

## CLIMATE CHANGE FOCAL AREA STRATEGY AND STRATEGIC PROGRAMMING FOR GEF-4

### I. INTRODUCTION

1. This brochure presents the Climate Change focal area strategy and strategic programming for GEF-4 (2007 – 2010), approved by the GEF Council in September 2007.
2. At the replenishment of the GEF Trust Fund in 2006, the GEF Council requested the GEF Secretariat to review and revise as necessary the strategies for the six focal areas of the GEF, taking into account issues such as sustainable forest management and sound chemicals management.<sup>1</sup>
3. In December 2006, the CEO presented to the Council a plan to increase the efficiency and impact of the GEF. A central element of this reform package is to move away from the previous single project interventions towards a more programmatic focus for the GEF. The purpose is two-fold: a) to focus the limited funding resources of GEF-4 on a set of priority issues of global environmental concern; and b) to link projects together to achieve stronger impacts.
4. The strategy for Climate Change presented here is the result of a consultative process involving external advisory groups and contributions from the GEF Council Members, Convention secretariats, GEF agencies, the Scientific and Technical Advisory Panel (STAP) and other GEF partners.<sup>2</sup>
5. The strategy builds on previous GEF achievements and experience within climate change. The long term objectives of this focal area are still to “support sustainable measures that minimize climate change damage by reducing the risk, or the adverse effects, of climate change. The GEF will finance agreed and eligible enabling, mitigation, and adaptation activities in eligible recipient countries.” (1995, GEF Operational Strategy, p 31).

As a step towards a more programmatic approach, strategic programs have been developed in support of the long term objectives. These strategic programs define the GEF’s focus during GEF-4. The strategic programs have been selected and defined in view of their importance, urgency and cost-effectiveness from a global environment perspective. Priorities identified by countries, as well as overall guidance from the multilateral environmental agreements and conventions have also been taken into consideration. The strategic programs provide an intermediate link between the project level and the long term objectives of the GEF within the focal areas.

6. The long term objectives and strategic programs that are redefined for every replenishment period replace the previous structure of operational programs and strategic

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<sup>1</sup> GEF/R.4/32, Policy recommendations for the Fourth Replenishment of the GEF Trust Fund

<sup>2</sup> Working documents and comments received from GEF partners are accessible at the GEF website [www.thegef.org](http://www.thegef.org) under GEF policies.

priorities. The new structure, summarized for the Climate Change Focal Area in the table below, balances continuity and flexibility and supports the emphasis on results.

*Table 1: Long term objectives and strategic programs for Climate Change in GEF-4*

Long-term Objectives	Strategic Programs for GEF-4
<b>1:</b> To promote energy-efficient technologies and practices in the appliance and building sectors	1. Promoting energy efficiency in residential and commercial buildings
<b>2:</b> To promote energy-efficient technologies and practices in industrial production and manufacturing processes	2. Promoting energy efficiency in the industrial sector
<b>3:</b> To improve the efficiency and performance of existing power plants	(strategic objective not pursued directly in GEF-4)
<b>4:</b> To promote on-grid renewable energy	3. Promoting market approaches for renewable energy
<b>5:</b> To promote the use of renewable energy for the provision of rural energy services (off-grid)	(strategic objective not pursued directly in GEF-4)
<b>6:</b> To support new low-GHG emitting energy technologies	4. Promoting sustainable energy production from biomass
<b>7:</b> To facilitate market transformation for sustainable mobility in urban areas leading to reduced GHG emissions	5. Promoting sustainable innovative systems for urban transport
<b>7 bis:</b> To reduce GHG emissions from land use, land use change and forestry	6. Management of land use, land-use change and forestry (LULUCF) as a means to protect carbon stocks and reduce GHG emissions
<b>8:</b> To support pilot and demonstration projects for adaptation to climate change	(Reference is made to the SPA, SCCF and LDCF, and to the principle of GEF-wide climate proofing described in Annex 2)

7. The focal area strategy is aligned with the Results Based Management (RBM) Framework for the GEF, in order to direct the strategies towards tangible global environmental benefits and to enable adequate reporting on the implementation of the strategies. Long-term expected *impacts* on the global environment are assigned to each of the objectives, and intermediate expected *outcomes* are assigned to each of the strategic programs. The projects are thus expected to support the achievement of the impacts and outcomes identified at the programmatic level.

8. Provisional indicators have been identified for each expected impact and for each expected outcome. These indicators will allow a systematic monitoring of the actual achievement of the expected impacts and outcomes. The indicators will be further developed in connection with the Results Based Management for the GEF.

9. The strategy for Climate Change presented here seeks to guide project proponents in countries and in GEF agencies and other GEF partners in preparing and reviewing project proposals for GEF-4. The GEF Secretariat will initiate the development of long term objectives and strategic programs for GEF-5 in 2008 with a view to presenting proposed strategic programming for GEF-5 to the GEF Council at its first meeting in 2009.

