

GBEP Task Force on Deployment of Technologies for Sustainable Bioenergy

Draft scope and programme of work, 1 May 2009

The Steering Committee is invited to consider and endorse the proposed scope and programme of work for the GBEP Task Force on Deployment of Technologies for Sustainable Bioenergy as set out in this paper. A previous version of this document was circulated on 15 April 2009 to Partners and Observers for comment. Comments received have been incorporated into this second draft.

Background

At the 6th meeting of the GBEP Steering Committee (Rome, December 2008), Partners and Observers were invited to put forward suggestions for where GBEP might focus future efforts to support the sustainable development of bioenergy, with a suggested theme of innovation and sustainability. The 4th meeting of the Technical Working Group (TWG), held in Heidelberg, Germany, on 18 March 2009, considered a discussion paper presenting proposals received and concluded that a new Task Force should be established to work chiefly on the subject of technology cooperation. Collection and dissemination of good practices could also be added, as part of the preliminary phase of this work, and elements of the work proposed on advanced biofuel technologies should also be included. A working title of “Task Force on Deployment of Technologies for Sustainable Bioenergy” was established, and the scope and programme of work of this new Task Force were to be elaborated by the Chair of the TWG and the Secretariat for consultation amongst Partners and Observers and subsequent agreement by the Steering Committee.

This proposal reflects discussion at the 4th TWG meeting in Heidelberg¹ and comments received from Partners and Observers between that meeting and 1 May 2009.

Rationale

In light of the original G8 GBEP mandate to “support wider, cost effective, biomass and biofuels deployment, particularly in developing countries” and the fact that GBEP has made good progress on developing sustainability criteria and a framework for measuring GHG savings, GBEP should now take practical steps to facilitate the widespread deployment of technologies for sustainable bioenergy. These technologies should include those of relevance to developing country contexts and priorities, which might mean that particular attention should be given to technologies in the context of delivering energy services in rural areas.

¹ The US explained that it had no government position on new GBEP work at the time of the Heidelberg meetings, and could not participate in decisions of the TWG.

The value in terms of sustainable development of establishing and strengthening the technological capabilities of developing countries is widely recognised. There is huge potential in the field of bioenergy to widen the deployment of best currently available techniques, to develop innovative sustainable technologies and practices through enhanced communication and also to help build endogenous capacity in environmentally friendly technologies.

The guiding principle of the selection of appropriate technologies should be sustainable development. While it cannot be assumed that biofuels produced from lignocellulose, algae or using other novel technologies (such as biohydrogen) will always perform better in this regard than all those biofuels that currently dominate the market, GBEP should seek to promote the development of immature technologies that show promise of being sustainable. Such technologies are experiencing an unprecedented wave of research and development, flowing from both the public and private sectors, but in the context of current low oil prices, adequate investment in alternative energy technologies that are not yet cost-competitive cannot be taken for granted.

GBEP provides a very suitable forum for guiding and stimulating technology cooperation, particularly but not exclusively among Partners. Through convening a wide range of national governments, international organisations and other stakeholders, GBEP can also add value in the collection and sharing of information on work in the areas of bioenergy R,D&D, production, use, policy development, and impacts of technologies on sustainability. Using this information to identify consensus, gaps in the development, deployment and adaptation (particularly to the needs of developing countries) of technology, examples of good practice and areas for collaboration will help to make the most of resources in seeking to find innovative solutions to global challenges.

Scope of work

The work of the Task Force on Deployment of Technologies for Sustainable Bioenergy could include both conceptual work related to enabling conditions to promote the deployment of technologies for sustainable bioenergy and appropriate frameworks for technology cooperation in bioenergy (first and second phases), as well as pilot collaborative field projects (as a third phase, depending on sufficient funding). These pilots could then inform a review of the conceptual work, providing an ongoing feedback loop.

The work should consider all technologies related to the bioenergy value chain, including those related to feedstock production. It should also have a strong systems focus, including the consideration of models for the integration of bioenergy production into existing agricultural, forestry and industrial systems.

