved. As the quality of many aquatic ecosystems has decreased due to agriculture, riparian buffers have become a common conservation practice aimed at improving the water quality and decreasing pollution.

**6.4.2.4** Within its own span of control, the organization shall take measures to prevent its own employees or others from killing or catching animals and/or collecting protected plant species at its production location, where this is not part of the management.

**6.4.2.5** The organization shall indicate any use of genetically modified crops.

## **6.5 The environment**

### **6.5.1 Soil**

#### **6.5.1.1 Preservation and improvement of soil quality**

The organization shall take measures that are necessary in order to ensure that:

- a) erosion is prevented and controlled, in which topographic risks are taken into account;
- b) the nutrient balance is maintained, at least as regards nitrogen (N), phosphorus (P) and potassium (K);
- c) the soil organic matter (SOM) is preserved and improved over time;
- d) the soil fertility and soil structure are maintained and improved over time;

**NOTE 1** An organization can apply crop rotation or intercropping to maintain and improve soil fertility and soil structure.

- e) soil salination is prevented;
- f) emission of greenhouse gases from the soil during the production is reduced;
- g) risks for the soil as a consequence of the storage and the use of chemicals and other business processes are prevented and controlled, where:
  - the use of pesticides that are classified as type 1A or type 1B by the World Health Organization, and the use of chlorified hydrocarbons are excluded;
  - in the case of forestry, chemicals are used only if the maximum use of ecological processes and sustainable alternatives proves to be insufficient.

**NOTE 2** BioESoil (<http://www.wageningenur.nl/en/Expertise-Services/Research-Institutes/alterra/Facilities-Products/Software-and-models/BioESoil.htm>) can be used in order to provide an understanding of the impacts of the production of bioenergy on soil quality. BioESoil provides an understanding of: nutrient losses during the production of bioenergy, the potential of nutrients being returned by means of residual flows and the effect on the soil organic matter.

### 6.5.1.2 Use of residual flows

The organization shall ensure that the use of residual flows that are released when producing and processing biomass from agriculture, aquaculture, fishery or forestry does not conflict with other established, local essential functions for preserving the soil and the soil quality.

NOTE 1 This concerns both residual flows being used by the organization itself and residual flows being offered to an organization that collects them for application in bioenergy and bio-based products.

NOTE 2 Establishing the other local essential functions can be part of a stakeholder consultation.

### 6.5.2 Ground and surface water

#### 6.5.2.1 Preservation and improvement of water quality

The organization shall take measures that are necessary in order to ensure that:

- a) water, including irrigation water, is used efficiently;
- b) the quality of the surface water due to run-off from, and leaching out of, the production location does not show an increased organic burden of that water, also downstream, as demonstrated by the fact that the biological oxygen demand (BOD) at least stays at the same level or has dropped;
- c) risks for the groundwater and surface water as a consequence of the storage and use of chemicals and other business processes are assessed, prevented and controlled;
- d) the use of pesticides that are classified as type 1A or type 1B by the World Health Organization, and the use of chlorified hydrocarbons are excluded;
- e) in the case of forestry, chemicals are used only if the maximum use of ecological processes and sustainable alternatives proves to be insufficient.

#### 6.5.2.2 Renewable sources and the availability of water

**6.5.2.2.1** The organization shall take measures that are needed to ensure that no water from non-renewable sources is used when producing and processing biomass at the production location.

**6.5.2.2.2** The organization shall ensure that the use of surface water and groundwater does not exceed the natural replenishment of the surface or groundwater system during a five-year average.

**6.5.2.2.3** The organization shall:

- a) when extracting water, take into account:
  - i) the level of pressure on the catchment area in which the organization operates;
- ii) the needs of the aquatic ecosystems present;
- iii) the needs of other users, including downstream users of the same water system;

NOTE This can be established by using data from the Water Footprint Network (<http://waterfootprint.org/en/>).

and take measures, to the extent that this is possible within its span of control, to prevent or undo any adverse impacts elsewhere or later;

- b) implement good water management measures specifically for:
  - i) rain-fed farming systems;

- ii) irrigated farming systems.

### **6.5.3 Air**

#### **6.5.3.1 Restricting emissions and air pollution**

The organization shall take any measures that are necessary to ensure that the emission of harmful substances into the air as a result of the production, processing and transport of biomass at the production location is limited.

#### **6.5.3.2 No burning as part of the installation or management**

**6.5.3.2.1** The organization shall not carry out any burning of the stubble or standing crops when installing or managing the production location unless it is demonstrated that this is the most effective and least harmful method in order to minimize the risk of damage or loss due to diseases and pests or to promote regeneration, or this is otherwise good practice in the framework of sustainable management;

NOTE 1 Further information on the most effective and least harmful methods can be found in the guidelines of the Association of Southeast Asian Nations (ASEAN) or other regional 'good practice' guidelines.

NOTE 2 Burning can be good practice as part of sustainable forest management.

**6.5.3.2.2** If burning is permitted as described under 6.5.3.2.1, the organization shall:

- a) demonstrate that the burning took place under controlled conditions, including the provision of sufficient fire-fighting means;
- b) record such incidents.

### **6.5.4 Waste**

#### **6.5.4.1 Waste management**

The organization shall take any measures that are necessary to ensure that the practices applied in its operations are aimed at responsible waste management, in which attention is paid to:

- a) prevention of waste;
- b) reuse of waste;
- c) separation of waste for recycling
- d) recovery of waste other than reuse or recycling;
- e) responsible disposal of waste.

#### **6.5.4.2 Use of residual flows**

The organization shall take measures in order to ensure that residual flows of the biomass production and processing processes are put to optimum use in order to:

- a) prevent unnecessary losses;
- b) prevent unnecessary withdrawal of residual flows from other local functions;
- c) prevent an unnecessary burden on the environment.

## **6.6 Prosperity**

**6.6.1** The organization shall demonstrate that its activities have a positive impact on the average income and the access to infrastructure and basic facilities (a house, sanitary facilities, education, healthcare, water, energy, etc.) in the region concerned.

**6.6.2** The organization shall:

- a) have selection criteria for all functions in the organization;
- b) demonstrate that it tries to recruit new staff from among the local population;
- c) keep an employee file where it can be seen where the employees were living at the time of their applying for the job concerned.

**6.6.3** The organization shall organize education and training courses for employees to ensure that they can enter into long-term employment.

**6.6.4** The organization shall:

- a) have supplier selection criteria;
- b) demonstrate that local suppliers, if present, have been contacted when purchasing products and outsourcing services;
- c) keep a record on suppliers whose products and services it has procured.

## **6.7 Wellbeing**

### **6.7.1 Labour conditions**

**6.7.1.1** The organization shall ensure that:

- a) salaries ensure that employees (the reference being an 8-hour working day) have access to the necessities of life;
- b) salaries and fees match what is customary in the region.

**6.7.1.2** The organization shall:

- a) demonstrate that the local statutory working hours are not exceeded or, if there are no statutory provisions, that a normal working week, without overtime, is not more than 48 hours;
- b) demonstrate that it has agreements in which it has been laid down that people who work overtime do so on a voluntary basis and that they do not work more than twelve hours in overtime a week;
- c) monitor and record the working hours of all employees.

**6.7.1.3** The organization shall:

- a) demonstrate that employees take safety training courses on a regular basis, that they can actually understand these training courses, and that they obtain the right parts so that they can do their work safely;
- b) demonstrate that machines comply with the proper safety requirements;
- c) make personal safety equipment available in order to provide protection against coming into contact with hazardous substances (via the skin or inhalation), damage to hearing and eyesight, falling objects and other health and safety risks that may occur.

**6.7.1.4** The organization shall demonstrate that there is a complaints procedure and that there are agreements on handling labour conflicts and that employees feel at liberty to make use of them.

