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Financing Climate Change Mitigation – With Special Focus on Africa

**Issue Paper for the Ministerial Session and Expert Group Segments, including
relevant policy options emanating from the Tenth special session of the Governing
Council/Global Ministerial Environment Forum**

Presented on behalf of the Executive Director by UNEP's DTIE

EXECUTIVE SUMMARY

A. General

1. At UNEP's Governing Council/Global Ministerial Environment Forum held in Monaco February 22-24, 2008, Ministers held discussions around the theme "Mobilising finance to meet the climate change challenge". The Forum concluded that sufficient investment capital is available at a global level to avoid irreversible climate change. To attract that capital, however, governments must implement the right policy environment. This is particularly true for developing countries in Africa where a cluster of uniquely challenging market development barriers can block investment even in the more cost-competitive low-carbon technologies.

2. The Monaco conclusions are premised on the realization that the removal of market barriers essentially entails building capacities and easing the costs and risks of entry of new financial actors in the climate-mitigation sectors. The Forum recognized that for developing countries, climate change and development issues are closely linked and need to be addressed comprehensively. Moreover, these countries need a significant scaling up of international assistance, including financial support, if they are to realize sustainable development alongside climate change mitigation¹ and adaptation².

3. The present document has been prepared in support of the upcoming 12th Session of the African Ministerial Conference on the Environment (AMCEN, 2008). It articulates the essentials of the climate change challenge in the African context and highlights a number of key issues that need to be addressed to inform the formulation of appropriate policy responses by African governments with international stakeholder support. This paper concludes with a brief overview of specific actions UNEP initiated following the Monaco Forum (the 'UNEP Monaco actions') to support efforts by African governments to pursue the policy options offered in this document. The main thrust of the UNEP Monaco actions is to help build capacities and ease the costs and risks of financing climate change mitigation in developing countries, including those in Africa.

B. Key issues relevant to African context and needs

4. As background to the consideration of policy recommendations, this paper invites ministers and heads of delegation to discuss the following key issues concerning the financing of climate change mitigation in Africa:

- a) Recognizing that national policies are critical to the establishment of enabling environments for financing, what types of policy frameworks are needed to mobilize investments for climate change mitigation in Africa? (See paragraph 38 for related questions).
- b) Recognizing that African countries lag behind others in the developing world (notably China and India) in renewable energy and carbon finance investment activity, how can financial markets on the continent be strengthened to mobilize the needed flows of investment? Closely related to this question is whether analysts and investors have sufficient information and reporting methodologies to make climate-friendly investment decisions concerning African markets? (See paragraph 39 for other related questions).
- c) Recognizing the importance of local capital mobilization, what has been the experience of local entrepreneurs and industry leaders in mobilizing investment for the few climate projects/initiatives that have/are being developed in Africa? (See paragraph 40 for related questions).

¹ Defined as an "anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases" (IPCC, 2001a).

² Defined as an "[a]djustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities" (IPCC, 2001a)

C. Policy options for consideration by African governments

5. Building on the knowledge generated through discussion of the issues identified above, ministers may then wish to consider the policy options presented below. These have been crystallized from a variety of sources in the on-going discourse on financing climate change mitigation and put forward as a basis for interactive discussions during the ministerial dialogue:

- a) Strengthen capacities in all aspects of climate mitigation markets development, including policy formulation and implementation; technology research and development and commercialization; business planning and development; reporting on greenhouse gas (GHG) emissions; business and project financing; and consumer outreach and awareness.
- b) Address the environmental, social, and political challenges associated with the utilization of the large hydro power potential that exist on the continent.
- c) Remove regulatory barriers and create financial incentives for small and medium-scale energy enterprises to expand access of poorly served populations in rural and urban areas to clean and affordable energy and transport technologies and services.
- d) Increase the focus on energy efficiency, including demand side management initiatives that combine developmental benefits with significant GHG emission reductions.
- e) Increase the share of renewable energy supply within the energy and transport sectors by setting realistic targets, designing, implementing, and enforcing necessary regulations and providing incentives needed by the finance sector to mobilise the needed capital.
- f) Improve the availability of appropriate forms of financing for climate mitigation technologies, companies, and projects in Africa through new regulatory approaches carbon finance, public funding, and public or private risk sharing.
- g) Develop new strategies for reducing GHG emissions from deforestation and forest degradation that also achieve shared benefits for livelihoods and biodiversity conservation, while ensuring that emerging carbon markets are not affected negatively.
- h) Negotiate fair trade agreements covering environmental goods and services through the World Trade Organization that could lead to increased trade in, and dissemination of, climate-friendly technologies in African countries.
- i) Eliminate or sharply reduce fossil fuel price subsidies that are for the most part not economically sustainable, distort investment decisions, and primarily benefit the more privileged people in a community rather than those most in financial need.
- j) Develop a coordinated and credible process for delivering government climate mitigation targets.