## II. BACKGROUND

10. Since its inception in 1991, the GEF has allocated over US\$2 billion to projects in the climate change focal area. These funds have leveraged another US\$10 billion of funding in support of the climate change activities of **the GEF**. Three types of interventions – enabling, mitigation, and adaptation activities – have formed the basis for GEF support to the climate change focal area.

11. The GEF's approach has evolved through time. From a Pilot Phase which placed a premium on innovative demonstrations of technically feasible mitigation projects, the GEF's focus has continually shifted upstream toward creating a conducive policy environment, away from individual investments. GEF support is directed not at subsidizing individual investments, but rather at creating the market environment in which the technologies and practices can diffuse into the target markets. In addition, the further deepening of international commitments to climate change has provided a new flow of funds in the form of carbon finance for mitigation projects in developing countries. As this flow tends to target specific investment projects, GEF's barrier removal approach minimizes the potential for duplication of efforts, while laying the foundation for complementarity between GEF resources and carbon-finance backed investments. Because GEF resources are limited, GEF support in the climate change focal area is most effective when it is used to facilitate, leverage, and complement other sources of financing.

12. Based upon past experience and the strategy that was specified in the GEF-4 Replenishment Paper (**GEF/C.29/3**), this document presents a revised climate change focal area strategy for the GEF-4 period. A starting point for the revision of the strategy is the agreement that all resources in the climate change focal area will be allocated through the Resource Allocation Framework (RAF). This framework builds upon the ability of countries to deliver global environmental benefits given their country capacity, policies, and practices. The strategy allows a range of responses broad enough for all countries to access the support needed to meet their obligations and commitments to the UN Framework Convention on Climate Change (UNFCCC).

## II. MISSION

13. In the climate change focal area, the GEF will finance eligible enabling, mitigation, and adaptation activities. With respect to *enabling activities*, arrangements were made to support the second national communications of most eligible countries during the period of GEF-3. Further arrangements are necessary to ensure that adequate and timely support for third and subsequent national communications is made available to countries requiring it. GEF's mission in *mitigation* is to transform the market development paths of eligible countries into trajectories with lower greenhouse gas (GHG) emissions in the energy, industry, transport, and land-use sectors. The long-term impact of this work will be a slowing of the accumulation of GHG concentrations in the atmosphere. GEF's mission under *adaptation* is to assist developing countries in piloting how to address the adverse

impacts of climate change, including variability, by supporting projects that: identify and implement suitable adaptation measures; build adaptive capacity; and reduce vulnerability and increase ecosystem resilience to the adverse impacts of climate change, including variability.

### III. STRATEGIC OBJECTIVES

14. Recent reviews of GEF programming have helped shape the evolution of the climate change strategy. The second Climate Change Program Study (CCPS2) stated that, “The GEF Secretariat should take the lead in improving overall strategic coherence by clarifying the overarching goal of market transformation outcomes that contribute to GHG emissions reduction or avoidance, and the manner in which existing Operational Programs and associated strategies contribute to this overall goal.” (CCPS2, p. 67)

Table 1: GEF Strategic Objectives in the Climate Change Focal Area

Strategic Objectives	Expected Direct Impacts	Indicators
<b>Mitigation</b>		
1. To promote energy-efficient technologies and practices in appliances and buildings	Improved efficiency of energy use in the built environment	Energy consumption (and GHG emissions) of buildings and appliances; (kWh / m <sup>2</sup> and tons CO <sub>2eq</sub> / m <sup>2</sup> ); and \$/ t CO <sub>2eq</sub> <sup>3</sup>
2. To promote energy-efficient technologies and practices in industrial production and manufacturing processes	Improved energy efficiency of industrial production	Efficiency of industrial energy use (energy use / \$ GDP); GHG emissions from industry (tons CO <sub>2eq</sub> / \$ GDP); and \$/ t CO <sub>2eq</sub>
3. To improve the efficiency and performance of existing power plants	Improved energy efficiency of electricity generation from existing power plants	Efficiency of power generation (tons coal/kWh); GHG emissions per unit of electricity generated (tons CO <sub>2eq</sub> / kWh); and \$/ t CO <sub>2eq</sub>
4. To promote on-grid renewable energy	Increased production of renewable energy in electricity grids	Market penetration of on-grid renewable energy (% from renewables); GHG emissions from electricity generation (tons CO <sub>2eq</sub> / kWh); and \$/ t CO <sub>2eq</sub>
5. To promote the use of renewable energy for the provision of rural energy services (off-grid)	Increased production and use of renewable energy in rural areas	Number (or %) of rural households served by renewable energy (# HH or % HH); renewable generation of electricity for rural energy services (kWh renewable); and \$/ t CO <sub>2eq</sub>
6. To support new low-GHG emitting energy technologies	Reduced cost of selected low GHG-emitting energy technologies	Cost of selected, low-GHG emitting energy generating technologies (\$/ W installed or \$/kWh generated); and \$/ t CO <sub>2eq</sub>
7. To facilitate market transformation for sustainable mobility in urban areas leading to reduced GHG emissions	Increased use of sustainable transport modes	Number or percentage of trips using sustainable modes of transport and \$/ t CO <sub>2eq</sub>

<sup>3</sup> Cost effectiveness indicator for impact over long term is and \$/ t CO<sub>2eq</sub> per paragraph 7 in text.