**NOTE** Organizations are expected to implement practices as regards employment, labour relations, health and safety, training and education, diversity and equal opportunities, and complaints handling in accordance with the latest adopted edition of the *Tripartite declaration of principles concerning multinational enterprises and social policy* of ILO. Countries who have ratified these treaties should have implemented the declarations in their laws and regulations which organizations are already required to comply with. Provisions in 6.7.1 concretize the practices that should at least be implemented. These provisions can go beyond those of national and/or local laws and regulations.

## **6.7.2 Responsible contact with (local) stakeholders**

The organization shall:

- a) have a policy on equal opportunities for all relevant stakeholders in the region concerned and make this policy publicly available;
- b) demonstrate that it does not discriminate.

## **6.7.3 Responsible contact with employees**

**6.7.3.1** The organization shall demonstrate that it does not violate the applicable minimum age thresholds of employees, as stated in Table 2.

**Table 2 — Minimum ages for performing work**

Type of work	Developing countries	Other than developing countries
Light work <sup>a</sup>	12	13
Regular work <sup>b</sup>	14	15
Dangerous/heavy work <sup>c</sup>	16	18
<sup>a</sup> 'Light work' comprises work that does not harm a child's health or development and that does not affect its school attendance, its participation in professional orientation or education programs or its ability to benefit from the instruction it has been given. <sup>b</sup> 'Regular work' comprises work subject to the condition that the health, safety and morals of the young people concerned are fully protected and that these young people have received an adequate, specific instruction or education in the industry concerned. <sup>c</sup> 'Dangerous/heavy work' comprises work the nature of which or the conditions under which it is performed are such that this work will probably jeopardize the health, safety and morals of young people.		

**6.7.3.2** The organization shall lay down the following matters in job contracts:

- a) the duration of the appointment;
- b) the weekly working hours;
- c) the salary (per hour or per output delivered);
- d) how overtime hours, leave (holiday entitlements) and sickness are handled;
- e) premiums and insurance policies;
- f) agreements as to maternity leave;

- g) reasons for possible dismissal, period of validity and all other relevant rights and obligations of the employee and the employer.

The job contracts shall be drawn up in a language that the employee can understand and shall be explained to the employee by a representative of the employer.

**6.7.3.3** The organization shall demonstrate that the job contract is complied with.

**6.7.3.4** The organization shall demonstrate that employees receive the salaries agreed and that they do not have to pay premiums for goods or services that are prescribed as compulsory requirements by the employer.

**6.7.3.5** The organization shall:

- a) demonstrate that employees feel at liberty to organize themselves in trade unions;
- b) in countries where forming trade unions is prohibited by law, not discourage employees from organizing some form of employee representation;
- c) bring about that an employee representation in countries meant under b) can still come into contact with employers without breaking the law.

**6.7.3.6** The organization shall demonstrate that activities are carried out by skilled employees, where competence is maintained through periodic training or otherwise. In the case of hiring of persons, the organization shall demonstrate that these persons are competent as well. Supervision can be part of the performance of the activities.

**6.7.3.7** The organization shall:

- a) ensure that employees and the local population do not feel intimidated by the organization;
- b) have a policy to prevent sexual intimidation and violence and demonstrate how this policy has been implemented and that it is effective;
- c) demonstrate that there is a specific complaints procedure for the matters mentioned under b);
- d) demonstrate that working with the organization is safe for women and that women have the same rights as men.

**NOTE** Organizations are expected to implement practices, in accordance with the *Universal Declaration of Human Rights* of the United Nations, with regard to non-discrimination, child labour, forced and compulsory labour, disciplinary practices, safety practices, the freedom of trade union association and the rights of indigenous peoples. Countries who have ratified these treaties should have implemented the declarations in their laws and regulations which organizations are already required to comply with. Provisions in 6.7.3 concretize the practices that should at least be implemented. These provisions can go beyond those of national and/or local laws and regulations.

#### **6.7.4 Property and usage rights**

**6.7.4.1** The organization shall ensure and demonstrate that all the original users of the land that is occupied by the production location are sufficiently informed about the activities planned and the consequences of this. The organization shall provide information about all other matters the need of which is expressed, to the extent that it relates to the activities and does not demonstrably seriously harm the organization's competitive position.

**6.7.4.2** The organization shall:

- a) accurately describe the use of the land and unambiguously record and demonstrate the long-term usage rights of the land;

**NOTE** Examples of long-term usage rights include land rights, customary law, lease or rent agreements.

- b) leave control of land use and management to the local community that holds the legal right or the right under customary law to decide about the land or to use it, to the extent that is necessary in order to safeguard their rights and/or sources, unless this community delegates such control to third parties, with free, prior and informed consent, before the commercial operation of the production location starts;
- c) take appropriate measures to take away differences of opinion as to decision entitlements and usage rights;
- d) not directly or indirectly threaten or reduce the local population's sources or rights to decide as a consequence of the management of the land.

**6.7.4.3** The organization shall unambiguously and in consultation with the local population identify locations that represent a special cultural, ecological, economic or religious interest to the local population and have them recognized and protected by the managers responsible.

**NOTE** The precautionary principle applies to objects that represent a cultural, ecological, economic or religious value. For the purpose of those objects and in accordance with the scale of the production location, parts of the production location will be designated where no operation takes place and where disturbance due to other activities is minimized. These objects need to be described and, if possible, specified on a map.

**6.7.4.4** The organization shall compensate the local population for the application of their traditional knowledge of the use of plant species or of management systems for land use, where the local population agrees with free, prior and informed consent with the compensation, before the commercial operation of the production location starts.

**NOTE** The manner in which compensation takes place is a matter to be agreed between the organization and the local inhabitants.

## **6.7.5 Contribution to the wellbeing of the local population**

**6.7.5.1** The organization shall:

- a) determine and lay down the extent to which the commercial operation of the production location influences the local population; this shall be determined and laid down prior to and during the commercial operation and when discontinuing the production location;

**NOTE** Examples of this are such matters as health and safety relating to the infrastructure, hazardous substances and materials, emissions and secretions, health and disease, involuntary relocation, physical and economic displacement, maintaining livelihood, local culture, socially and culturally defined differences between the sexes, indigenous population groups and cultural heritage.

- b) determine what information is needed to properly assess the influences meant under a) and which authorities and population groups have the relevant information.

**6.7.5.2** The organization shall take measures that are necessary in order to:

- a) minimize the extent and scale of negative impacts and to maximize the extent and scale of positive impacts;
- b) increase the involvement of the local population;
- c) positively influence the local population as regards creating employment, complying with employee rights, offering a social safety net and promoting the social dialogue (decent work).

**NOTE 1** Based on the broadly supported notion that having a job significantly contributes to individuals' health and wellbeing and, as a result, to that of society, ILO has developed the principle of decent work. This principle is based on:

— Creating employment – creating an economy that aims to achieve a good investment climate, entrepreneurship, sufficient education opportunities, creating jobs and a sustainable living environment.

- Honouring employee rights – including ensuring adequate employee representation with sufficient opportunities to participate in these networks and laying down employee rights in legislation and regulations.
- Offering a social safety net – providing a safe working environment, sufficient free time, observing family and social values and providing adequate compensation for situations where income becomes less or is lost. And besides this, providing a properly functioning healthcare system.
- Promoting the social dialogue – involving strong and independent employee representations, which is crucial for increasing productivity, preventing disputes and building a coherent society.

The ILO has 'Decent work country programs' for various countries.

**NOTE 2** The requirements regarding the contribution to the wellbeing of the local population are based on the SO1 social performance indicator of GRI. SO1 describes the nature, scope and effectiveness of any program or practice that assesses and manages the impact of the activities on communities.

### **6.7.6 The integrity of the company**

#### **6.7.6.1 The organization shall determine and record:**

- a) which business units are studied for corruption;

**NOTE** This study can consist both of a formal risk analysis aimed at fighting corruption and be a risk factor that is part of a general risk analysis.

- b) the number and percentage of employees who have taken anti-corruption training courses, divided into managerial and non-managerial positions;
- c) the total number of incidents where employees have been subjected to disciplinary measures or have been fired due to corruption;
- d) the total number of incidents where contracts with business partners were not renewed due to corruption-related breaches.