D. Role of UNEP

6. Following the Monaco Forum, UNEP committed itself to a number of concrete actions elaborated in the main Monaco Forum follow-up document³ to help governments in developing countries, including those in Africa to increase financing for climate change mitigation in Africa. Table 3 (paragraph 48) summarizes how the Monaco action items might support African government efforts under each of the suggested policy options. The suggested matching of actions to government initiatives is open to further review and not intended as a rigid or formal structure at this stage. The actions, however, are

³ “Creating the Climate for Change Building Capacities to Mobilise Investment Draft,” April, 2008.

firmly grounded in UNEP's experience and comparative advantage as a provider of strategic advice and incentives aimed at changing attitudes and helping to mainstream climate investment as an important complement to the more financial mandate of the development banks. Specifically, UNEP has during the past decade, been working at the country level to help banks and investors at the forefront to launch new climate-focused financial products. It has also been working at a broad industry engagement level, trying to scale-up and mainstream these first mover actions across the commercial finance sector.

7. UNEP's in-country work during this period has been focused on: (i) improving access to seed capital financing and enterprise development support for clean energy SMEs; (ii) helping domestic banks set up consumer loan and micro-credit programmes for small-scale energy technologies; (iii) supporting the development and deployment of new risk management tools; and (iv) fostering development of the carbon finance markets.

8. UNEP's finance industry engagement work on renewables, efficiency, and other climate mitigation approaches is done through the work of the Sustainable Energy Finance Initiative, the UNEP Finance Initiative Climate Change Working Group, and the United Nations Principles for Responsible Investment. In addition, UNEP has a number of programmes working to improve regulatory frameworks and the institutional capacities needed for clean energy uptake and other climate mitigation sectors.

FINANCING CLIMATE CHANGE MITIGATION – WITH SPECIAL FOCUS ON AFRICA

1. CLIMATE CHANGE AND AFRICA⁴

9. **Although it is the region of the world that contributes least to global emissions of GHGs, Africa is one of the most vulnerable regions to climate change and climate variability.** This condition is aggravated by the interaction of ‘multiple stresses’, occurring at various levels, and low adaptive capacity. Africa’s major economic sectors are vulnerable to current climate sensitivity, with huge economic impacts. Such vulnerability is exacerbated by existing developmental challenges such as endemic poverty, complex governance and institutional dimensions; limited access to capital, including markets, infrastructure and technology; ecosystem degradation; and complex disasters and conflicts. These in turn have contributed to Africa’s weak adaptive capacity, increasing the continent’s vulnerability to projected climate change.

10. **African farmers have developed several adaptation options to cope with current climate variability, but such adaptations may not be sufficient for future changes of climate.** Agricultural production and food security (including access to food) in many African countries and regions are likely to be severely compromised by climate change and climate variability. A number of countries in Africa already face semi-arid conditions that make agriculture challenging, and climate change will be likely to reduce the length of growing season as well as force large regions of marginal agriculture out of production. Projected reductions in yield in some countries could be as much as 50% by 2020, and crop net revenues could fall by as much as 90% by 2100, with small-scale farmers being the most affected. This would adversely affect food security in the continent.

11. **Climate change will aggravate the water stress currently faced by some countries, while some countries that currently do not experience water stress will become at risk of water stress.** Climate change and variability are likely to impose additional pressures on water availability, water accessibility and water demand in Africa. Even without climate change, several countries in Africa, particularly in northern Africa, will exceed the limits of their economically usable land-based water resources before 2025. About 25% of Africa’s population (about 200 million people) currently experience high water stress. The population at risk of increased water stress in Africa is projected to be between 75-250 million and 350-600 million people by the 2020s and 2050s, respectively.

12. **Changes in a variety of ecosystems are already being detected at a faster rate than anticipated, particularly in southern African ecosystems.** Climate change, interacting with human drivers such as deforestation and forest fires, are a threat to Africa’s forest ecosystems. Changes in grasslands and marine ecosystems are also noticeable. It is estimated that, by the 2080s, the proportion of arid and semi-arid lands in Africa is likely to increase by 5-8%. Climate change impacts on Africa’s ecosystems will probably have a negative effect on tourism as, according to one study, between 25 and 40% of mammal species in national parks in sub-Saharan Africa will become endangered.

13. **Climate variability and change could result in low-lying lands being inundated, with resultant impacts on coastal settlements.** Climate variability and change, coupled with human-induced changes, may also affect ecosystems e.g., mangroves and coral reefs, with additional consequences for fisheries and tourism. The projection that sea-level rise could increase flooding, particularly on the coasts of eastern Africa, will have implications for health. Sea-level rise will probably increase the high socio-economic and physical vulnerability of coastal cities. The cost of adaptation to sea-level rise could amount to at least 5-10% of gross domestic product.

14. **Human health, already compromised by a range of factors, could be further negatively impacted by climate change and climate variability, e.g., malaria in southern Africa and the East African highlands.** It is likely that climate

⁴ The bulk of the material in this section is extracted from the Executive Summary in Chapter 9 of the IPCC 4th Assessment Report. Boko, M., I. Niang, A. Nyong, C. Vogel, A. Githeko, M. Medany, B. Osman-Elasha, R. Tabo and P. Yanda, 2007: Africa. Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge UK, 433-467.

change will alter the ecology of some disease vectors in Africa, and consequently the spatial and temporal transmission of diseases of such. Most assessments of health have concentrated on malaria and there are still debates on the attribution of malaria resurgence in some African areas. The need exists to examine the vulnerabilities and impacts of future climate change on other infectious diseases such as dengue fever, meningitis and cholera, among others.