7	To reduce GHG emissions from land use, land use change, and forestry	Reduced GHG emissions from land use, land use change, and forestry	Emissions from LULUCF (tons CO <sub>2</sub> eq); and \$/ t CO <sub>2</sub> eq
<b>Adaptation</b>			
8.	To support pilot and demonstration projects for adaptation to climate change	Enhanced resilience and increased capacity to respond to the adverse impacts of climate change	Decreased vulnerability; enhanced resiliency

15. In accordance with this recommendation, the GEF has directed its strategic objectives in the climate change focal area to include seven mitigation objectives and the single adaptation objective listed in Table 1 above. These objectives form the basis for GEF's approach to the climate change focal area at the heart of the GEF-4 Replenishment Agreement, and reflect considerable experience with respect to its past programming successes and failures. However, as part of that Replenishment Agreement, the strategy is being reviewed and revised with an eye toward greater focus for impact.

16. During the GEF-4 replenishment period, the climate change mitigation target is set at an additional estimated 400 million tons of CO<sub>2</sub> equivalent (CO<sub>2e</sub>) to be avoided through GEF interventions. It has been estimated that the GEF's cumulative contribution to GHG emissions reduction from its inception until 2006 comes to 1,200 million tons of CO<sub>2e</sub> avoided. During the period of GEF-3, the GEF's support to climate change mitigation projects was estimated to result in over 400 million tons of CO<sub>2e</sub> avoided, including both direct and indirect effects of GEF projects over the lifetime of the investments.

17. During GEF-4, the overarching goal is to reduce GHG emissions through transforming markets. Because market transformation is a complex, long-term process, even successful projects will almost never completely transform a market, but will instead contribute positively to the transformation process. Given GEF's role as an innovative catalyst, many of the global benefits of GEF support are expected to be indirect in nature. Additional activities, including follow-on investments, will be required to complete the process of market transformation. Not only must participating governments demonstrate a strong commitment to adopting policies and regulations to ensure the success of the activities being promoted, but also the private sector must be engaged both for advice on establishing pre-conditions for success and for making the necessary investments themselves. Seen in a full context, policy gains alone are insufficient to lead to a full transformation of the targeted markets.

18. Stabilizing GHG concentrations in the atmosphere will require: reducing GHG emission by improving the efficiency of energy production and utilization; increasing the use of renewable energy which produces low net GHG emissions; and improving the sustainability of mobility and reducing emissions from the land use and forestry sectors. These approaches will represent the revised focus of the GEF's climate change mitigation operations for the period of GEF-4.

#### IV. STRATEGIC FOCUS IN GEF-4

19. The GEF-4 Replenishment Paper (GEF/C.29/3) specified seven strategic objectives in mitigation and one in adaptation that form the longer-term basis for GEF programming (Table 1). These options have been reviewed in terms of the feasibility of achieving significant impacts under these objectives given the level of resources available during the period of GEF-4. Gaps left in the strategy have also been identified and new areas of intervention proposed to fill those gaps. As a result of this review process, GEF climate change mitigation programming will be concentrated in six strategic programs for the period of GEF-4. In arriving at these six strategic programs, each of the original seven objectives was considered with respect to the GEF's unique role, mission, and potential impact. Potential shortcomings or gaps were then identified and alternates proposed in order to ensure that the GEF has a balanced approach to mitigation needs posed by recipient countries.

20. In re-examining the initial seven mitigation objectives for GEF-4, it became very clear that resources are not sufficient to have a noticeable impact with respect to the objective "Rehabilitation of Power Plants." The GEF is committed to working with the World Bank and the other international financial institutions (IFIs) to make the Clean Energy Investment Framework a reality. Rather than allocating too few resources to such an important problem, thereby making no impact at all, further GEF support to power plant rehabilitation will be delayed until it can be placed effectively within the context of a meaningful clean energy investment framework, which would require a substantial increase in GEF resources. The challenge of clean energy investment for developing countries is essential to stabilizing GHG concentrations, but it will require greater support than the GEF can provide during GEF-4. The GEF will continue to work closely with the World Bank in its program to accelerate the transition to a low carbon economy.

21. With respect to the strategic objective entitled "Off-grid Renewable Energy," the GEF has, since its inception, supported projects in this area, but evaluations of these projects have indicated that these projects have resulted in neither a significant take-off of these markets nor a meaningful reduction in GHG emissions. Past GEF support has stimulated a small but growing market for renewable energy in the rural areas of developing countries, but supplying that market leads to no appreciable GHG emission reductions. Therefore, the market for rural renewable energy is more appropriately addressed as part of the energy access agenda of official development assistance, not as part of the climate change mitigation agenda. Traditional development assistance is posed to build upon the earlier GEF experience and the lessons learned to begin providing modern energy services to those without. For GEF-4, this strategic objective will not be considered a priority given the level of support available and the renewed importance being placed on reducing overall GHG emissions.