**6.7.6.2** The organization shall keep records of any corruption-related lawsuits that have been brought against the organization or employees of the organization and the results thereof.

**6.7.6.3** The organization shall take any measures that are necessary to effectively fight corruption within the organization.

**NOTE** The requirements as regards the integrity of the company are based on the social performance indicators SO2, SO3 and SO4 of GRI. SO2 describes the percentage and the total number of business units studied for risks related to corruption. SO3 describes the percentage of employees who have been trained in the organization's anti-corruption policy and procedures. SO4 describes the actions taken in response to cases of corruption.

## Annex A

(normative)

### Applicability of requirements in this NTA to organizations

Table A.1 provides a summary of the applicability of the general requirements, as contained in Clause 5, and the sustainability requirements, as contained in Clause 6, to organizations. The applicability depends on the activities of an organization and its position in the supply chain. Organizations that wish to comply with this NTA, shall, as regards the general requirements and sustainability requirements, at least comply with the requirements in Table A.1.

This NTA distinguishes four categories:

- 1) 'producer': an organization that produces biomass or collects residual flows for application in bioenergy or bio-based products, subdivided in:
  - biomass producers (e.g. farmers, foresters);
  - smallholders in accordance with 3.25;
  - collectors of primary residual flows, being residual flows originating from agriculture (including vegetable and animal substances), forestry and affiliated industries, including fishery and aquaculture, as included in Annex D;
  - collectors of non-primary residual flows, being residual flows originating from industrial and domestic waste, as included in Annex D.
- 2) 'processor': an organization that processes biomass to (intermediate) products;
- 3) 'trader': an organization that trades (processed) biomass;
- 4) 'end-user': an organization that utilizes (processed) biomass for application in bioenergy or bio-based products.

Figure 1 shows the scope of this NTA and provides examples across the supply chain.

Table A.1 — Applicability of general requirements and sustainability requirements to organizations

Section	Sustainability aspect	Scope						
		‘producer’ <sup>a</sup>				‘processor’	‘trader’	‘end user’
		biomass producer	smallholder	collector of primary residual flows	collector of non-primary residual flows			
5	General requirements and guidelines							
5.2	Description of processes	X	X	X	X	X	X	X
5.3	Time periods	X	X	X	X	X	X	X
5.4	Data and information	X	X	X	X	X	X	X
5.5	Stakeholder consultation	X		X				
5.6	Laws and regulations	X	X	X	X	X	X	X
5.7	Monitoring, measurement, analysis, evaluation and continual improvement	X	X	X	X	X	X	X
6.2	Greenhouse gas emissions							
6.2.1	Greenhouse gas emission saving	X	X	X	X	X	X	X
6.2.2	High carbon stock	X <sup>b</sup>	X <sup>b</sup>	X <sup>b</sup>				
6.3	Competition with food and local applications of biomass							
6.3.1	Local prices	X						
6.3.2	Raw materials-efficient use of biomass (cascading)	X				X		X
6.3.3	‘ILUC low risk’	X <sup>c</sup>						
6.4	Biodiversity							
6.4.1	Land with high biodiversity value	X <sup>b</sup>	X <sup>b</sup>	X <sup>b</sup>				
6.4.2	Restoration, preservation and strengthening of biodiversity	X	X					
6.5	The environment							
6.5.1.1	Preservation and improvement of soil quality	X	X	X				
6.5.1.2	Use of residual flows	X	X	X				
6.5.2.1	Preservation and improvement of water quality	X	X					
6.5.2.2	Renewable sources and the availability of water	X	X					
6.5.3.1	Restricting emissions and air pollution	X	X					
6.5.3.2	No burning as part of the installation or management	X	X					
6.5.4.1	Waste management	X	X					
6.5.4.2	Use of residual flows	X	X					

Section	Sustainability aspect	Scope						
		'producer' <sup>a</sup>				'processor'	'trader'	'end user'
		biomass producer	smallholder	collector of primary residual flows	collector of non-primary residual flows			
<b>6.6</b>	<b>Prosperity</b>							
6.6	Prosperity	X						
<b>6.7</b>	<b>Wellbeing</b>							
6.7.1	Labour conditions	X		X	X	X	X	X
6.7.2	Responsible contact with (local) stakeholders	X	X	X	X	X	X	X
6.7.3	Responsible contact with employees	X	X	X	X	X	X	X
6.7.4	Property and usage rights	X	X	X	X	X	X	X
6.7.5	Contribution to the wellbeing of the local population	X		X	X	X	X	X
6.7.6	The integrity of the company	X		X	X	X	X	X
<sup>a</sup> An explanation of the four subcategories is given in the introductory text of this annex. <sup>b</sup> This sustainability aspect only applies if development of the production location where the biomass is produced or where residual flows are collected took place on 1 January 2008 or later; here 'development' means conversion from the natural state to the use for agriculture or forestry. <sup>c</sup> This sustainability aspect is optional.								

## Annex B

(informative)

### Principles, criteria and indicators from *Testing framework sustainable biomass*

This annex contains the principles, criteria and indicators established by the project group “Sustainable production of biomass” in its final report *Testing framework for sustainable biomass*, which was published in 2007 <sup>2)</sup>. The sustainability requirements in this NTA are derived from these principles, criteria and indicators, where new insights have been included. Therefore, the sustainability requirements in this NTA differ from the principles, criteria and indicators of the *Testing framework for sustainable biomass* on elements.

<b>Principle 1: The greenhouse gas balance of the production chain and application of the biomass must be positive</b>	
<b>Criterion 1.1</b>  In the application of biomass a net emission reduction of greenhouse gases must take place along the whole chain. The reduction is calculated in relation to a reference situation with fossil fuels.	<b>Indicator 1.1.1 (minimum requirement)</b>  The emission reduction of greenhouse gases amounts to at least 50-70 % for electricity production and at least 30 % for biofuels, calculated with the method described in chapter 4 [of <i>Testing framework for sustainable biomass</i> ]. These are minimum requirements. Here the basic principle must be that policy instruments should promote a higher percentage above the minimum requirement by differentiating strongly on the basis of the emission reduction of greenhouse gases.
<b>Principle 2: Biomass production must not be at the expense of important carbon sinks in the vegetation and in the soil</b>	
<b>Criterion 2.1</b>  Conservation of above-ground (vegetation) carbon sinks when biomass units are installed.	<b>Indicator 2.1.1 (minimum requirement)</b>  The installation of new biomass production units (BPU) must not take place in areas in which the loss of above-ground carbon storage cannot be recovered within a period of ten years of biomass production. The reference date is 1 January 2007, with the exception of those biomass flows, for which a reference date already applies from other certification systems (currently under development).
<b>Criterion 2.2</b>  The conservation of underground (soil) carbon sinks when biomass units are installed.	<b>Indicator 2.2.1 (minimum requirement)</b>  The installation of new biomass production units must not take place in areas with a great risk of significant carbon losses from the soil, such as certain grasslands, peat areas, mangroves and wet areas. The reference date is 1 January 2007, with the exception of those biomass flows for which a reference date already applies from other certification systems (currently under development).

2) The principles, criteria and indicators in this annex are adopted from the *Testing framework for sustainable biomass*. The way in which certain parts have been formulated deviates from the way standards are written.

