



Global Environment Facility

Monique Barbut
Chief Executive Officer
and Chairperson

1818 H Street, NW
Washington, DC 20433 USA
Tel: 202.473.3202
Fax: 202.522.3240/3245
Email: mbarbut@TheGEF.org

February 17, 2009

Dear Council Member:

I am writing to notify you that we have today posted on the GEF's website at www.TheGEF.org, a medium-sized project proposal from UNEP entitled ***Global: Establishing Sustainable Liquid Biofuels Production Worldwide (A Targeted Research Project)***, to be funded under the GEF Trust Fund (GEFTF).

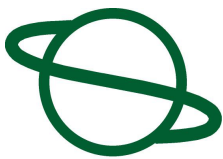
This project will identify and fully assess innovative, cost-effective, and sustainable systems for the production of liquid biofuels for transportation and stationary applications, in order to enable the GEF to set clear policies and priorities in this area and embark on investment-oriented projects.

The project proposal is being posted for your review. We would welcome any comments you may wish to provide by March 03, 2009, in accordance with the new procedures approved by the Council. You may send your comments to gcoordination@TheGEF.org.

If you do not have access to the Web, you may request the local field office of the World Bank or UNDP to download the document for you. Alternatively, you may request a copy of the document from the Secretariat. If you make such a request, please confirm for us your current mailing address.

Sincerely,

Copy to: Country Operational Focal Point
GEF Agencies
STAP
Trustee



GEF

REQUEST FOR CEO ENDORSEMENT/APPROVAL

PROJECT TYPE: Medium-sized Project
THE GEF TRUST FUND

Submission Date: December 24, 2008

Re-submission Date:

PART I: PROJECT INFORMATION

GEFSEC PROJECT ID:

GEF AGENCY PROJECT ID: 3224

COUNTRY(IES): Global

PROJECT TITLE: Assessments and Guidelines for Sustainable Liquid Biofuels Production in Developing Countries (A Targeted Research Project)

GEF AGENCY(IES): UNEP, (select), (select)

OTHER EXECUTING PARTNER(S): FAO, UNIDO, IFEU, Oeko Institut, Utrecht University

GEF FOCAL AREA(S): Climate Change, (select), (select),

GEF-4 STRATEGIC PROGRAM(S): CC-SP 4 (Biomass)

A. PROJECT FRAMEWORK

Expected Calendar	
Milestones	Dates
Work Program (for FSPs only)	(actual)
Agency Approval date	Apr. 2009
Implementation Start	Apr. 2009
Mid-term Evaluation (if planned)	
Project Closing Date	Mar. 2011

Project Objective: To identify and fully assess innovative, cost-effective, and sustainable systems for the production of liquid biofuels for transportation and stationary applications, in order to enable the GEF to set clear policies and priorities in this area and embark on investment-oriented projects.

Project Components	Indicate whether Investment, TA, or STA**	Expected Outcomes	Expected Outputs	Indicative GEF Financing*		Indicative Co-financing*		Total (\$)
				(\$)	%	(\$)	%	
1. Methodology and Workplan	STA	Detailed work and management plan	- Data gaps, data gathering needs identified and tasks allocated; - All pathways/ settings and other variables to be considered in the analysis selected; - Detailed methodologies for each project component drafted; - External consultants and/or partner institutions to assist with data collection and research in developing countries identified and pre-selected;	63,000	44%	81,000	56%	144,000

2. Life Cycle Energy and Greenhouse Gas (GHG) Assessment	STA	<ul style="list-style-type: none"> - Increased awareness on GHG emission balances of different kind of crops - Contributing to the development of certification systems at national and international levels 	<ul style="list-style-type: none"> - Methodology for data gathering following the ISO 14040 series for LCA (full life cycle from cradle to grave, i.e. including upstream and downstream processes) developed; - Life cycle GHG emissions of typical production practices of different crops in representative developing countries (regional approach) assessed; - Spreadsheet-based calculation tool for energy and GHG balances developed; - Recommendations for improving production practices made; - Guidelines for developing certification systems formulated. 	186,000	42%	260,000	48%	446,000
3. Economics	STA	<ul style="list-style-type: none"> - Knowledge based political support and resources for current and future economically viable, sustainable biofuel options; - Market barriers reduction. 	<ul style="list-style-type: none"> - Detailed cost estimates for different biofuels pathways of relevance for GEF-eligible countries produced; - Opportunities for barrier removal, technology adoption, access to low-cost financing identified; - Possible national policies and financial measures for achieving the economic viability of GHG and environmentally sustainable biofuel pathways identified; - Potential for GEF to assist in this process demonstrated. 	101,000	45%	123,000	55%	224,000
4. Environment	STA	<ul style="list-style-type: none"> - Awareness on non GHG environmental issues - Increased linkages to global best practices and expertise 	<ul style="list-style-type: none"> - Biodiversity considerations holistically explored; - Suggestions for standards, criteria and indicators for biofuels to guide GEF project development, including methods for their determination, made. 	73,000	44%	93,000	56%	166,000

5. Social/Food	STA	<ul style="list-style-type: none"> - Increased awareness on social/food issues - Increased linkages to global best practices and expertise - Sound biofuel GEF project development 	<ul style="list-style-type: none"> - Key social issues (especially gender, livelihoods and food security) of bioenergy chains identified; - Suggestion of standards, criteria and indicators for biofuels to guide GEF project development, including methods for their determination, made. 	61,000	45%	75,000	55%	136,000
6. 2 nd generation	STA	<ul style="list-style-type: none"> - Speed up the transition towards more efficient conversion technologies - Short and long term investment choices for different technologies are clearer and avoid lock-in into technology and investment choices 	<ul style="list-style-type: none"> - Report and data overview on perennial cropping systems, pre-treatment technologies and supply systems, and (selected) 2nd generation biofuel production technologies released; - Opportunities to involve developing countries in Research & Development and commercialization process identified; - Biofuel production stages appropriate to the developing world, including the provision of parameters for choosing options and their implications, identified. 	73,000	40%	111,000	60%	184,000
7. Fuel/Vehicle compatibility	TA/STA	<ul style="list-style-type: none"> - Enhanced inter-industry cooperation to advance better solutions for transport fuels, based on sustainable biofuels ; - Informing future standards and policies on fuel/vehicle compatibility ; - Contribution to progress towards the formulation of wider sustainable transport solutions. 	<ul style="list-style-type: none"> - Current fuel/vehicle policies and standards around the world, and expected evolution scenarios, identified; - Multi-stakeholder consultation process to exchange and disseminate information conducted; - Barriers, opportunities and possible avenues for a better integration of the sustainable biofuels component into wider sustainable transport solutions analyzed; - Multi dimensional fuel/vehicle matrix for guiding policy decisions drafted. 	23,000	43%	31,000	57%	54,000

8. Stationary applications	STA	<ul style="list-style-type: none"> - Improved knowledge on viability, cost effectiveness and sustainability of liquid biofuels for different applications; - Increased market penetration of biofuels for stationary applications; - Enhanced knowledge on the creation of additional revenue streams with stationary applications in rural development. 	<ul style="list-style-type: none"> - (Dis-) Advantages of stationary applications for biofuels assessed; - Best practice and experience among project partners in different developing countries exchanged; - Possible GEF interventions to promote sustainable production of biodiesel and straight vegetable oils identified.. 	83,000	46%	98,000	54%	181,000
9. Scale up and Integration	STA	<ul style="list-style-type: none"> - Scaling up biofuels production to meet a substantial share of global transport - Better policy actions and governance strategies that incorporate land use, rural development, infrastructure, investment and market issues. 	<ul style="list-style-type: none"> - Potential impacts of scaling up biofuel production based on various sustainability indicators evaluated; - Policy recommendations to the GEF and countries made. 	124,000	44%	157,000	56%	281,000
10. Monitoring/ Evaluation, Outreach and Dissemination	TA	<ul style="list-style-type: none"> - Increased exchange and dissemination of technical and policy information about sustainability of biofuels - Increased awareness by different types of stakeholders - Increased public debate - Increased cooperation network within the scientific and development community - Formulation of targeted GEF policies on biomass 	<ul style="list-style-type: none"> - Project website launched and regularly updated; - At least one big event (e.g. international conference) organized, participation in other conferences and workshops, and networking - Templates to be used for report preparations, presentations, etc, prepared and used; - Final compilation of main communication and outreach events made; - Final report with results, recommendations and executive summary, released; - Terminal evaluation facilitated. 	103,000	43%	135,000	53%	238,000

11. Project Management	TA		- Project work and management plan regularly updated; - Regular information flow between project partners and respective research tasks coordinated; - Interaction with external stakeholders coordinated; - Project progress reports , Terminal Report and Quarterly Financial Reports submitted.	80,000	36%	141,000	64%	221,000
Total project costs				970,000	43%	1,305,000	57%	2,275,000

B. FINANCING PLAN SUMMARY FOR THE PROJECT (\$)

	<i>Project Preparation a</i>	<i>Project Grant b</i>	<i>Total c = a + b</i>	<i>Agency Fee</i>	<i>For the record: Project Grant at PIF</i>
GEF		970,000	970,000	97,000	970,000
Co-financing		1,305,000	1,305,000		1,305,000
Total		2,275,000	2,275,000	97,000	2,275,000

C. SOURCES OF CONFIRMED CO-FINANCING FOR PROJECT PREPARATION AND PROJECT (expand the table line items as necessary)

<i>Name of co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Project Preparation</i>	<i>Project</i>	<i>Total</i>	<i>%*</i>
German Government BMU/UBA	Nat'l Gov't	Grant		100,000	100,000	8%
FAO	Exec. Agency	Grant		360,000	360,000	28%
FAO	Exec. Agency	In-kind		80,000	80,000	6%
UNIDO	Exec. Agency	Grant		450,000	450,000	34%
UNIDO	Exec. Agency	In-kind		45,000	45,000	3%
UNEP DTIE	Exec. Agency	In-kind		270,000	270,000	21%
Total Co-financing				1,305,000	1,305,000	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

D. GEF RESOURCES REQUESTED BY AGENCY(IES), FOCAL AREA(S) AND COUNTRY(IES)

<i>GEF Agency</i>	<i>Focal Area</i>	<i>Country Name/ Global</i>	<i>(in \$)</i>			
			<i>PPG (a)</i>	<i>Project (b)</i>	<i>Agency Fee (c)</i>	<i>Total d=a+b+c</i>
UNEP	Climate Change	Global	0	970,000	97,000	1,067,000

E. PROJECT MANAGEMENT BUDGET/COST

<i>Cost Items</i>	<i>Total Estimated person weeks/months</i>	<i>GEF (\$)</i>	<i>Other sources (\$)</i>	<i>Project total (\$)</i>
<i>Local consultants*</i>				
<i>International consultants*</i>	87	80,000	96,000	176,000
<i>Office facilities, equipment, vehicles and communications*</i>			45,000	45,000
<i>Travel*</i>				
Total	87	80,000	141,000	221,000

* Details to be provided in Annex C.

F. CONSULTANTS WORKING FOR TECHNICAL ASSISTANCE COMPONENTS:

<i>Component</i>	<i>Estimated person weeks</i>	<i>GEF(\$)</i>	<i>Other sources (\$)</i>	<i>Project total (\$)</i>
<i>Local consultants* (Developing countries' research partners)</i>	308	191,100	117,000	308,100
<i>International consultants* (Three main research partners + IEA + UNIDO International consultant)</i>	281	528,900	313,000	841,900
Total	589	720,000	430,000	1,150,000

* Details to be provided in Annex C.

G. DESCRIBE THE BUDGETED M&E PLAN: The project management component will cover all general project management and coordination activities, along with ongoing internal monitoring and evaluation activities. It is budgeted at about 10% of total project costs. UNEP/DTIE, as the lead executing agency, will be supported on a day-to-day basis by IFEU, to ensure that activities on all components are coordinated and that outputs from each component are ready on a timely basis, particularly those that will serve as inputs to other components. Co-executing agencies will also need a substantial budget. An external independent final project evaluation is also budgeted for at \$30,000 within the Reporting and Dissemination component. Since there will be different lead agencies for at least some of the different components along with various sub-contractors working on specific aspects, and various sponsors with different requirements for the final product, proficient project coordination is necessary at all steps of the project. In all cases, the project team will work together on decision making related to substantive aspects; however one agency (UNEP DTIE) will be assigned the role to lead coordination efforts and ensure that each of these activities is successfully carried out. Given the complexity of the interaction, IFEU will provide a designated project manager. IFEU project manager will coordinate the technical, scientific work (the substance), while DTIE will coordinate on global project management and reporting levels. The three research institutes are used to work together (they are collaborating on the ongoing BIAS project with FAO) and decided collectively to designate IFEU as their coordinator for their scientific / technical work. IFEU project manager and DTIE project manager will be responsible for jointly preparing a detailed project management plan in the initial three-month phase of the project. IFEU project manager will ensure that technical work on thematic research components is well coordinated, delivered timely and will provide updates as work progresses. DTIE project manager will work under the guidance of DTIE Head of the Policy Unit, acting as DTIE Task Manager for the project. DTIE project manager will be responsible for producing the half yearly progress reports and for providing input for the Project Implementation Review prepared by DGEF Task Manager.

(A detailed monitoring and evaluation plan plus the corresponding budget are in Appendix 7 of the attached UNEP Project Document, Annex 1.)

PART II: PROJECT JUSTIFICATION:

A. DESCRIBE THE PROJECT RATIONALE AND THE EXPECTED MEASURABLE GLOBAL ENVIRONMENTAL BENEFITS: Climate change is at the top of the political agenda and negotiations are ongoing in order to set an international policy framework in a post-Kyoto era, where developing countries are expected to commit towards emission reductions. Biofuels offer strong potential to displace petroleum fuels in transport and some stationary applications, with the promise to decrease global greenhouse gas emissions. Furthermore, biofuels bring along

other sustainability advantages such as energy security, rural development, and mitigation of local pollutant emissions. The main drivers for policies supporting the large-scale deployment of biofuels are:

1. Contribution to energy security by diversifying sources, increasing the number of producing countries and a potential to 'homegrown' energy;
2. Potential to contribute to necessary GHG emission reductions by replacing fossil fuel;
3. Potential to contribute to development, with a special focus on rural development, revalorization of rural areas and improving access to modern energy services.

Moreover, increasing energy prices, particularly of oil, are also stimulating the market for alternative energy sources, and bioenergy is getting the more and more competitive, thus stimulating government and investors' expectations. However, increasing concerns have been expressed recently with regard to the sustainability profile of biofuels (e.g. Doornbosch and Steenblik, 2007; Searchinger et al 2008, Fargione et al 2008). Most frequently cited issues of concern include land occupation, carbon stock decreasing, water depletion and pollution, biodiversity losses and air quality degradation. In addition to these environmental problems, criticisms point to potential economic and social conflicts deriving from energy-food source competition. As a consequence of these concerns and potential side-effects of large-scale biofuel deployment, policies supporting biofuels are increasingly being debated. Within this context, it is particularly important to provide policy makers with clear signals and messages, and with unbiased data. There is a clear need for evidence based communications on the sustainability of biofuels encouraging countries with comparative advantages in order to counter balance polarized and partial positions that may currently characterize the global debate. To do so, a comprehensive approach needs to be followed, by looking at all most important aspects and implications of biofuel production, including GHG emissions, other environmental impacts, social and economic issues. Given the energy world wide food crisis and rising oil prices that make biofuels more and more competitive, clear guidelines in terms of decision making processes will be necessary for developing countries. Should land be dedicated to biofuel while food needs to be imported or should a safeguard be retained for minimum levels of homegrown food? is there a need to regulate the biofuel market in order to protect a potentially starving population, especially as markets only account for the demand of people that pay and not those that are starving. Social safeguards appear to be highly relevant. As far as the GHG emission balance is concerned, this project could help move biofuels practices toward much lower GHG emission approaches than are currently being used in many places. Full baseline and project scenario estimates will be developed during the initial project phase. Nevertheless some preliminary estimates might be given already. For example, if as a result of this project typical biofuels around the world yield 20% lower well-to-wheel GHGs than they would have otherwise, and if global biofuels production reaches 100 billion litres per year by 2020 (which seems possible), then the impact would be on the order of 50 million tonnes per year reduction in CO₂-equivalent GHG emissions. A key question for GEF is the GHG mitigation potential of liquid biofuels for transport. A secondary but equally important question is whether biofuels can be produced without negative effects on soil, water and biodiversity. The proposed project seeks to address both questions. Project results will enable quick and deeper up-front feasibility assessments of bioenergy projects and thus increase the chance of more environment friendly development options and avoidance of damaging investments or high short and long term external costs. Through a quantification of the potential for GHG emission reductions of various crop pathways over their life cycle, the proposed project will deliver tangible benefits for the rest of the GEF programming in this focal area.

B. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH NATIONAL PRIORITIES/PLANS:

Bioenergy is envisaged to become a significant contributor to global renewable energy in the short to medium term. According to recent IEA projections (2007), the potential of biomass harvested for energy production could be increased up to 200-400 EJ from the current 45-55 EJ, during this century. Many governments in both developed and developing countries have introduced policies and incentives in order to spur market development. All top five ethanol producers (Brazil, USA, China, EU and India) have developed renewable energy plans which include also biofuel/bioenergy objectives. As far as GEF-eligible countries are concerned, many of them including Argentina, China, Colombia, Indonesia, Malaysia, South Africa, Thailand have set legislations for biofuels and some have included bioenergy as a priority in their national energy plans. Despite this encouraging scenario, there is a considerable lack of literature focusing on developing countries. The current project proposal intends to help fill in these research gaps, by covering different climatic and geographic conditions in the GEF countries, as well as a wide range of biofuels, feedstocks and conversion pathways and

by proving a comprehensive picture of all main technological, policy and sustainability issues. In particular, a comparative assessment of large vs. small-scale will be carried out. Following the STAP recommendations, an approach which looks at the case of small scale, distributed biofuel production will be included as well. The outcomes will eventually help governments to establish or further define clear, achievable targets and more accurate bioenergy planning measures. While current Life Cycle Analysis (LCA) tries to address “typical” situations for bioenergy and biofuel provision, the reality and the potential for future developments are much broader, and need a different approach: The variety of farming and forestry systems, residue extraction or waste collection systems, downstream conversion routes, and waste treatment options as well as their respective links to auxiliary energy, fuel and material inputs and associated transports is impressive: Nearly all steps within bioenergy fuel-cycles vary with location and time, and each step can be realized with different processes, intensity and efficiency, emission characteristics, land-use patterns, etc. and under very different social and economic circumstances. To allow for a conceptual framing of this multitude of cases, the so-called setting approach has been developed. “Setting” means a generic¹ representation of combining fuel chains (life-cycles)² with socio-economic (e.g. ownership structure, intensity and scale of production) and environmental (geo- and biophysical, climatic) categories. All settings form a multidimensional matrix which describes the full multitude of combinations. In practical terms, this can be represented by a sequence of matrices (e.g., spreadsheets) which is valid for a specific sub-set. The settings approach is explained in further details in section 3.3 (pages 11-12) of Annex 1 Project Document.

- C. DESCRIBE THE CONSISTENCY OF THE PROJECT WITH [GEF STRATEGIES](#) AND STRATEGIC PROGRAMS:** While biofuels are eligible for support under Operational Programs 6 and 11, projects are not currently being considered for approval pending resolution of issues to be addressed by this targeted research. The Climate Change Strategic Programs; Promoting Market Approaches for renewable Energy and Promoting Sustainable Innovative Sustainable Systems for Urban Transport will benefit from this work. The proposed research project responds to the identification of areas of uncertainty in the GEF-STAP Workshop Report on Liquid Biofuels, delivered to the GEFsec in December 2006, and the STAP review of the original PDF_A proposal. The workshop report on liquid biofuels makes clear that more research is needed in order to fully determine which types of biofuels, feedstocks, and pathways should receive GEF support. This project will attempt to provide this much needed research in a timely fashion. Thus it will help to shape operational programs (e.g. OP-6, OP-11) in the future. The proposed research project has received STAP clearance. The important recommendation the STAP made was to use a "setting approach", and this is clearly reflected both in the PIF and in the present request for CEO endorsement (For details please refer to the attached UNEP Project document, Annex 1)
- D. OUTLINE THE COORDINATION WITH OTHER RELATED INITIATIVES:** The project will receive regularly feedback from the STAP through its participation in Project Inception Workshop and the 3 scheduled Project Steering Committee meetings. The project will also link with other initiatives currently ongoing, particularly the UN Energy framework under which DTIE and FAO are leading the work on the provision of tools to government decision makers to help them design their strategies and policies related to bioenergy, but also the G8 Global Bioenergy Partnership (GBEP), the FAO's International Bioenergy Platform (IBEP), FAO's Bioenergy and Food Security projects, the EPFL roundtable on Sustainable Biofuels, the UNEP/DTIE roundtable on Jatropha, the Global Carbon Project. UNEP is involved in most of the initiatives described. In particular, as far as the GBEP is concerned, UNEP has been entrusted with developing the sustainability work stream. In the EPFL roundtable, UNEP is a Steering Board member, contributes to all four technical working groups and has co-organized a series of regional outreach meetings to involve a greater number of stakeholders, and thereby increase feasibility and acceptability of the principles and criteria. Finally, UNEP leads the Jatropha Roundtable, bringing together a network of centers of excellence to provide validated information on agronomics, sustainability criteria, conversion technologies and business models. Therefore UNEP will ensure the smooth coordination of activities ensure a constant communication flow, which will avoid redundancies.
- E. DESCRIBE THE [INCREMENTAL REASONING](#) OF THE PROJECT:** At present, there are substantial information gaps in all the major analytical areas of focus of this project. A detailed literature review of over 60 studies at world level has been carried out over the past months by UNEP/DTIE. Very few life-cycle GHG analyses for

¹ i.e. non-localized: an abstract (categorical) definition of land which could represent a variety of locations, but not referring to any real-world “space” or territory.

² feedstocks (including agricultural practices) plus conversion systems (including their infrastructure requirements) to deliver a specific fuel, including transports between processes, and the respective inputs (energy, materials, land etc.)

biofuels pathways in developing countries have been identified, and these are mostly focusing in Brazil and India. Therefore, more LCA studies are needed, in particular for crops and conditions prevalent in tropical regions, to assess the GHG mitigation potential of different biofuels. In that respect, the development of reference methodologies for GHG accounting, and the related capacity-building, should be supported. Similarly there are no comprehensive, consistent studies of the impacts for different biofuel pathways/settings on a full array of environmental and social indicators. Little work has been done to date to understand how “scale-up” (e.g. meeting a large share of transport energy use with biofuels) will impact land use and therefore, indirectly, other aspects of the environment. Without this study, these areas will be looked at in various small studies, but it seems unlikely that they will receive a comprehensive consistent treatment such as this study will provide. This project will also provide background information and policy recommendations for the development of sustainability standards for biofuel projects. In that respect, this project could help also to establish good practices, and to test monitoring, certification and verification schemes. Finally, this study will provide specific recommendations to the GEF on how to best intervene in the area of biofuels. The clear advantage of this study is that it is led and jointly implemented by three UN Agencies having different but complementary skills in the biofuel area. Therefore the research efforts will result into an authoritative study that will constitute a reference for all the others.

