GBEP Report to the G8 L'Aquila Summit 2009

This report provides an overview of the work of the Global Bioenergy Partnership (GBEP) and its progress since reporting to last year's G8 Summit. In response to the 2005 G8 mandate (renewed in 2007 and 2008), GBEP initiated an international discussion on the issues related to bioenergy. Three years after its establishment and at a time of intense debate on bioenergy, GBEP is actively working to advance bioenergy for sustainable development, climate change mitigation and food and energy security. From such a platform, GBEP now intends to engage in efforts to bring available solutions for the sustainable and resource-efficient production and use of bioenergy into broader use around the world, while also promoting the development of innovative sustainable technologies and practices.

GBEP was established to implement the commitments taken by the G8 in the 2005 Gleneagles Plan of Action to support "biomass and biofuels deployment, particularly in developing countries where biomass use is prevalent" and it was invited by the 2007 G8 Heiligendamm Summit "to continue its work on biofuel best practices and take forward the successful and sustainable development of bioenergy". The 2008 Hokkaido Toyako Summit declared renewed support for GBEP's work and invited it to "work with other relevant stakeholders to develop science-based benchmarks and indicators for biofuel production and use."

GBEP membership

Over the last year, GBEP has expanded its membership substantially, such that its Partners now comprise the following 18 countries and 10 organizations: all G8 countries (Canada, France, Germany, Italy, Japan, Russian Federation, United Kingdom, United States of America), Brazil, China, Fiji Islands, Mexico, Netherlands, Spain, Sudan, Sweden, Switzerland,Tanzania, Food and Agriculture Organization of the United Nations (FAO), International Energy Agency (IEA), United Nations Conference on Trade and Development (UNCTAD), United Nations Development Programme (UNDP), United Nations Environment Programme (UNEP), United Nations Department of Economic and Social Affairs (UN DESA), United Nations Industrial Development Organization (UNIDO), United Nations Foundation, World Council of Renewable Energy (WCRE) and European Biomass Industry Association (EUBIA).

A further 20 countries are participating as observers (Angola, Argentina, Australia, Austria, Colombia, Gambia, Ghana, India, Indonesia, Israel, Kenya, Madagascar, Malaysia, Mauritania, Morocco, Mozambique, Norway, Peru, South Africa and Tunisia) along with the European Commission, the European Environment Agency (EEA), the World Bank and the World Business Council on Sustainable Development (WBCSD). GBEP welcomes new Partners who wish to actively contribute to its programme of work and is working to facilitate the engagement of more developing countries.

Italy is currently Chair of the Partnership while Brazil is the Co-Chair. They are supported by the GBEP Secretariat, hosted at FAO Headquarters in Rome.

GBEP's activities

GBEP is a forum where voluntary cooperation works towards consensus amongst governments, intergovernmental organizations and other partners in the areas of the sustainability of bioenergy and its contribution to climate change mitigation. It also provides a platform for sharing information and examples of good practice.

The main objectives of the Global Bioenergy Partnership are to:

- promote global high-level policy dialogue on bioenergy and facilitate international cooperation;
- support national and regional bioenergy policy-making and market development;
- favour the transformation of biomass use towards more efficient and sustainable practices;
- foster exchange of information, skills and technologies through bilateral and multilateral collaboration; and
- facilitate bioenergy integration into energy markets by tackling barriers in the supply chain.

GBEP's achievements in the last year

Over its last year of work, GBEP has made real advances in its current priority areas, which are:

1. facilitating the sustainable development of bioenergy;
2. formulating a harmonized methodological framework on GHG emission reduction measurement from the use of biofuels for transportation and from the use of solid biomass; and
3. raising awareness and facilitating information exchange on bioenergy.

1. Facilitating the sustainable development of bioenergy and collaboration on bioenergy field projects

In June 2008, GBEP established a Task Force on Sustainability, under the leadership of the United Kingdom.

The Task Force is working to develop a set of relevant, practical, science-based, voluntary criteria and indicators as well as examples of best practice regarding the sustainability of bioenergy. The criteria and indicators are intended to guide any analysis undertaken of bioenergy at the domestic level with a view to informing decision making and facilitating the sustainable development of bioenergy in a manner consistent with multilateral trade obligations. A further aim of this activity is to identify synergies between the various current initiatives and encourage closer joint working and integration where possible to promote greater consistency and reduce unnecessary duplication.

The Task Force has made substantial progress towards consensus on the key aspects of the sustainability of bioenergy production and use, as identified through provisional criteria under "environmental", "social", "economic" and "energy security" headings. Work has now begun on the development of indicators for each of these criteria, and on the development of cross-cutting recommendations. Annex A of this report contains a summary of the progress of this Task Force.