<b>Principle 3: The production of biomass for energy must not endanger the food supply and local biomass applications (energy supply, medicines, building materials)</b>	
<p>Criterion 3.1</p> <p>Insight into the change of land use in the region of the biomass production unit.</p>	<p>Reporting 3.1.1 (only at the request of the Dutch government)</p> <p>Information on changed land use in the region, inclusive of future developments (if information is available).</p>
<p>Criterion 3.2</p> <p>Insight into the change of prices of food and land in the area of the biomass production unit.</p>	<p>Reporting 3.2.1 (only at the request of the Dutch government)</p> <p>Information about changes in prices of land and food in the region, inclusive of future developments (if information is available).</p>

<b>Principle 4: Biomass production must not affect protected or vulnerable biodiversity and will, where possible, have to strengthen biodiversity</b>	
<p>Criterion 4.1</p> <p>No violation of national laws and regulations that are applicable to biomass production and the production area.</p>	<p>Indicator 4.1.1 (minimum requirement)</p> <p>Relevant national and local regulations must be complied with, with regard to:</p> <ul style="list-style-type: none"> <li>— land ownership and land-use rights;</li> <li>— forest and plantation management and exploitation;</li> <li>— protected areas;</li> <li>— wildlife management;</li> <li>— hunting;</li> <li>— spatial planning;</li> <li>— national rules arising from the signing of international conventions CBD (Convention on Biological Diversity) and CITES (Convention on International Trade in Endangered Species).</li> </ul>
<p>Criterion 4.2</p> <p>In new or recent developments, no deterioration of biodiversity by biomass production in protected areas.</p>	<p>Indicator 4.2.1 (minimum requirement)</p> <p>Biomass production must not take place in recently cultivated areas that have been recognized as 'gazetted protected areas' by the government, or in a 5 km zone around these areas. The reference date is 1 January 2007, with the exception of those biomass flows for which a reference date already applies from other certification systems (currently under development).</p> <p>If biomass production does take place in the above areas, then only if this is a part of the management to protect the biodiversity values.</p>

<b>Principle 4: Biomass production must not affect protected or vulnerable biodiversity and will, where possible, have to strengthen biodiversity</b>	
<p>Criterion 4.3</p> <p>In new or recent developments, no deterioration of biodiversity in other areas with high biodiversity value, vulnerability or high agrarian, nature and/or cultural values.</p>	<p>Indicator 4.3.1 (minimum requirement)</p> <p>Biomass production must not take place in recently cultivated areas that have been recognized as 'High Conservation Value' (HCV) areas by the parties involved, or in a 5 km zone around these areas. The reference date is 1 January 2007, with the exception of those biomass flows for which a reference date already applies from other certification systems (currently under development).</p> <p>The following areas are considered HCV areas:</p> <ul style="list-style-type: none"> <li>— areas with endangered or protected species or ecosystems, on the basis of the criteria of HCV categories 1, 2 and 3;</li> <li>— areas with high vulnerability (e.g. slopes and wetlands), on the basis of the criteria of HCV category 4;</li> <li>— areas with high nature and cultural values, on the basis of the criteria of HCV categories 5 and 6 and criteria for 'high nature value farmlands'.</li> </ul> <p>By means of a dialogue with the local parties involved it must be determined where the HCV areas are to be found.</p> <p>If biomass production does take place in the above areas, then only if this is a part of the management to protect the biodiversity values.</p>
<p>Criterion 4.4</p> <p>In new or recent developments, maintenance or recovery of biodiversity within biomass production units.</p>	<p>Indicator 4.4.1 (minimum requirement)</p> <p>If biomass production is taking place in recently cultivated areas (after 1 January 2007), room will be given to set-aside areas (at least 10 %).</p> <p>Reporting 4.4.2</p> <p>If biomass production is taking place in recently cultivated areas (after 1 January 2007), it has to be indicated:</p> <ul style="list-style-type: none"> <li>— in which land-use zones the biomass production unit can be found;</li> <li>— how fragmentation is discouraged;</li> <li>— if ecological corridors are applied;</li> <li>— if the restoration of degraded areas is involved here.</li> </ul>
<p>Criterion 4.5</p> <p>Strengthening of biodiversity where this is possible, during development and by the management of existing production units.</p>	<p>Reporting 4.5.1</p> <p>Good practices will be applied on and around the biomass production unit for the strengthening of biodiversity, to take into account ecological corridors and to prevent disintegration as much as possible.</p>

<b>Principle 5: In the production and processing of biomass, the soil, and soil quality must be retained or even improved</b>	
<p>Criterion 5.1</p> <p>No violation of national laws and regulations that are applicable to soil management.</p>	<p>Indicator 5.1.1 (minimum requirement)</p> <p>Relevant national and local regulations must be complied with, with respect to:</p> <ul style="list-style-type: none"> <li>— waste management;</li> <li>— the use of agrochemicals (fertilizers and pesticides);</li> <li>— the mineral system;</li> <li>— the prevention of soil erosion;</li> <li>— environmental impact reporting;</li> <li>— company audits.</li> </ul> <p>At least the Stockholm convention (12 most harmful pesticides) must be complied with, also where national legislation is lacking.</p>
<p>Criterion 5.2</p> <p>In the production and processing of biomass best practices must be applied to retain or improve the soil and soil quality.</p>	<p>Reporting 5.2.1</p> <p>The formulation and application of a strategy aimed at sustainable soil management for the:</p> <ul style="list-style-type: none"> <li>— prevention and control of erosion;</li> <li>— conservation of nutrient balance;</li> <li>— conservation of organic matter in the soil;</li> <li>— prevention of soil salination.</li> </ul>
<p>Criterion 5.3</p> <p>The use of residual products must not be at variance with other local functions for the conservation of the soil.</p>	<p>Reporting 5.3.1</p> <p>The use of agrarian residual products must not be at the expense of other essential functions for the maintenance of the soil and the soil quality (such as organic matter, mulch, straw for housing).</p> <p>The residual products of the biomass production and processing must be used optimally (so, for example, no unnecessary burning or removal).</p>

<b>Principle 6: In the production and processing of biomass ground and surface water must not be depleted and the water quality must be maintained or improved</b>	
<p>Criterion 6.1</p> <p>No violation of national laws and regulations that are applicable to water management.</p>	<p>Indicator 6.1.1 (minimum requirement)</p> <p>Relevant national and local laws and regulations must be observed, with respect to:</p> <ul style="list-style-type: none"> <li>— the use of water for irrigation;</li> <li>— the use of ground water;</li> <li>— the use of water for agrarian purposes in catchment areas;</li> <li>— water purification;</li> <li>— environmental impact assessments;</li> <li>— company audits.</li> </ul>
<p>Criterion 6.2</p> <p>In the production and processing of biomass best practices must be applied to restrict the use of water and to retain or improve ground and surface water quality.</p>	<p>Reporting 6.2.1</p> <p>The formulation and application of a strategy aimed at sustainable water management with regard to:</p> <ul style="list-style-type: none"> <li>— efficient use of water;</li> <li>— responsible use of agrochemicals.</li> </ul>
<p>Criterion 6.3</p> <p>In the production and processing of biomass no use must be made of water from non-renewable sources.</p>	<p>Indicator 6.3.1 (minimum requirement)</p> <p>Irrigation or water for the processing industry must not originate from non-renewable sources.</p>

<b>Principle 7: In the production and processing of biomass the air quality must be maintained or improved</b>	
<p>Criterion 7.1</p> <p>No violation of national laws and regulations that are applicable to emissions and air quality.</p>	<p>Indicator 7.1.1 (minimum requirement)</p> <p>Relevant national and local regulations must be observed with respect to:</p> <ul style="list-style-type: none"> <li>— air emissions;</li> <li>— waste management;</li> <li>— environmental impact assessments;</li> <li>— company audits.</li> </ul>
<p>Criterion 7.2</p> <p>In the production and processing of biomass best practices must be applied to reduce emissions and air pollution.</p>	<p>Reporting 7.2.1</p> <p>The formulation and application of a strategy aimed at minimum air emissions, with regard to:</p> <ul style="list-style-type: none"> <li>— production and processing;</li> <li>— waste management.</li> </ul>
<p>Criterion 7.3</p> <p>No burning as part of the installation or management of biomass production units (BPUs).</p>	<p>Indicator 7.3.1 (minimum requirement)</p> <p>Burning must not be applied in the installation or the management of biomass production units, unless in specific situations as described in ASEAN guidelines or other regional good practices.</p>