F. INDICATE RISKS, INCLUDING CLIMATE CHANGE RISKS, THAT MIGHT PREVENT THE PROJECT OBJECTIVE(S) FROM BEING ACHIEVED AND OUTLINE RISK MANAGEMENT MEASURES: The biggest threat to any assessment is lack of control of the quality and quantity of data gathered to support the analysis and conclusion of the study. The same holds true in this case. Mitigative actions: This threat can be overcome, given UNEP's and FAO's analytical strength in this area and its role under the GEF Instrument to catalyse the development of scientific and technical data and analysis. In this project UNEP, FAO and IFEU intend to use the initial phase (among other things) to:

(i) to fully catalogue all available data and information from already-recognized sources, inclusive of research institutes, government agencies, individual experts, and associations;

(ii) to design needed data collection efforts to supplement those available;

(iii) to formulate a guideline for minimum standards of quantity and quality of data to be submitted by project partners, including the identification of a standard reference unit to express and compare data in a consistent way. The use of uniform energy units throughout the study will allow to achieve a good common understanding in comparative analyses while making the TR accessible to a larger (non energy expert) public. UNEP, FAO and IFEU will also choose their team of research partners based on their expertise and experience in conducting the relevant pieces of analysis. All these points will be discussed in the inception report;

iv) to design alternative assessment strategies where important data cannot be obtained for local and national cost and capacity limitations, particularly in view of future applicability of criteria at country levels.

Risk: That research findings will not be successfully disseminated to governments, stakeholders, etc. **Mitigative actions:** A strong Final Reports, Outreach and Dissemination component is built in the project (with adequate funding), to ensure that the messages are widely disseminated. This will include the convening of an important joint International Conference to present research findings and policy recommendations to developing countries policy-makers, also press releases, presentations at important international conferences, consultations with governments, and wide distribution of summary and detailed reports via the internet (a dedicated website will be developed and will receive regular updates during the lifespan of the project) and other means.

Another potential risk that has been identified is the fragmentation of activities in many research areas and agencies. This in principle might jeopardize the production of concrete outcomes. To mitigate this risk, a detailed workplan will be defined in the first phases of the project, where the connections and synergies existing between various work package activities will be highlighted. As Executing Agency DTIE is in charge of the overall coordination and will be supported in this by IFEU, as reflected in the annexed organizational chart. Despite the fragmentation in several work packages, activities and results are actually interconnected and the research institutes involved are interdependent. Results of some work packages will feed into the following ones in a logical way (e.g. the scale up and integration work package will build on the outcomes of project components 2, 4 and 5). Furthermore, strong emphasis is given to project management in order to ensure that coherence is ensured in working activities.

G. EXPLAIN HOW COST-EFFECTIVENESS IS REFLECTED IN THE PROJECT DESIGN: In this Targeted Research project, three UN agencies (UNEP/DTIE, FAO, UNIDO) are pooling their resources with the objective to achieve results that none of the agencies would be able to reach individually in such a short time or for lack of the very high additional investments needed. They will be helped by a number of institutions and agencies to be contracted in developing nations. Among the most likely to be contracted, the following have been identified: Argentina: INTA (for the energy and GHG component), Fundacion Bariloche (biodiversity and land use); Brazil: CENBIO and Centro Clima (energy and GHG), EMPREPA (biodiversity and land use); China: Tsinghua University (energy and GHG); Univ. of Science and Technology Beijing (biodiversity and land use); Colombia: Academy of Science (energy and GHG); India: ICRISAT, TERI (both the energy and GHG and the biodiversity and land use component); Mozambique (biodiversity and land use); South Africa: Univ. of KwaZulu-Natal (biodiversity and land use change); ERC (energy and GHG); Tanzania: TaTEDO (both the energy and GHG and the biodiversity and land use component); Thailand: JGSEE (energy and GHG), Mae Fah Luang Univ (biodiversity and land use change). Other potential partners have been identified also Bangladesh, Chile, Kenya, Mali, Namibia and Vietnam. The actual number will be provided after the selection process has been finalized, depending on the work plan to be developed at the inception of the project. This in turn will depend on the final settings selected. Under consideration are

1. sugar cane, not on cleared forest land with combined food/ethanol/electricity cogeneration;
2. jatropha on certifiable degraded land or intercropped with other agricultural use;
3. cellulosic ethanol with fibre crops and others to be identified.

The coordination of the work of the institutes in GEF-eligible countries, as well as the necessary technical assistances and capacity building will be provided by the three main research institutes contracted (IFEU, OEKO Institute, the Copernicus Institute of the University of Utrecht), which will work under the coordination of the UN Agencies. Building on the expertise and manpower in such a joint effort by these authoritative agencies, should result in a great number of sound policies and strategies, including methods that allow future adaptation and creation of new strategies, regarding pathways of biofuel development in developing countries in a timely fashion, i.e. before further large investments are considered. With this regards, an accurate allocation of work packages has been performed by taking into account the respective strengths and expertise of the UN Agencies involved. For instance, FAO will lead the co-execution of the work packages related to crop analysis, social and food related issues, agro-modeling, etc. In its turn, UNIDO will lead the co-execution of the work packages focusing on economic modeling and macro-economic issues related to the scale up and integration of biofuel application. Finally, UNEP will build on its expertise in the environmental field to lead the work packages on life cycle greenhouse gas analysis, other environmental issues related to biofuel production and use, and on the fuel/vehicle compatibility. In addition to their specific skills and competences in the above-mentioned fields, all agencies have a qualified network of stakeholders that will be involved at various stages of the project. This will ensure avoiding duplication of efforts thus leading to more cost-efficient management of activities. Furthermore, the recommendations from this targeted research should help identify those pathways and production approaches that maximize the GHG reduction possible at a given cost and with minimized other environmental and social impacts. Therefore project results will greatly improve the cost-effectiveness of implementation projects. This will also help future GEF interventions in biofuels to be of maximum cost-effectiveness.

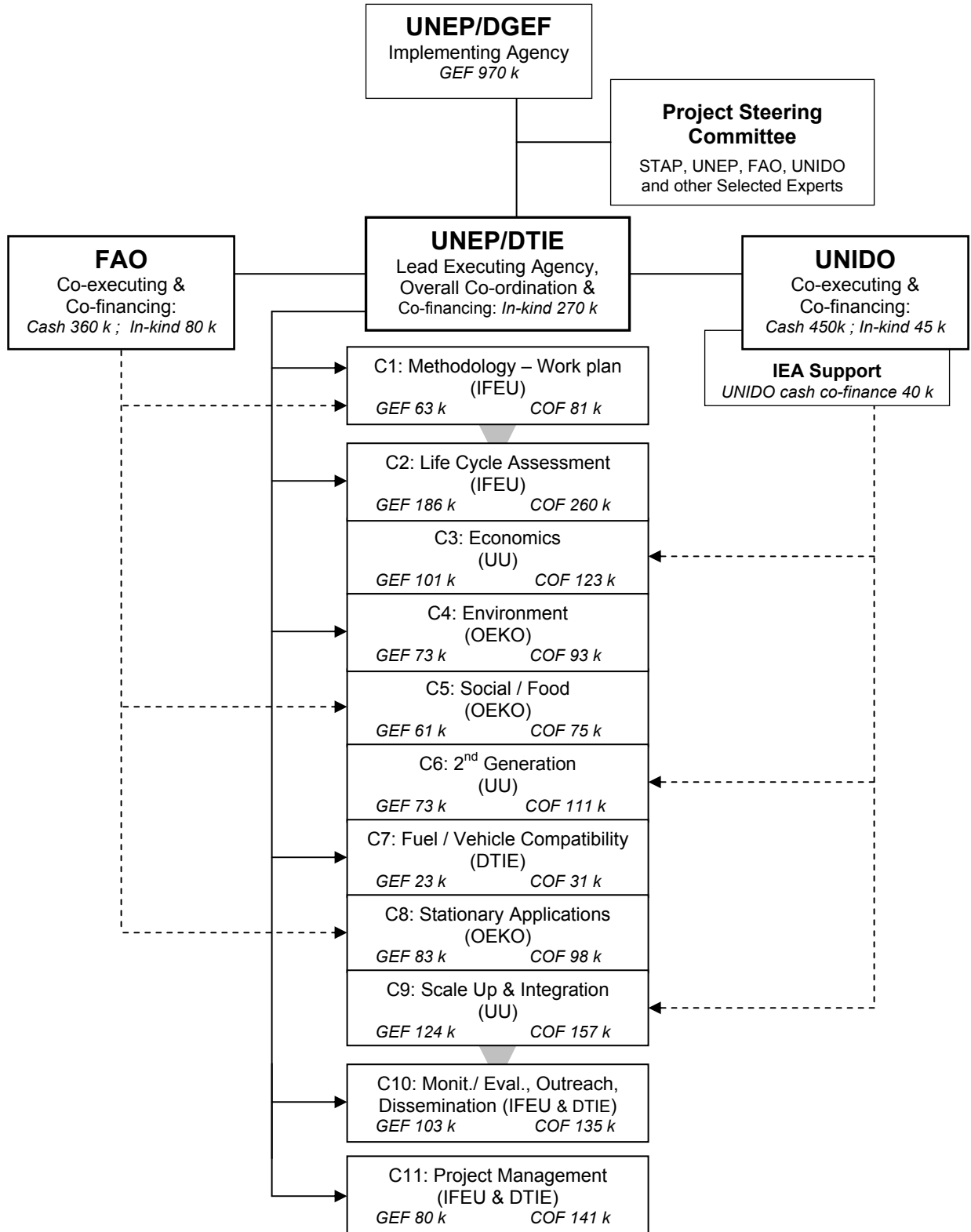
PART III: INSTITUTIONAL COORDINATION AND SUPPORT

A. PROJECT IMPLEMENTATION ARRANGEMENT:

An organizational chart has been prepared and is attached as appendix 9 to the Annex 1 Project Document, which shows both the hierarchy and the communication flow amongst all partners in order to ensure a smooth implementation of the project. UNEP/DGEF will act as the Implementing Agency, and UNEP/DTIE will be the lead Executing Agency. DTIE will be assisted by FAO and UNIDO as co-executing agencies. In addition, a project steering committee will be established in order to provide guidance and ensure a coordination of activities. Thanks to its inclusion as a full member of the Project Steering Committee and its active participation to the Project Inception Workshop, the STAP will be able to guide the final crafting of the research methodology and objectives, that will eventually lead to research results that it will use to provide advice to the GEF for best policy formulation regarding biofuels in the context of GEF V. UNEP/DTIE will be assisted by

IFEU in the project management (coordination of technical work) and M&E, Outreach and Dissemination activities (compilation of substantive research reports). As for the other project components, each co-executing agency will lead tasks according to its main domain area/specific skills, and will be assisted by the three research institutes which are participating in the project: IFEU, Oeko Institut, and Utrecht University. More detailed information is provided in appendix 9 to Annex 1 (Decision-making and organizational flow chart). The project proposal has been in discussion with IEA to assist in certain key areas and provide support in project planning and review. To date non-GEF co-funding(USD 40,000 as part of UNIDO's total grant of USD 450,000) has been earmarked for IEA participation. IEA collaboration/involvement, specifically for component 3 - Economics, component 6 - 2nd Generation and component 9 - Scale-Up and Integration is to be defined in detail during the inception phase of the project.

Decision-making and organizational flow chart




(IFEU = Institut für Energie und Umweltforschung, Heidelberg), UU = Utrecht University, OEKO = OEKO Institute, Berlin). GEF = Funds from Global Environment Facility, COF = Co-financing

PART IV: EXPLAIN THE ALIGNMENT OF PROJECT DESIGN WITH THE ORIGINAL PIF:

The project document is fully consistent with the PIF and incorporates all recommendations received from the GEFSEC at the PIF discussion stage.

The project title read previously: "Establishing Sustainable Liquid Biofuels Production Worldwide (A Targeted Research Project)"; it now reads: "Assessments and Guidelines for Sustainable Liquid Biofuels Production in Developing Countries (A Targeted Research Project)".

PART V: AGENCY(IES) CERTIFICATION

This request has been prepared in accordance with GEF policies and procedures and meets the GEF criteria for CEO Endorsement.	
GEF Agency Coordinator  Ms. Maryam Niamir-Fuller, Director, UNEP Division of GEF Coordination Tel: +254 20 762 4166	Project Contact Person: Peerke de Bakker
Date: (December 24, 2008)	Tel. and Email: +254-20-762-3967 e-mail: peerke.bakker@unep.org

ANNEX A: PROJECT RESULTS FRAMEWORK

Hierarchy of objectives	Indicator targets	Verification sources	Assumption & Risks
<p>Impact/Goal: To ensure that the most environmentally sustainable, lowest GHG emitting, socially benign and cost-effective biofuel pathways are identified and adopted around the developing world</p>	<p>Life-cycle based energy consumption and Global Warming Potential impact indicators developed for all pathways and crops covered by the analysis at the end of year 2</p> <p>Standardised cost calculation methodology and tool developed for all pathways and crops covered by the analysis at Q3 of year 2</p> <p>Pathway-specific environmental and social indicators developed for all pathways and crops covered by the analysis at the end of year 2</p> <p>At least 4 second-generation technologies assessed under a sustainability point of view at the end of Q3 of year 2</p> <p>At least 2 workshops held at the end of Q3 of year 2 on fuel/vehicle compatibility issues</p> <p>Analysis of at least 3 different biofuels for application in stationary systems under an economic, environmental and social point of view at the end of Q3 year 2</p> <p>Local, regional and global scale-up modeling developed at the end of year 2, including multiple scenarios (BAU, optimistic, realistic)</p>	<p>Benchmark with literature</p> <p>Stakeholder consultations, including industry representatives</p> <p>Exchange of information and networking with relevant multilateral initiatives ongoing (e.g. GBEP, IEA Bioenergy, EPFL roundtable, etc.)</p>	<p>Consistent political and institutional support in participating countries</p> <p>Strong network, particularly at country level</p>

<p>Outcomes:</p> <ul style="list-style-type: none"> - Enabling GEF-eligible countries to understand and exploit the most prominent options for using sustainable biofuels - Developing countries start adopting consistent, transparent and harmonized databases and tools to provide further guidance and recommendations to governments and stakeholders - Fostering the production of sustainable and cost-effective biofuels - Harmonizing the approaches for the evaluation, design and implementation of biofuel projects with the aim to promote the effective evaluation, reporting and implementation of sustainability criteria - Increased investments in sustainable biofuel development and production - Lowering GHG emissions associated to transport and stationary applications 	<p>Experts in GEF-eligible countries are perfectly trained to support with data collection and elaboration of results</p> <p>Viable options for the production of liquid biofuels are identified, which ensure a net environmental gain and are cost-effective compared to conventional fuels</p> <p>A multi-stakeholder approach is initiated and maintained all along the duration of the project</p> <p>A methodology to evaluate, report and implement sustainability criteria is developed</p>	<p>Benchmark with similar projects or initiatives initiated by other subjects (e.g. European Commission, California Energy Commission, etc.)</p> <p>Exchange of information and networking with relevant multilateral initiatives ongoing (e.g. GBEP, IEA Bioenergy, EPFL roundtable, etc.)</p> <p>Exploitation of sound models and analytical tools</p>	<p>The setting approach is developed in a timely and appropriate way</p> <p>Experts in developing countries are actively involved</p> <p>A capacity building program is established</p>
<p>Outputs: In total, 30 among reports, databases, guidelines and other tools are envisaged during the duration of the project. In addition, a project website will be set up, and several presentations will be prepared in view of meetings, workshops and other events. One international conference is foreseen. Project reports will be provided as an interim version first, which will be discussed and approved by all partners before the preparation of the final one.</p>	<p>Total number of stakeholders attending the meetings organized</p> <p>Number of downloads of reports from the project websites, measured at the end of year 1 and 2</p> <p>Number of enquiries received at the end of year 1 and 2</p> <p>Overall degree of satisfaction expressed by project participants</p>	<p>Periodic project meetings to evaluate progresses</p> <p>Preparation of guidelines and templates to ensure consistency and accurate quality level of outputs and deliverables</p> <p>Degree of satisfaction expressed by stakeholders</p>	<p>Appropriate templates and guidelines are developed and made available to all project partners</p> <p>Project outputs are relevant and appropriate</p> <p>Communication flow among participants is timely and effective</p> <p>Stakeholders are engaged and willing to participate in the events proposed and to exchange information</p> <p>Policy makers are interested to attend the workshops and to consider project recommendations</p>

<p>Activities: Within the 11 WP proposed, activities can be split broadly as follows:</p> <ul style="list-style-type: none"> - planning and coordination - analysis and modeling - communication and outreach - monitoring 	<p>Planning and coordination:</p> <ul style="list-style-type: none"> - a coherent and transparent work plan is developed - consultants are contracted by month 6 <p>Analysis and modeling:</p> <ul style="list-style-type: none"> - kick off meeting organized by month 1 - data gaps are identified by month 2 - methodologies are developed by month 3 - the setting approach is developed and adapted to the specific conditions - models and databases are filled up by Q3 of year 2 <p>Communication & outreach:</p> <ul style="list-style-type: none"> - at least one international conference is held before the end of year 2 - at least 2 technical workshops are organized before the end of year 2 - the website is updated every month, and as soon as a new report is available - 3 newsletters are sent per year - Project presentations made at at least 4 events outside the network <p>Monitoring:</p> <ul style="list-style-type: none"> - M&E system is operational by month 1 - M&E system is revised at the end of year 1 	<p>Consistency with what presented in the full MSP proposal</p> <p>Periodic meetings</p> <p>Mid-term evaluation</p> <p>Final evaluation</p>	<p>The work plan is clear and understood by all project partners</p> <p>Monitoring and evaluation system is effective</p> <p>The communication flow reflects the overarching management plan and organigram</p>
---	--	--	---



GEF SECRETARIAT REVIEW FOR FULL/MEDIUM-SIZED PROJECTS

Country/Region : Global	
Project Title : Establishing Sustainable Liquid Biofuels Production Worldwide (A Targeted Research Project)	
GEFSEC Project ID : 3224	
GEF-4 Strategic Prog:	GEF Agency(ies): UNEP Note:- 1) no PPG (0.05) necessary 2) GEF Agency contact person:- Peerke de Bakker
Anticipated project financing (\$ million):	PPG: 0.05 GEF Project Grant: 0.97 Co-Financing: 1.39 Total Project Cost: 2.36
PIF Approval Date :	Target Work Program Date:
Program Manager : Dimitrios Zevgolis	GEF Agency Contact Person : Peerke de Bakker
At PIF/Work Program Inclusion	
A. Eligibility	
1. Is the Participating Country eligible? n/a (global project)	
2. Has the operational focal point endorsed the project? n/a (global project)	
Comments UNEP: N/A	Comments UNEP: N/A

June 13, 2008

Page 1 of 7

		Comments UNEP: N/A
<p>3. Which GEF Strategic Objective/Program does the project fit into? Strategic Program 4 “Promoting sustainable energy production from biomass”</p>		Comments UNEP: N/A
<p>4. Does the Agency have a comparative advantage for the project? The comparative advantage of the proposed consortium is based on the fact that it combines complementary skills and expertise which are very important for the project’s success. UNEP has a comparative advantage for Scientific Technological Assessments</p>		Comments UNEP: N/A
<p>B. Resource Availability 5. Is the proposed GEF Grant (including the Agency fee) within the resources available for (if appropriate):</p> <ul style="list-style-type: none"> - The RAF allocation? This is a global project and will be taken from the remaining portion of the regional-global set aside - The focal areas? Regional/Global Set aside will have to be used 		Comments UNEP: N/A
<ul style="list-style-type: none"> - Strategic objectives? Consistent with the Biomass Strategic Program - Strategic Program No allocation by Program, but this is consistent with the terms of the Biomass Strategic Program 		Comments UNEP: N/A

<p>C. Project Design</p> <p>6. Will the project deliver tangible global environment benefits?</p> <p>There is only reference to tangible environmental benefits, which is based on assumptions poorly described. However, this is a targeted research project and as such, is expected to provide benefits for the rest of the GEF programming in this focal area</p>	<p>Comments UNEP:</p> <p><i>New PIF part II paragraph A has been revised with elaboration of environmental benefits</i></p>
<p>7. Is the global environmental benefit measurable?</p> <p>Not Applicable at PIF/Work Program Inclusion</p>	<p>Comments UNEP:</p> <p><i>N/A</i></p>
<p>8. Is the project design sound, its framework consistent sufficiently clear (in particular for the outputs)?</p> <p>In general the project design and framework respond to the needs that the project addresses. There are some refinements required concerning the integration of STAP recommendations, e.g. the invest in generating the underlying data, address biofuels production scale questions, develop scenarios that include upstream and downstream issues etc. Also, some rebalancing between the proposed activities should be considered. More specifically, activities included in the component 7 “Fuel/vehicle compatibility”. Like the information dissemination and consultation process concerning fuel/vehicle standards, might be premature to be addressed at this stage, and their corresponding effort and budget could be used in favour of the activities of the component 2 “Energy and GHG LCA”, which should include more effort for the generation of underlying data.</p>	<p>Comments UNEP:</p> <p><i>Based on GEFSEC comments the life cycle analysis budget has been increased from USD 280 k to 460 k (component 2); Economics was increased from USD 190 k to 230 k (component 3); Fuel/Vehicle compatibility was reduced from USD 260 k to 110 k (component 7), and Scale Up was reduced from USD 380 k to 310 k (component 9). Total budget remained USD 2,360,000</i></p>
<p>9. Is the project consistent with the recipient country’s national priorities and policies?</p>	<p>Comments UNEP:</p> <p><i>In the revised PIF, part II paragraph B, STAP</i></p>

<p>The project is consistent with the global recognition of biofuels as a prospective contributor to global energy. Biofuel production is one of the priorities set by many of the GEF-eligible countries. Nevertheless, it is not clear enough in which level the proposed activities comply with the STAP comment for an approach that will study the case of small-scale, distributed biofuel production.</p>	<p><i>concern was taken into consideration</i></p>
<p>10. Is the project consistent and properly coordinated with other related initiatives in the country or in the.... It is declared that the project will link with other ongoing initiatives, however there is not a reference to a link to the Global Carbon Project, which has been recommended by the STAP, as well as there is no reference on how the desired coordination will be achieved.</p>	<p>Comments UNEP: <i>In the revised PIF, Part II, paragraph D all links between UNEP and relevant projects have been provided</i></p>
<p>11. Is the proposed project likely to be cost-effective? The project describes that its results will greatly improve the cost-effectiveness of future GEF interventions in biofuels and implementation projects. As for its inherent cost-effectiveness, it is supported by the fact that the proposed consortium consists of a lot of institutions with different, complementary skills. Through this is a sine qua non prerequisite for the cost-effectiveness of such project, it is also required to specify the exact range of the project activities so as to avoid either duplication of effort or imbalances between the focus depth of each activity.</p>	<p>Comments UNEP: <i>Not applicable at CEO Endorsement (FSP)/ approval (MSP) N/A, point taken. In the revised PIF, part II paragraph E short mention is made on the involvement of Agencies in work packages. In the request for CEO endorsement a complete organigram with budgets/work packages/deliverables and coordination will be presented</i></p>
<p>12. Has the cost-effectiveness sufficiently been demonstrated in project design? Not applicable at PIF/Work Program Inclusion</p>	<p>Comments UNEP: <i>N/A</i></p>
<p>13. Is the project structure sufficiently close to what was presented at PIF? Not applicable at PIF/Work Program Inclusion</p>	<p>Comments UNEP: <i>N/A</i></p>
<p>14. Does the project take into account potential major risks, including the consequences of climate change and includes sufficient risk mitigation</p>	<p>Comments UNEP:</p>