22. The GEF has struggled over the years with the strategic objective entitled "Low-GHG Emitting Energy Technologies". Only a handful of these projects, utilizing an inordinately large quantity of resources, have made it through to implementation. To date, they have shown little or no concrete benefits in reducing the costs of the targeted technologies or even in reducing GHG emissions. The GEF experience tends to support the view that transferring technologies that are not yet mature is difficult as it imposes large additional costs and risks on developing countries and their energy systems. However, the

GEF needs to keep abreast of developments related to new, low-GHG emitting energy technologies in order to determine whether or not they reach a point where they merit GEF support. While the GEF will not allocate significant resources to the new technologies during GEF-4, limited support in the form of targeted research may be necessary to keep a watching brief on related developments. New approaches to this programming priority will have to be considered for GEF-5. During GEF-4, clean energy will be pursued as one of the priority platforms for the GEF Public-Private Partnership.

23. From the initial seven mitigation objectives defined for GEF-4, this strategic review has focused on four objectives. In addition to these four programs, two additional gaps in the programming menu were identified: a) sustainable energy production from biomass, and b) reducing emissions from land use, land-use change, and forestry.<sup>4</sup> The GEF Council has agreed to include these strategic programs in GEF-4.

24. In the case of biomass energy, the GEF has supported past efforts in this field. However, most of these projects have focused on utilized by-products of the forestry or agricultural industries and have not required the planting or harvesting of dedicated biomass-fuel supply streams. As the price of petroleum fuels rises, pressure will increasingly be put on countries to increase energy production from biomass. But as recent Scientific and Technical Advisory Panel (STAP) work has argued (GEF/C.31/Inf.2), the production of biomass and biofuels poses considerable sustainable risks. This new strategic program is designed to pay particular attention to these sustainability needs, ensuring that biomass supplies for GEF climate change mitigation projects do not threaten indigenous biodiversity or contribute to further land deterioration or water misallocation. The global benefits from this program are expected to come mainly from the energy value of the biomass, not the value of the residual carbon sequestered.

25. In the case of land use, land-use change, and forestry (LULUCF), estimates from land-use changes in developing countries range as high as 20% of global anthropogenic emissions. During the period of GEF-4, emphasis within this program will be placed on clarifying the following two issues: a) development of a cost-effective methodology for measuring carbon stocks and fluxes, and b) identification and formulation of “best practice” activities in the land-use sectors to reduce GHG emissions from land-use changes. Efforts to pilot activities to reduce emissions from LULUCF may be supported in countries having a framework to implement “best practice” policy actions to reduce undesirable land-use changes and a detailed database that calibrates forest stand and carbon measurements in order to ensure rigorous monitoring of results. This new strategic program on LULUCF also responds to Decision 2/ CP.12 of the UNFCCC Conference of Parties, which requested that the GEF “explore options for undertaking land use and land-use change projects within the climate change focal area of the Global Environment Facility, in light of past experience.” The GEF will take future guidance from the UNFCCC related to this programming area into account in order to make adjustments as necessary.

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<sup>4</sup> Reducing GHG emissions from LULUCF is the negative corollary of carbon sequestration. The two are interchangeable ends of the same continuum and efforts to reduce emissions from LULUCF also include efforts to sequester carbon in vegetation.

26. These six climate change strategic programs for GEF-4 prove largely consistent with the International Energy Agency's Alternative Policy Scenarios developed in 2006, which demonstrated that energy efficiency is a key to reducing GHG emissions. The strategy also targets LULUCF emissions, which comprise a significant portion of global GHG emissions from developing countries. Together, these changes serve to place renewed emphasis on reducing GHG emissions from GEF program countries.

## V. STRATEGIC PROGRAMMING FOR GEF-4

### *GEF-4 Support to Enabling Activities*

27. Enabling activities will continue to be financed by the GEF, as national communications represent both an obligation of non-Annex I parties under the UNFCCC. Article 4.3 of the UNFCCC specifies that the GEF shall pay the agreed full cost of the preparation of national communications. During GEF-3, an umbrella project was approved for United Nations Development Programme (UNDP) and United Nations Environment Programme (UNEP) to provide expedited support to countries' second national communications. As national communications from non-Annex I Parties are presented on a five-year cycle, this project, approved in 2004, will cover the needs of most countries through the GEF-4 replenishment period. Action will be required to ensure that adequate and timely support for third and subsequent national communications is made available to countries requiring it. The GEF will ensure that it keeps UNFCCC Parties well informed of available funding support, and of any changes to funding procedures with respect to the preparation of national communications.