<b>Principle 8: The production of biomass must contribute towards local prosperity</b>	
<p>Criterion 8.1</p> <p>Positive contribution of private company activities towards the local economy and activities.</p>	<p>Reporting 8.1.1</p> <p>Description of:</p> <ul style="list-style-type: none"> <li>— the direct economic value that is created;</li> <li>— policy, practice and the proportion of the budget spent on local supply companies;</li> <li>— the procedures for appointment of local staff and the share of local senior management.</li> </ul> <p>On the basis of Economic Performance Indicators EC 1, 6 &amp; 7 of GRI (Global Reporting Initiative).</p>

<b>Principle 9: The production of biomass must contribute towards the social well-being of the employees and the local population</b>	
<p>Criterion 9.1</p> <p>No negative effects on the working conditions of employees.</p>	<p>Indicator 9.1.1 (minimum requirement)</p> <p>Comply with the Tripartite Declaration of Principles concerning Multinational Enterprises and Social Policy (compiled by the International Labour Organization).</p>
<p>Criterion 9.2</p> <p>No negative effects on human rights.</p>	<p>Indicator 9.2.1 (minimum requirement)</p> <p>Comply with the Universal Declaration of Human Rights of the United Nations.</p> <p>It concerns here: non-discrimination; freedom of trade union organization, child labour; forced and compulsory labour; disciplinary practices, safety practices and the rights of indigenous peoples.</p>
<p>Criterion 9.3</p> <p>The use of land must not lead to the violation of official property and use, and customary law without the free and prior consent of the sufficiently informed local population.</p>	<p>Indicator 9.3.1 (minimum requirement)</p> <p>Comply with the following requirements:</p> <ul style="list-style-type: none"> <li>— no land use without the informed consent of original users;</li> <li>— land use must be carefully described and officially laid down;</li> <li>— official property and use, and customary law of the indigenous population must be recognized and respected.</li> </ul>
<p>Criterion 9.4</p> <p>Positive contribution to the well-being of local population.</p>	<p>Reporting 9.4.1</p> <p>Description of programmes and practices to determine and manage the effects of company activities on local population.</p> <p>On the basis of the Social Performance Indicator SO1 of the GRI (Global Reporting Initiative).</p>
<p>Criterion 9.5</p> <p>Insight into possible violations of the integrity of the company.</p>	<p>Reporting 9.5.1</p> <p>Description of:</p> <ul style="list-style-type: none"> <li>— degree of training and risk analysis to prevent corruption;</li> <li>— actions taken in response to cases of corruption.</li> </ul> <p>On the basis of the Social Performance indicators SO2, SO3 and SO4 of the GRI (Global Reporting Initiative).</p>

## Annex C

(normative)

### Greenhouse gas calculations

#### C.1 General

This annex describes the methodology for calculating the greenhouse gas emission from the production and use of transport fuels, biofuels and bioliquids (C.2) and solid and gaseous biomass (C.3). Depending on the purpose, the organization shall use one of these two calculation methodologies to determine whether the minimum requirements for greenhouse gas emission saving as defined in 6.2.1 are fulfilled. In addition, the circumstances under which an organization may use default values, actual values and aggregated values are described (C.4). This annex also includes tools for executing the calculation of greenhouse gas emissions (C.5).

#### C.2 Greenhouse gas calculations for biofuels and bioliquids

**C.2.1** Greenhouse gas emissions from the production and use of transport fuels, biofuels and bioliquids shall be calculated as:

$$E = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} - e_{ee} \quad (C.1)$$

where

$E$  is the total emission from the use of the fuel expressed in terms of grams of CO<sub>2</sub> equivalent per MJ of fuel [gCO<sub>2eq</sub>/MJ];

$e_{ec}$  is the emission from the extraction or cultivation of raw materials;

$e_l$  is the annualized emission from carbon stock changes caused by land-use change;

NOTE According to Directive (EU) 2015/1513 'cropland' and 'perennial cropland' are regarded as one land use. Reference is made to IPCC for the definition of 'cropland' and 'perennial crops' are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.

$e_p$  is the emission from processing;

$e_{td}$  is the emission from transport and distribution;

$e_u$  is the emission from the fuel in use;

$e_{sca}$  is the emission saving from soil carbon accumulation via improved agricultural management;

$e_{ccs}$  is the emission saving from carbon capture and geological storage;

$e_{ccr}$  is the emission saving from carbon capture and replacement;

$e_{ee}$  is the emission saving from excess electricity from cogeneration.

Emissions from the manufacture of machinery and equipment are not taken into account.

**C.2.2** In the calculation methodology a bonus is attributed if restored degraded land is used. Until the European Commission has defined what is meant by degraded land, this bonus may not be attributed.

**C.2.3** Greenhouse gas emission saving from biofuels and bioliquids shall be calculated as:

$$\text{SAVING} = (E_F - E_B) / E_F \quad (\text{C.2})$$

where

$E_B$  is the total emission from the biofuel or bioliquid;

$E_F$  is the total emission from the fossil fuel comparator.

**C.2.4** The organization shall calculate the emission factors according to Directive 2009/28/EC, Annex V, including the amendment of Directive 2009/28/EC as included in Directive (EU) 2015/1513.

**NOTE** In the Communication from the Commission on the practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels (2010/C 160/02) additional guidelines are given for calculating the greenhouse gas impact.

### C.3 Greenhouse gas calculations for solid and gaseous biomass

**C.3.1** Greenhouse gas emissions from the production of solid and gaseous biomass fuels, before conversion into electricity, heating and cooling, shall be calculated as:

$$E_P = e_{ec} + e_l + e_p + e_{td} + e_u - e_{sca} - e_{ccs} - e_{ccr} \quad (\text{C.3})$$

where

$E_P$  is the total emission from the production of the fuel before energy conversion;

**NOTE 1** In COM(2010)11, the symbol  $E$  is used. Since this symbol has already been used in formula (C.1) with a different meaning, the symbol  $E_P$  is used in formula (C.3) and further.

$e_{ec}$  is the emission from the extraction or cultivation of raw materials;

$e_l$  is the annualized emission from carbon stock changes caused by land-use change;

**NOTE 2** According to Directive (EU) 2015/1513 'cropland' and 'perennial cropland' are regarded as one land use. Reference is made to IPCC for the definition of 'cropland' and 'perennial crops' are defined as multi-annual crops, the stem of which is usually not annually harvested such as short rotation coppice and oil palm.

$e_p$  is the emission from processing;

$e_{td}$  is the emission from transport and distribution;

$e_u$  is the emission from the fuel in use;

**NOTE 3** That is greenhouse gases emitted during the combustion of solid and gaseous biomass.

$e_{sca}$  is the emission saving from soil carbon accumulation via improved agricultural management;

$e_{ccs}$  is the emission saving from carbon capture and geological storage;

$e_{ccr}$  is the emission saving from carbon capture and replacement.

Emissions from the manufacture of machinery and equipment are not taken into account.

**C.3.2** In the calculation methodology a bonus is attributed if restored degraded land is used. Until the European Commission has defined what is meant by degraded land, this bonus may not be attributed.

**C.3.3** Greenhouse gas emissions from the use of solid and gaseous biomass in producing heat, electricity, or cold including the energy conversion to heat and/or electricity or cold produced shall be calculated as follows:

— For energy installations delivering only useful heat:

$$EC_h = E_P / \eta_h \quad (C.4)$$

— For energy installations delivering only electricity:

$$EC_{el} = E_P / \eta_{el} \quad (C.5)$$

— For energy installations delivering only useful cold:

$$EC_c = E_P / \eta_c \quad (C.6)$$

where

$EC_h$  is the total greenhouse gas emission from the final energy commodity expressed in grams of CO<sub>2</sub> equivalent per MJ of final energy commodity [gCO<sub>2eq</sub>/MJ], that is heating;

$EC_e$  is the total greenhouse gas emission from the final energy commodity expressed in grams of CO<sub>2</sub> equivalent per MJ of final energy commodity [gCO<sub>2eq</sub>/MJ], that is electricity;

$EC_c$  is the total greenhouse gas emission from the final energy commodity expressed in grams of CO<sub>2</sub> equivalent per MJ of final energy commodity [gCO<sub>2eq</sub>/MJ], that is cooling;

$\eta_h$  is the thermal efficiency, defined as the annual useful heat output, that is heat generated to satisfy an economically justifiable demand for heat, divided by the annual fuel input;

$\eta_{el}$  is the electrical efficiency, defined as the annual electricity produced divided by the annual fuel input;

$\eta_c$  is the thermal efficiency, defined as the annual useful cold output, that cold generated to satisfy an economically justifiable demand for cold, divided by the annual fuel input.

