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Private Sector Engagement in Climate Change Adaptation: Prepared by the GEF Secretariat in Collaboration with the International Finance Corporation

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I. Introduction

1. In November 2011, the GEF Council approved the *Revised Strategy for Enhancing Engagement with the Private Sector* (GEF.C.41.09.Rev.01), which outlines ways to expand private sector engagement in the pursuit of global environmental benefits.

2. The Strategy has two principle objectives: (a) to support greater access to financing for private sector companies pursuing innovative technologies and business models that yield benefits consistent with GEF objectives; and (b) to stimulate the development, dissemination and implementation of new technologies. The objectives of the Strategy were informed by an understanding of the barriers that prevent private sector partners from more extensive engagement with the GEF, including a lack of transparency, burdensome procedures, and the need for risk-sharing.

3. The GEF Private Sector Strategy is mostly focused on climate change mitigation and other GEF focal areas, which do not include adaptation. The GEF finances adaptation through two independent trust funds, the Least Developed Countries Fund (LDCF) and the Special Climate Change Fund (SCCF).

4. The LDCF and the SCCF were established by the Conference of the Parties (COP) to the United Framework Convention on Climate Change (UNFCCC), at its seventh session in 2001, with the priority of financing climate change adaptation in vulnerable countries. The Funds follow GEF operational strategies, policies and procedures except where the LDCF/SCCF Council decides otherwise in response to COP guidance.

5. The GEF Strategy may be applied to LDCF and SCCF adaptation projects only to a limited extent, as the Funds do not have a private sector set-aside similar to that of the GEF Trust Fund, and due to the current dominant role of public institutions in adaptation finance. Still, there is growing demand and considerable potential for private sector engagement in climate change adaptation. This paper aims to inform the LDCF/SCCF Council of the opportunities for the private sector to play a greater role in projects and programs under the LDCF and the SCCF, based on a growing body of experience and analysis. The paper proposes a systematic dialogue with private sector stakeholders on adaptation, with the aim of identifying additional approaches and mechanisms for enhanced private sector engagement that help meet emerging client demand and present opportunities for LDCF/SCCF operations, consistent, *mutatis mutandis*, with the GEF Private Sector Strategy.

II. Background

6. The relevance of the private sector in adaptation financing has been recognized on several occasions in the context of UNFCCC negotiations, LDCF/SCCF Council meetings, and by the vulnerable countries themselves. As an early example, the guiding principles of the *Annotated guidelines for the preparation of National Adaptation Programmes of Action* (NAPA), prepared by the Least Developed Countries Expert Group (LEG) in 2002, state that opportunities for the involvement of the private sector should be sought to ensure the successful

implementation of NAPA priorities.

7. One reason to focus on private sector financing of adaptation is the need to identify additional sources of funds to complement and enhance the effectiveness of donor funding. The opportunity for engaging large sources of private investment to address climate change goals has been discussed in several recent international reviews of climate funding including the report of the UN High Level Advisory Group on Climate Finance and a multi-agency review prepared last year for the G-20 and led by the World Bank. These reports point to the potential benefits of engaging even very small amounts of investments from pension funds and other large asset managers, which collectively manage many trillions of dollars.

8. Many of the needs identified in the NAPA's and other analyses of climate risks and adaptation priorities in developing countries are for products and services that could be provided in the most efficient and sustainable way through cooperation with the private sector. A good example is the provision of early warning systems for extreme weather events as discussed below (see pars 16 - 19). The private sector role may vary from sector to sector and country to country and could take many different forms, from simply serving as a provider of technology to working in partnership with governments to the assumption of primary responsibility for the delivery of adaptation services.

9. The private sector is showing increasing interest in adaptation for several reasons as discussed below (see pars 25 and 28). One is the growing number of companies and investors already affected by extreme weather events and thus facing the potential financial consequences of being unprepared for climate change. Recent examples include the floods in Thailand, which severely disrupted global production of manufactured goods with attendant losses in shareholder value, and extended droughts in several wheat growing regions leading to dramatic price rises and food riots. A second source of interest is the potential for selling adaptation products and services with potentially large markets. There are also already some companies who see promoting their awareness and response to climate change as an element of social responsibility.