2. Formulating a harmonized methodological framework on GHG emission reduction measurement from the use of biofuels for transportation and from the use of solid biomass

The GBEP Task Force on GHG Methodologies was established in October 2007 under the joint leadership of the United States and the UN Foundation to develop a harmonized methodological framework for the use of policy makers and stakeholders when assessing GHG emissions associated with bioenergy and to make GHG lifecycle analyses more transparent. The Task Force has now completed the first stage of its work and has produced a report containing the methodological framework. A summary of this report and introduction to the methodological framework can be found in Annex B. The Task Force will now go on to implement the framework as a tool for comparing the results of various methodologies for assessing GHG emissions from bioenergy systems and communicating the results in a transparent way. Several GBEP Partners have already performed test applications of the draft methodological framework and have found it to be a useful tool.

3. Raising awareness and facilitating information exchange on bioenergy

GBEP's awareness-raising and information exchange activities have focused on the following areas:

a. Development of GBEP's information material, including management of the GBEP website (www.globalbioenergy.org), which includes a database of bioenergy information, so as to promote information sharing on bioenergy and on GBEP's activities and programme of work.
b. Participation in relevant international conferences and meetings focused on bioenergy as well as organization of specific GBEP events relating to its activities and programme of work;
c. Organization of an international media campaign to promote GBEP activities, which has led to extensive media coverage of GBEP's activities both in print and online formats, and publication of a quarterly GBEP newsletter.

New GBEP work

GBEP is planning to build on its current activities by implementing and further improving the *GBEP Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy* and finalising a report containing the agreed sustainability criteria and indicators as well as a set of recommendations on sustainable bioenergy production, use and policy-making by May 2010. Alongside this work, GBEP is planning to establish a new task force designed so as to take practical steps to guide and facilitate technology development, deployment and cooperation for sustainable bioenergy.

In light of this work, GBEP will prepare a report to be presented to the 2010 G8 Summit in Canada.

Annex A: A progress report of the GBEP Task Force on Sustainability

This report describes progress on the work of the GBEP Task Force on Sustainability and outlines next steps.

Introduction

It is generally acknowledged that bioenergy can make a significant contribution to meeting energy security and economic development goals, as well as helping to address the negative effects of climate change. There is also widespread recognition, shared by the G8 Leaders and reflected in commitments given at recent Summits, that if bioenergy is to have a viable long term future, it must be produced and used in a sustainable way. GBEP believes that it can play a valuable role in helping to build an international consensus on practical and effective ways of achieving this important and widely-shared goal.

To that end, in June 2008 GBEP established a Task Force on Sustainability, under the leadership of the United Kingdom, to:

- Facilitate an effective dialogue on the exchanging of experiences on bioenergy technologies, norms and regulations as well as the sharing of information, and data, experiences and best practices relating to sustainable bioenergy production and use;
- Develop a set of global science-based criteria and indicators regarding the sustainability of bioenergy. This will provide a useful platform for those engaged in current work on bioenergy sustainability;
- Develop an inventory of existing initiatives on sustainable bioenergy, with a view to identify and discuss commonalities and differences in approaches as well as issues requiring further consideration;
- Develop a final report summarising the work and conclusions of the Task Force as well as any recommendations to the Steering Committee for further work.

GBEP decided that the Task Force on Sustainability should prioritise its efforts on developing a set of global science-based criteria and indicators regarding the sustainability of bioenergy in all its forms. This report focuses on that aspect of the Task Force's work.

Although there are several other current initiatives working to develop international sustainability criteria and certification schemes for biofuels and/or biomass feedstocks, the uniqueness of the GBEP Task Force on Sustainability lies in the fact that it is currently the only initiative seeking to build a global consensus among national governments and international institutions on this important issue.

Contribution to G8 commitments

The development of sustainability criteria and indicators for bioenergy resonates with the recognition given by the G8 Leaders in their Summit Declaration from Hokkaido Toyako to the "importance of sustainable biofuel production and use", as well as "for the broader use of biomass for fuel, heat and electricity". It responds directly to the invitation from the G8 Leaders to GBEP "to develop science-based benchmarks and indicators for biofuel production and use"[1].

Progress

During its first year of operation the Task Force has made substantial progress towards consensus on the key elements of sustainable bioenergy production and use. Its work has fallen mainly into three parts:

[1] G8 Hokkaido Toyako Summit Leaders Declaration, Hokkaido Toyako 8 July 2008: Paragraph 27

- clarification of the scope, purpose and use of the criteria and indicators;
- development of provisional sustainability criteria; and
- commencement of work on science-based indicators relating to the criteria.