June 13, 2008

Page 4 of 7

<p>measures?</p> <p>The proposal recognizes two major risks: the lack of control of the quality and quantity of data gathered and the unsuccessful dissemination of project findings. For these risks proposes well-designed management activities and a strong dissemination component. Nevertheless, there is another risk present that should have been taken into account: the risk of over fragmentation of activities in so many areas that the production of reliable and concrete outcomes could be jeopardized</p>	<p><i>In the revised PIF, Part II, paragraph F the risks have been further elaborated including fragmentation and the need for a strong, centralized project management effort</i></p>
<p>D. Justification for GEF Grant</p> <p>15. Is the value -added of GEF involvement in the project clearly demonstrated through incremental reasoning?</p> <p>The incremental reasoning is based mainly on the fact that there are substantial information gaps in the field of biofuels, so such a study could address them. Nevertheless, the added-value of GEF involvement is not demonstrated clearly since the boundaries of the project activities are not set in detail, and there is no clear evidence that a baseline has been defined through a thorough review of the existing literature, as the STAP recommended.</p>	<p>Comments UNEP:</p> <p><i>As mentioned in the revised PIF, part II paragraph E, DTIE has already engaged itself in a (baseline) literature review. Already available</i></p>
<p>16. How would the proposed project outcomes and global environmental benefits be affected if GEF does not invest?</p> <p>Not applicable at PIF/Work Program Inclusion</p>	<p>Comments UNEP:</p> <p><i>N/A</i></p>
<p>17. Is the GEF funding level of project management budget appropriate?</p> <p>The GEF funding for PM is equal to 80kUSD, which is at an acceptable level</p> <p>18. Is the GEF funding level of other cost items (consultants, travel, etc.) appropriate?</p>	<p>Comments UNEP:</p> <p><i>OK</i></p> <p>Comments UNEP:</p> <p><i>N/A</i></p>

Not applicable at PIF/Work Program Inclusion		
<p>19. Is the indicative co-financing adequate for the project?</p> <p>Co-funding can be characterized as adequate, as long as the project has modest expected outputs</p>		<p>Comments <i>Not applicable at CEO Endorsement (FSP)/ approval (MSP)</i></p>
<p>20. Are the confirmed co-financing amounts adequate for each project component?</p> <p>Not applicable at PIF/Work Program Inclusion</p>		<p>Comments UNEP: <i>N/A</i></p>
<p>21. Does the proposal include a budgeted ME Plan that monitors and measures results with indicators and targets?</p> <p>Not applicable at PIF/Work Program Inclusion</p>		<p><i>N/A</i></p>
<p>E. Secretariat's Response to various comments from:-</p> <p>-STAP GEFSEC's view on this project is aligned to the STAP</p> <p>- Convention Secretariat <i>n/a</i></p> <p>- Agencies' response to GEFSEC comments Not applicable at PIF/Work Program Inclusion</p> <p>- Agencies' response to Council comments Not applicable at PIF/Work Program Inclusion</p>		<p>Comments UNEP: <i>N/A</i> <i>OK</i> <i>N/A</i> <i>N/A</i></p>

<p>F. Secretariat Decisions</p> <p>22. Is PIF clearance being recommended?</p> <p>Not in present form. Refinements required in response to the following:-</p> <ul style="list-style-type: none"> i) Description of environmental benefits ii) Integration of STAP recommendations iii) Rebalancing of project components, as it is described in the point 8 iv) Clear description of range and focal depth of activities and outputs 	<p>Comments UNEP:</p> <p><i>All the issues of concern by GEFSEC have been addressed. Further elaboration in the Request of CEO endorsement currently under preparation</i></p>
<p>23. Items worth noting at CEO Endorsement.</p>	<p>Comments UNEP:</p> <p>N/A</p>
<p>24. Is CEO Endorsement being recommended?</p> <p>Not applicable at PIF/Work Program Inclusion</p>	<p>Comments UNEP:</p> <p>N/A</p>
<p>REQUEST FOR PPG APPROVAL</p>	
<ol style="list-style-type: none"> 1. Are the proposed activities for project preparation appropriate? 2. Is itemized budget justified? 3. Is the consultant cost reasonable? 4. Is PPG being recommended 5. Other comments 	

ANNEX C: CONSULTANTS TO BE HIRED FOR THE PROJECT

<i>Position Titles</i>	<i>\$/ person week*</i>	<i>Estimated person weeks**</i>	<i>Tasks to be performed</i>
For Project Management			
Local			
International			
- 14 months Project Manager - 6 months Admin. & Financ. = 20 month or 87 weeks Total cost = \$176,000 Cost to GEF = \$80,000 Co-finance = \$ 96,000 Average cost = \$2,023/week	2,023	87	Overall management and coordination of project activities; participation in specific tasks as appropriate; reporting; meeting organisation
Justification for Travel, if any:			
For Technical Assistance			
Local			
To be selected after the identification of the "setting" during the execution of project component 1 Present estimate is built on assumption that 30% (\$308,100) of contract amounts dedicated to thematic research (projects components 2 through 9) will be used by the 3 main research institutes to contract developing countries partner institutions and consultants. 30% is a minimum share that partners have agreed to reserve. In fact it may be higher depending on the final selection of settings and the extend of research that the developing countries partners will be able to contribute for these settings. Many individual experts and research institutes in several developing countries have been already identified and contacted Total cost = \$308,100 Estimated cost/week = 1,000 Total person-weeks = 308	1,000	308	Data gathering, data evaluation, coordination of activities with the research network, capacity building, other tasks as appropriate
International			

<p>- International consultant hired by UNIDO (GEF grant) Cost = \$25,000</p> <p>- IEA support through UNIDO cash cofinance Cost = \$40,000</p> <p>- Total contracts with three main Research Institutes = \$1,085,000: 70% of amounts budgeted for thematic research components (C2 to C9) and 100% of amounts budgeted for components C1 and C10 (GEF Grant and cash cofinance) Cost = \$776,900</p> <p>Total cost = \$841,900 Estimated cost/week = 3,000 Total person-weeks = 281</p>	3,000	281	Literature review and analysis, development of comprehensive research methodologies, coordination of the work of the all partner institutes in GEF-eligible countries, technical assistance, capacity building, data analysis, database and spreadsheet tools development, final reports with research results and recommendations
Justification for Travel, if any:			

* Provide dollar rate per person weeks or months as applicable; ** Total person weeks/months needed to carry out the tasks.

ANNEX D: STATUS OF IMPLEMENTATION OF PROJECT PREPARATION ACTIVITIES AND THE USE OF FUNDS

- A. EXPLAIN IF THE PPG OBJECTIVE HAS BEEN ACHIEVED THROUGH THE PPG ACTIVITIES UNDERTAKEN. NOT APPLICABLE (NO PPG REQUESTED)**
- B. DESCRIBE FINDINGS THAT MIGHT AFFECT THE PROJECT DESIGN OR ANY CONCERNS ON PROJECT IMPLEMENTATION, IF ANY:**
- C. PROVIDE DETAILED FUNDING AMOUNT OF THE PPG ACTIVITIES AND THEIR IMPLEMENTATION STATUS IN THE TABLE BELOW:**

<i>Project Preparation Activities Approved</i>	<i>Implementation Status</i>	<i>GEF Amount (\$)</i>				<i>Co-financing (\$)</i>
		<i>Amount Approved</i>	<i>Amount Spent To date</i>	<i>Amount Committed</i>	<i>Uncommitted Amount*</i>	
Total		0			0	50,000

* Uncommitted amount should be returned to the GEF Trust Fund. Please indicate expected date of refund transaction to Trustee.

Co-financing letters



联合国
粮食及
农业组织

FOOD AND
AGRICULTURE
ORGANIZATION
OF THE
UNITED NATIONS

ORGANISATION
DES NATIONS
UNIES POUR
L'ALIMENTATION
ET L'AGRICULTURE

ORGANIZACION
DE LAS NACIONES
UNIDAS PARA
LA AGRICULTURA
Y LA ALIMENTACION

منظمة
الاغذية
والزراعة
للأمم
المتحدة

Viale delle Terme di Caracalla, 00153 Rome, Italy

Facsimile: +39 0657053152

Telephone: +39 0657051

Our Ref.: EP/INT/503/GEF

Your Ref.:

25 July 2008

Dear Ms. Niamir-Fuller,

Subject: Support and co-financing to a Project based on "Establishing Sustainable Liquid Biofuels Production Worldwide"

In relation to the project of the reference, we are pleased to confirm the willingness of FAO to contribute towards the implementation of this proposed project through the provision of in-kind technical services and financing of specific inputs.

Having already granted our technical assistance during the formulation of the above project proposal, we agree to an estimated contribution of a total of US\$ 440 000 during the project.

The in-kind input of approximately US\$ 80 000 will represent the work-days devoted by various Professional Officers at Headquarters and field offices and their immediate secretarial support services together with the existing Headquarters' base technical information services, but it does not include the costs of any staff or consultants who are specifically scheduled in the project budget to provide specific missions away from Rome to project activity sites. To this purpose, US\$ 360 000 are earmarked for direct technical input as specified in the project.

We look forward to the joint implementation of this project with UNEP and UNIDO and the many other partners who will contribute to its successful completion.

Yours sincerely,

for Peter Holmgren *olivier dubois, o.c.c.*
Director

Environment, Climate Change and Bioenergy Division

Ms. Maryam Niamir-Fuller
Director
Division of Global Environment Facility (GEF) Coordination
UNEP
Room P-205
P.O. Box 30552
Nairobi 00100, Kenya



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE

P.O. BOX 300, A-1400 VIENNA, AUSTRIA

TELEPHONE: (+43 1) 260 26-0

FAX: (+43 1) 269 26 69

www.unido.org

unido@unido.org

Dear Ms. Niamir-Fuller,

23 September 2008

Subject: Confirmation of commitment related to project "Establishing Sustainable Liquid Biofuels Production Worldwide" A Targeted Research Project-Global:

We are pleased to confirm UNIDO's role as co-executing agency for the Global GEF Targeted Research Project on Establishing Sustainable Liquid Biofuels Production Worldwide, and confirm the Organization's commitment to contribute to the co-financing grant with USD 450,000 in cash, and USD 45,000 in kind, totalling USD 495,000, which will be released upon the approval by the GEF of the MSP.

The in-kind input of approximately USD 45,000 will represent the work-days devoted by various Professional Officers at Headquarters and field offices and their immediate secretarial support services together with the existing Headquarters' base technical information services, but it does not include the costs of any staff or consultants who are specifically scheduled in the project budget to provide specific technical missions away from Vienna to project activity sites. For this purpose, USD 450,000 are earmarked for direct technical input as specified in the project.

We look forward to the joint implementation of this project with UNEP and FAO and the many other partners who will contribute to its successful completion.

Yours sincerely,

Dmitri Piskounov
Managing Director
Programme Development and
Technical Cooperation Division

Ms. Maryam Niamir-Fuller
Director
Division of Global Environment Facility (GEF) Coordination
UNEP
Room P-205
P.O. Box 30552
Nairobi 00100, Kenya



Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, N II 5,
Postfach 12 06 29, 53046 Bonn

Mister
Peerke de Bakker
Programme Officer Energy
UNEP/DGEF
P.O. Box 30552
Nairobi - Kenya

HAUSANSCHRIFT
Robert-Schuman-Platz 3
53175 Bonn

POSTANSCHRIFT
Postfach 12 06 29, 53048 Bonn

TEL +49 22899 305-2650
FAX +49 22899 305-2695

killian.delbrueck@bmu.bund.de
www.bmu.de

Aktenzeichen: N II 5 – 46043-2/46
Bonn, 13.08.2008
Seite 1 von 1

Dear Peerke de Bakker,

excuse me for the delay in sending you the confirmation for the UNEP-
GEF-Project.

The German Federal Ministry for Environment, Nature Protection, and
Nuclear Safety (BMU) hereby confirms to co-finance the joint U-
NEP/FAO/IEA/UNIDO targeted research project ("GEF study").

Co-financing from Germany to the GEF study will be an equivalent of
100,000 US\$, and will be made through financing the participation of
and contributions from the research partners Oeko-Institut and IFEU. The
contributions come from the ongoing research project of BMU/UBA
(FKZ 37 07 93 100) on sustainable biomass which is carried out by Oe-
ko-Institut and IFEU.

The contribution to the GEF study will focus on the biodiversity and
greenhouse-gas emission impacts of biofuels, and is to be carried out
until end of 2009.

Yours sincerely

For the Federal Ministry for the Environment, Nature Conservation and
Nuclear Safety


Dr. Kilian Delbrück

Zusell- und Lieferadresse: Robert-Schuman-Platz 3, Zufahrt über Helmich-von-Stephan-Straße, 53175 Bonn



UNITED NATIONS ENVIRONMENT PROGRAMME

Programme des Nations Unies pour l'environnement Programa de las Naciones Unidas para el Medio Ambiente
 Программа Организации Объединенных Наций по окружающей среде برنامج الأمم المتحدة للبيئة
 联合国环境规划署



PROJECT DOCUMENT

SECTION 1: PROJECT IDENTIFICATION

1.1	Project title:	Assessments and Guidelines for Sustainable Liquid Biofuels Production in Developing Countries (A Targeted Research Project)	
1.2	Project number:	GFL/ PMS:	
1.3	Project type:	MSP	
1.4	Sub-programme title:		
	GEF strategic long-term objective:	CC 1	
	Strategic programme for GEF IV:	SP 4 - Biomass	
1.5	UNEP priority:	Resource Efficiency – Sustainable Consumption/ Production	
1.6	Geographical scope:	Global	
1.7	Mode of execution:	Internal	
1.8	Project executing organizations:	UNEP DTIE (Lead executing agency); FAO & UNIDO (Co-executing agencies)	
1.9	Duration of project:	24 months Commencing: April 2009 Completion: March 2011	
1.10	Cost of project	US\$	%
	Co-financing		
	German Government		
	BMU/UBA (Cash)	100,000	4%
	FAO (Cash)	360,000	16%
	UNIDO (Cash)	450,000	20%
	Cash Sub-total	910,000	40%
	FAO(In-kind)	80,000	3%
	UNIDO (In-kind)	45,000	2%
	UNEP DTIE (In-kind)	270,000	12%
	In-kind Sub-total	395,000	17%
	Sub-total	1,305,000	57%
	Cost to the GEF Trust Fund	970,000	43%
	Total	2,275,000	100%

Project summary

Based on a STAP recommendation (Workshop on Liquid Biofuels, Report Dec - 2006), UNEP/DTIE proposes to collaborate with FAO, UNIDO and the IEA in the joint execution of a Targeted Research project that aims to identify and assess sustainable systems for the production of liquid biofuels both for transport and stationary applications worldwide.

The outcome of this study enables the GEF to set clear policies and priorities for future work and investments in biofuel related projects while providing guidance to countries that are keen to engage themselves in this sector. UN agencies in intimate collaboration with scientific institutions worldwide (e.g. Germany, Holland, Argentina, India, Brazil, Kenya, and Indonesia) will address issues such as Life Cycle Energy and Green House Gas Assessments, Economics, Social/Food Security and Pricing and Environmental Impacts, Fuel and Vehicle Compatibility plus Stationary applications, Scale-up impacts and 2nd Generation of biofuels in order to arrive at a set of concise and comprehensive recommendations for future use in GEF and beyond.

TABLE OF CONTENTS

SECTION 1: PROJECT IDENTIFICATION	1
ACRONYMS AND ABBREVIATIONS	4
SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION).....	5
2.1. Background and context	5
2.2. Global significance	5
2.3. Threats, root causes and barrier analysis	6
2.4. Institutional, sectoral and policy context	6
2.5. Stakeholder mapping and analysis	6
2.6. Baseline analysis and gaps	9
2.7. Linkages with other GEF and non-GEF interventions	9
SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE).....	11
3.1. Project rationale, policy conformity and expected global environmental benefits.	
3.2. Project goal and objective	11
3.3. Project components and expected results	11
3.4. Intervention logic and key assumptions	24
3.5. Risk analysis and risk management measures	24
3.6. Consistency with national priorities or plans	25
3.7. Incremental cost reasoning	25
3.8. Sustainability	25
3.9. Replication.....	26
3.10. Public awareness, communications and mainstreaming strategy	26
3.11. Environmental and social safeguards	27
SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS	28
SECTION 5: STAKEHOLDER PARTICIPATION	28
SECTION 6: MONITORING AND EVALUATION PLAN	29
SECTION 7: PROJECT FINANCING AND BUDGET	29
7.1 Overall project budget	30
7.2 Project co-financing.....	30
7.3 Project cost-effectiveness	30
Appendix 1: Budget by project components and UNEP budget lines.....	32
Appendix 2: Co-financing table	33
Appendix 3: Incremental cost analysis.....	34
Appendix 4: Results Framework	38
Appendix 5: Workplan and timetable	40
Appendix 6: Key deliverables and benchmarks	43
Appendix 7: M&E Workplan and corresponding budget.....	44
Appendix 8: Reporting requirements	45
Appendix 9: Decision-making and organizational flowchart.....	46
Appendix 10: Standard TORs for Terminal Evaluation.....	47
Appendix 11: Co-financing commitment letters from project partners	56
Appendix 12: Endorsement letters of GEF National Focal Points.....	61
Appendix 13: Procurement Plan.....	62

ACRONYMS AND ABBREVIATIONS

AEZ	Agro-ecological Zone
BMU	German Federal Environment Ministry
CEO	Chief Executive Office
CO ₂	Carbon Dioxide
DTIE	Division of Technology, Industry and Economics
EPFL	Ecole Polytechnique Fédérale de Lausanne (Technical University of Lausanne), Switzerland
EU	European Union
FAO	Food and Agriculture Organization of the United Nations
GBEP	Global Bioenergy Partnership
GEF	Global Environment Facility
GHG	Green House Gas
IBEP	International Bioenergy Platform
IEA	International Energy Agency
IFEU	Institute for Energy and Environmental Research
LCA	Life Cycle Analysis
STAP	Scientific Technical Advisory Panel (GEF)
UBA	Umweltbundesamt – German Federal Environment Agency
UN	United Nations
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
USA	United States of America

SECTION 2: BACKGROUND AND SITUATION ANALYSIS (BASELINE COURSE OF ACTION)

2.1. Background and context

Climate change is at the top of the political agenda and negotiations are ongoing in order to set an international policy framework in a post-Kyoto era, where developing countries are expected to commit towards emission reductions. Biofuels offer strong potential to displace petroleum fuels in transport and some stationary applications, with the promise to decrease global greenhouse gas (GHG) emissions. Furthermore, biofuels bring along other sustainability advantages such as energy security, rural development, and mitigation of local pollutant emissions. The main drivers for policies supporting the large-scale deployment of biofuels are:

1. Contribution to energy security by diversifying sources, increasing the number of producing countries and a potential to 'homegrown' energy;
2. Potential to contribute to necessary GHG emission reductions by replacing fossil fuels;
3. Potential to contribute to development, with special focus on rural development, revalorization of rural areas and improving access to modern energy services.

Moreover, increasing energy prices, particularly of oil, are also stimulating the market for alternative energy sources, and bioenergy appears to be increasingly competitive, thus stimulating government and investors' expectations. However, increasing concerns have been expressed recently with regard to the sustainability profile of biofuels (e.g. Doornbosch and Steenblik, 2007; Searchinger et al 2008, Fargione et al 2008). Most frequently cited issues of concern include land use, carbon stock decrease, water depletion and pollution, biodiversity losses and air quality degradation. In addition to these environmental problems, criticisms point to potential economic and social conflicts deriving from energy-food source competition. As a consequence of these concerns and potential side-effects of large-scale biofuel deployment, policies supporting biofuels are increasingly being debated. Within this context, it is particularly important to provide policy makers with clear signals and messages, and with unbiased data. To do so, a comprehensive approach needs to be followed, by looking at all of the most important aspects and implications of biofuel production, including GHG emissions, other environmental impacts, social and economic issues. As far as the GHG emission balance is concerned, this project could help move biofuel practices toward much lower GHG emission approaches than are currently being used in many places. Full baseline and project scenario estimates will be developed during the initial project phase. Nevertheless some preliminary estimates might be given already: For example, if as a result of this project typical biofuels around the world yield 20% lower well-to-wheel GHGs than they would have otherwise, and if global biofuels production reaches 100 billion litres per year by 2020 (which seems possible), then the impact would be on the order of 50 million tonnes per year reduction in CO₂-equivalent GHG emissions. A key question for GEF is the GHG mitigation potential of liquid biofuels for transport. A secondary but equally important question is whether biofuels can be produced without negative effects on soil, water and biodiversity. The proposed project seeks to address both questions. Project results will enable quick and deeper up-front feasibility assessments of bioenergy projects and thus increase the chance of more environment friendly development options and avoidance of damaging investments or high short and long term external costs. Through a quantification of the potential for GHG emission reductions of various crop pathways over their life cycle, the proposed project will deliver tangible benefits for the rest of the GEF programming in this focal area.

2.2. Global significance

In recent years biofuels production was initiated in practically all nations of this entire world mainly in order to produce alternatives to fossil fuel at competing prices. From various reports it can be concluded that the results and impact (social/food/prices/environment) vary wildly from country to country and that some practices and technologies may indeed be more

sustainable than others. By uniting a great number of leading institutions worldwide this Targeted Research aims to produce an authoritative report to GEFsec on the future acceptability of biofuel related project proposals and provide individual countries with insights and guidelines for national policy development on biofuel production and marketing. STAP III undertook an examination of the area of liquid biofuels for transport applications. The panel felt that while the area was quite promising for the GEF, it would indeed be important to clearly identify and analyze those segments where GEF intervention was appropriate and would lead to significant global benefits.

2.3. Threats, root causes and barrier analysis

The proposed research project responds to the identification of areas of uncertainty in the GEF-STAP Workshop Report on Liquid Biofuels, delivered to the GEFsec in December 2006, and the STAP review of the original PDF - A proposal. The workshop report on liquid biofuels makes clear that more research is needed in order to fully determine which types of biofuels, feedstocks, and pathways should receive GEF support. This project will attempt to provide this much needed research in a timely fashion. Thus it will help to shape operational programs (e.g. OP-6, OP-11) in the future. The proposed research project has received STAP clearance. The clearest recommendation the STAP made was to use a "setting approach", and this is clearly reflected both in the PIF and in the present request for CEO endorsement (see work package 1: Workplan definition and Chapter 3.3 on Project components and expected results)

2.4. Institutional, sectoral and policy context

Although a century ago already vehicles were powered by straight vegetable oil, it is only in the last few years of ever-increasing fossil fuel prices that the interest in biofuel production has exponentially grown. GEF agencies and GEFsec have been approached with requests for support of initiating a great number of biofuel projects in non Annex 1 countries but all of these requests were halted as a clear GEF policy on biofuels was missing due to a serious amount of uncertainty and worldwide confusion on good and sustainable practices.