15. Urgent action is needed to enhance Africa's capacity to adapt to climate change. These actions must take into account not only Africa's acute vulnerability but also its legitimate development needs and the significant additional financial burden adaptation will create.

16. Recent findings from climate change studies reported in the IPCC Fourth Assessment Report (2007) suggest strong interrelationships between adaptation and mitigation. Creating synergies between adaptation and mitigation can increase the cost-effectiveness of actions and make them more attractive to stakeholders, including potential funding agencies (medium confidence). Of particular relevance to African countries development agenda is the finding that opportunities exist to integrate adaptation and mitigation into broader development strategies and policies.⁵

17. Studies have begun to throw light on critical success factors for building mitigative capacities at national level including: access to viable technological options for reducing emissions; viability of policy instruments with which the country might affect the adoption of these options; existence of critical institutions and the derivative allocation of decision-making authority; availability and optimizing the distribution of resources required to underwrite the adoption of mitigation policies and the associated broadly-defined opportunity cost of devoting those resources to mitigation; the stock of human and social capital, including education and personal security and property rights; access to risk-spreading processes (e.g., insurance, options and futures markets); and the capacity of decision-makers to manage information, the processes by which these decision-makers determine which information is credible, and the credibility of the decision-makers themselves.⁶

18. The preceding factors (paragraph 17) may be poorly developed or non-existent in the majority of African countries, which will thus require substantial financial support from the international community to develop. In addition, the ability of societies to form networks through collective action that insulates them against the impacts of climate change – a phenomenon first described by Woolcock and Narayan (2000) and reported in the IPCC Fourth Assessment Report (2007) -- may be especially important in sub-Saharan African countries where policy instruments are not fully developed and where institutional capacity and access to resources are limited.

19. This paper will focus on mitigation as an integral part of Africa's portfolio of responses to climate change; adaptation is fully covered in a separate background paper.

2.⁷ FINANCING CLIMATE CHANGE MITIGATION IN AFRICA: KEY ISSUES

2.1. Bali Outcomes

20. The Thirteenth Session of the Conference of the Parties (CoP) to the United Nations Framework Convention on Climate Change (UNFCCC) meeting in Bali, Indonesia, December 2007, reached agreement on a roadmap and a

⁵ Klein, R.J.T., S. Huq, F. Denton, T.E. Downing, R.G. Richels, J.B. Robinson, F.L. Toth, 2007: Inter-relationships between adaptation and mitigation. *Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*, M.L. Parry, O.F. Canziani, J.P. Palutikof, P.J. van der Linden and C.E. Hanson, Eds., Cambridge University Press, Cambridge, UK, 745-777.

⁶ Klein, R.J.T., et al. op. cit.

⁷ Much of the material in this section is extracted from the document titled "Background paper for the ministerial-level consultations (Tenth special session of the Governing Council/Global Ministerial Environment Forum Monaco, 20-22 February 2008), including policy options emanating from the President's summary of the ministerial consultations during the twenty-fourth session of the Governing Council/Global Ministerial Environment Forum: Discussion paper presented by the Executive Director of UNEP," January, 2008.

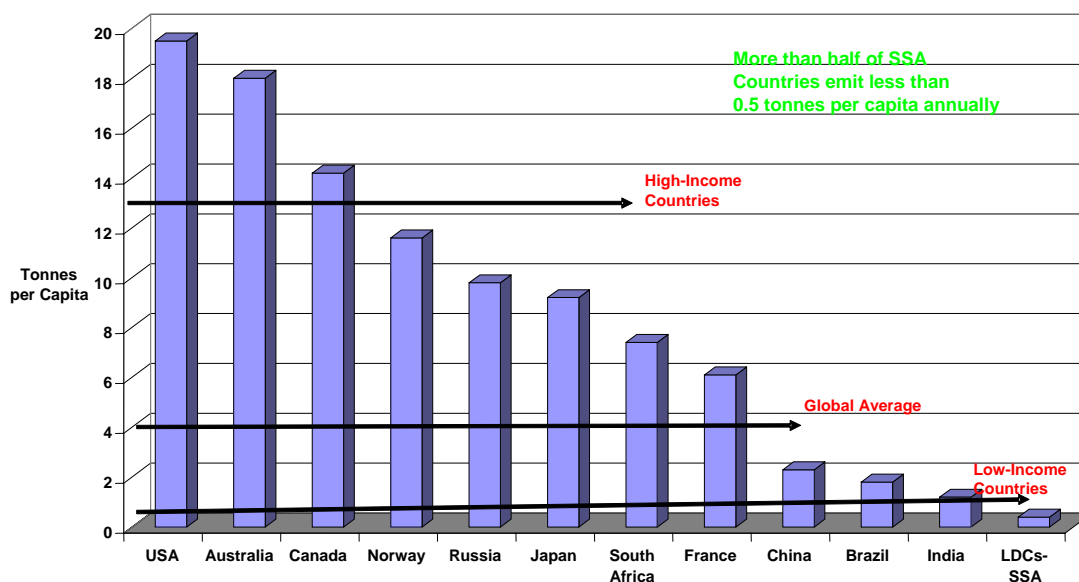
timetable for a two-year process of negotiations designed to reach a new climate treaty by 2009. The decision includes a clear agenda for the negotiation of key issues, including actions for climate change adaptation, approaches for mitigation, climate-friendly technology deployment, and financing both adaptation and mitigation measures. All countries, both developed and developing, were called upon to reduce GHG emissions according to their differentiated capacities and responsibilities. Issues of deforestation, technology transfer, and aid for developing countries were covered.