Given GBEP's role primarily as an intergovernmental policy discussion forum, it will be very important to build on existing and ongoing work, including that of the UN agencies and programmes (especially FAO, UNCTAD, UNEP and UNIDO) and IEA, rather than carrying out a large amount of technical work. Indeed much of the work of the GBEP Task Force on Deployment of Technologies for Sustainable Bioenergy should be discussion, promotion and dissemination of existing tools, good practice and results from previous work of other initiatives, with the intention of reaching a wide variety of decision-makers and other stakeholders and adding to the work the significant backing of broad international consensus.

Programme of work

The programme of work of the Task Force is split into three phases. This is intended to enable practical work to build up upon a strong conceptual foundation. It will also allow the scope of later stages of the work to be further refined nearer to their initiation to ensure they are as relevant and useful as possible.

Phase 1 is envisaged to last approximately one year, allowing results to be shared through a report to the G8 Summit 2010 and possibly a side event at CSD-18. The timeframes of subsequent activities (and indeed whether they take place) will depend on the funds available and a more precise definition of the work, bearing in mind the need for GBEP to add value.

A schematic for the work of the Task Force is shown in Annex A to this paper.

Phase 1

1. **Compilation of a report highlighting available funding options for bioenergy projects**, identifying multilateral organizations and financial mechanisms that currently offer financial incentives to green field investments and upgrading of existing systems. The report would offer guidance, including a description of the kinds of projects that would be eligible and ineligible for each funding option, and would be accompanied by practical action towards overcoming barriers to accessing such funds. To this end, use of the GBEP Methodological Framework for GHG LCA as a template for reporting expected GHG savings in applications for project funding and harmonization of funding criteria should be discussed with relevant financing institutions.

Indicative duration: approx. 5 months (June 2009 to October 2009).

2. **Collation of examples of good practice in bioenergy production, use and policy-making**, with a focus on transferable systems, technologies, techniques and regulatory tools that demonstrate or promote good performance against the emerging GBEP sustainability criteria. These examples would be disseminated principally in three ways:
 - a) publication of a report containing examples of integrated systems, representing means of incorporating bioenergy into existing agricultural, forestry, aquacultural and industrial systems, and also of the integration of bioenergy policy into agriculture, forestry, waste and other policies (hence providing a focused initial product of practical relevance and added value);
 - b) inclusion in the main output of the Task Force on Sustainability (i.e. a report containing the agreed GBEP sustainability criteria and indicators) of examples of good practice in bioenergy production, use and policy-making of how to promote the positive and mitigate the negative potential impacts of bioenergy as identified by the criteria and indicators;² and
 - c) construction of an online database of wide-ranging cases of good practice, reported in a common format and identified by technology, feedstock and setting (i.e. relevant bioenergy system, geographical zone etc.) labels, to be made available on the GBEP website and updated on an ongoing basis, and to be shared and developed in coordination with the GEF targeted research project on “Assessments and Guidelines

² The scope and programme of work of the GBEP Task Force on Sustainability includes providing “a useful platform for those engaged in current work on bio-energy sustainability to share information, data, experiences and best practices. ... The Task Force will also contribute to the dissemination of best practices which interested stakeholders may adopt in accordance with their particular needs and circumstances.” The Task Force on Deployment of Technologies for Sustainable Bioenergy would now lead the activity of gathering examples of good practice, sharing its results with the Task Force on Sustainability.

for Sustainable Liquid Biofuels Production in Developing Countries”, other relevant activities and prospective users.

On the basis of the conceptual work detailed below (under Tasks 3 and 4), an assessment could then be made of the suitability of these examples for up-scaling, piloting and replication and also of the associated technology adaptation requirements for replication in different settings.

Indicative duration: approx. 12 months (June 2009 to May 2010).