2.5. Stakeholder mapping and analysis

The primary beneficiary of this Targeted Research Project will be the GEF itself; the project objective is “to identify and fully assess innovative, cost-effective, and sustainable systems for the production of liquid biofuels for transportation and stationary applications, in order to enable the GEF to set clear policies and priorities in this area and embark on investment-oriented projects”. The set of concise and comprehensive recommendations that will come out of this project will help the GEF to shape its operational programs (e.g. OP-6, OP-11) in the future.

The outcomes of this Targeted Research project will also enable governments from developing countries to establish or further define clear, achievable targets and more accurate bioenergy planning measures.

As a global project, the Targeted Research Project will involve a large number of stakeholders with a wide range of interests that are shown in the table below.

Table 2.5A Stakeholders identified

Role - Name	Main Interest	Specific Interest in <i>the project</i>
Beneficiary - GEF	Financial interventions dealing with the reduction or avoidance of greenhouse gas emissions in the areas of renewable energy, energy efficiency, and sustainable transport	The GEF will use the results of the project to determine which types of biofuels, feedstocks, and pathways should receive its support in the future (while biofuels are eligible for support under Operational Programs 6 and 11, projects are not currently being considered for approval pending resolution of issues to be addressed by this targeted research)
Beneficiaries - Developing Countries policy makers	Integrated planning for sustainable bioenergy, balancing different, often conflicting policy objectives, e.g. energy security, development, climate change, biodiversity, food security	Tailored support for bioenergy policy and planning in the form of increased knowledge on selected pathways of high relevance to developing countries, recommendations for improving current production practices, identification of opportunities for technology adoption, possible involvement in R&D
Scientific and Technical guidance - STAP	To provide objective, strategic scientific and technical advice on GEF policies, operational strategies, programs and on projects and programmatic approaches	To clearly identify and analyze those segments of the liquid biofuels for transport and stationary applications where GEF intervention would be appropriate and would lead to significant global benefits, using settings which would reflect practical combinations of feedstocks, conversion routes, fuels and applications
Implementing Agency - UNEP DGEF, and Lead Executing Agency - UNEP DTIE	Playing a central role in major environmental assessments and in the provision to developing countries of policy advice and tools	The Targeted Research project constitutes one important activity of UNEP Bioenergy programme whose objective is to contribute to the development of an economically, environmentally and socially sustainable bioenergy sector worldwide. Specifically the project will provide useful guidance to investors (primarily the GEF) for investing with confidence in sustainable bioenergy/biofuels projects and to governments for better bioenergy planning
Co-Executing Agency - UNIDO	Playing a central role in achieving the Millennium Development Goals, in particular poverty eradication, through sustainable industrial development. The thematic priorities are poverty reduction through productive activities, trade capacity building, energy and environment.	The Targeted research project is one of the important activities of UNIDO Bioenergy portfolio, which is designed to contribute to the development of sustainable biofuels with significantly positive impacts on rural economy, economic growth and environment. The Project will define those sustainable pathways of biofuels production and use, and hence assist stakeholders and beneficiaries such as national planners, international financial institutions, development partners and private sector, to define their strategies and take informed actions

Role - Name	Main Interest	Specific Interest in <i>the project</i>
Co-Executing Agency - FAO	FAO's aims and intentions are to increase sustainability of agriculture in general and bring more food security to the world's disadvantaged. It is a major player in providing appropriate knowledge and assistance to its member countries towards those aims and to assure that bioenergy development results in positive effects on natural resources, food security and overall human well being.	Enabling better guided investment decisions by GEF contributes to FAO's aims and facilitates also subsequent FAO work with all its member countries. Sharing FAO's expertise and current efforts with the Targeted Research Project will enable better project results sooner and in exchange also inform and assist other bioenergy development activities of FAO.
Coordination of work and Technical Assistance – IFEU (Research Institute)	Has multi-year experience in performing environmental and life-cycle assessments of biofuel/biomass production, in assisting agencies in standard setting and in coordination of major research projects.	The project will provide a unique basis for coherent application of IFEU's greenhouse balance know-how demonstrated in related projects (e.g. for German Ministry of Environment, EU, FAO, GBEP) on a world-wide basis. IFEU is interested in broadening the scope of this approach, addressing and assist in balancing the specific needs of UNEP, GEF, FAO and UNIDO.
Coordination of work and Technical Assistance – Oeko-Institut	Enhancement of capabilities of, and provision of tools for decision-makers, to enable them to perform integrated sustainability analysis and assessment of biomass	Development and adaptation of methodologies and data collection for environmental and socio-economic analysis and assessment of bioenergy, especially for/in developing countries; identification of biodiversity-compatible land-use; development of socially-compatible bioenergy production and use
Coordination of work and Technical Assistance – Copernicus Institute University of Utrecht	Copernicus-UU aims to provide high quality scientific research, education and societal engagement supporting sustainable development, in particular of the energy system. This includes in depth work on different technological options and their impacts, such as bioenergy at large, other renewables, the more sustainable use of fossil fuels and energy and material efficiency.	Improvement of existing and development of new methods and approaches for full impact analysis of bioenergy systems in the context of specific settings and related to scenario developments. The latter includes the improved understanding and analysis of land-use change and economic drivers. The aim is that by coherently linking different modeling and analysis approaches a standardized framework for full impact analysis can be provided. Specific interest for Copernicus-UU lies with bio-energy options with larger potential and more advanced options.
Research and Analysis – Various institutions in developing countries	Conduct research and development and/or produce analysis whose results are used by policy makers in developing countries involved in bioenergy planning	Specific interest in the project to be determined for each such institution that will be selected during phase 1 of the project

A first list of institutions and agencies in developing nations to potentially become partners of the Targeted Research project is presented hereafter. Respective key area of knowledge is indicated in brackets using a very rough classification (GHG = greenhouse-gas

emissions/sinks; BD = biodiversity and land use); other environmental and social issues (ES) will be considered as well:

Argentina: INTA (GHG), Fundacion Bariloche (BD)

Brazil: CENBIO; Centro Clima (GHG); EMPRAPA (BD); Univ. Sao Paulo (ES)

China: Tsinghu University (GHG); Univ. of Science and Technology Beijing (BD)

Colombia: Academy of Science (GHG); Univ. Manisales (ES)

India: TERI (GHG; BD)

Mozambique: BD

South Africa: Univ. of KwaZulu-Natal (BD); ERC (GHG)

Tanzania: TaTEDO (GHG, BD)

Thailand: JGSEE (GHG); Mae Fah Luang Univ (BD)

During the project some of these organisations will be hired to conduct specific tasks. A preliminary selection of partners will be made during phase 1 of the project, based on the expertise in the subject matter(s) that these institutions will be asked to contribute to. This selection will also very much depend on the selection of the final biofuel pathways/settings¹ to be investigated in this project. Other important considerations will be building capacity at research institutes in the developing world and reaching a balanced geographical distribution.

Although not listed in the above table, there is a wide variety of private sector stakeholders including but not limited to, the feedstock and biofuels producers, their financing partners, oil companies, auto industry, small energy service companies, cooperatives and farmers involved (or potentially involved) in feedstock production and transformation. These cannot be considered primary stakeholders given the nature of the project (i.e. Targeted Research) and its intended primary beneficiaries (i.e. the GEF Sec and policy makers in developing countries).

2.6. Baseline analysis and gaps

At present, there are substantial information gaps in all the major analytical areas of focus of this project. A detailed literature review of over 60 studies at world level has been carried out over the past months by UNEP/DTIE. Very few life-cycle GHG analyses for biofuels pathways in developing countries have been identified, and these are mostly focusing in Brazil and India. Therefore, more LCA studies are needed, in particular for crops and conditions prevalent in tropical regions, to assess the GHG mitigation potential of different biofuels. In that respect, the development of reference methodologies for GHG accounting, and the related capacity-building, should be supported. Similarly there are no comprehensive, consistent studies of the impacts for different biofuel pathways/settings on a full array of environmental and social indicators. Little work has been done to date to understand how “scale-up” (e.g. meeting a large share of transport energy use with biofuels) will impact land use and therefore, indirectly, other aspects of the environment. Without this study, these areas will be looked at in various small studies, but it seems unlikely that they will receive a comprehensive consistent treatment such as this study will provide. This project will also provide background information and policy recommendations for the development of sustainability standards for biofuel projects. In that respect, this project could help also to establish good practices, and to test monitoring, certification and verification schemes. Finally, this study will provide specific recommendations to the GEF on how to best intervene in the area of biofuels. The clear advantage of this study is that it is led and jointly implemented by three UN Agencies having different but complementary skills in the biofuel area. Therefore the research efforts will result into an authoritative study that will constitute a reference for all the others.

2.7. Linkages with other GEF and non-GEF interventions

¹ Please refer to paragraph 3.2 for a detailed explanation of the “settings approach” concept

Biofuels are currently produced in all nations worldwide, developed or developing with varying results in terms of efficiency and environmental impact. A few other initiatives that aim to address components of this overall study exist and the project will link with these ongoing initiatives, like for example the G8 Global Bioenergy Partnership (GBEP), the FAO's International Bioenergy Platform (IBEP), FAO's Bioenergy and Food Security projects, the EPFL roundtable on Sustainable Biofuels, the UNEP/DTIE roundtable on Jatropha, the Global Carbon Project. UNEP is involved in most of the initiatives described. In particular, as far as the GBEP is concerned, UNEP has been entrusted with developing the sustainability work stream. In the EPFL roundtable, UNEP is a Steering Board member, contributes to all four technical working groups and has co-organised a series of regional outreach meetings to involve a greater number of stakeholders, and thereby increase feasibility and acceptability of the principles and criteria. Finally, UNEP leads the Jatropha roundtable, bringing together a network of centers of excellence to provide validated information on agronomics, sustainability criteria, conversion technologies and business models. UNEP participation in all these activities will ensure the smooth coordination and is to ensure a constant communication flow, which will avoid redundancies and overlaps.

SECTION 3: INTERVENTION STRATEGY (ALTERNATIVE)

3.1. Project rationale, policy conformity and expected global environmental benefits

It is generally recognized that biofuels indeed offer an alternative to fossil fuels both in the transport sector as well as for electricity generation and shaft power applications combined with a reduction in GHG emissions. Added benefits of such “homegrown” liquid fuel might be employment and rural development, better energy security and mitigation of local pollution. Besides, the rapid increase in energy prices worldwide is stimulating the market for alternative energy sources. The interest of governments and the private sector appear to increase with every promise of bioenergy at competing prices. However, the large scale utilization of liquid biofuels may well have a number of negative impacts not only on the environment (land use/ land use change, water depletion, biodiversity losses, etc) but also lead to potential economic and social conflicts. GEF, GEFsec and policy makers in developed and developing countries need to be provided with clear and unbiased data and recommendations. Key issues here are the Climate Change mitigation potential of biofuels and its effects on the environment (e.g. soil, water, biodiversity, land use change) and people (e.g. economics, social issues such as food security and prices, land tenure).

3.2. Project goal and objective

The overall objective of this proposal is:

“To identify and fully assess innovative, cost-effective, and sustainable systems for the production of liquid biofuels for transportation and stationary applications, in order to enable the GEF and individual nations to set clear policies and priorities in this area and embark on investment-oriented projects”

3.3. Project components and expected results

Settings approach:-

While current LCA tries to address “typical” situations for bioenergy and biofuel provision, the reality and the potential for future developments are much broader, and need a different approach:

The variety of farming and forestry systems, residue extraction or waste collection systems, downstream conversion routes, and waste treatment options as well as their respective links to auxiliary energy, fuel and material inputs and associated transports is impressive:

Nearly all steps within bioenergy fuel-cycles vary with location and time, and each step can be realized with different processes, intensity and efficiency, emission characteristics, land-use patterns, etc. and under very different social and economic circumstances.

To allow for a conceptual framing of this multitude of cases, the so-called setting approach has been developed.

“Setting” means a generic² representation of combining fuel chains (life-cycles)³ with socio-economic (e.g. ownership structure, intensity and scale of production) and environmental (geo- and biophysical, climatic) categories.

All settings form a multidimensional matrix which describes the full multitude of combinations. In practical terms, this can be represented by a sequence of matrices (e.g., spreadsheets) which is valid for a specific sub-set-

For example, only small-scale farming systems (“smallholders”) can be considered, or a specific time frame.

² i.e. non-localized: an abstract (categorical) definition of land which could represent a variety of locations, but not referring to any real-world “space” or territory.

³ feedstocks (including agricultural practices) plus conversion systems (including their infrastructure requirements) to deliver a specific fuel, including transports between processes, and the respective inputs (energy, materials, land etc.)

An example of how the setting concept could be implemented is given below.

Table 3.3A First Conceptualization of the Setting Approach

SOCIO-ECONOMIC SYSTEM		TECHNOLOGICAL SYSTEM (life-cycle)		ECOSYSTEM	PRODUCTION SYSTEM	
Social	Economic	Technical	Fuel type	Ecological	Crop	Practice
Rural small holder farmers	Subsistence farming	No processing	Unprocessed biomass, wood fuel	Agro-ecological Zones (AEZ)	Mono crop	very high intensive
Landless rural poor	Cash cropping	household scale processing and use	Polluted wood and biomass	Ecosystem type	Multi-crop rotation	GAP
Urban poor	Viable small to medium scale farms	small business processing and use	Charcoal	Landscape level	Multi-purpose crop	Low input/ traditional
Community	Rural business	community scale processing and use	ethanol (1st generation)	Watershed system	Annual	Certified systems
	Large scale industrial	industrial scale processing	Biodiesel	Soil type	Perennial	conservation I
Governance	Fair trade	most energy efficient	Biogas	Climatic conditions	Agro-forestry	
	Export	Most environmentally beneficial		Water availability	residues or wastes	Invasive slash and burn

Source: based on current work in the FAO BIAS project; dark boxes indicate selected elements of the setting

This matrix still ignores time horizon, and “compresses” regional scopes into agro-environmental “zones” which reflect biophysical conditions.

The very large number of potential combinations can be reduced by focusing on the most important and most likely deployed combinations, or those which are potentially “optimal”.

The settings approach increases the applicability of the framework across countries, regions, and against socio-economic backgrounds. In theory, LCA addressing each “setting” would, in principle, be applicable world-wide, so that results could be compared, and further data needs identified⁴.

The approach is flexible so that combinations of sub-settings (e.g. feedstock production for biodiesel on marginal lands in dry climates in small-scale farming) can be formed and compared to other sub-settings with different conversion routes of the same feedstock etc.

The regional attributes of settings with respect to geo- and biophysical as well as climate characteristics should be based on the Agro-ecological Zone (AEZ) concept (FAO 2005)⁵.

The settings also include various combinations of biomass production and use, i.e. biomass supply chains that consist of biomass production, logistic (transport and storage), conversion and use.

Different energy carriers can be produced from biomass, i.e. electricity, heat and transportation fuels. The type of conversion technology determines the biomass feedstock that can be used.

⁴ Note that restrictions regarding availability of data, or resolution of results may occur.

⁵ As regard the spatial attributes (location class), the characterization of databases for global land cover should be used (see FAO BIAS project).

Component 1: Methodology and Workplan**Lead: IFEU, with strong support from all other partners****Exec. Agency: UNEP DTIE and FAO**

This component will be carried out during the first three months of the project and will ensure that a final, detailed work and management plan is developed and agreed on by all members of the project team and endorsed by the steering committee. Said detailed work and management plan will be reviewed and adjusted as necessary during the project through the execution of project component 11 (Project Management, Monitoring and Evaluation).

This component will also involve the development of a methodological framework for all subsequent targeted research components. This umbrella work will be later used for the write-up of detailed project component methodologies.

This initial phase of the project will be crucial as it will also serve to select the specific settings that will be considered consistently in the analysis conducted throughout most of the other project components. The settings concept will be further refined to fit the needs of this Targeted Research, integrating variables such as: the feedstock and fuels pathways, the farming schemes (fertilizer input level, water use, tillage/no tillage, etc.), the different situations where biofuels may be produced (e.g. marginal lands v. fertile lands for jatropha, coastal wetlands v. dryer climates for palm, etc.), the production scale (small vs. large scale) and the time frame (future-oriented estimates will be provided in addition to current data in order to project future impacts).

The feedstocks that will be selected will include the most commonly used (e.g. sugarcane, palm oil, coconut oil) in developing countries and some of the most promising ones (e.g. jatropha, sorghum and cassava) with additional ones to be identified at this inception stage.

Data needs for each project component will be identified based on the settings selected. For example, the data gathered for energy and GHG balancing in Component 2 will be linked to data used in the environmental assessment in Component 4. Therefore, responsibility for the data collection and interaction between partners needs to be designated.

Since project partners will build their analysis of data gathered by others, a time-table of deliverables will be drafted and continuously updated between project partners. This will allow identifying and refining project milestones and criteria for their fulfillment.

The complete set of environmental and social impacts and indicators covered will also be determined during this inception phase of the project. They are likely to include:

- soil quality and erosion, water use, biodiversity, land use change, waste products and air emissions, for environment;
- land tenure, labour conditions, social (including gender) equity impacts, food security and human health impacts for social.

Although IFEU is to lead the work on this project component that will lay the foundations and workplan for the research on all other components, all 7 main executing partners (DTIE, FAO, UNIDO, IFEU, OEKO, UU and IEA), plus STAP, will be actively involved in this exercise through the preparation and participation to the Project Inception Workshop.

Expected Outcomes:

- Detailed work and management plan.

Expected Outputs:

- Data gaps, data gathering needs identified and tasks allocated;
- All pathways/settings and other variables to be considered in the analysis selected;
- Detailed methodologies for each project component drafted;
- External consultants and/or partner institutions to assist with data collection and research in developing countries identified and pre-selected.

Component 2: Life Cycle Energy and Greenhouse Gas (GHG) Assessment**Lead: IFEU****Exec. Agency: UNEP DTIE**

The global warming potential of energy production and use of biomass supply chain compared to fossil energy chains is one of the main drivers of biomass production and use. The results of an overall greenhouse balance of bioenergy production chains depends strongly on the type of bioenergy produced (e.g. transportation fuels versus electricity), the type of agricultural production system (e.g. high input versus low input), the use of by- and co-products and finally for an important part also on direct and indirect land use changes associated with bioenergy production as these land use changes can result in significant carbon stock changes.

In parallel, the energy balance indicating how much fossil fuels can be saved through the production and use of biofuels taking the whole life cycles of the fuels into account will be assessed for the various settings selected for the Targeted Research.

Up to now, very few life-cycle analyses (LCAs) have been undertaken for crops in developing nations and these are greatly needed in the GEF context of seeking to maximize GHG reductions with GEF projects in GEF-eligible countries. This component will include both a detailed review of existing studies and the undertaking of new studies on the “life cycle” energy and greenhouse gas emissions characteristics of the specific pathways and settings included in the project. Action is required to achieve an unambiguous auditable methodology with the goals of a) providing comprehensive treatment of GHG-related impacts, b) ensuring transparency and replicability of the results, and c) ensuring that the results are of maximum benefit to the GEF and to GEF-eligible countries in designing projects.

Given the particular importance of this research to inform future GEF policies and interventions, this project component has been given higher weight comparatively to the other thematic components of the project.

Expected Outcomes:

- Increased awareness on GHG emission balances of different biofuels pathways of relevance for GEF-eligible countries;
- Contributing to the development of certification systems at national and international levels.

Expected Outputs:

- Methodology for data gathering following the ISO 14040 series for LCA (full life cycle from cradle to grave, i.e. including upstream and downstream processes) developed;
- Life cycle GHG emissions of typical production practices of different crops in representative developing countries (regional approach) assessed;
- Spreadsheet-based calculation tool for energy and GHG balances developed;
- Recommendations for improving production practices made;
- Guidelines for developing certification systems formulated.

Component 3: Economics**Lead: Utrecht University****Exec. Agency: UNIDO**

The economic viability of biofuels value chain has been (and still is) a subject of concern that needs to be justified. In most cases, supporting measures were used in order to attain an acceptable level of viability. The history of biofuels development in various developed and developing countries, shows cases where economic viability has been achieved after a long programme of subsidies and policies support, such as the experience of Brazil; and other cases, such as in most of the EU countries and in the USA, where policies and financial measures are still applied in various form to create and maintain this agro industrial chain. Most of these supporting measures are driven by the need to increase energy security, revitalize the rural agriculture economy and more recently, the call to reduce carbon emissions. It is worth noting however, that these supporting measures, particularly the financial ones, are difficult to be considered as an option to improving the economic viability of biofuels, by a large number of developing countries characterized with over burdened state budget.

The economic assessment will allow the GEF, and others, to identify current and future economically viable biofuels options, and identify GEF interventions that can help achieve economic viability for otherwise promising (i.e. low GHG, environmentally sustainable) options. It will also allow identifying possible national policy measures that contribute to attaining the economic viability of certain biofuels pathways.

This assessment will include the same set of biofuels pathways/settings etc. as investigated in Component 2, and provide detailed estimates of the costs of producing biofuels in each case. This component will be used to provide the basic cost building blocks into the scale-up analysis (Component 9).

Expected Outcomes:

- Knowledge based political support and resources for current and future economically viable, sustainable biofuel options;
- Market barriers reduction.

Expected Outputs:

- Detailed cost estimates for different biofuels pathways of relevance for GEF-eligible countries produced;
- Opportunities for barrier removal, technology adoption, access to low-cost financing identified;
- Possible national policies and financial measures for achieving the economic viability of GHG and environmentally sustainable biofuel pathways identified;
- Potential for GEF to assist in this process demonstrated.

Component 4: Environment

Lead: Oeko Institut

Exec. Agency: UNEP DTIE

The production of biomass for bioenergy can involve different types of crops and farming systems under different environmental conditions. These can be production systems that do not change from current production if food crops are used for bioenergy to extensive production systems of perennial crops and short rotation wood.

Some of these production systems might also use and restore degraded lands, while other production systems contribute to the degradation of land. Therefore, bioenergy production is in many cases likely to change the quality of soil in terms of carbon and nutrient content as well as the risk of soil erosion.

Moreover, different biomass production systems influence the availability and quality of water. The systems use different amounts of water from surface and groundwater depending on among other factors the water-use efficiency of the crops and whether the system is irrigated or rain-fed. Also the water quality is influenced by the use and leakage of fertilizers leading to eutrophication.

The resilience of ecosystems is influenced by emissions to air, water and soil of agrochemicals and fertilizers from biomass productions systems. While agrochemicals such as pesticides and herbicides can increase the toxicity in aquatic and terrestrial ecosystems, the leakage of nutrients from fertilization can lead to the eutrophication and the subsequent changes of net biomass production and species composition in aquatic and terrestrial ecosystems.

Such a change in species also relates to the changes in biodiversity by biomass production. However, biodiversity is also influenced by land use changes and by the type of crop and agricultural management systems used in the biomass production scheme.

This study component will consider such a broad variety of environmental impacts (other than GHG emissions) associated with the feedstock production for biofuels, and their downstream conversion. It will cover the same set of biofuels feedstock/fuel pathways and settings as for other components, drawing on some specific case studies (i.e. actual countries/regions).

Expected Outcomes:

- Awareness on non GHG environmental issues;
- Increased linkages to global best practices and expertise.

Expected Outputs:

- Biodiversity considerations holistically explored;
- Standards, criteria and indicators for biofuels to guide GEF project development, including methods for their determination, suggested.