21. **The importance of – and need for – a broad range of policy approaches to address these issues was highlighted by finance ministers and their deputies from 37 countries, along with heads of a number of development banks and the OECD at an informal meeting during the Bali conference.** While acknowledging the importance of public funds, they stressed, among other measures, the importance of stable policy frameworks as a key requirement for attracting private sector investment.

2.2 Capital requirements for climate change mitigation: Global and African perspectives

22. **The global climate needs to be stabilized soon.** Greenhouse gas emissions in the atmosphere are approximately 455 ppm CO₂-equivalent.⁸ CO₂ – the main GHG – is rising 1.9 ppm/year⁹ due to annual emissions of 49 gigatonnes (Gt) of CO₂ equivalent (CO₂-eq).¹⁰ As illustrated in Figure 1¹¹, **Africa’s contribution to the current levels of emissions is almost negligible.** The IPCC has concluded that to stabilize atmospheric concentrations of CO₂ at 535–590 ppm, global emissions in 2050 will need to decrease to within the 18–29 Gt CO₂ range worldwide and emissions must peak between 2010 and 2030,¹² depending on model scenarios. All Parties need to adopt climate change policies. International coordination of

Figure 1. Carbon Dioxide Emissions For Selected Countries in 2002



⁸ IPCC, “IPCC Fourth Assessment Report AR4 Synthesis Report. Climate Change 2007: Summary for Policymakers of the AR4 Synthesis Report.” Table SPM.6, p. 21.

⁹ IPCC. “IPCC Fourth Assessment Report – Working Group I Report, ‘The Physical Science Basis.’ Chapter 2, p. 131.

¹⁰ IPCC, Working Group III Technical Summary, p. 27. Figure quoted is for 2004.

¹¹ Ogunlade Davidson, “Preparation of the Thirteenth Conference of the Parties (COP 13) of the United Nations Framework Convention on Climate Change (UNFCCC) and the Third Meeting of the Parties (COP/MOP 3) of the Kyoto Protocol: Position Paper for African Negotiators,” Figure 1, p.7.

¹² IPCC, Fourth Assessment Report, Table 5.1 and Figure 5.1, pp. 5-6

policies in an appropriate forum are often effective. Areas where international coordination would be beneficial include: a) technology R&D and deployment with priority given to renewable energy and energy efficiency; and b) energy efficiency standards for internationally traded appliances and equipment. While it is obvious that **OECD countries must take the lead in cutting the climate-changing emissions, Africa can take advantage of the links between building mitigative capacity and achievement of broader sustainable development objectives, and adopt low-carbon paths to development now.**

23. Funding from external sources will play an important role in helping African countries meet the capital requirements for mitigation measures including substantial increases in low-carbon investments especially, renewable energy, and energy efficiency.

2.3 Global and African responses: Low-carbon investment trends

24. **Relative to global levels, low-carbon investments in Africa are either stagnant or growing too slowly** with the bulk of the action concentrated in North African countries and South Africa. The vast potential in sub-Saharan Africa – arguably the region that has the most to gain from increased utilization of renewable energy and reduction of energy waste – remains largely unexploited. However, there are indications of growing investor interest in renewable energy projects in the region. For example:

- a) Discussions are underway to develop a US\$290 million bioethanol plant in Mozambique with capacity of 295 ml per annum. Initial investment of US\$70 million has been raised by Principle Capital. An impressive array of foreign investors came in at this initial fund-raising, including RAB Capital, Tudor, Societe Generale, and GLG Partners.¹³
- b) State-owned Compagnie Sucriere Senegalaise invested US\$135m in a 21.9ml per annum bioethanol plant in Senegal.¹⁴
- c) The Hidraluapasso mini-hydro project in northern Angola is a 26MW project initiated in October 2007. It is being developed jointly by the Angolan Government, Escom Mining Energy, and the Angolan National Agency of Private Investment at a cost of US\$120 million.¹⁵
- d) Kenya Electricity Generating Company (KenGen) raised US\$91m to build a 35MW expansion to the existing 70MW Olkaria II geothermal plant. The expansion will be completed by the end of 2009 and produce 276GWh. It will be funded by KenGen, the International Development Association (World Bank), and the EIB. Ormat, the US geothermal developer, is expanding its 13MW plant, Olkaria III, by 35MW. Olkaria III is Africa's first privately funded geothermal plant and is expected to qualify for CDM. The World Bank's Multilateral Investment Guarantee Agency (MIGA) is providing US\$88.3 million of political risk insurance for the project. Olkaria IV, a 60MW plant funded by the Kenyan Government and KfW, is in the planning stage. Kenya is Africa's leading source of geothermal power, with about 130MW of installed generation capacity.¹⁶
- e) In March 2007, Aeolus Power Generation Namibia (a joint venture between Dutch investment company Aeolus Associated and investor United Africa Group) announced plans to build three wind farms – Grosse Bucht, Oranjetmund and Walvis Bay – totaling 92MW and costing US\$135m; and in October 2007, Belgian wind developer Electrawinds said it would build two 50MW wind farms in Namibia – Luderitz and Electrawind Walvis Bay. Overall, however, wind capacity in sub-Saharan Africa is unlikely to take off in the short term: the Global Wind Energy Council (GWEC) estimates that installed wind capacity will be less than 1GW by 2010.¹⁷

¹³ Eric Usher, 2008: Personal communication.

¹⁴ Eric Usher, op. cit.

¹⁵ Eric Usher, op. cit.

¹⁶ Eric Usher, op. cit.

¹⁷ Eric Usher, op. cit.

25. Despite these promising developments, much remains to be done to substantially increase renewable energy and energy efficiency investments in Africa. Global experiences and trends¹⁸ point to the potential for industrial growth and overall development benefits that African countries could gain from such investments while contributing to climate change mitigation.

26. Since 2004, growth rate of investment in renewables and energy efficiency has increased. Financial transactions in the sustainable energy sector – defined as new renewables (such as large hydro) and energy efficiency – have increased significantly in recent years, surpassing \$100 billion in 2006 and reaching \$160 billion in 2007.¹⁹ Beginning in late 2004, wind and solar companies in Europe and Japan began to generate significant revenues and investments, and financial markets in these sectors began to shift from relatively long-term future technology investments to relatively near-term industrial grade investments.²⁰ Wind power now receives more investment annually than large hydropower or nuclear, making it the leading climate mitigation technology in the eyes of financiers.

27. Engagement from the finance community has broadened. The quickest growth in sustainable energy capital mobilization has come mainly from key sectors of the financial community that had previously shown little interest, namely: venture capitalists and private equity investors, who provide the risk capital needed for technological innovation and commercialization (up 69% in 2006 and 27% in 2007); public capital markets, which mobilize the resources needed to take companies and projects to scale (up 124% in 2006 and 80% in 2007); and investment banks, which help refinance and sell off companies, allowing the all important exit liquidity needed for markets to grow and for first mover investors to realize returns (up 34% in 2006 and 43% in 2007).²¹ The engagement of these new actors signals an increasing mainstreaming of sustainable energy financing.

28. Subsidies continue to have a major impact on low-carbon investment trends, with studies showing that removal of some consumer energy subsidies could reduce global CO₂ emissions by 5-6%.²² Globally, energy subsidies total approximately US\$250-300 billion per year, excluding taxes, with non-OECD countries receiving the bulk of these. Fossil fuels are the most heavily subsidized, with an estimated total of US\$80-200 billion. Support to low-carbon energy sources amounts to an estimated US\$33 billion each year: US\$10 billion for renewables (e.g., biofuels), US\$6 billion for biofuels, and US\$16 billion for existing nuclear power plants. Opportunities exist in many countries to reduce CO₂ emissions through improvements in the subsidy framework.

29. Energy efficiency investment, although largely invisible, seems to follow a similar trend as investment in renewables. According to the UNFCCC secretariat, US\$1.5 billion was spent on “external investments” in energy efficiency in 2005.²³ According to UNEP, half of this was directed to new technology development, a segment that on its own grew to just over US\$1 billion in 2006. Improvements in supply side and demand side efficiency have been helping to decrease global energy intensity (i.e., the ratio of energy consumption to economic or physical output), which on average has been

¹⁸ Based mainly on a global analysis prepared by the UNFCCC Secretariat of investment needs across the climate sectors (Investment and Financial Flows to Address Climate Change, UNFCCC, 2007); and an investment trends analysis in the renewables and efficiency sector prepared under the UNEP Sustainable Energy Finance Initiative (Global Trends in Sustainable Energy Investment 2007, UNEP SEFI and New Energy Finance, 2007).

¹⁹ Including \$117 billion of new investment and \$42 billion of refinancing (mergers/acquisitions/buy-outs). Figures released 2/1/08 by New Energy Finance.

²⁰ This change can be seen by examining figure 21 in the UNEP SEFI Global Trends report, where the NEX renewable energy index closely tracked the technology focused NASDAQ index until late 2004, after which its growth accelerated while NASDAQ remained flat.

²¹ New Energy Finance Analyst Reaction (28/12/07) and Global Trends in Sustainable Energy Investment 2007, SEFI and New Energy Finance.