28. Non-Annex I national communications projects have helped countries undertake inventories of GHG emissions and describe steps to implement the Convention. National communications remain at the heart of the implementation of the UNFCCC for all countries. All GEF agencies, the UNFCCC Secretariat, and the GEF Secretariat will need to redouble their cooperative efforts to ensure proper support to all activities undertaken through the national communication process, including technology needs assessments (TNAs) and vulnerability and adaptation assessments (V&As).

### *GEF-4 Support to Mitigation Programming*

29. Six strategic programs will form the basis for mitigation programming for the GEF-4 replenishment period. These strategic programs are described below and listed in Table 2.

#### **Strategic Program 1: Promoting Energy Efficiency in Residential and Commercial Buildings**

30. This strategic program will promote energy efficiency in residential and commercial buildings. Successful outcomes will include increased market penetration of energy-efficient technologies, practices, products, and materials in the residential and commercial building markets. Indicators of success will be the tons of CO<sub>2e</sub> avoided, the adoption of energy efficiency standards, and the estimated quantity of energy saved. This

strategic program covers the entire spectrum of the building sector, including the building envelope, the energy-consuming systems and appliances used in buildings for heating, cooling, lighting, including appliances and office equipment, as well as building operation and energy consumption during building operation. Some activities may use solar energy for heating and cooling, some may extend to the replacement of older chillers and air-conditioning systems with newer ones, provided that the replacements are both more efficient, lower in global warming potential (GWP) and minimize the use of chemicals damaging to the ozone layer.

31. Where it makes sense to do so in order to reduce GHG emissions and it is consistent with “chemical-proofing” the portfolio, GEF projects in this strategic program can support the phase-out of hydrochlorofluorocarbons (HCFCs) used in chillers, air-conditioners, refrigerators, and other equipment, even before the required phase-out dates under the **Montreal Protocol**. Government commitments to adopting and enforcing standards and regulations are essential for these initiatives to have an impact through replication. Over the course of the GEF-4 programming period, the focus in this programming areas will naturally shift from appliances, lighting, and refrigerators to energy efficiency of the built environment. While this programming area is of relevance to all countries, it will be especially important to rapidly urbanizing countries. Projects will be largely oriented to technical assistance, but some investment will also be required for markets to reach their limits.

### **Strategic Program 2: Promoting Energy Efficiency in the Industrial Sector**

32. This program will promote energy efficiency in the industrial sector, including the deployment and diffusion of energy-efficient technologies and practices in industrial production and manufacturing processes. A successful outcome will be the increased deployment of energy-efficient technologies and adoption of energy-saving practices. Indicators of success will be tons of CO<sub>2e</sub> avoided, volume of investment in new, more efficient plants and equipment, and the quantity of energy saved. This strategic program covers the energy systems in industrial manufacturing and processing, including combustion, steam, process heat, combined heat and power, electricity generation, and other public utilities. Small and medium enterprises (SMEs) in developing countries demonstrate significant potential for improved efficiency and reduced GHG emissions as they frequently have limited access to the technology and capital necessary for improving their facilities. Adoption of an appropriate energy pricing framework is essential to ensure project effectiveness.

33. This strategic program is expected to evolve into focused, sector-specific technology transfer programs focusing on GHG-intensive industries. The strategic program may be also used to test potential modalities for sector-specific or technology-specific GHG mitigation programs for use in GEF-4 and beyond. Where it makes sense to do so in order to reduce GHG emissions and it is consistent with “chemical-proofing” the GEF portfolio, GEF projects in this strategic program will support the phase-out of HCFCs used in the food processing industry before the phase-out dates required under the Montreal Protocol. At present, this strategic program is expected to be most relevant for countries

with large and growing industrial sectors that account for a significant share of both energy use and GHG emissions. Projects mixing technical assistance and investment support will be the norm.

### **Strategic Program 3: Promoting Market Approaches for Renewable Energy**

34. This strategic program will promote market approaches for the supply of and demand for renewable electricity in grid-based systems. The expected outcome will be the growth in markets for renewable heat power in participating program countries. Indicators of success will be the tons of CO<sub>2e</sub> avoided, the adoption of on-grid renewable policies, and the quantity of electricity generated from renewable sources. During the GEF-4 period, the emphasis will be upon developing policies and regulatory frameworks that provide limited incremental support to strategically important investments. In order to maximize GHG impacts, priority will be given to projects with a large replication potential. Further priority will be given to supporting utility-scale power production and cogeneration.

35. The renewable energy investments supported should be economically viable in their own right. A host country's willingness to adopt favorable policies and to follow through on the initiatives is essential. During GEF-2 and GEF-3, support has been provided to a number of countries to open up electricity regulations to renewable energy generation. For the period of GEF-4, one target may be to ensure that all countries have adopted regulations leveling the playing field for on-grid renewable energy. Countries with significant renewable energy generation potential may make this strategic program a high priority. Projects will include a combination of technical assistance for policy reform and regulation and initial investments to jump-start the market for a specific renewable technology.