Scope, purpose and use

Clarifying the scope, purpose and use of the sustainability criteria and indicators was an important first step in both setting the direction of work and for the eventual usefulness of the resulting recommendations. The Task Force agreed that the purpose of this work is to provide relevant, practical, science-based, voluntary sustainability criteria and indicators to guide any analysis of bioenergy that may be undertaken at the domestic level. When used as part of such an analysis, the criteria and indicators are intended to be used with a view to informing decision making and facilitating the sustainable development of bioenergy. Importantly, and in recognition of GBEP's status as a voluntary international partnership, the Task Force agreed that the criteria and indicators shall not be applied so as to limit trade in bioenergy in a manner inconsistent with multilateral trade obligations.

Provisional sustainability criteria

The Task Force has identified eighteen provisional criteria grouped under the following four headings – "Environmental", "Economic", "Social" and "Energy Security". These categorisations are not final and the structure of the framework may change as a result of further discussions within GBEP.

The provisional criteria so far considered take account of a wide range of sustainability issues, including:

> Greenhouse gas emissions, natural resource utilisation and impacts, indirect effects, resource availability and use efficiency, economic development, economic viability and competitiveness, rural and social development, food security, issues of access to energy and natural resources, labour and human health issues and energy security.

In addition, the Task Force has identified a number of cross-cutting issues relating, for example, to institutional and policy frameworks, which do not fit neatly into the four basket categorisation above but which would nevertheless play an important part in supporting sustainable approaches.

The provisional criteria identified are intended to provide the basis for the elaboration of science-based indicators, and will be reviewed in light of the outcome of those deliberations. It is important to note, therefore, that no criterion can be regarded as final at this stage or even necessarily indicative of the Task Force's final recommendations. For that reason, and to avoid any misunderstanding about their status, the provisional criteria are not attached to this report.

Development of indicators

Work has now begun on the development of science-based indicators for each of the provisional criteria. The following three sub-groups have been established to progress this work:

- Environmental sub-group, led jointly by Germany and UNEP;
- Social sub-group, led by the FAO; and
- Economic and energy security sub-group, led jointly by the IEA and the UN Foundation.

Within the Environmental sub-group, Germany is leading a workstream focused on the indirect land use change effects of bioenergy production and use, and is working with the other sub-groups to identify appropriate indicators to address indirect effects relevant to their subject areas, including, for example, on food prices and food security. The three sub-groups will come together at a meeting in July to feed back on their findings and to discuss next steps.

Next steps

The Task Force has achieved much in the last year but there is still a large amount of work to do. In the coming months it will:

- Review progress on the development of science-based indicators and consider what additional work is needed to refine them;
- Revisit and refine the sustainability criteria in light of the outcome of the work on indicators;
- Elaborate the cross-cutting recommendations, such as on policy and institutional frameworks, which provide the essential context for the effective application of sustainability strategies and measures;
- Work in order to identify suitable examples of sustainable bioenergy in action for dissemination;
- Give further consideration to how the criteria and indicators could be used, and in doing so, will seek the views of a wide range of interested parties and stakeholders.

A final report containing the agreed criteria and indicators, together with a set of recommendations on sustainable bioenergy production, use and policy-making, is expected to be published by May 2010.

Annex B: Introduction to *The Global Bioenergy Partnership Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy*, a product of the GBEP Task Force on GHG Methodologies

This report summarises and provides an introduction to the Global Bioenergy Partnership (GBEP) Common Methodological Framework for GHG Lifecycle Analysis of Bioenergy, which has been developed through collaborative working amongst the members of the GBEP Task Force on GHG Methodologies, comprising a wide range of national governments and international organizations.

Overview

A key benefit of bioenergy for transport and for stationary heat and electricity generation is its potential to reduce greenhouse gas (GHG) emissions relative to replaced fossil fuels. This reduction can be difficult to calculate, given the diverse and complex production and use systems for bioenergy and for the fossil fuels they replace. In order to facilitate emissions comparisons between different bioenergy production systems relative to fossil fuels, the Task Force on GHG Methodologies of the Global Bioenergy Partnership has produced a draft methodological framework intended to be appropriate for use in the lifecycle analysis (LCA) of GHG emissions due to bioenergy production and use. The framework is intended to provide a template for LCA that is transparent and that can be applied to a wide range of bioenergy systems. It does not set data standards and does not specify particular emissions models. The goal of the framework is to ensure that countries and organizations can evaluate GHG emissions associated with bioenergy in a consistent manner, using methods appropriate to their circumstances, conditions and systems of production. Furthermore, the framework enables a multi-tiered approach to be taken to the analysis of GHG emissions depending on the level of sophistication employed in the production of the biofuel and the data available.

The framework consists of 10 “Steps” of analysis. Steps 1 and 2 are simple checkboxes in which the user identifies the **GHGs included** in the LCA and the **source of the biomass feedstock**. In the case that the feedstock is waste material, further explanation is requested. Steps 3-9 walk through a full LCA appropriate for bioenergy production and use, including **emissions due to land use change, biomass feedstock production, co-products and by-products, transport of biomass, processing into fuel, transport of fuel, and fuel use**. For each Step the framework presents a series of yes/no questions and checkboxes, with requests for further explanation where appropriate. Step 10 is the **comparison with replaced fuel**. In this Step the framework includes options for reporting LCA of fossil transport fuels and LCA of stationary heat and electricity production systems.