²² Source: UNFCCC “investment and financial flows” report page 44

²³ Source: table IV-8 on page 43, UNFCCC investment flows report.

dropping 1-1.5% per year.²⁴ Since 1990, energy efficiency has met 52% of new energy service global demand while new energy supplies have contributed 48%.²⁵

30. African has largely been by-passed by the growth in sustainable energy financing. For the most part, the finance community does not seem attracted to opportunities in Africa. For example, developing countries in general accounted for 21% of global investments in the sustainable energy sector in 2006 (US\$15 billion) – representing a 6% increase from 2004 levels, and far surpassing the growth rates of developed countries for the same period. But the bulk of this growth has been in the larger emerging/developing countries led by China, India and Brazil representing 9%, 5%, and 4%, respectively, of global investment.²⁶ All three countries are now major producers of and markets for sustainable energy, with China leading in solar, India in wind, and Brazil in biofuels.

31. Africa is also losing out in the emerging market for carbon finance.²⁷ During 2006, 88 megatonnes (Mt) CO₂.eq of Clean Development Mechanism (CDM) projects were registered, with expected Certified Emissions Reduction (CER) revenues of US\$1-1.5 billion and underlying capital requirements of about US\$7 billion. A further 144 Mt of projects were in the pipeline with total expected CER revenues of US\$2-2.5 billion and underlying capital requirements of US\$26.4 billion. On the whole, emission reduction revenues are starting to become a significant financial flow for the renewables and efficiency sectors. For example, an estimated US\$5.7 billion of investment was mobilized for renewables or efficiency related CDM projects registered during 2006. The expected CER revenues alone expected from these projects are similar in size to the official development assistance for energy policy and renewable energy projects in the same countries in 2005.

32. As shown in Table 1²⁸ the distribution of CDM projects as at December 2007 was heavily skewed to the disadvantage of Africa. Less than 3% of the total CDM projects are in Africa. This situation has persisted since the establishment of the CDM and despite intense consultations during COP/MOP 2 in Nairobi to increase African CDM participation. However, these consultations did produce two initiatives: the Nairobi Framework and the Africa-EU Infrastructure Partnership Initiative, but these are yet to make any real impact in terms of Africa's capacity to attract CDM financing. The distribution of CDM projects within Africa is also far from balanced. Over 50% of CDM projects are located in South Africa and less than 10% each in other countries such as Nigeria, Cote d'Ivoire, Tanzania, and Uganda. In terms of CERs from registered projects, Africa accounts for less than 1%, although two recent flared gas recovery projects in Nigeria demonstrate promising signs that emissions trading may be gaining some traction.²⁹ A breakdown of the types of CDM registered projects in Africa is provided in Table 2.³⁰

²⁴ IEA, 2006 "Energy technology perspectives 2006: scenarios and strategies to 2050".

²⁵ Realizing the Potential of Energy Efficiency, UN Foundation, 2007.

²⁶ Global Trends in Sustainable Energy Investment 2007, UNEP SEFI and New Energy Finance.

²⁷ Carbon finance covers a variety of greenhouse gas emission reductions markets: Kyoto Protocol mechanisms, the European Union's emissions trading scheme, other emission trading schemes in Norway, the United Kingdom of Great Britain and Northern Ireland, Australia, the United States and a range of other voluntary markets. Activity on those markets does not necessarily reflect new investments as one tonne of carbon could be subject to several trade transactions. New investments can be approached through the Clean Development Mechanism and joint implementation markets (primary market), carbon funds and the voluntary market.

²⁸ Ogunlade Davidson, "Preparation of the Thirteenth Conference of the Parties (COP 13) of the United Nations Framework Convention on Climate Change (UNFCCC) and the Third Meeting of the Parties (COP/MOP 3) of the Kyoto Protocol: Position Paper for African Negotiators" (2007).

²⁹ O. Davidson, op. cit.

³⁰ O. Davidson, op. cit.

Table 1: Registered CDM projects by Region, October 2007

Region	Number of Projects
Africa	21
Asia and the Pacific	458
Latin America and the Caribbean	280
Others	6
Total	765

Source: O. Davidson, 2007: 17

Table 2: Nature of CDM Registered Projects in Africa, October 2007

Projects	Number of Projects
Energy Industries	10
Energy Demand	1
Manufacturing Industries	3
Chemical Industries	3
Fugitive Emissions from Fuel	1
Waste Handling and disposal	6
Total	24

Source: O. Davidson, 2007: 17

33. These early successes notwithstanding, there is clearly a need for increased engagement from African Governments and the development finance community if Africa's share of carbon financing is to increase capacity on the continent to meet its future responsibilities for climate change mitigation.