Component 5: Social/Food

Lead: Oeko Institut

Exec. Agency: FAO

This study component will consider a broad variety of social impacts associated with the feedstock production for biofuels, and their downstream conversion. This component will cover the same set of biofuels feedstock/fuel pathways, settings, etc, as for other components, drawing on some specific case studies (i.e. actual countries/regions).

From the analysis, the set of sustainability criteria and appropriate indicators will be developed to guide GEF project development with respect to social impacts. The criteria will be used to identify production practices that ensure a minimum of adverse impacts and a maximum of social benefits such as impacts on rural economies, employment, impacts on indigenous peoples, access to energy, etc.

Expected Outcomes:

- Increased awareness on social/food issues;
- Increased linkages to global best practices and expertise;
- Sound biofuel GEF project development.

Expected Outputs:

- Key social issues (especially gender, livelihoods and food security) of bioenergy chains identified;
- Suggestion of standards, criteria and indicators for biofuels to guide GEF project development, including methods for their determination, made.

Component 6 : 2nd Generation**Lead: Utrecht University****Exec. Agency: UNIDO**

The International Energy Agency defines second generation biofuels or advanced fuels as those fuels “produced from cellulose, hemicellulose or lignin” (IEA, 2008). Typically the term refers to the use of lignocellulosic biomass feedstocks that are derived from non-food sources such as biomass waste and residues, switch grass, wild grasses, wheat stalks, etc. to produce fuels using advanced technological processes.

Currently second generation biofuels are non-commercial as the costs of producing these fuels are relatively high compared to traditional biofuels and petroleum derived fuels. However, there are projections that estimate that these fuels will become commercially available and competitive in the next 10-15 years as there are many government initiatives to propel their use by investing in R&D and in improved conversion technologies (FAO, 2008).

Second generation technologies are seen as a solution to enable the increase of biofuels market share in the energy mix, while limiting the land use increase needed for feedstock production and its consequences on the food security, biodiversity, carbon content, GHG, etc. 2nd generation technologies are to use a wider varieties of feedstock, such as wood & crop wastes and grasses, including the use of the whole plant and not limited to certain part such as oil or starch from grains and seeds. In this way 2nd generation technologies has the potential to increase the efficiency of production, on life cycle base, in terms of units of biofuel produced per unit surface area, GHG emitted per unit biofuel, etc. However, these technologies are not yet fully developed to commercial or industrial levels. Therefore, there is a need to speed up the transition towards these more efficient 2 generation technologies in order to increase the market share of biofuels capture the benefits of biofuels production and uses, and minimize possible negative impacts.

In this component an analysis of potential future types of biofuels feedstocks/pathways/conversion and end use technologies will be undertaken. The analysis will include assessments of the expected time frame before key technologies are commercialized, the appropriateness of pilot and commercial scale investments in the developing country context once their viability has been demonstrated. This analysis will cover the major types and forms of 2nd-generation biofuels, including conducting a literature review to ensure that all new developments are taken into account. The scope will include:

- Ligno-cellulosic materials (e.g. wood, grasses, crop wastes) to ethanol via enzymatic hydrolysis;
- Biomass to liquids (e.g. synthetic gasoline and diesel) via gasification and Fischer-Tropsch conversion;
- Biomass to liquids via other (hydro-thermal and chemical) processes;
- Algae and other micro-organism based production of bio-oils.

Expected Outcomes:

- Speed up the transition towards more efficient conversion technologies;
- Short and long term investment choices for different technologies are clearer and avoid lock-in into technology and investment choices.

Expected Outputs:

- Report and data overview on perennial cropping systems, pre-treatment technologies and supply systems, and (selected) 2nd generation biofuel production technologies released;
- Opportunities to involve developing countries in Research & Development and commercialization process identified;
- Biofuel production stages appropriate to the developing world, including the provision of parameters for choosing options and their implications, identified.

Component 7: Fuel/Vehicle Compatibility**Lead: UNEP DTIE****Exec. Agency: UNEP DTIE**

Recognizing first that increasing the relative share of sustainable biofuels use in the overall vehicle transport fuel use can only represent, at best, one of the many coordinated answers needed to address the wider challenge of fostering sustainable transport solutions globally, this work package will attempt to enhance further dialogue among the private sector major actors and orient decision-makers towards the future formulation of better standards and policies, related to fuel/vehicle compatibility. It will be based on the analysis of the most relevant literature available and on stakeholder consultation and dialogue particularly those from the industry (fuel producing, distributing and retailing companies, and auto manufacturing industry associations and firms).

This work package will deal with policy-, technology- and cost-related issues.

As far as the policy aspects are concerned and the according literature review, an emphasis will be given to the analysis of the experiences of those countries that have established successful blending programs in order to understand what impact the starting situation (in terms of vehicle characteristics and fuel blending and transport infrastructure) may have had on programme results, the tools (mandatory targets, tax breaks, etc..) that were put in place and the resulting costs. This will eventually help formulate tentative guidance for those countries which have not started any blending programme yet, but are interested in doing so. A key question in this regard will be to analyze how Brazil's experience with introducing high-level blends and flex-fuel vehicles can be replicated in other countries/markets.

As far as the technology aspects are concerned and the corresponding facilitation of inter-industry dialogue, cost implications will be looked at from the perspectives of fuels (e.g. cost of meeting continuously certain quality standards for biofuels produced, or infrastructure-related costs to blend fuels and bring them -or bring pure biofuels when not blended- to markets) and vehicles (e.g. cost of upgrading old engines or designing new ones able to perform well at a set blending rate, or the cost of switching to flex-fuel engine technology).

This dialogue process could also yield, later, to the development of industry-driven guidelines inspired by the process followed for the Worldwide Fuel Charter.

Both through the facilitation of inter-industry dialogue and the up-taking of a thorough literature review, the goal of this project component will be to start drawing a multi dimensional matrix (biofuel characteristics, fuel blending and distribution constraints, vehicle technology options, policy measures, cost implications) for decision-making purposes of interested policy makers.

Expected Outcomes:

- Enhanced inter-industry cooperation to advance better solutions for transport fuels, based on sustainable biofuels ;
- Informing future standards and policies on fuel/vehicle compatibility ;
- Contribution to progress towards the formulation of wider sustainable transport solutions.

Expected Outputs:

- Current fuel/vehicle policies and standards around the world, and expected evolution scenarios, identified;
- Multi-stakeholder consultation process to exchange and disseminate information conducted;
- Barriers, opportunities and possible avenues for a better integration of the sustainable biofuels component into wider sustainable transport solutions analyzed;
- Multi dimensional fuel/vehicle matrix for guiding policy decisions drafted.

Component 8: Stationary applications**Lead: Oeko Institut****Exec. Agency: FAO**

This component will focus on liquid biofuels in non-transport applications in the developing world, such as grid or off-grid electricity generation, household cooking and heating, motive power, etc. It will feature a broad (but detailed) review of the many pilot projects currently underway and attempt to draw some conclusions regarding the viability, cost effectiveness, and sustainability of liquid biofuels for different applications. It will also include a detailed analysis of the relative merits and impacts of different approaches (such as small vs. large scale projects, etc.) Particular fuels/applications will include:

- Raw vegetable oils and refined products (methyl esters) for use in village power production;
- Oils and ethanol for use in household cooking and heating.

A particular area of focus will be Jatropha, considered to have tremendous potential both as a transport fuel (biodiesel) and as a fuel for village applications (e.g. off-grid village power via diesel generation).

While Oeko and FAO are the designated main partners for the execution of this project component, UNEP DTIE will contribute its expertise in enhancing sustainable energy systems for rural areas in developing countries (AREED Programme, Jatropha Roundtable and likely future cross-cutting study looking at small scale bioenergy systems for enhancing sustainable livelihoods).

Expected Outcomes:

- Improved knowledge on viability, cost effectiveness and sustainability of liquid biofuels for different applications;
- Increased market penetration of biofuels for stationary applications;
- Enhanced knowledge on the creation of additional revenue streams with stationary applications in rural development.

Expected Outputs:

- (Dis-) Advantages of stationary applications for biofuels assessed;
- Best practice and experience among project partners in different developing countries exchanged;
- Possible GEF interventions to promote sustainable production of biodiesel and straight vegetable oils identified.

Component 9: Scale up and Integration

Lead: Utrecht University, with strong support from all other partners

Exec. Agency: UNIDO

This component will serve two purposes: to ensure compatibility and integration between the previous components, and to provide a common structure to use that information in a forward looking global/regional biofuels scale-up analysis. The central task will be to analyze the potential impacts of scaling up biofuels production to meet a substantial share of global transport (and possibly stationary) fuel demand on various sustainability indicators, such as: land requirements, agricultural production patterns, competition between production of food/feed/fibre crops and products, product prices, and impacts on local, regional and global economies. A scenario approach will allow showing the impacts of different assumptions. Scenarios will be developed at global, regional and national level. It will be applied on the selected settings and pathways and use outputs, mainly from the component on Economics, as building blocks.

Expected Outcomes

- Scaling up biofuels production to meet a substantial share of global transport by means of different scenarios for selected regions ;
- Overview of impacts of different scenarios for biofuel production capacity over time, including environmental and socio-economic dimensions
- Better policy actions and governance strategies that incorporate land use, rural development, infrastructure, investment and market issues.

Expected Outputs

- Potential impacts of scaling up biofuel production based on various sustainability indicators evaluated;
- Impacts of different scenarios for biofuel production capacity, including environmental and socio-economic dimensions projected over time;
- Policy recommendations to the GEF and countries made.

Component 10: Monitoring/ Evaluation, Outreach and Dissemination

Lead: IFEU, with strong support from UNEP DTIE primarily and from all other partners

Exec. Agency: UNEP DTIE

The project being composed of various and diversified research activities, an extensive reporting and outreach are needed. IFEU will act as leader and main coordinator for this work package, making sure with UNEP that all UN logos, standards for disclaimer are used correctly, copy rights issues, and the UN Charter for publications are observed, and involving all other partners as needed. IFEU will coordinate the scientific and technical content for all the substantive reports to be disseminated on the project website, to decision makers and to the GEF. The consortium will look also for collaboration with key stakeholders in both the public and private sector in order to expand distribution channels for the material produced. Whenever appropriate, project meetings and phone conferences will be used also to discuss the above-mentioned issues and to propose and agree on planned activities with respect to reporting and dissemination.

The present work package has the aim to coordinate single research streams outputs by providing each of them with the necessary templates, editing and formatting codes to make final deliverables fully consistent and clearly identifiable. In addition, the work package will consist of multiple dissemination and outreach activities, with the aim to reach a wide set of stakeholders, communicate and discuss main findings.

Expected Outcomes

- Increased exchange and dissemination of technical and policy information about sustainability of biofuels;
- Increased awareness by different types of stakeholders;
- Increased public debate;
- Increased cooperation network within the scientific and development community;
- Formulation of targeted GEF policies on biomass.

Expected Outputs:

- Project website launched and regularly updated;
- At least one big event (e.g. international conference) organized, participation in other conferences and workshops, and networking;
- Templates to be used for report preparations, presentations, etc, prepared and used;
- Final compilation of main communication and outreach events made;
- Final report with results, recommendations and executive summary, released;
- Terminal evaluation facilitated.

Component 11: Project Management

Lead: IFEU and UNEP DTIE jointly

Exec. Agency: UNEP DTIE

Since there will be different lead agencies for at least some of the different components along with various sub-contractors working on specific aspects, and various sponsors with different requirements for the final product, proficient project coordination is necessary at all steps of the project. In all cases, the project team will work together on decision making related to substantive aspects; however one agency (UNEP/DTIE) will be assigned the role to lead overall coordination efforts and ensure that each of these activities is successfully carried out.

Given the complexity of the interaction, IFEU will provide a designated project coordinator who will in practical terms support UNEP/DTIE, as the lead executing agency, on a day-to-day basis. IFEU will in particular be responsible for preparing jointly with DTIE (during the inception phase of the project) and updating in consultation with all project partners (throughout the lifespan of the project) a detailed project work and management plan. IFEU will also be responsible for providing updates as work progresses, and for managing the research coordination tasks ensuring that outputs from each component are ready on a timely basis, particularly those that will serve as inputs to other components.

UNEP DTIE will be responsible for overall coordination both among the project execution partners and with external stakeholders, for producing the half yearly progress reports and contribute to the Project Implementation Review, responsibility of UNEP DGEF Task Manager.

An external independent final project evaluation is also budgeted for at \$30,000 within the Reporting and Dissemination component.

Expected Outputs:

- Project work and management plan regularly updated;
- Regular information flow between project partners and respective research tasks coordinated;
- Interaction with external stakeholders coordinated;
- Project progress reports , Terminal Report and Quarterly Financial Reports submitted.

3.4. Intervention logic and key assumptions

The Project Results Framework identifies as the overall goal the assurance that the most environmentally sustainable, lowest cost GHG emitting, socially benign and cost-effective pathways are identified and adopted around the developing world. This is to be achieved by the development of a methodology and standards to analyze prevailing and most promising pathways for biofuel development worldwide. Ultimately this should lead to an understanding in developing countries to apply the most cost-effective and sustainable biofuel pathways with increased levels of investment for development and production while lowering GHG emissions. It is assumed that all participating institutions worldwide are indeed keen to participate in data generation and processing and carry the project forward to its completion. Another key assumption is that GEFsec remains interested in the guidelines and recommendations that will emerge from this Targeted Research and put these to full use in the formulation of its policies/strategies concerning biofuel development in GEF-eligible countries.

3.5. Risk analysis and risk management measures

The biggest threat to any assessment is lack of control of the quality and quantity of data gathered to support the analysis and conclusion of the study. The same holds true in this case. Mitigative actions: This threat can be overcome, given UNEP's and FAO's analytical strength in this area and its role under the GEF Instrument to catalyze the development of scientific and technical data and analysis. UNEP intends that project execution partners use the initial phase (among other things) to:

- (i) to fully catalogue all available data and information from already-recognized sources, inclusive of research institutes, government agencies, individual experts, and associations;
- (ii) to design needed data collection efforts to supplement those available;
- (iii) to formulate a guideline for minimum standards of quantity and quality of data to be submitted by project partners, including the identification of a standard reference unit to express and compare data in a consistent way. The use of uniform energy units throughout the study will allow to achieve a good common understanding in comparative analyses while making the TR accessible to a larger (non energy expert) public. UNEP and its partners will also choose its team of research partners in developing countries based on their expertise and experience in conducting the relevant pieces of analysis. All these points will be discussed in the inception report;
- (iv) to design alternative assessment strategies where important data cannot be obtained for local and national cost and capacity limitations, particularly in view of future applicability of criteria at country levels.

Risk: That research findings will not be successfully disseminated to governments, stakeholders, etc. Mitigative actions: A solid and adequately funded component (Component 10: Final Reports, Outreach and Dissemination) has been built in the project to ensure that the messages are widely disseminated. This will include press releases, presentations at important international conferences, consultations with governments, and wide distribution of summary and detailed reports via the internet and other means. In addition, the findings of this Targeted Research will be actively channeled by UNEP to developing countries since one key component of its Bioenergy Team's strategy is to provide guidance for bioenergy policy and planning to policy-makers, both in general and in form of tailored policy and planning support services to developing country governments. The tools and recommendations developed as a result of this Targeted Research will be, as suitable, part of this portfolio of services.

Another potential risk that has been identified is the fragmentation of activities in many research areas and agencies. This in principle might jeopardize the production of concrete outcomes. To mitigate this risk, a detailed workplan will be defined in the first phase of the project, where the connections and synergies existing between various work package

activities will be highlighted. As Executing Agency DTIE is in charge of the overall coordination and will be supported in this by IFEU, as reflected in the annexed organizational chart. Despite the fragmentation in several work packages, activities and results are actually interconnected and the research institutes involved are interdependent. Results of some work packages will feed into the following ones in a logical way (e.g. the scale up and integration work package will build on the outputs of previous work packages). Furthermore, strong emphasis is given to project management in order to ensure that coherence is ensured in working activities.

3.6. Consistency with national priorities or plans

Bioenergy is envisaged to become a significant contributor to global renewable energy in the short to medium term. According to recent IEA projections (2007), the potential of biomass harvested for energy production could be increased up to 200-400 EJ from the current 45-55 EJ, during this century. Many governments in both developed and developing countries have introduced policies and incentives in order to spur market development. All top five ethanol producers (Brazil, USA, China, EU and India) have developed renewable energy plans which include also biofuel/bioenergy objectives. As far as GEF-eligible countries are concerned, many of them including Argentina, China, Colombia, Indonesia, Malaysia, South Africa, Thailand have set legislations for biofuels and some have included bioenergy as a priority in their national energy plans. Despite this encouraging scenario, there is a considerable lack of literature focusing on developing countries. The current project proposal intends to help fill in these research gaps, by covering different climatic and geographic conditions in the GEF countries, as well as a wide range of biofuels, feedstocks and conversion pathways and by providing a comprehensive picture of all main technological, policy and sustainability issues. In particular, a comparative assessment of large vs. small-scale will be carried out. Following the STAP recommendations, an approach which looks at the case of small scale, distributed biofuel production will be included as well. The outcomes will eventually help governments to establish or further define clear, achievable targets and more accurate bioenergy planning measures

3.7. Incremental cost reasoning

At present, there are substantial information gaps in all the major analytical areas of focus of this project. A detailed literature review of over 60 studies at world level has been carried out over the past months by UNEP/DTIE. Very few life-cycle GHG analyses for biofuels pathways in developing countries have been identified, and these are mostly focusing in Brazil and India. Therefore, more LCA studies are needed, in particular for crops and conditions prevalent in tropical regions, to assess the GHG mitigation potential of different biofuels. In that respect, the development of reference methodologies for GHG accounting, and the related capacity-building, should be supported. Similarly there are no comprehensive, consistent studies of the impacts for different biofuel pathways/settings on a full array of environmental and social indicators. Little work has been done to date to understand how “scale-up” (e.g. meeting a large share of transport energy use with biofuels) will impact land use and therefore, indirectly, other aspects of the environment. Without this study, these areas will be looked at in various small studies, but it seems unlikely that they will receive a comprehensive consistent treatment such as this study will provide. This project will also provide background information and policy recommendations for the development of sustainability standards for biofuel projects. In that respect, this project could help also to establish good practices, and to test monitoring, certification and verification schemes. Finally, this study will provide specific recommendations to the GEF on how to best intervene in the area of biofuels. The clear advantage of this study is that it is led and jointly implemented by three UN Agencies having different but complementary skills in the biofuel area. Therefore the research efforts will result into an authoritative study that will constitute a reference for all the others.

3.8. Sustainability

This Targeted Research project shall provide GEFsec and GEF-eligible nations with inputs that will allow both parties to make well-informed decisions on the development of sustainable pathways for liquid biofuels.

3.9. Replication

Replication has been a key driver to the decision consisting in the adoption of a “Settings Approach” for this Targeted Research. Results of the analysis conducted for selected key settings, obtained from specific input and data gathered by certain developing countries partners, will be expandable, applicable, (replicable in essence) to other similar set of conditions in other regions of the World. The project aims to look into areas with similar conditions as to provide guidance that can be of use beyond national borders. Some countries (especially large ones) may show several geo-climatic zones and at the same time there might be quite similar conditions in different countries. (e.g. tropical belt). In addition, the variation of results that will be obtained by applying sub-settings (for example studying the same feedstock/pathway on marginal land rather than on arable land, or else keeping the same exact conditions but the use of co- and bi-products) will further expand the domain of applicability of the findings of this Targeted Research and, ultimately, the replication potential of its results.

In addition replication is embedded by design in Project Component 9 (Scale up and Integration). It also constitutes a key element of Project Component 8 (Stationary Applications, for which a lot of south-south exchange of best practice and experience is expected to take place) and of Project Component 7 (Fuel/Vehicle Compatibility), which may stimulate a broader diffusion of blending programmes, as well as higher blending rates and as a result a higher demand for sustainable biofuels.

Finally this Biofuel Targeted Research project is designed specifically with replicability in mind as the overall aim is to enable the GEF and individual nations to set clear policies and priorities for the development of sustainable biofuels pathways with unquestionable climate change benefits and embark on investment-oriented projects.

3.10. Public awareness, communications and mainstreaming strategy

A particularly important outreach effort is deemed necessary for this Targeted Research, since it addresses high priority issues in the public debate, which are already being discussed at different forums yet deserve greater attention as well as seeing knowledge gaps filled, for biofuels production pathways of particular relevance to developing countries. To the end of ensuring a systematic and organized dissemination of project findings, a specific project component (10: Final Reports and Dissemination) has been crafted.

The primary conduit for making the outputs of the project available will be through its dedicated web-site. It will be developed in English, and will provide an overview of project objectives, activities, milestones, consortium structure, and relevant news. Each deliverable of public domain/interest produced during the project duration will be uploaded on the website for dissemination.

Towards the end of the two-year period of the project, an International Conference will also be organized designed to stir creative thinking among decision-makers and enable the further development of sustainable bioenergy sectors in developing countries, based on biofuels settings of high potential, studied or identified in the frame of the Targeted Research .

All project participants are very active in international sustainable bioenergy/ biofuels forums and initiatives: GBEP (Global Bioenergy Partnership), RSB (Roundtable on Sustainable Biofuels), Jatropha Roundtable, etc..., or related climate change, food security, development and scientific forums. As part of their normal participation in international meetings, workshops and conferences, project participants will make presentations about the progress of the project, its outcomes and the availability of the tools and assessments that the project has developed for the different biofuel settings that will be analyzed. It is expected that this type of outreach will significantly raise awareness about the project's deliverables and build an audience of users who will apply them in a wide range of contexts and locations.

As aforementioned, the results of this Targeted Research will be mainstreamed through the Lead Executing Agency's wider intervention in the bioenergy arena; they will constitute an important set of science-based assessments and technical tools that will, in conjunction with other such tools and assessments, enable UNEP to provide guidance for bioenergy policy and planning to policy-makers, both in general and in form of tailored policy and planning support services to developing country governments.

3.11. Environmental and social safeguards

This Targeted Research aims to introduce environmental and social safeguards to the biofuel sector worldwide, particularly to all GEF eligible nations.

SECTION 4: INSTITUTIONAL FRAMEWORK AND IMPLEMENTATION ARRANGEMENTS

An organizational chart has been prepared (see Appendix 9), which shows both the hierarchy and the communication flow amongst all partners in order to ensure a smooth implementation of the project. UNEP/DGEF will act as the Implementing Agency, and UNEP/DTIE will be the lead Executing Agency. DTIE will be assisted by FAO and UNIDO as co-executing agencies. In addition, a project steering committee is foreseen in order to provide guidance and ensure a coordination of activities.

UNEP/DTIE and FAO will jointly co-execute, with primary support from IFEU, the inception phase of the project (Project Component 1: Methodology and Workplan) including all the determining activities for the entire project such as the selection of settings that will be analyzed throughout the other components, the final allocation of tasks between the project partners, the definition of methodology frameworks, the final selection of developing country partners and the firming up of the overall project timeline.

UNEP/DTIE will be supported by IFEU in the project management and M&E activities (Project Component 11) and for the preparation and coordination of project final reports, outreach and dissemination activities (Project Component 10).