NOTE Economically justifiable demand means the demand that does not exceed the needs of heat or cold and which would otherwise be satisfied at market conditions.

— For the electricity coming from energy installations delivering useful heat:

$$EC_{el} = \frac{E_P}{\eta_{el}} \left( \frac{C_{el} \times \eta_{el}}{C_{el} \times \eta_{el} + C_h \times \eta_h} \right) \quad (C.7)$$

— For the useful heat coming from energy installations delivering electricity:

$$EC_h = \frac{E_P}{\eta_h} \left( \frac{C_h \times \eta_h}{C_{el} \times \eta_{el} + C_h \times \eta_h} \right) \quad (C.8)$$

where

$C_{el}$  is the fraction of exergy in the electricity, or any other energy carrier other than heat, set to 100 % ( $C_{el} = 1$ );

$C_h$  is the Carnot efficiency (fraction of exergy in the useful heat).

The Carnot efficiency,  $C_h$ , for useful heat at different temperatures is:

$$C_h = \frac{T_h - T_0}{T_h} \quad (C.9)$$

where

$T_h$  is the temperature, measured in absolute temperature (kelvin) of the useful heat at point of delivery as final energy;

$T_0$  is the temperature of surroundings, set at 273 kelvin (equal to 0 °C).

For  $T_h < 150$  °C (423 kelvin),  $C_h$  is defined as Carnot efficiency in heat at 150 °C (423 kelvin), which is 0,354 6.

**C.3.4** Greenhouse gas emission saving from heat, electricity and cold being generated from solid and gaseous biomass shall be calculated as:

$$\text{SAVING} = (EC_{F(h,el,c)} - EC_{h,el,c}) / EC_{F(h,el,c)} \quad (C.10)$$

where

$EC_{h,el,c}$  is the total emission from the heat, electricity or cold;

$EC_{F(h,el,c)}$  is the total emission from the fossil fuel comparator for heat, electricity or cold.

**C.3.5** The organization shall calculate the emission factors according to COM(2010)11, Annex I, and SWD(2014)259.

## C.4 Use of default values, actual values and aggregated values

**C.4.1** If the activities of the organization are related to biofuels or bioliquids, the default values as included in Directive 2009/28/EC may be used. If the activities of the organization are related to solid or gaseous biomass (other than transport), the default values as included in COM(2010)11 may be used.

**C.4.2** If the organization shall use actual values or the organization decides to use actual values for own reasons, the organization shall make reference to the method and source used for determining actual values.

NOTE Examples are average values based on representative yields, fertilizer input,  $N_2O$  emissions and changes in carbon stock.

**C.4.3** For emissions from agricultural management,  $e_{ec}$  and  $e_l$  in formulas (C.1) and (C.3), either measured or aggregated values may be used. If an organization uses aggregated values the provisions below shall be taken into account:

- The regional differences for aggregated values shall be considered when using this data. For the countries of the European Union, a value relevant for the NUTS-2 level or more fine-grained level shall be used, for other countries a similar level is applicable.
- Aggregated values should primarily be based on official statistical data from government bodies, if available and of good quality. If not available, statistical data published by independent bodies may be used. Alternatively, the values may be based on scientifically peer-reviewed work, with the precondition that data used lies within the commonly accepted data range, if available.
- The data used shall be based on the most recent available data from the sources mentioned under a) and b). Typically, the data should be updated over time, unless there is no significant variability of the data over time.

- d) For fertilizer use, the typical type and quantity of fertilizer used for the crop in the region concerned may be used. Emissions from the production of fertilizer should either be based on measured values or on technical specifications of the production facility. If the range of emission values for a group of fertilizer production facilities to which the facility concerned belongs is available, the most conservative emission value (highest) of that group shall be used.
- e) If a measured value for yields is used (as supposed to an aggregated value) for the calculations, it is required to also use a measured value for fertilizer input and vice versa.

**C.4.4** For emissions from processing,  $e_p$  in formulas (C.1) and (C.3), actual values throughout the production chain shall be measured or based on technical specifications of the processing facility. If the range of emission values for a group of processing facilities to which the facility concerned belongs is available, the most conservative value (highest) of that group shall be used.

## **C.5 Tools for greenhouse gas calculations**

**C.5.1** The organization can use the following tools for executing the calculations for greenhouse gas emissions:

- BioGrace I tool (<http://biograce.net/content/ghgcalculationtools/overview>): calculation of greenhouse gas emissions from biofuels production;
- BioGrace II tool\_ ([http://biograce.net/app/webroot/biograce2/content/ghgcalculationtool\\_electricityheatingcooling/overview](http://biograce.net/app/webroot/biograce2/content/ghgcalculationtool_electricityheatingcooling/overview)): calculation of greenhouse gas emissions from electricity, heating and cooling produced from biomass.

**NOTE** The BioGrace tools are European harmonised calculation tools for greenhouse gas emissions. The BioGrace I tool is in line with the calculation methodology as laid down in Directive 2009/28/EC. The BioGrace II tool is in line with the calculation methodology as included in COM(2010)11 and SWD(2014)259.

**C.5.2** The organization can use EN 16214-4 for the calculation of greenhouse gas emissions.

## Annex D

(normative)

### List of residual flows

This annex contains the list of residual flows, being biomass flows which are released during the production of other (main) products and which represent an economic value of less than 10 % of the value of the main product, or biomass flows which are released during a process other than a production process. This means that the organization may not intentionally change its processes in order to produce residual flows. Only the requirements specified in Table A.1 under category 'collector of primary residual flows' or 'collector of non-primary residual flows' apply to these biomass flows.

Table D.1 contains the list of primary residual flows and Table D.2 contains the list of non-primary residual flows. The tables are classified according to NTA 8003:2008. When a residual flow is not included in this list, it shall be demonstrated that the biomass complies with the definition of residual flow in order to be classified as category 'collector of primary residual flows' or 'collector of non-primary residual flows'. Reliable information about the economic value of the residual flow and the main product shall be submitted.

**Table D.1 — List of primary residual flows**

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
112	bark	
119	other fresh wood	<p>as far as it concerns:</p> <ul style="list-style-type: none"> <li>— branches, tops and low-value spindle wood originating from forests and nature reserves managed with an eye to preserving their function for the long term;</li> <li>— stumps that are not originating from conversions on behalf of changes to functions for which permits have been granted.</li> </ul> <p>NOTE Examples of low-value spindle wood are wood with a limited value due to its limited diameter, wood with significant curvatures, wood with many and heavy knots, wood with rot/mould/discolouration, wood broken due to a storm, etc.</p>
220	<p>straw</p> <p>NOTE This concerns a mixture of straw [221], barley straw [222], wheat straw [223], rice stalk [224], hemp [225] and other straw [229].</p>	
230	<p>residual products (shells)</p> <p>NOTE This concerns a mixture of shells [231], cocoa shells [232], peanut shells [233], nuts, including walnuts [234], almond shells [235], rice husks [236] and other shells [239].</p>	
252	horticultural waste	
253	fruit farming	

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
254	peeling waste from flower bulbs	
255	agricultural waste	
<sup>a</sup> Category according to NTA 8003:2008.		
<sup>b</sup> This concerns a demarcation within the category mentioned.		