3. **Provision of a platform for information exchange about analytical tools** which build country capacity to assess sustainable bioenergy potential and to devise and implement a strategy for realization of this potential, in light of their policy objectives and resource availability. This activity would promote the use and guide the further development of tools developed and under development by the UN agencies and programmes, other GBEP members and non-members alike, as well as the work of the GBEP Task Forces on GHG Methodologies and Sustainability. The primary mechanism of this work would be a specialized workshop on each class of tool, to be followed by the publication of a summary of the workshop including references to available resources, examples of their implementation and recommendations for practical means to increase the utility and use of the tools. The following classes of tools would be amongst those considered:
 - a) agro-ecological zoning,³ ecological-economic zoning⁴ and related decision support tools for land-use analysis, such as multi-criteria analysis and simulation;
 - b) GIS-based tools for mapping and matching biomass supply and demand (particularly regarding the availability of wood and forestry and agricultural residues, as opposed to the suitability of land and its potential for energy crop production, as assessed by the tools described in a) above);
 - c) techno-economic analysis tools for evaluating the costs and energy demand of all stages of bioenergy chains, so that the most economic options of those that meet all other requirements can be chosen; and
 - d) tools (such as decision support systems) allowing an integrated, holistic assessment and comparison of a variety of bioenergy policy options in a country or other specific administrative unit.

This task should stimulate the development and deployment of the most practical and useful tools, including through Phase 2 of the Task Force itself and through establishing long-lasting international collaboration.

Indicative duration: approx. 12 months (June 2009 to May 2010).

4. **Identification of principles, conditions and institutional frameworks to facilitate the development and deployment of technologies for sustainable bioenergy.** This would result in guidance for technology cooperation (of all kinds, including South-South), action at the domestic level to ensure widespread implementation of available solutions for the provision of sustainable bioenergy for heating, electricity and transport and also the

³ Agro-ecological zoning is the division of an area of land into smaller units, which have similar characteristics related to land suitability, potential production and environmental impact. For more information, see <http://www.fao.org/docrep/W2962E/w2962e00.htm#P-2>.

⁴ Ecological-economic zoning is a kind of zoning that integrates physical land resources elements with socio-economic factors and a wider range of land uses in zone definitions. For more information, see <http://www.fao.org/docrep/W2962E/w2962e-06.htm>.

creation of a regulatory environment conducive to private investment and the foundation of a stable and economically productive sector in bioenergy research, development, demonstration and deployment. Such guidance would present a systematic and comprehensive approach to technology cooperation and, depending on gap analysis undertaken, possibly propose a new mechanism for such cooperation. It would also describe necessary market conditions and innovative forms of project financing and incentivisation of the development and deployment of sustainable and resource-efficient bioenergy technologies. (This could extend to schemes involving payment for ecosystem services.)

This work would include a focus on the potential for a collaborative approach to overcoming barriers to the development of and widespread access to those novel biofuel conversion technologies that show promise of diversifying the range of feedstocks or increasing resource efficiency in a sustainable manner. The Task Force would draw on existing analysis of these barriers (e.g. by IEA and its Bioenergy Implementing Agreement). It would seek the involvement of the private sector and public research institutes, possibly in the form of technology-specific workshops, in order better to determine the value that could be added by international collaboration or strengthened international or national policy-making. This focus area would also address the question of how to ensure that the development of immature biofuel technologies makes use of lessons learnt from the development of already mature biofuel technologies and is sustainable. A detailed schematic of this focus area of work under Task 4 is displayed in Annex B to this paper in order to attempt to clarify GBEP's niche and added value and its interaction with the private sector. The two reports shown as outputs from this work represent inputs to the guidance to be produced by work on this task.

The task would also include a focus on means to assist a widespread shift from traditional to modern bioenergy,⁵ particularly for the provision of clean, safe and sustainable energy services in rural areas of developing countries. To this end, engagement with groups such as farmers' cooperatives, workers' organisations and NGOs working in the field will be essential. Identification of and discussion with appropriate stakeholder networks to provide input into Phase 1 and eventually participate in the technology cooperation projects foreseen in Phase 3 would be useful.