As for the other project components (i.e. thematic components), each co-executing agency will lead tasks according to its main domain area/specific skills, and will be assisted by the three research institutes which are participating in the project: IFEU, Oeko Institut, and Utrecht University.

The project proposal has been in discussion with IEA to assist in certain key areas and provide support in project planning and review. IEA collaboration/involvement during project implementation, specifically for component 3 - economics, component 6 - 2nd generation and component 9 - scale-up will be further defined during the inception phase of the project. IEA support in these areas will be delivered thanks to co-financing secured by UNIDO for that purpose.

SECTION 5: STAKEHOLDER PARTICIPATION

The GEF Sec will be consulted regularly (at least twice yearly) by the Implementing Agency in order to ensure that the direction of work and the research undertaken will indeed adequately inform its decision-making for biofuel-related internal policy formulation and future investments in biofuels-related project in developing countries.

Stakeholders from the private sector will be involved in and/or engaged by the project at different levels and occasions and through the different project partners, as needed. Many of these private sector stakeholders will be engaged and/or consulted at the field level by the developing countries institutions that will be contracted by the three main executing partners (i.e. IFEU, Oeko and Utrecht University research institutes), while others (e.g. auto industry in relation with Project Component 7: Fuel/Vehicle Compatibility) will be engaged by the GEF Executing Agencies themselves and others by their direct executing partners.

The purpose of such engagement may range from gathering comprehensive data and opinions on existing and planned pathways, to raising their awareness on more sustainable pathways or else gaining their support and collaboration to reach the intended objectives of the project. These stakeholders include a wide variety of groups such as the feedstock and biofuels producers, their financing partners, oil companies, auto industry, small energy service companies, farmers' cooperatives or other similar groupings, and individual farmers.

The general scope and level of collaboration with the private sector will be defined during the initial phase of the project, will be further elaborated within each project component and will remain flexible throughout the duration of the project according to project needs and evolution.

SECTION 6: MONITORING AND EVALUATION PLAN

The UNEP components will follow UNEP standard monitoring, reporting and evaluation processes and procedures. Substantive and financial project reporting requirements are summarized in Appendix 8. Reporting requirements and templates are an integral part of the UNEP legal instrument to be signed by the executing agency and UNEP.

The project M&E plan is consistent with the GEF Monitoring and Evaluation policy. The Project Results Framework presented in Appendix 4 includes SMART indicators for each expected outcome as well as mid-term and end-of-project targets. These indicators along with the key deliverables and benchmarks included in Appendix 6 will be the main tools for assessing project implementation progress and whether project results are being achieved. The means of verification and the costs associated with obtaining the information to track the indicators are summarized in Appendix 7. Other M&E related costs are also presented in the Costed M&E Plan and are fully integrated in the overall project budget.

The M&E plan will be reviewed and revised as necessary during the project inception workshop to ensure project stakeholders understand their roles and responsibilities vis-à-vis project monitoring and evaluation. Indicators and their means of verification may also be fine-tuned at the inception workshop. Day-to-day project monitoring is the responsibility of the project management team but other project partners will have responsibilities to collect specific information to track the indicators. It is the responsibility of the Project Manager within each executing partner institution to inform UNEP of any delays or difficulties faced during implementation so that the appropriate support or corrective measures can be adopted in a timely fashion.

The project Steering Committee will receive periodic reports on progress and will make recommendations to UNEP concerning the need to revise any aspects of the Results Framework or the M&E plan. Project oversight to ensure that the project meets UNEP and GEF policies and procedures is the responsibility to the Task Manager in UNEP-GEF. The Task Manager will also review the quality of draft project outputs, provide feedback to the project partners, and establish peer review procedures to ensure adequate quality of scientific and technical outputs and publications.

Project supervision will take an adaptive management approach. The Task Manager will develop a project supervision plan at the inception of the project which will be communicated to the project partners during the inception workshop. The emphasis of the Task Manager supervision will be on outcome monitoring but without neglecting project financial management and implementation monitoring. Progress vis-à-vis delivering the agreed project global environmental benefits will be assessed with the Steering Committee at agreed intervals. Project risks and assumptions will be regularly monitored both by project partners and UNEP. Risk assessment and rating is an integral part of the Project Implementation Review (PIR). The quality of project monitoring and evaluation will also be reviewed and rated as part of the PIR. Key financial parameters will be monitored quarterly to ensure cost-effective use of financial resources.

An independent terminal evaluation will take place at the end of project implementation. The Evaluation and Oversight Unit (EOU) of UNEP will manage the terminal evaluation process. A review of the quality of the evaluation report will be done by EOU and submitted along with the report to the GEF Evaluation Office not later than 6 months after the completion of the evaluation. The standard terms of reference for the terminal evaluation are included in Appendix 10. These will be adjusted to the special needs of the project.

SECTION 7: PROJECT FINANCING AND BUDGET

7.1 Overall project budget

See Appendix 1

7.2 Project co-financing

Please find below a complete summary of confirmed co-financing for this Target Research; further breakdown is provided in Appendix 2.

<i>Name of co-financier (source)</i>	<i>Classification</i>	<i>Type</i>	<i>Project Preparation</i>	<i>Project</i>	<i>Total</i>	<i>%*</i>
Germany Government BMU/UBA	Nat'l Gov't	Grant		100,000	100,000	8%
FAO	Exec. Agency	Grant		360,000	360,000	28%
FAO	Exec. Agency	In-kind		80,000	80,000	6%
UNIDO	Exec. Agency	Grant		450,000	450,000	34%
UNIDO	Exec. Agency	In-kind		45,000	45,000	3%
UNEP DTIE	Exec. Agency	In-kind		270,000	270,000	21%
Total Co-financing				1,305,000	1,305,000	100%

* Percentage of each co-financier's contribution at CEO endorsement to total co-financing.

The International Energy Agency (IEA) has expressed its commitment to be involved once the project is at the inception phase. It is envisaged that the IEA might provide operational support and funding for the following activities: analysis of second generation biofuels, scale up and integration, possibly vehicle/fuel compatibility and minor support on other project components. Of the USD 450,000 cash co-financing from UNIDO, the amount of USD 40,000 has been reserved to cover IEA's participation in the Targeted Research project.

7.3 Project cost-effectiveness

In this Targeted Research project, three UN agencies (UNEP/DTIE, FAO, UNIDO) are pooling their resources with the objective to achieve results that none of the agencies would be able to reach individually in such a short time or for lack of the very high additional investments needed. They will be helped by a number of institutions and agencies to be contracted in developing nations. Among the most likely to be contracted, the following have been identified: Argentina: INTA (for the energy and GHG component), Fundacion Bariloche (biodiversity and land use); Brazil: CENBIO and Centro Clima (energy and GHG), EMPREPA (biodiversity and land use); China: Tsinghua University (energy and GHG); Univ. of Science and Technology Beijing (biodiversity and land use); Colombia: Academy of Science (energy and GHG); India: ICRISAT, TERI (both the energy and GHG and the biodiversity and land use component); Mozambique (biodiversity and land use); South Africa: Univ. of KwaZulu-Natal (biodiversity and land use change); ERC (energy and GHG); Tanzania: TaTEDO (both the energy and GHG and the biodiversity and land use component); Thailand: JGSEE (energy and GHG), Mae Fah Luang Univ (biodiversity and land use change). Other potential partners have been identified also Bangladesh, Chile, Kenya, Mali, Namibia and Vietnam. The actual number will be provided after the selection process has been finalized, depending on the work plan to be developed at the inception of the project. This in turn will depend on the final settings selected. Under consideration are 1. sugar cane not on cleared forest land with combined food/ethanol/electricity cogeneration; 2. jatropha on certifiable degraded land or intercropped with other agricultural use; 3. cellulosic ethanol with

fiber crops and others to be identified. The coordination of the work of the institutes in GEF-eligible countries, as well as the necessary technical assistances and capacity building will be provided by the three main research institutes contracted (IFEU, OEKO Institute, the Copernicus Institute of the University of Utrecht), which will work under the coordination of the UN Agencies. Building on the expertise and manpower in such a joint effort by these authoritative agencies, should result in a great number of sound policies and strategies, including methods that allow future adaptation and creation of new strategies, regarding pathways of biofuel development in developing countries in a timely fashion, i.e. before further large investments are considered. With this regards, an accurate allocation of work packages has been performed by taking into account the respective strengths and expertise of the UN Agencies involved. For instance, FAO will lead the co-execution of the work packages related to crop analysis, social and food related issues, agro-modeling, etc. In its turn, UNIDO will lead the co-execution of the work packages focusing on economic modeling and macro-economic issues related to the scale up of biofuel application. Finally, UNEP will build on its expertise in the environmental field to lead the work packages on life cycle greenhouse gas analysis, other environmental issues related to biofuel production and use, and on the fuel/vehicle compatibility. In addition to their specific skills and competences in the above-mentioned fields, all Agencies have a qualified network of stakeholders that will be involved at various stages of the project. This will ensure avoiding duplication of efforts thus leading to more cost-efficient management of activities. Furthermore, the recommendations from this targeted research should help identify those pathways and production approaches that maximize the GHG reduction possible at a given cost and with minimized other environmental and social impacts. Therefore project results will greatly improve the cost-effectiveness of implementation projects. This will also help future GEF interventions in biofuels to be of maximum cost-effectiveness.

APPENDICES

Appendix 1: Budget by project components and UNEP budget lines

RECONCILIATION BETWEEN GEF ACTIVITY BASED BUDGET AND UNEP BUDGET LINE (GEF FUNDS ONLY US\$)																	
Project title: Establishing sustainable liquid biofuels production worldwide (a targeted research project)																	
UNEP Project number: GFL-2328-																	
Project executing partner: UNEP/DTIE (Lead), FAO and UNIDO (Co-execution)																	
Project implementation period: From: April 2009 To: March 2011																	
UNEP Budget Line	Expenditure by project component/activity (provide description)											Expenditure by calendar year					
	C1: Methodology Workplan	C2: Life cycle analyses	C3: Economics	C4: Environment	C5: Social/Food	C6: 2nd generation	C7: Vehicle/fuel compatibility	C8: Stationary applicatins	C9: Scale up Integration	C10: Monit. Eval. Outreach Di.	C11: Proj Mgmt	Total	2009	2010	2011	Total	
10 PERSONNEL COMPONENT																	
1100	Project personnel																
1101	Project Manager																
1102	Other staff contributing to research/project																
1103	Coordination and Technical Contribution																
1199 Sub-total																	
1600	Travel on official business																
1601	Travel to conferences & workshops																
1699 Sub-total																	
1999 Component total																	
20 SUB-CONTRACT COMPONENT																	
2100	Sub-contracts (cooperating agencies)																
2101	FAO	40,000	-	-	60,000	-	80,000	-	-	-	-	180,000	180,000	-	-	-	180,000
2102	UNIDO	9,000	-	100,000	-	70,000	-	121,000	-	-	-	300,000	300,000	-	-	-	300,000
2103	IEA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2199 Sub-total																	
2200	Sub-contracts (supporting organizations)																
2201	IFEU	4,000	185,000	1,000	1,000	1,000	1,000	1,000	5,000			200,000	195,000	5,000			200,000
2202	Oeko Institut	10,000			70,000							80,000	80,000				80,000
2203	Utrecht University																
2299 Sub-total																	
14,000		185,000	1,000	71,000	1,000	1,000	1,000	1,000	5,000			280,000	275,000	5,000			280,000
2999 Component total																	
63,000		185,000	101,000	71,000	61,000	71,000	81,000	122,000	5,000			760,000	755,000	5,000			760,000
30 TRAINING COMPONENT																	
3300	Meetings/conferences																
3301	International conference																
3399 Sub-total																	
3999 Component total																	
50 MISCELLANEOUS COMPONENT																	
5200	Reporting costs																
5201	Reporting & dissemination																
5202	Project website																
5299 Sub-total																	
5500	Evaluation																
5501	Terminal evaluation (EOU)																
5599 Sub-total																	
5999 Component total																	
99 GRAND TOTAL																	
		63,000	186,000	101,000	73,000	61,000	83,000	124,000	103,000	80,000		970,000	817,000	79,000	74,000		970,000

Appendix 2: Co-financing table

GEF BUDGET AND CO-FINANCE BUDGET(TOTAL GEF & CO-FINANCE US\$)												
Project title: Establishing sustainable liquid biofuels production worldwide (a targeted research project)												
Project title: GFL-2328-												
Project title: UNEP Project number: UNEP/DTIE (Lead), FAO and UNIDO (Co-execution)												
Project title: Project executing partner: From: April 2009 to March 2011												
Project title: Project implementation period:												
UNEP Budget Line	GEF Cash			FAO		UNIDO		BMU - German Govt		DTIE		Total
	A	B	C	Cash	In-kind	Cash	In-kind	Cash	In-kind	Cash	In-kind	
10 PERSONNEL COMPONENT												
1100 Project personnel												
1101 Project Manager	100,000						28,000					100,000
1102 Other staff contributing to research/project	-			230,000	35,000							265,000
1103 Coordination and Technical Contribution				230,000	35,000		28,000					503,000
1199 Sub-total	100,000			230,000	35,000		28,000					403,000
11300 Administrative support												
1301 Admin assistant and/or support		5,000		5,000	5,000	34,000						44,000
1399 Sub-total		5,000		5,000	5,000	34,000						44,000
1600 Travel on official business						21,000						21,000
1601 Travel to conferences & workshops	14,000					21,000						35,000
1699 Sub-total	14,000					21,000						35,000
1999 Component total	114,000			235,000	40,000	55,000	28,000				221,000	404,000
20 SUB-CONTRACT COMPONENT												
2100 Sub-contracts (cooperating agencies)												
2101 FAO	180,000											180,000
2102 UNIDO	300,000											300,000
2103 IEA						40,000						40,000
2199 Sub-total	480,000					40,000						520,000
2200 Sub-contracts (supporting organizations)												
2201 IFEU	200,000			30,000				50,000				280,000
2202 Oeko Institut	80,000			95,000				50,000				225,000
2203 Utrecht University						290,000						290,000
2299 Sub-total	280,000			125,000		290,000		100,000				795,000
2999 Component total	760,000			125,000		330,000		100,000				1,315,000
30 TRAINING COMPONENT												
3300 Meetings/conferences												
3301 International conference	40,000					51,000	7,000					98,000
3399 Sub-total	40,000					51,000	7,000					98,000
3999 Component total	40,000					51,000	7,000					98,000
40 EQUIPMENT AND PREMISES COMPONENT												
4300 Premises												
4301 Office Rental				10,000				10,000				20,000
4399 Sub-total				10,000				10,000				20,000
4999 Component total				10,000				10,000				20,000
50 MISCELLANEOUS COMPONENT												
5200 Reporting costs												
5201 Reporting & dissemination	15,000			20,000		6,000						41,000
5202 Project website	11,000											11,000
5299 Sub-total	26,000			20,000		6,000						52,000
5300 Sundry												
5301 Communications				5,000								5,000
5399 Sub-total				5,000								5,000
5500 Evaluation												
5501 Terminal evaluation (EOL)	30,000			5,000		8,000						43,000
5599 Sub-total	30,000			5,000		8,000						43,000
5999 Component total	56,000			30,000		14,000						100,000
99 GRAND TOTAL	970,000			360,000	80,000	450,000	45,000	100,000			270,000	1,880,000
												2,275,000

Appendix 3: Incremental cost analysis

Project Component	Baseline	Alternative (Baseline + Increment)	Increment
<p>Methodology and Workplan (C1)</p>	<p>Many developed country government programs are currently facilitating research in creating criteria and indicators for use in methodologies to analyze the sustainability of biofuels (for example the ONIGC (Office National Interprofessionnel des Grandes Cultures) French Ministry of agriculture; Analysis of sustainable criteria and methodology; or Germany (Biofuel Quota Law) R&D project on behalf of Federal Environment Agency (UBA): create criteria and methodology for sustainable biomass & use)</p> <p>FAO/ International Bioenergy Platform (IBEP): has been developing methodologies, so has its Forestry department with the development of indicators and methodology for assessing bioenergy and field testing</p> <p>UN Foundation Biofuels Initiative in India, Philippines and Thailand aims at the utilization of a common methodology for sustainable biofuel assessment</p> <p>The Roundtable on Sustainable Biofuels has recently issued a zero draft of sustainability principles and criteria and is currently accepting stakeholder input</p> <p>Although there is a wide range of ongoing and projected activities to create harmonized methodologies for sustainable biofuels, these approaches are broad and lack an integration of situational and localized analyses.</p> <p><i>at least US \$15 million</i></p>	<p>Building on all aforementioned existing work and FAO co-financing contribution through its BIAS project (that is aiming at developing an analytical framework and methods for reviewing sustainable issues for biofuels of direct relevance for this project, such as Life-Cycle GHG, direct and indirect Land Use Changes, air emissions & toxics, biodiversity, water, soil impacts) this project component will enable the development of a cost-effective methodology for framing and assessing benefits in future GEF projects for sustainable biofuel production in relation to specific and localized conditions based on key settings, feedstocks, and systems in developing countries.</p> <p><i>\$15,214,000</i></p>	<p>Cost: GEF \$66,000 Other \$148,000 Total: US\$214,000</p>
<p>Targeted Research Components : Life Cycle Energy and GHG Assessment (C2)</p>	<p>A very small proportion of life-cycle GHG analyses are carried out for biofuels pathways in developing countries, and when they are these are mostly focusing in Brazil and India with a limited scope of various feedstocks.</p>	<p>Carrying of LCA studies, economics, environment, social/food and scale up assessments for crops and conditions prevalent in tropical regions, to assess the GHG mitigation potential of different biofuel, their energy</p>	<p>Cost: GEF \$696,000 Other \$914,000 Total: US\$1,610,000</p>

<p>Economics (C3) Environment (C4) Social/Food (C5) 2nd Generation (C6) Fuel/Vehicle Compatibility(C7) Stationary applications (C8) Scale Up & Integration (C9)</p>	<p>Much of the current studies in environmental assessments of biofuels concern GHG potential and mitigation, without much research focused on biodiversity and resource use. Additionally, little to no research exists on their downstream conversion and significance to developing regions.</p> <p>Research surrounding the relationship between biofuels and food security is supported by many agencies, including the FAO and WFP. However, the initiatives lack the creation of GEF guidelines when financing projects.</p> <p>Targeted research oriented towards 2nd generation fuels is a substantial piece of the overall baseline of existing work in the area. Much of this research is conducted through grants from the public donors to national research institutes in developing countries.</p> <p>There is little work being done in the field of fuel/vehicle compatibility and technological and policy barriers for developing countries.</p> <p>Research in stationary applications has been implemented in targeted developing countries through specific GEF funded initiatives, although a broad overview of their application in various developing regions through appropriate technologies has yet to be supported.</p> <p>Little work has been done to date to understand how “scale-up” (e.g. meeting a large share of transport energy use with biofuels) will impact land use and therefore, indirectly, other aspects of the environment.</p> <p>An overview of ongoing projects or initiatives containing research-related elements falling under the aforementioned description, includes the following: - GBEP – harmonizing LCA approaches through specific working group on GHG Methodologies, chaired by the US</p>	<p>security enhancement potential, as well as their national and rural development benefits.</p> <p>Reference methodologies for GHG accounting developed for GEF-eligible countries for use in designing projects, and GHG calculation tool for developing countries.</p> <p>Enhanced understanding of the economic barriers for biofuels in targeted countries and the increased identification of the potential for the GEF to contribute to their reduction.</p> <p>Awareness of the potential environmental risks associated with biofuels and their particular relevance to targeted countries and GEF funded projects.</p> <p>Creation of standards and criteria for biofuels to address their potential risks to food security to guide GEF project development.</p> <p>Identification of opportunities for RD&D in developing countries for second generation fuels.</p> <p>Increased awareness of current fuel/vehicle policies and the support of improved potential of conventional fuels.</p> <p>Creation of a platform to exchange best practices in stationary applications and use in developing countries and for use in GEF-eligible projects.</p> <p>Improved policy actions and strategies for scaling up sustainable biofuels to meet global share of transport fuels, as well as increased knowledge of the potential impacts of scaling up</p>	
--	--	--	--

<p>Monitoring/ Evaluation, Outreach and Dissemination (C10)</p>	<ul style="list-style-type: none"> - WWF: economic impact study of biofuels in developing regions with mapping - UNCTAD BioFuels Initiative: towards targeted developing countries - CI: Targeted case studies in BR&ID; Mapping tool for biodiverse areas - IUCN: Hap HCV for soy in Mato Grosso, Brazil 2009-2010 - Task 38: IEA GHG for developing regions - Stanford & IFPRI: Biofuels and Food Security in the South Asia and Sub Saharan Africa: Pathways of Impacts and Assessments of Investments \$3,834,829 - GEF: Egypt biofuels for rural developing project: \$16,644,150 - IEA/OECD: Task 29/ Socio-economic drivers in implementing bioenergy projects - FAO: developing project to identify non-food crops - IEA Bioenergy Task 39 'Commercializing 1st- and 2nd- Generation Liquid Biofuels from Biomass' is currently composed - Government of Chile: biomass for ethanol project : \$13,000,000 - South African National Energy Research Institute (SANERI): SA assessment: \$984,203 - GEF Sri Lanka Bioenergy & heat applications: \$1,030,000 - GEF Tanzania electricity through biogas: \$1,576,000 <p>An estimate of the baseline amount for these biofuels related research and studies is</p> <p><i>at least US \$40 million</i></p>	<p>for GEF recommendations and targeted countries.</p> <p style="text-align: right;"><i>\$41,610,000</i></p>	
	<p>Many national and international organizations (EU, US EPA, FAO, IEA etc.) fund the production of materials and carry out activities to support information sharing and knowledge base of sustainable biofuel production in developing countries.</p> <p>Much of the current and projected communications include deliverables such as workshops and conferences, reports, publications, and online media platforms.</p>	<p>Provision of background information and policy recommendations to developing countries policy makers for the development of sustainable biofuels</p> <p>Provision of specific recommendations to the GEF on how to best intervene in the area of biofuels.</p> <p>The clear advantage of this study is that it is led</p>	<p>Cost: GEF \$128,000 Other \$160,000 Total: US\$288,000</p>

	<i>at least US\$10 million</i>	and jointly implemented by three UN Agencies having different but complementary skills in the biofuel area. Therefore the research efforts will result into an authoritative study that will constitute a reference for all the others. <i>\$ 10,288,000</i>	
Project Management (C11)	No suitable management structure for such a project currently exists <i>Cost.: 0</i>	Project management and co-ordination <i>\$163,000</i>	Cost: GEF \$80,000 Other \$83,000 Total: US\$163,000
TOTAL COST:	Baseline: US\$ 65,000,000	Alternative: US\$ 67,275,000	Incremental Cost: GEF: US\$ 970,000 Others: US\$ 1,305,000 Total: US\$ 2,275,000