10. In the climate change negotiations and related fora, however, it is also common to find statements that adaptation measures will essentially be the responsibility of governments. There are some areas of climate change adaptation which are at present primarily or even exclusively government functions. For example, in most countries weather and storm warnings have traditionally been public functions administered by hydro-meteorological agencies; it is only recently that alternative private sector business models to provide these services at lower cost have begun to emerge (see below). Other traditionally predominantly public responsibilities related to adaptation include land-use planning, agricultural research (e.g., to develop climate-resilient seed varieties), and coastal zone management. Yet, even at this early stage of implementing adaptation measures, potential private sector contributions including provision of innovative adaptation technologies and services have been identified in all these fields. It is therefore apparent that the role of the private sector in adaptation will be exceedingly significant.[1]

[1] For the purposes of this paper, the "private sector" encompasses all non-governmental, for-profit actors potentially involved in climate change adaptation. While from a financial standpoint, large commercial entities are likely to be

11. The experience that the GEF has gained in the last decade by managing the Strategic Priority on Adaptation (SPA) -- the first adaptation pilot at the GEF established under the guidance of the Conference of the Parties to the UNFCCC -- the LDCF, and the SCCF, shows numerous opportunities for private sector engagement, but also barriers. This experience has led to the understanding that public policy and investment will to a large extent enable and condition private sector involvement in adaptation[2]. Governments will provide much of the climate risk information, as well as the regulatory frameworks and incentives critical for adaptive action by private actors.

12. The effectiveness of private sector engagement in meeting adaptation needs depends on many factors, including awareness, public policy, and the availability of financing. Yet, it is apparent that engaging the private sector will be important for several reasons: to encourage preventive measures that reduce losses caused by climate change; to enhance the effectiveness of public aid by leveraging private investments; and to promote new products and services that can increase adaptation options and reduce their costs.[3]

III. Opportunities for Private Sector Adaptation to Further the Objectives of the LDCF and SCCF

13. There is a growing body of experience and analysis pointing to both the risks of climate change for the private sector and the importance and feasibility of adaptive measures to increase climate resilience. This section highlights some of this understanding and its relevance for meeting development needs generally and LDC needs in particular in the context of a changing climate.

Development Sectors

14. Some of the largest areas for private sector activity and investments coincide with development sectors -- such as infrastructure, agriculture, water resources management, energy, and coastal zone management – that are most vulnerable to climate change. In the poorest countries, agriculture and small farms typically constitute a large share of employment and GDP. Climate change adaptation in these sectors is therefore closely linked to the resilience of private entities. In addition, identifying climate risks may create business opportunities that arise in connection with adaptation interventions (see examples below). Successful private sector engagement in adaptation will catalyze greater and more frequent investments, which could

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most important as sources of investment in adaptation measures, climate change will have major impacts on small businesses and the self-employed, who will need to respond as best they can.

[2] "National policies are key to strategic adaptation planning. They can help to create an enabling environment that ensures scaled-up financial resources are optimized, used to support integration of adaptation in sectoral and development planning, and shifted towards those activities that hold the greatest promise for reducing vulnerability." (UNFCCC 2008, *Investment and financial flows to address climate change: an update*, http://unfccc.int/resource/docs/2008/tp/07.pdf)

[3] UNFCCC 2008, *Investment and Financial Flows to Address Climate Change*

accelerate the replication of climate-resilient technologies and approaches in core development sectors.

15. Examples where private sector investments could contribute to climate change adaptation in developing countries:

a. In agriculture, more efficient irrigation can improve yields, reduce vulnerability to drought, and reduce stress on local water supplies. Biotechnology may contribute towards the development of climate-resilient seeds and other technologies that can help farmers adapt to climate change.[4] Private companies are also taking a greater interest in ensuring the sustainability and climate-resilience of agricultural supply chains[5].
b. Many hydropower plants, ports, and other large infrastructure facilities are owned and/or operated by private companies. These long-lived assets are among the investments most at risk from changes in precipitation patterns and intensity, sea-level rise, and extreme weather events[6].
c. The availability of low cost, high quality cellular phone service and remotely communicated weather information is making it possible to provide earlier warnings of storms and extreme weather events. This is possible due to large investments and transfer of technology by private firms, even in many poor countries and remote regions.
d. Appropriate alterations in building design and construction practices have been shown to reduce damages from hurricanes and other extreme weather events by over 80 percent. Privatized or semi-privatized water utility companies may be more sensitive to shortages and limitations in supply and have the incentive to minimize losses and inefficiencies.
e. Mining and energy companies operating in high northern latitudes will need to change design and construction practices to allow for shorter winters and the melting of the permafrost.[7]