### **Strategic Program 4: Promoting Sustainable Energy Production from Biomass**

36. This strategic program will promote sustainable energy production from biomass. A successful outcome will be the adoption of modern and sustainable practices in biomass production, conversion, and use as energy. Indicators of success will be tons of CO<sub>2e</sub> avoided, the adoption of modern biomass conversion technologies, improved efficiency of biomass energy use, kWh of electricity and heat generated from biomass sources, and energy services produced on the basis of biomass. Given the emphasis placed upon sustainable forest management in the remainder of the GEF portfolio, it was considered necessary to create a separate strategic program for biomass in order to highlight its importance and ensure consistency with other focal areas. GEF support will only go to biomass projects that ensure that biomass energy use is sustainable and does not, therefore, contribute to deforestation, reduced soil fertility, or increased GHG emissions beyond project boundaries. Projects will support the use of biomass for the production of energy services (e.g., electricity, heat) in modern efficient technologies. Support may be given to investigate the suitability and sustainability of producing biofuels to substitute for petroleum fuels used. In all instances, sustainability criteria will have to be observed to ensure that GEF support to modernization of biomass does not undermine food security, exacerbate existing availability problems, or violate GEF's sustainability principles relating

to biodiversity conservation or sustainable land and water management, in keeping with the recommendations of STAP.

37. In the past, GEF support to biomass energy has focused largely on the utilization of biomass wastes and residues. During GEF-4, additional support will be given to modern biomass projects using biomass planted for dedicated energy purposes, provided that such support is consistent with sustainability criteria. GEF will develop an approach for certifying the sustainability of biomass that will be used for energy under its biomass program. This will be expected to be a priority for countries with plentiful biomass or where biomass waste products go underutilized or where biomass continues to be used in inefficient, traditional wood stoves. Typical projects will provide a mixture of technical assistance, capacity building, and investment. Countries will undertake different projects, depending on their technological advancements in the area of bioenergy conversion, their pre-existing infrastructure, and the structure of energy demand. As the conversion of cellulosic biomass to liquid fuels becomes more feasible in technical and economic terms, GEF support to these newer approaches is expected to grow. Some targeted research may be proposed relating to these “next generation” biofuels, in keeping with STAP processes and recommendations.

#### **Strategic Program 5: Promoting Sustainable Innovative Systems for Urban Transport**

38. This strategic program will promote sustainable innovative systems for urban transport. A successful outcome will be a make greater use of less GHG-intensive transport modes in targeted urban areas. Indicators of success will include tons of CO<sub>2e</sub> avoided, the adoption/creation of sustainable transport policies, and the number of person-trips taken annually on sustainable options. The sustainable mobility market encompasses measures that promote transportation systems of lower carbon intensity including modal shifts to lower GHG-emitting modes of public transport, public rapid transit (including bus-rapid transit), and non-motorized transport.

39. Initially, GEF support to the transport sector was focused on technological solutions. For the period of GEF-4, emphasis will continue to be placed on “non-technology” options, such as planning, modal shift to low-GHG intensive transport modes, and promotion of better managed public transit systems. This strategic program will be a priority for countries with rapidly growing small- and medium-sized cities. Although greater emissions reductions are liable to result from countries with larger total GHG emissions, smaller countries may also find this to be a priority for the potential co-benefits of development and environment. Repeater projects in cities and countries already having received support in the transport sector will not be encouraged as government commitment to further replication of successful activities is key to success. Projects will include a mixture of technical assistance and limited investment support.

#### **Strategic Program 6: Management of Land Use, Land-Use Change and Forestry (LULUCF) as a Means to Protect Carbon Stocks and Reduce GHG Emissions**

40. This strategic program will promote the reduction of GHG emissions from LULUCF. Successful outcomes will be: reduction of GHG emissions from LULUCF; development of a systematic methodology that can be used to measure carbon stocks and fluxes in the land-use systems accurately and cost-effectively; and identification and implementation of policies and practices that reduce emissions from the LULUCF sector. This program also features in the GEF's cross-cutting sustainable forest management (SFM) program.

41. The cornerstone of this program will be a global initiative to define and refine a methodology for estimating avoided GHG emissions as a result of GEF-supported project activities. Building upon the Intergovernmental Panel on Climate Change (IPCC) Good Practice Guidance for measuring carbon stocks and emissions, the tools to be developed under this program will link forest stand and measurement data to satellite imagery to enable better system-wide tracking and monitoring of progress to reduce emissions from undesirable land-use changes. In addition to resources being devoted from the biodiversity and climate change regional-global allocations and land degradation focal area, countries interested in participating may allocate GEF resources from the climate change focal area towards developing their own calibration coefficients using local data and globally-available remote sensing information.<sup>5</sup> A second area of support includes providing technical assistance for policy formulation, building institutional and technical capacity to implement strategies and policies, developing and testing policy frameworks to slow the drivers of undesirable land-use changes, and working with local communities to develop alternative livelihood methods to reduce emissions and sequester carbon. In cases where the required forest stand data exists and the drivers of land-use changes are well understood, countries may utilize GEF-4 resources to pilot investment projects designed to reduce net emissions from LULUCF.