Appendix 4: Results Framework

Hierarchy of objectives	Indicator targets	Verification sources	Assumption & Risks
<p>Impact/Goal: To ensure that the most environmentally sustainable, lowest GHG emitting, socially benign and cost-effective biofuel pathways are identified and adopted around the developing world</p>	<p>Life-cycle based energy consumption and Global Warming Potential impact indicators developed for all pathways and crops covered by the analysis at the end of year 2</p> <p>Standardized cost calculation methodology and tool developed for all pathways and crops covered by the analysis at Q3 of year 2</p> <p>Pathway-specific environmental and social indicators developed for all pathways and crops covered by the analysis at the end of year 2</p> <p>At least 4 second-generation technologies assessed under a sustainability point of view at the end of Q3 of year 2</p> <p>At least 2 workshops held at the end of Q3 of year 2 on fuel/vehicle compatibility issues</p> <p>Analysis of at least 3 different biofuels for application in stationary systems under an economic, environmental and social point of view at the end of Q3 year 2</p> <p>Local, regional and global scale-up modeling developed at the end of year 2, including multiple scenarios (BAU, optimistic, realistic)</p>	<p>Benchmark with literature</p> <p>Stakeholder consultations, including industry representatives</p> <p>Exchange of information and networking with relevant multilateral initiatives ongoing (e.g. GBEP, IEA Bioenergy, EPFL roundtable, etc.)</p>	<p>Consistent political and institutional support in participating countries</p> <p>Strong network, particularly at country level</p>
<p>Outcomes:</p> <ul style="list-style-type: none"> - Enabling GEF-eligible countries to understand and exploit the most prominent options for using sustainable biofuels - Developing countries start adopting consistent, transparent and harmonized databases and tools to provide further guidance and recommendations to governments and stakeholders - Fostering the production of sustainable and cost-effective biofuels - Harmonizing the approaches for the evaluation, design and implementation of biofuel projects with the aim to promote the effective evaluation, reporting and implementation of sustainability criteria - Increased investments in sustainable biofuel development and production - Lowering GHG emissions associated to transport and stationary applications 	<p>Experts in GEF-eligible countries are perfectly trained to support with data collection and elaboration of results</p> <p>Viable options for the production of liquid biofuels are identified, which ensure a net environmental gain and are cost-effective compared to conventional fuels</p> <p>A multi-stakeholder approach is initiated and maintained all along the duration of the project</p> <p>A methodology to evaluate, report and implement sustainability criteria is developed</p>	<p>Benchmark with similar projects or initiatives initiated by other subjects (e.g. European Commission, California Energy Commission, etc.)</p> <p>Exchange of information and networking with relevant multilateral initiatives ongoing (e.g. GBEP, IEA Bioenergy, EPFL roundtable, etc.)</p> <p>Exploitation of sound models and analytical tools</p>	<p>The setting approach is developed in a timely and appropriate way</p> <p>Experts in developing countries are actively involved</p> <p>A capacity building program is established</p>

<p>Outputs: In total, 30 among reports, databases, guidelines and other tools are envisaged during the duration of the project. In addition, a project website will be set up, and several presentations will be prepared in view of meetings, workshops and other events. One international conference is foreseen. Project reports will be provided as an interim version first, which will be discussed and approved by all partners before the preparation of the final one.</p>	<p>Total number of stakeholders attending the meetings organized</p> <p>Number of downloads of reports from the project websites, measured at the end of year 1 and 2</p> <p>Number of enquiries received at the end of year 1 and 2</p> <p>Overall degree of satisfaction expressed by project participants</p>	<p>Periodic project meetings to evaluate progresses</p> <p>Preparation of guidelines and templates to ensure consistency and accurate quality level of outputs and deliverables</p> <p>Degree of satisfaction expressed by stakeholders</p>	<p>Appropriate templates and guidelines are developed and made available to all project partners</p> <p>Project outputs are relevant and appropriate</p> <p>Communication flow among participants is timely and effective</p> <p>Stakeholders are engaged and willing to participate in the events proposed and to exchange information</p> <p>Policy makers are interested to attend the workshops and to consider project recommendations</p>
<p>Activities: Within the 11 WP proposed, activities can be split broadly as follows:</p> <ul style="list-style-type: none"> - planning and coordination - analysis and modeling - communication and outreach - monitoring 	<p>Planning and coordination:</p> <ul style="list-style-type: none"> - a coherent and transparent work plan is developed - consultants are contracted by month 6 <p>Analysis and modeling:</p> <ul style="list-style-type: none"> - kick off meeting organized by month 1 - data gaps are identified by month 2 - methodologies are developed by month 3 - the setting approach is developed and adapted to the specific conditions - models and databases are filled up by Q3 of year 2 <p>Communication & outreach:</p> <ul style="list-style-type: none"> - at least one international conference is held before the end of year 2 - at least 2 technical workshops are organized before the end of year 2 - the website is updated every month, and as soon as a new report is available - 3 newsletters are sent per year - Project presentations made at at least 4 events outside the network <p>Monitoring:</p> <ul style="list-style-type: none"> - M&E system is operational by month 1 - M&E system is revised at the end of year 1 	<p>Consistency with what presented in the full MSP proposal</p> <p>Periodic meetings</p> <p>Mid-term evaluation</p> <p>Final evaluation</p>	<p>The work plan is clear and understood by all project partners</p> <p>Monitoring and evaluation system is effective</p> <p>The communication flow reflects the overarching management plan and organigram</p>

Appendix 5: Workplan and Timetable

Worplan and Timetable		PROJECT IMPLEMENTATION													AFTER PROJECT																							
		2009						2010						2011			2011																					
		J	F	M	A	M	J	J	A	M	A	M	J	J	A	M	J	J	A	S	A	S																
Year	Month																																					
	Month No.	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30				
Activity/Task/Output																																						
Component 1 : Methodology - Work plan																																						
1	Inception Meeting and Report of Meeting																																					
2	Selection of settings																																					
3	Identification of data gaps																																					
4	Definition of methodological framework for all project components																																					
5	Allocation of tasks																																					
6	(Pre-)selection of project partners in developing countries																																					
7	Development of detailed project work and management plan																																					
Component 2 : Life Cycle Energy and GHG Assessment																																						
1	Goal and scope definition																																					
2	Robust methodology development																																					
3	Data compilation																																					
4	Dvpt of a standardized spreadsheet-base calculation tool																																					
5	Conclusive report																																					
Component 3 : Economics																																						
1	Economic and performance data compilation																																					
2	Dvpt of a standardized spreadsheet-base cost calculation tool																																					
3	Chain definition and base cost calculations for baseline / Sensitivity analysis																																					
4	Overview on barrier removal, technology adoption & lower-cost options																																					
Component 4 : Environment																																						
1	Environmental data compilation																																					
2	Input of data in GEMIS database																																					
3	Characterization of potential biodiversity impacts																																					
4	Dvpt of methodology to account for BD impacts																																					

Worplan and Timetable	B4 Project	PROJECT IMPLEMENTATION																																				AFTER PROJECT				
		2009												2010												2011																
		J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	J	J	A	S				
Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.	Month No.				
Component 5 : Social/Food																																										
1	Socio-economic data compilation																																									
2	Inclusion of direct and indirect employment in GEMIS																																									
3	Qualitative characterization of socio-economic impacts																																									
Component 6 : 2nd Generation																																										
1	Literature screening and pre-selection of cropping and supply systems																																									
2	Perennial cropping systems																																									
3	Pre-treatment technologies																																									
4	Production Technologies																																									
5	Chain analysis																																									
Component 7 : Fuel/Vehicle Compatibility																																										
1	Review of existing fuel/vehicle policies around the world																																									
2	Technical review and assessment (engines, design modifications..)																																									
3	Multi-stakeholder consultation																																									
4	Workshops with auto manufacturing and fuel producing and retailing industries																																									
5	Preparation of a draft decision-making matrix for policy makers																																									
Component 8 : Stationary Applications																																										
1	Data compilation for selected stationary bioenergy systems																																									
2	Input of data in GEMIS database																																									
3	Cross-sectoral analysis of selected biofuels																																									

Worplan and Timetable		B4 Project		PROJECT IMPLEMENTATION												AFTER PROJECT																			
		Year		2009												2010					2011														
		Month	Activity/Task/Output	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	J	J	A	S	J	J	A	S			
	Month No.	-2	-1	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
	Component 9 : Scale Up and Integration																																		
	1 Global scenario definition for land use change and introduction of bioenergy schemes																																		
	2 Compilation of country and regional scenarios																																		
	3 Impact analysis for specific settings																																		
	4 Analysis of variability of impacts																																		
	5 Comparison of impacts and evaluation of the consequences for cost and potentials																																		
	Component 10 : Monitoring/ Evaluation, Outreach and Dissemination																																		
	1 Provision of guidance and templates for reports writing, and organization of reports review																																		
	2 Preparation of project reports, databases, guidelines, website inputs and other tools																																		
	3 Project website design and management (with uploading of regular updates)																																		
	4 Preparation and organization of Project International Conference																																		
	5 Other outreach and dissemination																																		
	6 Compilation of a final report for use by GEFsec and developing countries govt																																		
	7 Facilitation of Terminal Evaluation																																		
	Component 11 : Project Management																																		
	1 Finalization and submission of project proposal																																		
	2 Legal instruments with partner agencies and research institutes																																		
	3 Management of project activities and coordination between project partners																																		
	4 Updating of detailed project work and management plan on a rolling basis																																		
	5 Coordination w/ GEFsec and Steering Committee																																		
	6 Project Progress and Terminal Reports (GEF Format)																																		
	7 Quaterly Financial Reports (GEF Format)																																		

UNEP : IFEU
 FAO : : All Partners
 UNIDO : : OEKO
 : UTRECH UNIV.

Appendix 6: Key Deliverables and Benchmarks

Key deliverables and benchmarks were discussed and agreed upon as a draft between the project executing partners during project preparation. They will be confirmed during the inception phase of the project.

Appendix 7: Monitoring and Evaluation Work Plan and Corresponding Budget

Type of M&E activity	Responsible Parties	Budget US\$ <i>Excluding project team Staff time</i>	Time frame
Project management Plan	Project Team	None	Within first three months of project start up
Inception Workshop	Project Team, Steering Committee	None	Within first two months of project start up
Inception Report	Project Management Team	None	1 month after project inception meeting
Measurement of Means of Verification for Project Progress and Performance (measured on an annual basis)	Oversight by GEF Technical Advisor and Project Coordinator Measurements Steering Committee	To be determined as part of the Annual Work Plan's preparation.	Annually
Steering Committee Meetings	Project Team	None	Every 6 months
Periodic status reports	Project team	None	To be determined by Project team and UNEP
Technical reports	Project team	None	To be determined by Project Team
Project implementation review	DGEF Task Manager with input from DTIE Project Manager	None	Yearly (except year 1) on or before 31 August
External Terminal Evaluation	Evaluation and Oversight Unit, UNEP	\$30,000	At the end of project implementation
Final Project Report	Project team	None – subsumed under project management	At least one month before the end of the project
TOTAL indicative COST (<i>Excluding project team staff time and UNEP staff time and travel expenses</i>)		\$30,000	

Appendix 8: Reporting requirements

	Due date	Format appended to legal instrument as	Responsibility of
Procurement plan (goods and services)	2 weeks before project inception meeting	N/A	Project Manager
Inception Report	1 month after project inception meeting	N/A	Project Manager
Expenditure report accompanied by explanatory notes	Quarterly on or before 30 April, 31 July, 31 October, 31 January	Annex 11	Project Manager, DTIE Finance
Cash Advance request and details of anticipated disbursements	Quarterly or when required	Annex 7B	Project Manager
Progress report ⁶	Half-yearly on or before 31 January	Annex 8	Project Manager
Audited report for expenditures for year ending 31 December ⁷	Yearly on or before 30 June	N/A	Executing partner to contract firm
Inventory of non-expendable equipment	Yearly on or before 31 January	Annex 6	Project Manager
Co-financing report	Yearly on or before 31 July	Annex 12	Project Manager
Project implementation review (PIR) report	Yearly -except Year 1- on or before 31 August	Annex 9	Project Manager, TM, DGEF FMO
Minutes of steering committee meetings	Yearly (or as relevant)	N/A	Project Manager
Mission reports and “aide memoire” for executing agency	Within 2 weeks of return	N/A	TM, DGEF FMO
Final report	2 months of project completion date	Annex 10	Project Manager
Final inventory of non-expendable equipment		Annex 9	Project Manager
Equipment transfer letter		Annex 10	Project Manager
Final expenditure statement	3 months of project completion date	Annex 11	Project Manager, DTIE Finance
Mid-term review or Mid-term evaluation ⁸	Midway though project	N/A	TM or EOU (as relevant)
Final audited report for expenditures of project ⁹	6 months of project completion date	N/A	Executing partner to contract firm
Independent terminal evaluation report	6 months of project completion date	Appendix 9 to Annex 1	EOU

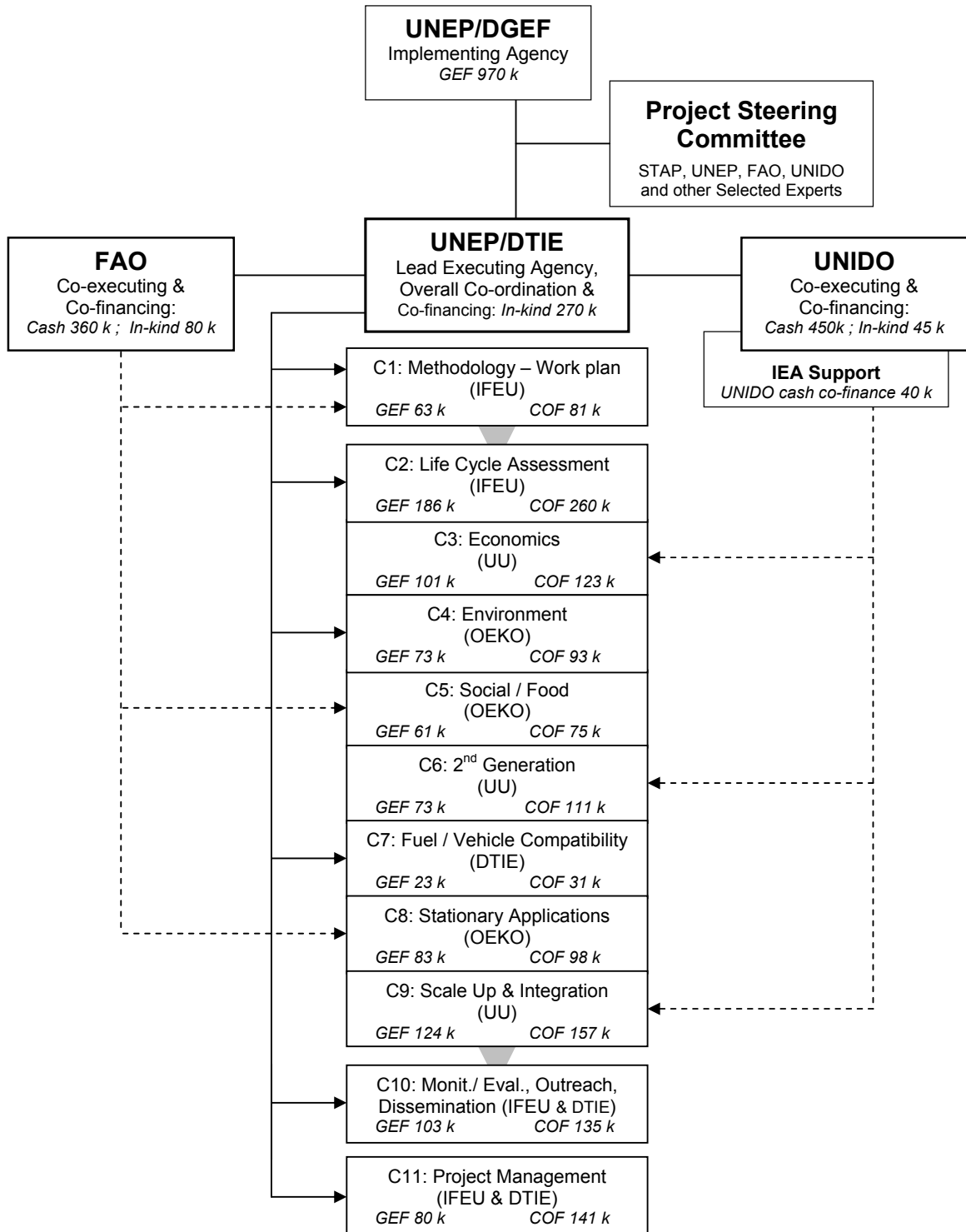
⁶ UNEP DTIE, the Lead Executing Agency for this project, will provide 1 half-yearly progress report for Year 1 of the project, contribute to the Project Implementation Review of Year 2 and submit a Final Report.

⁷ Not applicable to UNEP DTIE

⁸ Mid-term evaluation will not be required for this two-year project

⁹ Not applicable to UNEP DTIE

Appendix 9: Decision-making and organizational flowchart



(IFEU = Institut für Energie und Umweltforschung, Heidelberg), UU = Utrecht University, OEKO = OEKO Institute, Berlin).
GEF = Funds from Global Environment Facility, COF = Co-financing

Appendix 10: Standard Terms of Reference for Terminal Evaluation

1. Objective and Scope of the Evaluation

The objective of this terminal evaluation is to examine the extent and magnitude of any project impacts to date and determine the likelihood of future impacts. The evaluation will also assess project performance and the implementation of planned project activities and planned outputs against actual results. The evaluation will focus on the following main questions:

1. Did the project help to {} among key target audiences (international conventions and initiatives, national level policy-makers, regional and local policy-makers, resource managers and practitioners).
2. Did the outputs of the project articulate options and recommendations for {}? Were these options and recommendations used? If so by whom?
3. To what extent did the project outputs produced have the weight of scientific authority and credibility necessary to influence policy makers and other key audiences?

Methods

This terminal evaluation will be conducted as an in-depth evaluation using a participatory approach whereby the UNEP/DGEF Task Manager, key representatives of the executing agencies and other relevant staff are kept informed and consulted throughout the evaluation. The consultant will liaise with the UNEP/EOU and the UNEP/DGEF Task Manager on any logistic and/or methodological issues to properly conduct the review in as independent a way as possible, given the circumstances and resources offered. The draft report will be circulated to UNEP/DGEF Task Manager, key representatives of the executing agencies and the UNEP/EOU. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary or suggested revisions.

The findings of the evaluation will be based on the following:

1. A desk review of project documents including, but not limited to:
 - (a) The project documents, outputs, monitoring reports (such as progress and financial reports to UNEP and GEF annual Project Implementation Review reports) and relevant correspondence.
 - (b) Notes from the Steering Group meetings.
 - (c) Other project-related material produced by the project staff or partners.
 - (d) Relevant material published on the project web-site: {}.
2. Interviews with project management and technical support including {NEED INPUT FROM TM HERE}
3. Interviews and Telephone interviews with intended users for the project outputs and other stakeholders involved with this project, including in the participating countries and international bodies. The Consultant shall determine whether to seek additional information and opinions from representatives of donor agencies and other organizations. As appropriate, these interviews could be combined with an email questionnaire.
4. Interviews with the UNEP/DGEF project task manager and Fund Management Officer, and other relevant staff in UNEP dealing with {relevant GEF focal area(s)}-related activities as necessary. The Consultant shall also gain broader perspectives from discussions with relevant GEF Secretariat staff.

5. Field visits¹⁰ to project staff

Key Evaluation principles.

In attempting to evaluate any outcomes and impacts that the project may have achieved, evaluators should remember that the project's performance should be assessed by considering the difference between the answers to two simple questions “*what happened?*” and “*what would have happened anyway?*”. These questions imply that there should be consideration of the baseline conditions and trends in relation to the intended project outcomes and impacts. In addition it implies that there should be plausible evidence to **attribute** such outcomes and impacts **to the actions of the project**.

Sometimes, adequate information on baseline conditions and trends is lacking. In such cases this should be clearly highlighted by the evaluator, along with any simplifying assumptions that were taken to enable the evaluator to make informed judgements about project performance.

2. Project Ratings

The success of project implementation will be rated on a scale from ‘highly unsatisfactory’ to ‘highly satisfactory’. In particular the evaluation shall assess and rate the project with respect to the eleven categories defined below:¹¹

A. Attainment of objectives and planned results:

The evaluation should assess the extent to which the project's major relevant objectives were effectively and efficiently achieved or are expected to be achieved and their relevance.

- *Effectiveness*: Evaluate how, and to what extent, the stated project objectives have been met, taking into account the “achievement indicators”. The analysis of outcomes achieved should include, *inter alia*, an assessment of the extent to which the project has directly or indirectly assisted policy and decision-makers to apply information supplied by biodiversity indicators in their national planning and decision-making. In particular:
 - Evaluate the immediate impact of the project on {relevant focal area} monitoring and in national planning and decision-making and international understanding and use of biodiversity indicators.
 - As far as possible, also assess the potential longer-term impacts considering that the evaluation is taking place upon completion of the project and that longer term impact is expected to be seen in a few years time. Frame recommendations to enhance future project impact in this context. Which will be the major ‘channels’ for longer term impact from the project at the national and international scales?
- *Relevance*: In retrospect, were the project's outcomes consistent with the focal areas/operational program strategies? Ascertain the nature and significance of the contribution of the project outcomes to the {relevant Convention(s)} and the wider portfolio of the GEF.
- *Efficiency*: Was the project cost effective? Was the project the least cost option? Was the project implementation delayed and if it was, then did that affect cost-effectiveness? Assess the contribution of cash and in-kind co-financing to project implementation and to what extent the project leveraged additional resources. Did the project build on earlier initiatives, did it make effective use of available scientific and / or technical information. Wherever possible, the evaluator should also compare the cost-time vs. outcomes relationship of the project with that of other similar projects.

B. Sustainability:

¹⁰ Evaluators should make a brief courtesy call to GEF Country Focal points during field visits if at all possible.

¹¹ However, the views and comments expressed by the evaluator need not be restricted to these items.

Sustainability is understood as the probability of continued long-term project-derived outcomes and impacts after the GEF project funding ends. The evaluation will identify and assess the key conditions or factors that are likely to contribute or undermine the persistence of benefits after the project ends. Some of these factors might be outcomes of the project, e.g. stronger institutional capacities or better informed decision-making. Other factors will include contextual circumstances or developments that are not outcomes of the project but that are relevant to the sustainability of outcomes. The evaluation should ascertain to what extent follow-up work has been initiated and how project outcomes will be sustained and enhanced over time.

Five aspects of sustainability should be addressed: financial, socio-political, institutional frameworks and governance, environmental (if applicable). The following questions provide guidance on the assessment of these aspects:

- *Financial resources.* Are there any financial risks that may jeopardize sustenance of project outcomes? What is the likelihood that financial and economic resources will not be available once the GEF assistance ends (resources can be from multiple sources, such as the public and private sectors, income generating activities, and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project's outcomes)? To what extent are the outcomes of the project dependent on continued financial support?
- *Socio-political:* Are there any social or political risks that may jeopardize sustenance of project outcomes? What is the risk that the level of stakeholder ownership will be insufficient to allow for the project outcomes to be sustained? Do the various key stakeholders see that it is in their interest that the project benefits continue to flow? Is there sufficient public / stakeholder awareness in support of the long term objectives of the project?
- *Institutional framework and governance.* To what extent is the sustenance of the outcomes of the project dependent on issues relating to institutional frameworks and governance? What is the likelihood that institutional and technical achievements, legal frameworks, policies and governance structures and processes will allow for, the project outcomes/benefits to be sustained? While responding to these questions consider if the required systems for accountability and transparency and the required technical know-how are in place.
- *Environmental.* Are there any environmental risks that can undermine the future flow of project environmental benefits? The TE should assess whether certain activities in the project area will pose a threat to the sustainability of the project outcomes. For example; construction of dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project; or, a newly established pulp mill might jeopardise the viability of nearby protected forest areas by increasing logging pressures; or a vector control intervention may be made less effective by changes in climate and consequent alterations to the incidence and distribution of malarial mosquitoes.