Early Warning and Global Climate Observation Systems

16. One of the highest priorities identified in the NAPAs and other national adaptation plans is the development of regional weather and climate networks for real-time observation, local-level forecasting, and the dissemination of information. At a time when climate change is threatening the most vulnerable, this infrastructure is essential in helping the most vulnerable countries anticipate and communicate early warnings for severe weather events, improve food

[4] An OECD review found that private organizations are significant contributors to adaptation-related biotechnology innovation, accounting for a large share of patents. S. Agrawala et al. for OECD 2011, *Adaptation and Innovation: an Analysis of Crop Biotechnology Patent Data*
[5] See examples on the UNFCCC Private Sector Initiative database of actions on adaptation: http://unfccc.int/adaptation/nairobi_work_programme/private_sector_initiative/items/6547.php
[6] See references to IFC studies of hydropower projects in Nepal and Zambia and a port facility in Columbia, available on-line at http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/cb_home/policies+and+tools/assessing+climate+risks/climaterisk_home
[7] Rio Tinto CEO statement in McKinsey Quarterly (2009)

security and agricultural production, and better manage scarce and dwindling water resources.

17. A viable opportunity for private sector involvement includes the deployment of a network of automated surface weather and climate observation points, which can be used to provide the critical weather information necessary for early warning of severe weather. Climate observation and forecasting, when combined with tailored applications for industries and the public, can be used at the national level to enhance agricultural production, water resource management, and renewable energy.

18. In addition to the deployment of systems to collect climate information, there is considerable potential for tailoring the existing smart phone and mobile phone markets, which are rapidly growing in developing countries, for real-time communication on extreme events.

19. Public private partnerships (PPPs) that help manage and disseminate the climate information could help help enable countries to share the rights to weather data, and the responsibilities for its management in multiple ways, including through the utilization of cloud computing architectures. The ultimate goal of such PPP arrangements is to ensure that weather and climate networks are maintained with the highest degree of reliability for the general public and institutional end-users, while reducing the total cost for the developing country.

Technology Transfer

20. As the preceding section highlights, private sector activities are making important contributions to technology transfer, an important objective of the UNFCCC but to date disproportionally focused on mitigation technologies, which are more mature and have more established markets. However, from innovative sensors and satellite technologies to determine climatic variables more accurately, to more mainstreamed technologies for hydro-meteorological monitoring and irrigation, the private sector is taking the lead in developing country markets. The mobile phone example also highlights the potential for private sector led investments that "leap frog" technologies and provide better services at lower cost than those developed previously.

Insurance and Reinsurance

21. Insurance is often limited in many developing country markets and for many applications, yet could provide significant adaptation benefits. Insurance and reinsurance companies may have opportunities to offer new products to address newly recognized risks, such as weather-indexed insurance8. Many other innovative insurance concepts for small farmer risks have been proposed. 9. The SCCF portfolio includes few early examples of insurance schemes in Eastern Europe and in the Philippines. This field is expected to expand significantly in the future based on the demand and appropriateness of different insurance packages. Innovative public-private partnerships, as well as more cost-effective hydro-meteorological monitoring, are already making insurance products more accessible for the most vulnerable people. As in the case of disaster prevention as opposed to disaster recovery, the amount of resources spent on

[8] P. Hazell et al for IFAD 2010, *The Potential for Scale and Sustainability in Weather Index Insurance*
[9] See the R4 Rural Resilience Initiative (http://www.oxfamamerica.org/publications/r4-rural-resilience-initiative-1).

insurance will prevent much larger costs to be paid at a later stage. However private sector interests are sensitive to policy impacts on these nascent markets and will adjust future product design in response to policy signals.

Bilateral Aid

22. Leveraging private investment is also an accepted principle of some of the largest bilateral climate change programs, such as that of JICA, the world's largest bilateral development agency. Japan's support for climate change adaptation emphasizes technology transfer and community engagement, as well as capacity building for public agencies.