34. **Global trends in renewables and energy efficiency highlight the link between mitigation and broader economic development; offering useful lessons to inform and motivate African mitigation initiatives.** For example, on top of investment in generating capacity (which amounted to US\$22 billion in 2006 the renewables and efficiency sectors received an additional US\$34 billion in new technology and manufacturing investment, suggesting that a quickened pace of new industrial capacity additions can be expected in the coming years. Furthermore, countries at the forefront of investments in these sectors have experienced significant economic development benefits as well. In 2006, there were over 2.3 million jobs in the renewable energy sector alone, more than the 2 million in oil and gas, and over half the 4 million jobs in the air transport industry worldwide (ICAO 2006). UNEP's "green jobs" initiative with the International Labour Organization and the International Trade Unions Congress is drawing attention to the prospects for new employment and skills generation in the climate sector and pointing out the risk of employment loss, especially in developing countries such as those in sub-Saharan Africa, from not addressing environment and climate challenges such as resource depletion, loss of biodiversity and storms, floods, and droughts.³¹

35. **Low-carbon investment trends world-wide are projected to increase significantly due to growing recognition of the land use and forestry implications of climate change; African can attract a significant share of this growth.** It is estimated that the world's forests store 1,040 Gt of CO₂ in their biomass alone and that the volume of CO₂ stored in forest biomass, deadwood, litter, and soil together exceeds the CO₂ in the atmosphere by roughly 50%. For the world as a whole, carbon stocks in forest biomass have decreased annually by 4 Gt CO₂ (equivalent to 4 billion 25-kg sacks of charcoal).³² Reducing emissions from deforestation and the degradation of forests is of particular concern because deforestation accounts for a significant portion of total emissions: in the 1990s between 1.8 and 9.9 Gt CO₂ emissions per year were attributed to

³¹ As part of this initiative UNEP has commissioned a report from World Watch Institute to be finalized by May 2008. A draft executive summary from that report is available at https://www.unep.org/civil_society/Publications/index.asp.

³² UNEP Billion Tree Campaign.

land use change, including deforestation.³³ In this regard, an important outcome of the UNFCCC Conference of the Parties in Bali, entitled “reducing emissions from deforestation in developing countries: approaches to stimulate action,” aims at finding approaches that can ensure and finance the preservation of native forests. The announcement by the Government of Norway that it would provide new financing of approximately US\$2.7 billion over the next five years will provide a new incentive for action.³⁴ Although carbon sequestration discussions at the meeting of the UNFCCC Conference of the Parties in Bali mostly centered on forestry, it is important to note that half of land use sequestration potential lies within grassland, peat land, and wetland ecosystems. Furthermore, in addition to lowering atmospheric greenhouse gas concentrations, African countries in particular can gain co-benefits such as poverty alleviation and increasing resilience of ecosystems.

36. To sum up, climate mitigation markets are growing globally in response to the strengthening policy frameworks. **In particular, climate change investment decisions by financial actors are and will remain policy driven.** This suggests that **the low levels of investment seen in Africa have a lot to do with the absence of appropriate policy frameworks;** this is in turn a result of **relatively weak capacity of public agencies responsible for developing and implementing them in their respective countries.** The linkage between policy frameworks and investment uptake is perhaps nowhere better seen than with renewables. Targets for renewables now exist in 58 countries, including 13 developing countries; 36 countries have adopted feed-in tariff policies for renewable electricity and 44 have enacted renewable portfolio standard policies that mandate future shares of power generation for renewable energy. Mandates for blending biofuels have been enacted in 11 developing countries and in 30 states and provinces in Canada, India, and the United States. Dozens of major cities around the world have joined in and set targets for renewables and CO₂ reduction. Although clearly policy-driven, the number of supportive policies currently in place for renewables provides stability to the markets. **In any climate mitigation sector, clear and long term policy signals are needed for commercial capital to start flowing, and the better the policies, the lower the cost of such capital and the lower the cost of delivered emissions reductions will be.** National policies have a crucial role to play in enabling the needed investment to finance climate change mitigation in Africa.

2.4³⁵ Key Issues

37. As background to the consideration of policy options (outlined below), this paper invites ministers and heads of delegation to discuss the following key questions related to the challenge of creating an enabling environment for financing climate change mitigation in Africa:

38. Recognizing that national policies are critical to the establishment of enabling environments for financing, **what types of policy frameworks are needed to mobilize investments for climate change mitigation in Africa?** Addressing this question will require more detailed investigations, case studies, and consultations around the following related issues:

- a) What policies are most appropriate for enabling large-scale deployment of existing mitigation technologies while simultaneously delivering co-benefits including poverty reduction and sustainable development?
- b) What policies are most appropriate for promoting innovation with respect to new mitigation technologies?
- c) What types of technologies are most appropriate for the various geographic and socio-economic conditions both on the mainland and in small island developing African states?

³³ IPCC, Working Group I Summary for Policymakers, pp. 2-3.

³⁴ “Background paper for the ministerial-level consultations (Tenth special session of the Governing Council/Global Ministerial Environment Forum Monaco, 20–22 February 2008), including policy options emanating from the President’s summary of the ministerial consultations during the twenty-fourth session of the Governing Council/Global Ministerial Environment Forum: Discussion paper presented by the Executive Director of UNEP,” January, 2008.