C. Achievement of outputs and activities:

- Delivered outputs: Assessment of the project's success in producing each of the programmed outputs, both in quantity and quality as well as usefulness and timeliness.
- Assess the soundness and effectiveness of the methodologies used for developing the technical documents and related management options in the participating countries
- Assess to what extent the project outputs produced have the weight of scientific authority / credibility, necessary to influence policy and decision-makers, particularly at the national level.

D. Catalytic Role

Replication and catalysis. What examples are there of replication and catalytic outcomes? Replication approach, in the context of GEF projects, is defined as lessons and experiences

coming out of the project that are replicated or scaled up in the design and implementation of other projects. Replication can have two aspects, replication proper (lessons and experiences are replicated in different geographic area) or scaling up (lessons and experiences are replicated within the same geographic area but funded by other sources). Specifically:

- Do the recommendations for management of {project} coming from the country studies have the potential for application in other countries and locations?

If no effects are identified, the evaluation will describe the catalytic or replication actions that the project carried out.

E. Assessment monitoring and evaluation systems.

The evaluation shall include an assessment of the quality, application and effectiveness of project monitoring and evaluation plans and tools, including an assessment of risk management based on the assumptions and risks identified in the project document. The Terminal Evaluation will assess whether the project met the minimum requirements for ‘project design of M&E’ and ‘the application of the Project M&E plan’ (see minimum requirements 1&2 in *Annex 4* to this Appendix). GEF projects must budget adequately for execution of the M&E plan, and provide adequate resources during implementation of the M&E plan. Project managers are also expected to use the information generated by the M&E system during project implementation to adapt and improve the project.

M&E during project implementation

- *M&E design.* Projects should have sound M&E plans to monitor results and track progress towards achieving project objectives. An M&E plan should include a baseline (including data, methodology, etc.), SMART indicators (see Annex 4) and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified.
- *M&E plan implementation.* A Terminal Evaluation should verify that: an M&E system was in place and facilitated timely tracking of results and progress towards projects objectives throughout the project implementation period (perhaps through use of a logframe or similar); annual project reports and Progress Implementation Review (PIR) reports were complete, accurate and with well justified ratings; that the information provided by the M&E system was used during the project to improve project performance and to adapt to changing needs; and that projects had an M&E system in place with proper training for parties responsible for M&E activities.
- *Budgeting and Funding for M&E activities.* The terminal evaluation should determine whether support for M&E was budgeted adequately and was funded in a timely fashion during implementation.

F. Preparation and Readiness

Were the project’s objectives and components clear, practicable and feasible within its timeframe? Were the capacities of executing institution and counterparts properly considered when the project was designed? Were lessons from other relevant projects properly incorporated in the project design? Were the partnership arrangements properly identified and the roles and responsibilities negotiated prior to project implementation? Were counterpart resources (funding, staff, and facilities), enabling legislation, and adequate project management arrangements in place?

G. Country ownership / drivenness:

This is the relevance of the project to national development and environmental agendas, recipient country commitment, and regional and international agreements. The evaluation will:

- Assess the level of country ownership. Specifically, the evaluator should assess whether the project was effective in providing and communicating biodiversity

information that catalyzed action in participating countries to improve decisions relating to the conservation and management of the focal ecosystem in each country.

- Assess the level of country commitment to the generation and use of biodiversity indicators for decision-making during and after the project, including in regional and international fora.

H. Stakeholder participation / public awareness:

This consists of three related and often overlapping processes: information dissemination, consultation, and “stakeholder” participation. Stakeholders are the individuals, groups, institutions, or other bodies that have an interest or stake in the outcome of the GEF- financed project. The term also applies to those potentially adversely affected by a project. The evaluation will specifically:

- Assess the mechanisms put in place by the project for identification and engagement of stakeholders in each participating country and establish, in consultation with the stakeholders, whether this mechanism was successful, and identify its strengths and weaknesses.
- Assess the degree and effectiveness of collaboration/interactions between the various project partners and institutions during the course of implementation of the project.
- Assess the degree and effectiveness of any various public awareness activities that were undertaken during the course of implementation of the project.

I. Financial Planning

Evaluation of financial planning requires assessment of the quality and effectiveness of financial planning and control of financial resources throughout the project’s lifetime. Evaluation includes actual project costs by activities compared to budget (variances), financial management (including disbursement issues), and co- financing. The evaluation should:

- Assess the strength and utility of financial controls, including reporting, and planning to allow the project management to make informed decisions regarding the budget and allow for a proper and timely flow of funds for the payment of satisfactory project deliverables.
- Present the major findings from the financial audit if one has been conducted.
- Identify and verify the sources of co- financing as well as leveraged and associated financing (in co-operation with the IA and EA).
- Assess whether the project has applied appropriate standards of due diligence in the management of funds and financial audits.
- The evaluation should also include a breakdown of final actual costs and co-financing for the project prepared in consultation with the relevant UNEP/DGEF Fund Management Officer of the project (table attached in *Annex 1* to this Appendix Co-financing and leveraged resources).

J. Implementation approach:

This includes an analysis of the project’s management framework, adaptation to changing conditions (adaptive management), partnerships in implementation arrangements, changes in project design, and overall project management. The evaluation will:

- Ascertain to what extent the project implementation mechanisms outlined in the project document have been closely followed. In particular, assess the role of the various committees established and whether the project document was clear and realistic to enable effective and efficient implementation, whether the project was executed according to the plan and how well the management was able to adapt to changes during the life of the project to enable the implementation of the project.
- Evaluate the effectiveness and efficiency and adaptability of project management and the supervision of project activities / project execution arrangements at all levels (1) policy decisions: Steering Group; (2) day to day project management in each of the country executing agencies and {lead executing agency}.

K. UNEP Supervision and Backstopping

- Assess the effectiveness of supervision and administrative and financial support provided by UNEP/DGEF.
- Identify administrative, operational and/or technical problems and constraints that influenced the effective implementation of the project.

The **ratings will be presented in the form of a table**. Each of the eleven categories should be rated separately with **brief justifications** based on the findings of the main analysis. An overall rating for the project should also be given. The following rating system is to be applied:

HS	= Highly Satisfactory
S	= Satisfactory
MS	= Moderately Satisfactory
MU	= Moderately Unsatisfactory
U	= Unsatisfactory
HU	= Highly Unsatisfactory

3. Evaluation report format and review procedures

The report should be brief, to the point and easy to understand. It must explain, the purpose of the evaluation, exactly what was evaluated and the methods used. The report must highlight any methodological limitations, identify key concerns and present evidence-based findings, consequent conclusions, recommendations and lessons. The report should be presented in a way that makes the information accessible and comprehensible and include an executive summary that encapsulates the essence of the information contained in the report to facilitate dissemination and distillation of lessons.

The evaluation will rate the overall implementation success of the project and provide individual ratings of the eleven implementation aspects as described in Section 1 of this TOR. **The ratings will be presented in the format of a table with brief justifications based on the findings of the main analysis.**

Evidence, findings, conclusions and recommendations should be presented in a complete and balanced manner. Any dissident views in response to evaluation findings will be appended in an annex. The evaluation report shall be written in English, be of no more than 50 pages (excluding annexes), use numbered paragraphs and include:

- i) An **executive summary** (no more than 3 pages) providing a brief overview of the main conclusions and recommendations of the evaluation;
- ii) **Introduction and background** giving a brief overview of the evaluated project, for example, the objective and status of activities; The GEF Monitoring and Evaluation Policy, 2006, requires that a TE report will provide summary information on when the evaluation took place; places visited; who was involved; the key questions; and, the methodology.
- iii) **Scope, objective and methods** presenting the evaluation's purpose, the evaluation criteria used and questions to be addressed;
- iv) **Project Performance and Impact** providing *factual evidence* relevant to the questions asked by the evaluator and interpretations of such evidence. This is the main substantive section of the report. The evaluator should provide a commentary and analysis on all eleven evaluation aspects (A – K above).
- v) **Conclusions and rating** of project implementation success giving the evaluator's concluding assessments and ratings of the project against given evaluation criteria and standards of performance. The conclusions should provide answers to questions about whether the project is considered good or bad, and whether the results are considered positive or negative. The ratings should be provided with a brief narrative comment in a table (see *Annex 1* to this Appendix);
- vi) **Lessons (to be) learned** presenting general conclusions from the standpoint of the design and implementation of the project, based on good practices and successes

or problems and mistakes. Lessons should have the potential for wider application and use. All lessons should ‘stand alone’ and should:

- Briefly describe the context from which they are derived
- State or imply some prescriptive action;
- Specify the contexts in which they may be applied (if possible, who when and where)

- vii) **Recommendations** suggesting *actionable* proposals for improvement of the current project. In general, Terminal Evaluations are likely to have very few (perhaps two or three) actionable recommendations.

Prior to each recommendation, the issue(s) or problem(s) to be addressed by the recommendation should be clearly stated.

A high quality recommendation is an actionable proposal that is:

1. Feasible to implement within the timeframe and resources available
2. Commensurate with the available capacities of project team and partners
3. Specific in terms of who would do what and when
4. Contains results-based language (i.e. a measurable performance target)
5. Includes a trade-off analysis, when its implementation may require utilizing significant resources that would otherwise be used for other project purposes.

- viii) **Annexes** may include additional material deemed relevant by the evaluator but must include:

1. The Evaluation Terms of Reference,
2. A list of interviewees, and evaluation timeline
3. A list of documents reviewed / consulted
4. Summary co-finance information and a statement of project expenditure by activity
5. The expertise of the evaluation team. (brief CV).

TE reports will also include any response / comments from the project management team and/or the country focal point regarding the evaluation findings or conclusions as an annex to the report, however, such will be appended to the report by UNEP EOU.

Examples of UNEP GEF Terminal Evaluation Reports are available at www.unep.org/eou

Review of the Draft Evaluation Report

Draft reports submitted to UNEP EOU are shared with the corresponding Programme or Project Officer and his or her supervisor for initial review and consultation. The DGEF staff and senior Executing Agency staff are allowed to comment on the draft evaluation report. They may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions. The consultation also seeks feedback on the proposed recommendations. UNEP EOU collates all review comments and provides them to the evaluators for their consideration in preparing the final version of the report.

4. Submission of Final Terminal Evaluation Reports.

The final report shall be submitted in electronic form in MS Word format and should be sent to the following persons:

Segbedzi Norgbey, Chief,
UNEP Evaluation and Oversight Unit
P.O. Box 30552-00100
Nairobi, Kenya
Tel.: +(254-20)762-4181
Fax: +(254-20)762-3158

Email: Segbedzi.Norgbey@unep.org

With a copy to:

Maryam Niamir-Fuller,
Director
UNEP/Division of GEF Coordination
P.O. Box 30552-00100
Nairobi, Kenya
Tel: +(254-20)762-4166
Fax: +(254-20)762-4041/2
Email: Maryam.Niamir-Fuller@unep.org

{Name}
Task Manager
{Contact details}

The Final evaluation will also be copied to the following GEF National Focal Points.

{Insert contact details here}

The final evaluation report will be published on the Evaluation and Oversight Unit's web-site www.unep.org/eou and may be printed in hard copy. Subsequently, the report will be sent to the GEF Office of Evaluation for their review, appraisal and inclusion on the GEF website.

5. Resources and schedule of the evaluation

This final evaluation will be undertaken by an international evaluator contracted by the Evaluation and Oversight Unit, UNEP. The contract for the evaluator will begin on ddmmyyy and end on ddmmyyy (# days) spread over # weeks (# days of travel, to {country(ies)}, and # days desk study). The evaluator will submit a draft report on ddmmyyy to UNEP/EOU, the UNEP/DGEF Task Manager, and key representatives of the executing agencies. Any comments or responses to the draft report will be sent to UNEP / EOU for collation and the consultant will be advised of any necessary revisions. Comments to the final draft report will be sent to the consultant by ddmmyyy after which, the consultant will submit the final report no later than ddmmyyy.

The evaluator will after an initial telephone briefing with EOU and UNEP/GEF conduct initial desk review work and later travel to {country(ies)} and meet with project staff at the beginning of the evaluation. Furthermore, the evaluator is expected to travel to {country(ies)} and meet with representatives of the project executing agencies and the intended users of project's outputs.

In accordance with UNEP/GEF policy, all GEF projects are evaluated by independent evaluators contracted as consultants by the EOU. The evaluator should have the following qualifications:

The evaluator should not have been associated with the design and implementation of the project in a paid capacity. The evaluator will work under the overall supervision of the Chief, Evaluation and Oversight Unit, UNEP. The evaluator should be an international expert in { } with a sound understanding of { } issues. The consultant should have the following minimum qualifications: (i) experience in { } issues; (ii) experience with management and implementation of { } projects and in particular with { } targeted at policy-influence and decision-making; (iii) experience with project evaluation. Knowledge of UNEP programmes and GEF activities is desirable. Knowledge of {specify language(s)} is an advantage. Fluency in oral and written English is a must.

6. Schedule Of Payment

The consultant shall select one of the following two contract options:

Lump-Sum Option

The evaluator will receive an initial payment of 30% of the total amount due upon signature of the contract. A further 30% will be paid upon submission of the draft report. A final payment of 40% will be made upon satisfactory completion of work. The fee is payable under the individual Special Service Agreement (SSA) of the evaluator and **is inclusive** of all expenses such as travel, accommodation and incidental expenses.

Fee-only Option

The evaluator will receive an initial payment of 40% of the total amount due upon signature of the contract. Final payment of 60% will be made upon satisfactory completion of work. The fee is payable under the individual SSAs of the evaluator and is **NOT** inclusive of all expenses such as travel, accommodation and incidental expenses. Ticket and DSA will be paid separately.

In case, the evaluator cannot provide the products in accordance with the TORs, the timeframe agreed, or his products are substandard, the payment to the evaluator could be withheld, until such a time the products are modified to meet UNEP's standard. In case the evaluator fails to submit a satisfactory final product to UNEP, the product prepared by the evaluator may not constitute the evaluation report.

Appendix 11: Co-financing commitment letters from project partners



联合国
粮食及
农业组织

FOOD AND
AGRICULTURE
ORGANIZATION
OF THE
UNITED NATIONS

ORGANISATION
DES NATIONS
UNIES POUR
L'ALIMENTATION
ET L'AGRICULTURE

ORGANIZACION
DE LAS NACIONES
UNIDAS PARA
LA AGRICULTURA
Y LA ALIMENTACION

منظمة
الاغذية
والزراعة
للأمم
المتحدة

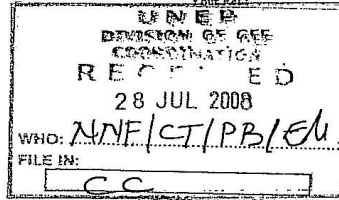
Viale delle Terme di Caracalla, 00153 Rome, Italy

Facsimile: +39 0657053152

Telephone: +39 0657051

Our Ref: EP/INT/503/GEF

134/08



25 July 2008

Dear Ms. Niamir-Fuller,

Subject: Support and co-financing to a Project based on "Establishing Sustainable Liquid Biofuels Production Worldwide"

In relation to the project of the reference, we are pleased to confirm the willingness of FAO to contribute towards the implementation of this proposed project through the provision of in-kind technical services and financing of specific inputs.

Having already granted our technical assistance during the formulation of the above project proposal, we agree to an estimated contribution of a total of US\$ 440 000 during the project.

The in-kind input of approximately US\$ 80 000 will represent the work-days devoted by various Professional Officers at Headquarters and field offices and their immediate secretarial support services together with the existing Headquarters' base technical information services, but it does not include the costs of any staff or consultants who are specifically scheduled in the project budget to provide specific missions away from Rome to project activity sites. To this purpose, US\$ 360 000 are earmarked for direct technical input as specified in the project.

We look forward to the joint implementation of this project with UNEP and UNIDO and the many other partners who will contribute to its successful completion.

Yours sincerely,

Per Peter Holmgren Olivier Dubois, etc
 Director
 Environment, Climate Change and Bioenergy Division

Ms. Maryam Niamir-Fuller
 Director
 Division of Global Environment Facility (GEF) Coordination
 UNEP
 Room P-205
 P.O. Box 30552
 Nairobi 00100, Kenya



UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

VIENNA INTERNATIONAL CENTRE
P.O. BOX 300, A-1400 VIENNA, AUSTRIA

TELEPHONE: (+43 1) 260 26-0

FAX: (+43 1) 269 26 69

www.unido.org

unido@unido.org

Dear Ms. Niamir-Fuller,

23 September 2008

Subject: Confirmation of commitment related to project "Establishing Sustainable Liquid Biofuels Production Worldwide" A Targeted Research Project-Global:

We are pleased to confirm UNIDO's role as co-executing agency for the Global GEF Targeted Research Project on Establishing Sustainable Liquid Biofuels Production Worldwide, and confirm the Organization's commitment to contribute to the co-financing grant with USD 450,000 in cash, and USD 45,000 in kind, totalling USD 495,000, which will be released upon the approval by the GEF of the MSP.

The in-kind input of approximately USD 45,000 will represent the work-days devoted by various Professional Officers at Headquarters and field offices and their immediate secretarial support services together with the existing Headquarters' base technical information services, but it does not include the costs of any staff or consultants who are specifically scheduled in the project budget to provide specific technical missions away from Vienna to project activity sites. For this purpose, USD 450,000 are earmarked for direct technical input as specified in the project.

We look forward to the joint implementation of this project with UNEP and FAO and the many other partners who will contribute to its successful completion.

Yours sincerely,

Dmitri Piskounov
Managing Director
Programme Development and
Technical Cooperation Division

Ms. Maryam Niamir-Fuller
Director
Division of Global Environment Facility (GEF) Coordination
UNEP
Room P-205
P.O. Box 30552
Nairobi 00100, Kenya



Appendix 11 : Endorsement letters of GEF National Focal Points

Bundesministerium
für Umwelt, Naturschutz
und Reaktorsicherheit

Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit, N II 5,
Postfach 12 06 29, 53046 Bonn

Mister
Peerke de Bakker
Programme Officer Energy
UNEP/DGEF
P.O. Box 30552
Nairobi - Kenya

HAUSANSCHRIFT
Robert-Schuman-Platz 3
53175 Bonn

POSTANSCHRIFT
Postfach 12 06 29, 53048 Bonn

TEL +49 22899 305-2650
FAX +49 22899 305-2695

killian.delbrueck@bmu.bund.de
www.bmu.de

Aktenzeichen: N II 5 – 46043-2/46
Bonn, 13.08.2008
Seite 1 von 1

Dear Peerke de Bakker,

excuse me for the delay in sending you the confirmation for the UNEP-
GEF-Project.

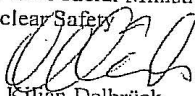
The German Federal Ministry for Environment, Nature Protection, and
Nuclear Safety (BMU) hereby confirms to co-finance the joint U-
NEP/FAO/IEA/UNIDO targeted research project ("GEF study").

Co-financing from Germany to the GEF study will be an equivalent of
100,000 US\$, and will be made through financing the participation of
and contributions from the research partners Oeko-Institut and IFEU. The
contributions come from the ongoing research project of BMU/UBA
(FKZ 37 07 93 100) on sustainable biomass which is carried out by Oe-
ko-Institut and IFEU.

The contribution to the GEF study will focus on the biodiversity and
greenhouse-gas emission impacts of biofuels, and is to be carried out
until end of 2009.

Yours sincerely

For the Federal Ministry for the Environment, Nature Conservation and
Nuclear Safety


Dr. Killian Delbrück

Zusell- und Lieferadresse: Robert-Schuman-Platz 3, Zufahrt über Helmrich-von-Stephan-Straße, 53175 Bonn

Appendix 12: Endorsement letters of GEF National Focal Points

Not Applicable

Appendix 13: Procurement Plan

The majority of GEF funds will be disbursed through inter United Nations agencies standard legal agreements (Letter of Agreement (LoA) between UNEP on one hand, and FAO and UNIDO respectively, on the other hand) and through Small Scale Funding Agreements (signed between UNEP on one hand, and IFEU and OEKO Institute on the other hand), in accordance with UNEP rules and procedures.

The majority of the funds transferred to the two co-executing agencies through LoAs will in turn be disbursed through sub-contracts to the three executing partners of this Targeted Research: IFEU, OEKO Institute and Copernicus Institute Utrecht University, in accordance with FAO and UNIDO rules and procedures, respectively.

In addition to the GEF funds, cash co-financing will be also disbursed to the Research Institutes as well as 40,000 cash co-financing by UNIDO to the International Energy Agency for its support. Two of the Research Institutes will receive in particular direct cash contributions from the German Federal Ministry of Environment.

An overview of the planned contracts and agreements between respectively UNEP, FAO, UNIDO and BMU, and the research partners of the project is given below. Final allocations by project components will be decided upon during the inception phase of the project, depending on the final allocation of tasks between partners.

Planned contracts and agreements with research partner institutions

Partners	Financing Party	Type of funds	Amount	Project components
<u>IFEU</u>	UNEP DTIE	GEF Grant	200,000	C1, C2, C10 and C11
	FAO	GEF Grant	33,000	C1
	BMU	Cash Co finance	50,000	C2
			<u>283,000</u>	
<u>OEKO</u>	UNEP DTIE	GEF Grant	80,000	C1 and C4
	FAO	GEF Grant	122,000	C5 and C8
	BMU	Cash Co finance	50,000	C4
			<u>252,000</u>	
<u>UTRECH UNIV.</u>	UNIDO	GEF Grant	260,000	C3, C6 and C9
	UNIDO	Cash Co finance	290,000	C3, C6 and C9
			550,000	
<u>IEA</u>	UNIDO	Cash Co finance	40,000	C3, C6 and C9
			<u>40,000</u>	
Total contracts =			1,125,000	

Developing country partner institutions (e.g. scientific institutions worldwide) will actively contribute to the various thematic research modules (project components 2 through 9), depending on their respective expertise on the substance and interest for the settings selected. While a precisely set share (in the range of 30 to 50%, most likely) of the project funds spent on these thematic research modules is not yet reserved for the contributing partners from developing countries, the common understanding among the 3 executing agencies and 3 main research institutes is that their maximum involvement is highly desired. Such proactive engagement of partners in developing countries will enhance the quality of data collected and maximize the first-hand dissemination, among as many developing countries policy makers and influencers as possible, of the research results and guidance to countries.

The coordination of the research work of these partner institutions in GEF-eligible countries, as well as the necessary technical assistance and capacity building will be provided by the three main research institutes contracted (IFEU, OEKO Institute, the Copernicus Institute of the University of Utrecht), which will work under the coordination of the UN Agencies.

The developing country partner institutions will be contracted by the three main research institutes following a selection process whose final modalities will be agreed upon during the inception phase of the project. Undoubtedly and as already said, this selection will be based on the expertise in the subject matter(s) that these institutions will be asked to contribute to and the final biofuel pathways/settings to be investigated in this project. Other important considerations will be given to building capacity at research institutes in the developing world and reaching a balanced geographical distribution.