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<sup>5</sup> Because the GEF Council only recently decided to initiate the LULUCF program, the resources allocated to recipient countries through RAF may not adequately reflect the needs and potential for global environmental benefits from LULUCF activities.

*Table 2: Proposed Strategic Programs for GEF-4 Financing for Mitigation under the Climate Change Focal Area*

<b>Strategic Program</b>	<b>Expected Direct Outcome (Targets)</b>	<b>Indicators</b>
1. Promoting energy efficiency in residential and commercial buildings	Increased market penetration of energy-efficient technologies, practices, products, and materials in the residential and commercial building markets	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided</li> <li>• Policy Outcome Indicator: adoption of standards and codes</li> <li>• Outcome Indicator: kWh or TOE of energy saved in new construction and renovation per sq meter</li> </ul>
2. Promoting energy efficiency in the industrial sector	Increased deployment of energy-efficient technologies and adoption of energy-saving practices in the industrial sector	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided</li> <li>• Policy Outcome Indicator: policy and regulatory framework adopted</li> <li>• Outcome Indicator: volume of energy efficient investments (\$)</li> <li>• Outcome Indicator: kWh or TOE saved from adoption of new EE technologies</li> </ul>
3. Promoting market approaches for renewable energy	Growth in markets for renewable power in participating program countries	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided</li> <li>• Policy Outcome Indicator: adoption of policy frameworks allowing renewable generators equitable access to the grid</li> <li>• Outcome Indicator: kWh generated from renewable sources</li> </ul>
4. Promoting sustainable energy production from biomass	Adoption of modern and sustainable practices in biomass production, conversion, and use for modern energy	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided</li> <li>• Outcome Indicator: MW installed</li> <li>• Outcome Indicator: kWh or W steam generated from sustainable biomass</li> </ul>
5. Promoting sustainable innovative systems for urban transport	Innovative sustainable transport systems promoted, created, and adopted. Populations in targeted urban areas make greater use of less GHG-intensive transport modes	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided and tons of CO<sub>2</sub> emitted per km traveled</li> <li>• Policy Outcome Indicator: number of sustainable transport policies adopted</li> <li>• Outcome Indicator: person-trips per year on sustainable mode</li> </ul>
6. Management of LULUCF as a means to protect carbon stocks and reduce GHG emissions	Development and adoption of systems enabling countries to measure and reduce GHG emissions from LULUCF	<ul style="list-style-type: none"> <li>• Outcome Indicator: tons CO<sub>2eq</sub> avoided</li> <li>• Policy Outcome Indicator: adoption of policies designed to curb land-use emissions</li> <li>• Outcome Indicator: Cost-effective methodology for reporting accurately on GHG emissions from LULUCF</li> </ul>

### *GEF-4 Support to Adaptation Programming*

42. The GEF will demonstrate its impact on adaptation through decreased vulnerability and increased capacity to adapt to the adverse impacts of climate change among its program countries. The indicator for this impact will be based upon demonstration of increased resilience to climate change in GEF program countries. For the GEF-4 replenishment period, the overall goal in adaptation is to expand the range of experiences with adaptation in order to improve global understanding of the challenges brought on by climate change, including variability.

43. During GEF-4, the GEF will develop screening tools so that all future projects supported by the GEF will mitigate the risks associated with future climate change. In this regard, all GEF-supported projects will be made climate-resilient. Throughout GEF-4 all projects presented for CEO endorsement will be required to consider the impacts of climate change on their results and to modify their design to be more resilient to climate change. All projects are expected to combine technical assistance and capacity building with concrete actions. A premium will be placed on project-based learning opportunities and ensuring balanced coverage of regions and sectors.

44. During the period of GEF-4, the resources initially available for the Strategic Pilot on Adaptation (SPA) will be the remainder of the \$50 million initially allocated by the GEF Council in May 2004. The scope of programming was defined in the GEF programming paper for the SPA (GEF/C.23/Inf.8/Rev.1). Project activities will focus on ensuring the resilience of GEF activities to the adverse impacts of climate change in the focal area which delivers global environmental benefits. In biodiversity, priority is given to coral reefs, forests, and protected areas found in highly vulnerable ecosystems. In climate change, the priority is on the implications for future energy generation and use and GHG emissions due to changes in hydrological resources, or terrestrial environments. In international waters, priority is placed upon integrated coastal zone management (ICZM) in the context of sea-level rise. In the land degradation focal area, the priority is given to integrating climate change risk management into sustainable land management planning, especially focusing upon the needs in Africa. In Persistent Organic Pollutants (POPs), the priority will be given to building adaptive capacity to climate change in areas where plans for reduction and elimination of releases of POPs are ongoing.