IV. Barriers to Private Sector Engagement in Adaptation

23. There are several barriers to private sector engagement in adaptation. Among the most pressing ones is the lack of awareness and sufficient information to evaluate climate change risks. It is not enough to know that climate change is occurring on a global scale. For proactive private sector involvement, short to medium-term projections of localized climate impacts, commensurate with the scale of business activity, are necessary. Climate models broadly agree on changes in temperature over the long term for an assumed increase in greenhouse gas emissions, but they often disagree on short-term (less than 20 years) changes in precipitation for a given region[10]. Companies have identified several ways to manage this uncertainty. An approach used by IFC is to undertake a vulnerability assessment to identify the potential exposure to climate change with the greatest financial consequences, and then to use the best science to evaluate how likely such risks may be [11] .

24. A recent OECD survey suggests private sector awareness of climate risks is increasing, but that only a minority conduct risk assessments and fewer still evaluate adaptation options[12]. A similar analysis by the Carbon Disclosure Project found that only a fifth of firms assessing risks went on to implement actions to manage them. While suggesting that governments may be able to promote greater private sector awareness and response, the OECD report also confirms the reality that there is still much to be learned about the status of private sector adaption, and strategies to make it more effective.

25. In addition to the lack of reliable climate projections at the scale of a business activity, private companies face several additional obstacles. In some countries access to weather information is tightly controlled by governments and only available for a fee, which can add substantial costs. Companies may also find that they have few short-term options to reduce their risks, or that much of what could be done is within the realm of governments (e.g., improving storm-warning systems). Finally, when actions have been identified, they may involve trade-offs with short-term profitability (changes in seed varieties), require costly infrastructure (building

[10] V Stenek et al for IFC, "Climate Risk and Business" (2010) available on-line: http://www1.ifc.org/wps/wcm/connect/topics_ext_content/ifc_external_corporate_site/cb_home/publications/climate_risk_generalmethods

[11] IFC 2010, *Climate Risk and Business*

[12] Agrawala et al for OECD, "Private Sector Adaptation to Climate Change" (2011)

coastal fortifications), or be difficult to finance.

26. There are some indications of increasing interest and support for adaptation within the investment community, particularly among insurers and financial institutions concerned by the financial risks of climate change. A recent example is a January 2012 UN hosted Investor Summit on Climate Risk & Energy Solutions convened by two organizations, Ceres and the Investor Network on Climate Risk, and attended by nearly 500 representatives of major financial institutions[13]. A policy statement supported by many of the participating institutions calls for the disclosure of "physical climate change risks", a commitment to analyze climate risks and incorporate the results in their investment decision-making, and support for good public policies to promote sensible adaptation efforts. [14]

27. As for the countries and communities that are most vulnerable in the face of climate change, and thus targeted for public adaptation finance, such as least developed countries and small-island developing states, markets tend to be limited and the institutional barriers for private sector engagement tend to be significant. Therefore, risk sharing needs are high and strong cooperation with the public sector is crucial for a sustained private-sector engagement.

28. Also lacking is a clear guidance and information on the type of private sector interventions needed to reduce climate vulnerabilities. This paper identifies two broad areas, technology transfer and insurance, in which private sector involvement is significant and the related products are relevant to climate change adaptation. Yet, there is a need to clearly identify and fully understand what technologies and insurance schemes would be most appropriate for climate change adaptation in developing countries.

V. Early Actors and Learning Opportunities

29. As the examples given above indicate, while private sector engagement in adaptation is still at an early stage, there is considerable activity – perhaps more than is publicly known due to the strategic and competitive implications of actions by individual companies[15]. However, at least a few companies have made significant public statements about their current actions and concerns. First and foremost are arguably the insurance companies, which have the most data along with a strong economic incentive through their exposure to climate change impacts. Several major insurance and reinsurance companies, particularly those based in Europe, have become important sources of data on trends in losses from weather events and their possible relationship to climate change [16]. Other notable adaptation actions by large international

[13] Ceres 2012, *Investors Are Acting on Climate Change*, available on-line: http://www.ceres.org/files/investor-files/investors-climate-change

[14] Some of the largest pension funds issued strong statements recognizing the risks of climate change for their investments. For example, the CEO of CalSTRS stated: "From the severe drought in Texas to massive flooding in Thailand, U.S. investors are acutely aware of climate impacts on the global economy and corporate bottom lines. More than ever, shareholders are watching closely to see which companies are leading or lagging in managing climate change, which creates both enormous risks and opportunities for global businesses."