Indicative duration: 12 months (June 2009 to May 2010).

Phase 2

Before embarking on the two next tasks, the GBEP Task Force on Deployment of Technologies for Sustainable Bioenergy will invite UN agencies and programmes and other organisations to present their work on guidance for the development of national bioenergy strategies and related capacity building. This will allow the Task Force to consider how best to add value and also ensure that countries or areas have sufficient capacity to deal with investment interest that might result from identification of high potential for bioenergy production. The Task Force will also have to consider how to manage and fund the work once the tasks have been defined in more detail, based on lessons learned from Phase 1 and an up-to-date overview of related work.

⁵ Traditional bioenergy refers to the direct combustion (often in open hearths or simple stoves) of biomass in forms such as firewood, charcoal, manure and crop residues. Modern bioenergy refers to the use of biomass converted to higher value and more efficient and convenient energy carriers, such as pellets, biogas, ethanol and biodiesel.

5. **Compilation of an “Atlas of Bioenergy Potential”**, drawing on work completed or underway by GBEP partners, including UN agencies and programmes and the IEA, and the tools and methodologies discussed under Task 3 of Phase 1 of the Task Force’s work (described above). This work would start in interested GBEP Partner countries, with priority given to developing countries, and then extend to others.
6. **Development of a concise “Step-by-Step National Sustainable Bioenergy Policy Guide”**. This would draw on Tasks 1-4 (described above) and contain “how to” directions for countries that wish to develop a national bioenergy plan or strategy. The product would be a graphically compelling manual, using simple language and offering a rational, basic approach framework. It would be very practical in nature, driven by specific needs and include the fruits of South-South know-how transfer based on experience.

Phase 3

As for Phase 2, further definition of and work on Phase 3 should be preceded and informed by consideration of other ongoing initiatives, including updates from UN bodies.

7. **Pilot activities among GBEP Partners that promote the deployment of technologies for sustainable bioenergy**, particularly in developing countries. These pilot projects would put into practice the technical guidance developed in the first phase of the work of the Task Force, as well as that of the other GBEP Task Forces.

Lessons learned from these projects would input into an ongoing feedback loop with Phases 1 and 2, such that the technical guidance and conceptual frameworks developed could be amended and updated in light of their practical implementation. Likewise, the GBEP methodological framework for GHG LCA and the GBEP criteria and indicators for the sustainable development of bioenergy should also undergo a process of implementation, assessment and revision.

Timeline

- 1 May 2009: Revised proposal circulated as a background document for the 7th meeting of the GBEP Steering Committee
- 14 May 2009 (New York): Formally adopt the Scope and Programme of Work as approved by the Steering Committee and agree roles of Partners (Chair, task leaders etc.) in the new Task Force
- June 2009: Draft work plans for each of the task of Phase 1 including scoping of any consultancy work to be commissioned
- July 2009: First Task Force meeting to discuss and approve work plans for the tasks to be initiated immediately and co-operation envisaged with other international initiatives and stakeholders
- October 2009: Publication of the output from Task 1 (report on available funding options for bioenergy projects)
- May 2010: Publication of remaining outputs from Phase 1 and agreement of plans regarding Phases 2 and 3.