45. Once these remaining funds (approximately US\$23 million) are allocated, an evaluation will be undertaken to draw initial lessons from adaptation funding for the GEF, to evaluate the potential for mainstreaming adaptation into GEF's focal areas and to recommend, if appropriate, allocating more resources from the GEF Trust Fund to adaptation, consistent with UNFCCC guidance (decisions 5/CP.7 and 1/CP.10) to the GEF on adaptation. In addition, an adaptation impact assessment methodology is being developed for application to all projects supported by GEF. With respect to the mainstreaming of adaptation, an adaptation screening tool will be developed for application to all GEF-4 projects across all focal areas. It will focus on the risks posed by the adverse impacts of climate change on project design, and identify where changes need to be made. Its development will incorporate inputs from STAP and the experience from other bilateral and multilateral agencies in the screening of adaptation projects.

46. The independent evaluation of the SPA will inform future decisions on the allocation of additional resources for adaptation under the GEF Trust Fund. Future GEF Council decisions will also have to take into account the guidance from the UNFCCC COP which has requested that more resources be made available under the GEF Trust Fund for concrete adaptation activities (decision 5/CP.7).

47. Beyond the GEF Trust Fund, the GEF is providing support to adaptation through new funds: the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF). Nevertheless, the question remains whether the GEF should continue to provide support to adaptation projects from the GEF Trust Fund.

## **VI. INTER-LINKAGES WITH OTHER FOCAL AREAS**

48. The GEF is proposing a framework strategy for SFM that will draw from the biodiversity, land degradation, and climate change focal areas. The climate change focal area will support SFM activities through both the Strategic Program 5 on biomass energy projects and from Strategic Program 6 on LULUCF. The resources for these efforts will be drawn both from its global and regional exclusion and from country-specific allocations in keeping with country priorities.

49. Two further topics merit discussion. First, the climate change strategic program on modernized biomass will have to develop and utilize sustainability criteria to ensure that the biomass supplies being used for the production of modern energy are, in fact, sustainable. Such projects must not pose a threat to biodiversity and should be produced on sustainably managed land. Some resources will be needed for the development of these criteria. Second, for the climate change focal area, reporting on carbon stocks being protected through projects in biodiversity, land degradation, and climate change itself will become increasingly important. Investment in the measurement of biological carbon sequestration from the resources of the climate change focal area under the SFM and the Strategic Program on LULUCF will be a necessary step to adequately report on the GEF's achievements to the UNFCCC COP from both within and without the work supported through the climate change focal area.

50. During the period of GEF-4, the GEF Secretariat will engage in the process of "chemical-proofing" its portfolio, to ensure consistency across the focal areas with the objectives in the chemicals focal area. This approach may be relevant to the climate change focal area in the strategic objective relating to energy efficiency in industry. As new industrial processes are introduced, improving the efficiency of combustion processes will, in most cases, reduce the emissions of dioxins and furans, the unintentional POPs. When appropriate and cost-effective, GEF support will be directed to options that reduce the use of harmful chemicals.

51. Finally, climate change will have adverse impacts in all parts of the globe. As noted earlier, the GEF Council set aside a sum of US\$50 million from the climate change focal area during GEF-3 to begin experimenting with the implementation of concrete adaptation projects. In addition, to further safeguard the GEF portfolio from the adverse impacts of climate change, the GEF Secretariat will develop an adaptation screening tool

that can be applied to the projects that it supports in all focal areas. This tool will help determine which of the proposed activities to achieve global environmental benefits are at risk from the anticipated adverse impacts of climate change, and therefore need to be modified or redesigned to ensure their sustainability.

## **VII. THE STRATEGIC EVOLUTION OF THE GEF'S CLIMATE CHANGE PROGRAMMING**

52. The GEF must continue to evolve its strategy in order to respond to changing conditions and to meet new challenges. The stabilization of GHG concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system will require concerted action on the part of the entire global community – of both developed and developing countries – according to their different responsibilities and capabilities. As the global community faces this enormous challenge, the GEF has an important role to play in its role as financial mechanism of the UNFCCC. How this role will evolve and change will depend not just upon international negotiations, but also on the state of technological development and advancement.

53. This document has focused on the strategic programming priorities for GEF-4. In looking ahead, the GEF must maintain a watching brief as to what happens in the markets for technologies of greatest relevance. As new technologies are developed, the GEF must continue to clarify whether it has a role in helping open, develop, and transform the markets for these new “beyond the horizon” low-GHG technologies. Whether that technology is entirely renewable, such as concentrating solar or geothermal power, or is a clean fossil-fuel option, such as integrated gasification combined-cycle (IGCC) technologies, or deals with long-term emission storage, such as geological carbon capture and storage (CCS), there is a need for the GEF to keep abreast of these developments and to revise its strategy and reformulate its strategic programming in response to these changes. GEF may use the tool of targeted research in order to maintain an awareness of new developments of relevance to the GEF and to continue revising and reformulating GEF's strategic programming in response to new challenges and opportunities.