The methodological framework is intended to be a practical product for the end user. For this reason it was necessary to strike a balance between inclusive detail and ease of application. At each stage participating authors worked to maximize clarity and flexibility. That said, we fully expect that the framework will be informed and improved by user experience. We encourage biofuels producers, industry groups, and regulatory bodies to utilize the framework in reporting biofuels LCA and to provide comment on points requiring clarification or modification. We are confident that a common framework for bioenergy GHG LCA is useful in principle, as it will allow for more effective communication of LCA results. The utility of the common framework presented in this report, however, depends entirely on the degree to which prospective users adopt it and inform further development.

Rationale for a Common Methodological Framework

In approaching the challenge of GHG LCA for bioenergy, the GBEP Task Force on GHG Methodologies considered a number of options. At its first meeting, the Task Force heard presentations from a number of LCA experts on the merits, opportunities, and limitations of various LCA models and data analysis techniques. These presentations clearly demonstrated that the biofuels community utilizes a wide range of LCA techniques, and that these techniques evolve in response to new data and new bioenergy technologies. While there is considerable overlap in guiding principles and in some methodologies, the diversity of bioenergy production systems and the range of policy opinions on what constitutes a “complete” LCA preclude the possibility of applying a single technique to all bioenergy systems, world-wide.

Recognizing this fact, the Task Force determined that GBEP's most useful contribution to biofuels LCA would be to provide a common framework for GHG LCA reporting, rather than developing a common methodology. The framework allows for a comparison of existing LCA employed by independent scientists, industrial groups, and technical agencies, and provides a reference for the development of future analyses. The trade-off for this flexibility is that the framework is not, in itself, an LCA model. It is expected that the user will draw on the various LCA techniques most appropriate for their specific application and then use the GBEP framework to communicate the details of their technique in a consistent manner. By facilitating this communication, the framework fills an essential role for all stakeholders interested in transparent evaluation of GHG emissions associated with bioenergy.

The framework has many potential applications. For example, it could be used by governments that have implemented GHG emissions standards for biofuels, in order to present their methods in a manner that is transparent and intelligible to all stakeholders. The framework can also be applied by biofuels producers and manufacturers of products that use biofuels in order to support claims of GHG reductions relative to fossil fuels. Non-government organizations and roundtables can also make use of the framework to evaluate GHG reductions included in their voluntary sustainability analyses of biofuels.

Scope of the Framework

In developing the common methodological framework, the Task Force on GHG Methodologies decided that the framework should be designed to apply to all bioenergy systems, and not just the liquid transport fuels that presently dominate renewable fuels standards in developed countries. This decision complicated the work of the Task Force to some degree, given the diversity of bioenergy production and use and the variety of fossil energy sources that this bioenergy displaces. Nonetheless, the present-day use of bioenergy for heat and power production, along with the considerable potential to expand these stationary uses of bioenergy in both the developing and the developed world, argued for their inclusion in the framework.

A second important scope question arose with regard to the treatment of emissions due to land use change. There is currently a range of opinions on the matter of including land use change emissions in LCA of bioenergy systems. Some scientists and policy makers feel that it is necessary to count emissions due to both direct and indirect land use change attributable to bioenergy production. Within this paradigm, some argue that indirect land use calculations should include market-based models that estimate international indirect land use change, while others prefer to constrain the analysis to domestic land use change. At the same time, a number of experts feel that models linking bioenergy production to indirect land use change are too uncertain for policy applications, that they tend to over-estimate land use change due to bioenergy, or that there is a risk of double-counting land use change when both direct and indirect effects are included. Given the state of discussion on the topic of land use change, it was decided that the framework should include options for reporting direct land use change or indirect land use change or a combination of both, and that within indirect land use change, domestic and international methodologies would be reported in separate sections. This approach is consistent with the effort to maximize completeness and transparency in the framework without specifying methodology.

Finally, members of the Task Force recognized that it would be impossible for the framework to anticipate all LCA methodologies or to specifically solicit full information on system boundaries. For this reason, users are invited to "clarify assumptions" for several Steps of the framework. These clarifications will provide needed information on methodologies and system boundaries. If it is found that certain critical clarifications appear repeatedly in framework applications then the framework can be updated to capture those assumptions more efficiently.

The full common methodological framework is presented in Section 2 of the report of the GBEP Task Force on GHG Methodologies, and details on rationale and guidance are provided for each Step of the framework. The report is available on the GBEP website: www.globalbioenergy.org.