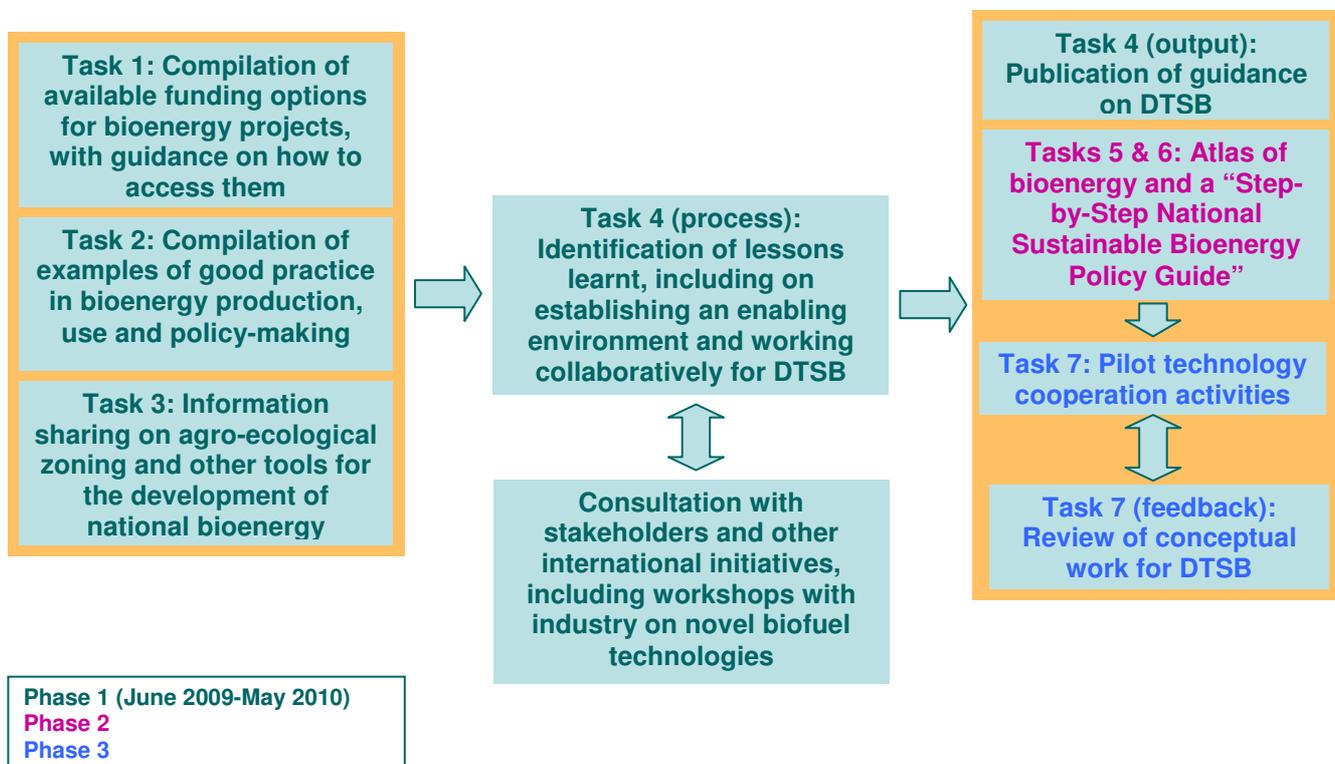
Task Force Membership and Resources

Membership of the new Task Force would be open to all GBEP Partners. Its work would be undertaken in conjunction with key stakeholders, including parties engaged in or responsible for R,D&D in technologies for sustainable bioenergy, funding mechanisms for bioenergy projects, industry and civil society, and key international decision-making bodies and institutions. Particular efforts will be made to secure the involvement of biomass-producing developing countries and emerging economies.

The Task Force will determine its working practices, including the frequency, location of meetings and work plan envisaged for achievement of each output. The Task Force will raise awareness of its work and outputs through appropriate means and communicate progress regularly.

Participating Partners could provide “in kind” support in the form of staff time and appropriate resources for possible travel to Task Force meetings. Moreover, GBEP partners are invited to provide financial support for a more efficient delivery of solid outputs for Phases 1 and 2 of the work of the Task Force; the work described for Phase 3 (i.e. projects) will only be possible with strong financial backing.

Annex A: Schematic for work of the Task Force on Deployment of Technologies for Sustainable Bioenergy (DTSB)



Annex B: Schematic for work on novel biofuel technologies under Task 4 of the Task Force (TF) on Deployment of Technologies for Sustainable Bioenergy

The proposed GBEP work in this particular focus area of Task 4 is set out in graphical form to help explain the role of GBEP and its interaction with private and public sector experts.

Policy level



Technical level