Table D.2 — List of non-primary residual flows

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
113	prunings (parks and public gardens)	
115	sawdust	
119	other fresh wood	<p>as far as it concerns:</p> <ul style="list-style-type: none"> <li>— branches, tops and low-value spindle wood originating from gardens, parks and public gardens;</li> <li>— branches, tops and low-value spindle wood originating from conversions on behalf of changes to functions for which permits have been granted;</li> <li>— stumps originating from conversions on behalf of changes to functions for which permits have been granted;</li> <li>— residues that are produced when round timber is sawn and processed.</li> </ul> <p>NOTE Examples of low-value spindle wood are wood with a limited value due to its limited diameter, wood with significant curvatures, wood with many and heavy knots, wood with rot/mould/discolouration, wood broken due to a storm, etc.</p>
160	<p>processed wood; untreated (A-wood)</p> <p>NOTE This concerns a mixture of untreated wood [161], cork [162] and other untreated wood [169].</p>	
170	<p>processed wood; painted/glued wood (B-wood)</p> <p>NOTE This concerns a mixture of painted/glued wood [171], panel materials/glued wood [172] and other painted/glued wood [179].</p>	

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
180	processed wood; impregnated wood (C-wood)  NOTE This concerns a mixture of impregnated wood [181], impregnated wood: heavy metals [182], impregnated wood: halogenated organic compounds [183], impregnated wood: non-halogenated organic compounds [184] and other impregnated wood [189].	
190	wood from processing  NOTE This concerns a mixture of wood from processing [191], wood from composting [192], wood from fermentation [193], wood that has been in the water for a long time [194] and other wood from processing [199].	
213	roadside grass	
219	other grass	to the extent that grass and cuttings (including from waterways and reeds) are concerned that originate from maintenance activities; this does not include agricultural grass
251	auction waste	
300	manure  NOTE This concerns a mixture of manure [301], other types of manure [309], poultry manure [310], cow manure [320], pig manure [330], horse manure [340], processed manure from manure fermentation (digestate) [351], processed manure from co-fermentation with manure (digestate) [352] and processed manure from other processing [359].	
400	sludge  NOTE This concerns a mixture of sludge [401], other sludge (including industrial sludge) [409], sludge from sewage/waste water treatment plants [410], sludge from sewers, cesspits and pumping stations [420], sludge from preparation of drinking water [430] and paper sludge [440].	
522	potato peels	as far it does <b>not</b> concern concentrated potato juice and/or potato protein
523	rice husks	as far as it concerns rice chaff
529	other skins/husks/stones	as far as skins/husks/stones originate from the palm oil industry
535	moist fibre/wet mash	as far as it concerns brewers' grains
536	coffee pulp	
572	used frying fats and oils	
581	soft drinks and light alcoholic spirits unsuitable for human consumption	

Category <sup>a</sup>	Description	Demarcation <sup>b</sup>
582	dairy products unsuitable for human consumption	
583	foodstuffs unsuitable for human consumption	
586	slaughter waste	
592	glycerine – glycol (biodiesel production)	as far as it concerns crude glycerine (glycerine that is not refined)
594	black liquor  NOTE 'Black liquor' is chemically treated wood that comes into existence during the production of paper. It is a mixture of chemicals and dissolved wood material that remains after boiling in sulphate.	
600	organic waste from households and companies  NOTE This concerns organic waste from households [610] and organic waste from companies (trading, services, other) [620].	
801	mixture of combined flows	as far as this concerns organic wet fraction that is released when sorting industrial waste, domestic waste, etc. and is considered a combined waste
<sup>a</sup> Category according to NTA 8003:2008.		
<sup>b</sup> This concerns a demarcation within the category mentioned.		

## Annex E

(informative)

### Explanation on smallholders

In many countries, mainly developing countries, smallholders form an important share of the people in work and they thus contribute to local prosperity and wellbeing. Smallholders who produce biomass for application in bioenergy or bio-based products should have just as many possibilities for marketing this biomass according to the sustainability requirements of this NTA as larger companies. This means that the efforts they should deliver are proportionate to the revenues.

In order to offer smallholders these possibilities, this NTA exempts smallholders from some provisions (see also Annex A). This concerns the requirements on:

- stakeholder consultation (5.5);
- competition with food and local applications of biomass (6.3);
- prosperity (6.6);
- labour conditions (6.7.1);
- contribution to the wellbeing of the local population (6.7.5);
- the integrity of the company (6.7.6).

Smallholders employ no or hardly any staff other than their own relatives. As a rule, they have a local background and it is expected that they also buy products and services from local suppliers. As such, smallholders contribute enough to local prosperity and wellbeing and they do not have to demonstrate this according to the requirements in this NTA. Since smallholders employ no or hardly any employees apart from the own relatives, the requirements in this NTA as regards labour conditions and integrity do not apply or hardly apply.

The definitions of smallholder differ from country to country and between agricultural/ecological zones. For this reason, it is difficult to use an unambiguous definition that does justice to this in all situations. This situation also occurs in other roundtable meetings on sustainable biomass. A definition that considers both the staffing and the cultivation area has been chosen in this NTA (see 3.26). A maximum threshold is set on the cultivation area to prevent large plantations from invoking exemptions. The maximum threshold for the cultivation area can vary for the different regions or activities.

In addition to exempting provisions as regards sustainability requirements, an accompanying policy may be necessary in order to support smallholders in complying with sustainability requirements. Possible options for this are building capacity by means of human resources development (strengthening people's knowledge, skills and motivation), strengthening the organization (by having organizations function better) or institutional development (working together with other community organizations). More information on capacity building can be found on [www.capacity.org](http://www.capacity.org). Drawing up an accompanying policy is outside the scope of this NTA.

## Bibliography

NOTE 1 This NTA includes references to EN standards. These standards are adopted as national standard by all countries that are a member of CEN, and are available as such (e.g. as NEN-EN in The Netherlands, DIN-EN in Germany, NF-EN in France and BS-EN in the United Kingdom).

NOTE 2 Some sources refer to a hyperlink, which can change in time.

EN 16214-1, *Sustainability criteria for the production of biofuels and bioliquids for energy applications – Principles, criteria, indicators and verifiers – Part 1: Terminology*

CEN/TS 16214-2, *Sustainability criteria for the production of biofuels and bioliquids for energy applications – Principles, criteria, indicators and verifiers – Part 2: Conformity assessment including chain of custody and mass balance*

EN 16214-3, *Sustainability criteria for the production of biofuels and bioliquids for energy applications – Principles, criteria, indicators and verifiers – Part 3: Biodiversity and environmental aspects related to nature protection purposes*

EN 16214-4, *Sustainability criteria for the production of biofuels and bioliquids for energy applications – Principles, criteria, indicators and verifiers – Part 4: Calculation methods of the greenhouse gas emission balance using a life cycle analysis approach*

EN 16575, *Bio-based products – Vocabulary*

EN 16760, *Bio-based products – Life Cycle Assessment*

ISO 13065, *Sustainability criteria for bioenergy*

ISO 14001, *Environmental management systems – Requirements with guidance for use*

ISO 14064-1, *Greenhouse gases – Part 1: Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals*

ISO 19011, *Guidelines for auditing management systems*

ISO 26000, *Guidance on social responsibility*

Beets W.C. (1982). *Multiple cropping and tropical farming systems*. Boulder, CO: Westview Press

BioESoil, <http://www.wageningenur.nl/en/Expertise-Services/Research-Institutes/alterra/Facilities-Products/Software-and-models/BioESoil.htm>

BioGrace I, *Calculation of greenhouse gas emissions from biofuels production*, <http://biograce.net/content/ghgcalculationtools/overview>

BioGrace II, *Calculation of greenhouse gas emissions from electricity, heating and cooling produced from biomass*, [http://biograce.net/app/webroot/biograce2/content/ghgcalculationtool\\_electricityheatingcooling/overview](http://biograce.net/app/webroot/biograce2/content/ghgcalculationtool_electricityheatingcooling/overview)