[15] Agrawala et al make this case

[16] Several leading insurance companies have made strong statements about the need for climate policy and are investing substantial resources in mitigation, but as yet have developed few specific adaptation initiatives. See, e.g.

companies include Coca Cola, which developed an aggressive water-use efficiency program and a detailed water resource mapping tool, made publicly available through the World Resources Institute[17]; and the mining company Rio Tinto, which announced it was taking climate change into account when designing tailing ponds.[18]

30. The actions taken by the largest private companies will often be implemented first in the developed countries. However, increasingly policies adopted by such firms are extended globally and thus provide benefits to developing countries both directly and as influential models for local companies. The LDCF and SCCF could benefit from these precedents as the Funds seek to engage private sector companies in developing countries facing similar challenges and opportunities.

VI. Early Actions by International Organizations

31. International organizations have begun to address the link between private investment and adaptation in several ways. The GEF, through the SCCF and in collaboration with IFAD, has financed a project in Jordan utilizing a new irrigation technology that allows water savings of up to 70 per cent in drought-prone areas. The SCCF also supports an insurance scheme in Eastern Europe, through which locally licensed private insurance companies in participating countries will issue catastrophe and weather risk insurance policies to homeowners, farmers and private companies, and claims from weather-related events covered under parametric weather risk contracts will be settled automatically.

32. The World Bank has supported several weather-derivative insurance products, including the Caribbean Catastrophe Risk Insurance Facility[19]. IFC and EBRD are also cooperating on a project in Turkey to explore how public measures can enable greater private sector awareness and response measures.

33. Several international financial institutions are developing or already apply risk screening tools during their project appraisal. IFC's Performance Standards on Environmental and Social Sustainability as recently revised require consideration of climate risks and include guidance on the identification of potential direct and indirect climate-related adverse effects and definition of monitoring as well as adaptation measures[20].

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the websites of Munich Re (http://www.munichre.com/en/group/focus/climate_change/default.aspx) and Swiss Re (http://www.swissre.com/rethinking/climate/).

[17] "The Coca-Cola Company Donates Extensive Water Risk Database to Aqueduct," WRIInsights, http://insights.wri.org/aqueduct/2011/09/coca-cola-company-donates-extensive-water-risk-database-aqueduct

[18] See further examples on the UNFCCC Private Sector Initiative database of actions on adaptation: http://unfccc.int/adaptation/nairobi_work_programme/private_sector_initiative/items/6547.php

[19] F. Ghesquiere et al (http://siteresources.worldbank.org/PROJECTS/Resources/Catastrophicriskinsurancefacility.pdf). The key feature of such products is the use of objective measures of weather events as the basis for payouts: "Contrary to traditional indemnity insurance that makes claims payments based upon confirmation of a loss, parametric insurance disburses monies based on the occurrence of an event – without having to wait for an on-site loss assessment. In the case of the CCRIF, disbursement of an insurance payout is contingent on pre-established trigger events measured in terms of wind speed or ground shaking thresholds."

[20] IFC reports it is currently exploring how this policy can be implemented most effectively.

34. Over the past three years, the IFC has done a series of studies looking in detail at the potential financial risks of climate change for its investments based on analysis of projects in its portfolio. Studies were done for diverse regions and sectors to highlight the range of climate vulnerabilities. These include hydropower projects in Nepal and Zambia; an agribusiness in Ghana; a pulp and paper company in Pakistan; and a port owner/operator in Columbia. Additional IFC reports analyze climate risks from a financial and business perspective21. These studies show how it is possible to assess climate vulnerability today, despite scientific uncertainties. In response to at least one study, that of Port Muebles in Colombia, the client has already announced a program of investments to improve climate resilience in response to the study.

VII. Next Steps

35. Based on early experiences, as well as an improved understanding of the relevant opportunities and constraints, the GEF Secretariat, as the entity entrusted with the management of the LDCF and SCCF, will explore further opportunities to with private sector stakeholders on adaptation.

36. The GEF will seek to identify additional approaches and mechanisms for enhanced private sector engagement that help meet emerging client demand and present opportunities for LDCF/SCCF operations, consistent, mutatis mutandi, with the overall goals of the GEF Private Sector Strategy.

[21] All these studies are available at the IFC website: www.ifc.org/climaterisks