Birdlife International – Important Bird Areas, <http://www.birdlife.org/datazone/site>

COM(2010)11, Report from the Commission to the council and the European parliament on sustainability requirements for the use of solid and gaseous biomass sources in electricity, heating and cooling

Communication from the Commission on the practical implementation of the EU biofuels and bioliquids sustainability scheme and on counting rules for biofuels (2010/C 160/02)

Conservation International – Biodiversity Hotspots, <http://www.conservation.org/how/pages/hotspots.aspx/>

*Convention on biological diversity*

*Convention on international trade in endangered species*

*Convention on wetlands (Ramsar-gebieden)*, <http://www.ramsar.org/>

Decision 2010/335/EU of 10 June 2010 on guidelines for the calculation of land carbon stocks for the purpose of Annex V to Directive 2009/28/EC

Directive 92/43/EEC of the council of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora

Directive 2009/28/EC of the European parliament and of the council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC

Directive 2009/147/EC of the European parliament and of the council of 30 November 2009 on the conservation of wild birds

Directive (EU) 2015/1513 of the European parliament and of the council of 9 September 2015 amending Directive 98/70/EC relating to the quality of petrol and diesel fuels and amending Directive 2009/28/EC on the promotion of the use of energy from renewable sources

Global Invasive Species Database (GISD), <http://www.issg.org/database/welcome/>

*Guide to Free Prior and Informed Consent*, Oxfam, June 2010

*Guidelines on Free, Prior and Informed Consent*, UN-REDD Programme, January 2013

HCV Resource Network, <https://www.hcvnetwork.org/>

High nature value farmland, [http://www.eea.europa.eu/report\\_2004\\_1/](http://www.eea.europa.eu/report_2004_1/)

*How to execute a stakeholder consultation? A guidance note*, NL Agency, June 2011

Integrated biodiversity assessment tool (IBAT), <http://www.ibatforbusiness.org/>

*Methodology for Low Indirect Impacts Biofuels (LIIB)*, WWF International, Ecole Polytechnique Fédérale de Lausanne en Ecofys, <http://www.ecofys.com/en/project/low-indirect-impact-biofuel-methodology/>

Regulation (EU) No 1307/2014 of the Commission of 8 December 2014 on defining the criteria and geographic ranges of highly biodiverse grassland for the purposes of Article 7b(3)(c) of Directive 98/70/EC of the European Parliament and of the Council relating to the quality of petrol and diesel fuels and Article 17(3)(c) of Directive 2009/28/EC of the European Parliament and of the Council on the promotion of the use of energy from renewable sources

*Solid and gaseous bioenergy pathways: input values and GHG emissions – Calculated according to methodology set in COM(2010) 11 and SWD(2014) 259*, European Commission, Joint Research Centre, Institute for Energy and Transport, 2014

SWD(2014) 259, *Commission staff working document – State of play on the sustainability of solid and gaseous biomass used for electricity, heating and cooling in the EU*

*Testing framework for sustainable biomass*, Final report from the project group 'Sustainable production of biomass', March 2007

*Tripartite declaration of principles concerning multinational enterprises and social policy*, International Labour Organization

UNESCO world heritage sites, <http://whc.unesco.org/en/list/>

*Universal Declaration of Human Rights*

*United Nations Declaration on the Rights of Indigenous Peoples*

Water Footprint Network, <http://waterfootprint.org/en/>

World database on protected areas, <http://www.wdpa.org>

WWF List of Ecoregions, [http://wwf.panda.org/about\\_our\\_earth/ecoregions/ecoregion\\_list](http://wwf.panda.org/about_our_earth/ecoregions/ecoregion_list)

### **Waarom betaalt u voor een norm?**

Normen zijn afspraken voor en door de markt, zo ook deze norm. NEN begeleidt het gehele normalisatieproces. Van het bijeenbrengen van partijen, het maken en vastleggen van de afspraken en het bieden van hulp bij de toepassing van de normen. Om deze diensten te kunnen bekostigen betalen alle belanghebbende partijen die aan tafel zitten voor het normalisatieproces, en u als gebruiker voor normen en trainingen. NEN is een stichting en heeft geen winstoogmerk.

### **Wat is nu precies de toegevoegde waarde van normen?**

Stelt u zich eens voor ... u wilt in het buitenland geld pinnen, maar uw bankpas past niet. Of uw nieuwe telefoon herkent uw simkaart niet. De samenstelling van de benzine over de grens is anders, waardoor u niet kunt tanken. Het dagelijks leven zou zonder goede afspraken over producten, processen en diensten een stuk complexer zijn.

Het maken en vastleggen van afspraken door belanghebbende partijen noemen we het normalisatieproces. Normalisatie had vanouds betrekking op techniek en producten. Nu worden steeds vaker normen voor diensten ontwikkeld. Zo zijn er afspraken op het gebied van gezondheidszorg, schuldhulpverlening, kennisintensieve dienstverlening, externe veiligheid en MVO.

Normen zorgen voor verbetering van producten, diensten en processen; qua veiligheid, gezondheid, efficiëntie, kwaliteit en duurzaamheid. Dit ziet u op de werkvloer, in de omgang met elkaar en in de samenleving als geheel. Organisaties die normalisatie onderdeel van hun strategie maken, vergroten hun professionaliteit, betrouwbaarheid en concurrentiekracht.

### **Wat doet NEN?**

NEN ondersteunt in Nederland het normalisatieproces. Als een partij zich tot NEN richt met de vraag om een afspraak tot stand te brengen, gaan wij aan de slag. We onderzoeken in hoeverre normalisatie mogelijk is en er interesse voor bestaat. Wij nodigen vervolgens alle belanghebbende partijen uit om deel te nemen. Een breed draagvlak is een randvoorwaarde. De afspraken komen op basis van consensus tot stand en worden vastgelegd in een document. Dit is meestal een norm. Afspraken die in een NEN-norm zijn vastgelegd mogen niet conflicteren met andere geldige NEN-normen. NEN-normen vormen samen een coherent geheel. Een belanghebbende partij kan een producent, ondernemer, dienstverlener, gebruiker, maar ook de overheid of een consumenten- of onderzoeksorganisatie zijn.

De vraag is niet altijd om een norm te ontwikkelen. Vanuit de overheid komt regelmatig het verzoek om te onderzoeken of er binnen een bepaalde sector of op een bepaald terrein normalisatie mogelijk is. NEN doet dan onderzoek en start afhankelijk van de uitkomsten een project. Deelname staat open voor alle belanghebbende partijen. NEN beheert ruim 30.000 normen. Dit zijn de in Nederland aanvaarde internationale (ISO, IEC), Europese (EN) en nationale normen (NEN). In totaal zijn er ruim 800 normcommissies actief met in totaal bijna 5.000 normcommissieleden. Een goed beheer van de omvangrijke normencollectie en de afstemming tussen nationale, Europese en internationale normcommissies vereisen dan ook een zeer goede infrastructuur.

### **Betalen kleine organisaties net zoveel als grote organisaties?**

Het uitgangspunt is dat alle partijen die deelnemen aan het normalisatieproces een evenredig deel betalen. De normcommissieleden kunnen onderling andere afspraken maken. Zo worden er wel eens afspraken gemaakt dat de grote partijen een groter deel betalen dan de kleinere bedrijven. De prijzen voor normen zijn voor iedereen gelijk. De kosten voor licenties zijn afhankelijk van de omvang van een organisatie en het aantal gebruikers.

### **Voordelen van normalisatie en normen**

Gegarandeerde kwaliteit | Veiligheid geborgd | Bevordert duurzaamheid | Opschalen en vermarkten van nieuwe innovatieve producten | Meer (internationale) handelsmogelijkheden | Verhoogde effectiviteit en efficiëntie | Onderscheidend in de markt.

### **Voordelen van deelname**

Invloed op de (internationale en Europese) afspraken | Als eerste op de hoogte van veranderingen | Netwerk; ook op Europees en internationaal niveau | Kennisvergroting.



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