³⁵ Much of the material in this section is extracted from the document titled “Background paper for the ministerial-level consultations (Tenth special session of the Governing Council/Global Ministerial Environment Forum Monaco, 20–22 February 2008), including policy options emanating from the President’s summary of the ministerial consultations during the twenty-fourth session of the Governing Council/Global Ministerial Environment Forum: Discussion paper presented by the Executive Director of UNEP,” January, 2008.

- d) How much do such policies cost and what are the risks (to the average citizen and to industry, in terms of required capital mobilization) in relation to what they deliver (in terms of CO₂ mitigation, energy access and security, jobs, etc.)?
- e) Where and in what form will public investment be needed, both to stimulate private sector engagement and in some cases in lieu of it?
- f) How can subsidy frameworks be improved to address climate change mitigation considerations better?

39. Recognizing that African countries lag behind others in the developing world (notably China and India) in renewable energy and carbon finance investment activity, **how should financial markets on the continent be structured to mobilize the needed flows of investments that support mitigation objectives while strengthening opportunities for poverty elimination and sustainable development?** Addressing this question will require more detailed investigations, case studies, and consultations around the following related issues:

- a) Do analysts and investors have sufficient information and reporting methodologies to make climate-friendly investment decisions concerning African markets?
- b) Are the current upward trends in some climate mitigation sectors such as renewable energies in some African countries enough to make a difference?
- c) Are mainstream financial flows shifting over to climate-related investments or is this still a niche activity?
- d) What conditions are needed to secure the financing of mitigation technologies on the continent? What are the challenges related to capital mobilization and the role of sub sector analyses and incentives in this regard?
- e) How can public investment be used to catalyze and accelerate socially responsible and climate-friendly private investment?
- f) Where have public/private models for mobilizing investment in climate mitigation been working? What challenges they face, what lessons were learned, and what are the potentials for replication in different African contexts?

40. Recognizing the importance of local (as in “specific country” and “Africa regional”) capital mobilization, **what has been the experience of local entrepreneurs and industry leaders in mobilizing investment for the few climate projects/initiatives that have/are being developed in Africa?** Addressing this question will require more detailed investigations, case studies, and consultations around the following related issues:

- a) What choices do entrepreneurs have when they need to raise money for a climate mitigation business in Africa?
- b) What are the ingredients for success in mobilizing investment? What forms of capital are available for financing innovations in African countries?
- c) How can businesses mobilize end-user financing for their customers?
- d) What public mechanisms can be used to mobilize end-user financing from local banks?
- e) What are the real drivers that prompt industry to take action and how can these drivers be developed and/or strengthened in Africa?
- f) What are the advantages and opportunities for a company to be a first mover in climate mitigation services/products? What are the costs and risks in Africa?

- g) How can the actions of today's climate mitigation leaders be mainstreamed across industry in Africa? In this regard, what are the ingredients needed for success and what is the role of government, beyond national policy making, in upscaling such actions?
- h) Why isn't financing available for energy efficiency even when improvements are shown to be cost effective? What sort of financing instruments can prompt local banks in Africa to lend for energy efficiency?
- i) How can emissions reduction revenues be used to mobilize climate investment in African economies?
- j) What type of capacity building is needed in the finance sector? Are local banks aware of the low-climate sectors and able to provide appropriate forms of financing to them?

3.³⁶ FINANCING CLIMATE CHANGE MITIGATION IN AFRICA: POLICY OPTIONS

41. Building on the knowledge generated through discussion of the issues identified above, ministers may then wish to consider the policy options presented below. These have been crystallized from a variety of sources engaged in the on-going discourse on financing climate change mitigation, and are put forward as a basis for interactive discussions during the ministerial dialogue:

- a) **Strengthen capacities in all aspects of climate mitigation markets development, including policy formulation and implementation;** technology research, development and commercialization; business planning and development; GHG reporting; business and project financing; and consumer outreach and awareness.
- b) **Address the environmental, social and political challenges** associated with the utilization of the large hydro power potential that exist on the continent.
- c) **Remove regulatory barriers and create financial incentives for small and medium scale energy enterprises** to expand access of poorly served populations in rural and urban areas to clean and affordable energy and transport technologies and services.
- d) **Increase the focus on energy efficiency, with special emphasis on demand side management** initiatives that combine developmental benefits with significant emission reductions.
- e) **Increase the share of renewable energy supply within the energy and transport sectors** by setting realistic targets, designing, implementing and enforcing necessary regulations, and providing incentives needed by the finance sector to mobilise the needed capital.
- f) **Improve the availability of appropriate forms of financing for climate mitigation technologies, companies, and projects** in Africa through new regulatory approaches carbon finance, public funding, and public or private risk sharing.
- g) **Develop new strategies for reducing emissions from deforestation and forest degradation that also achieve shared benefits** for livelihoods and biodiversity conservation, while ensuring that emerging carbon markets are not affected negatively.

³⁶ Much of the material in this section is extracted from the document titled "Background paper for the ministerial-level consultations (Tenth special session of the Governing Council/Global Ministerial Environment Forum Monaco, 20–22 February 2008), including policy options emanating from the President's summary of the ministerial consultations during the twenty-fourth session of the Governing Council/Global Ministerial Environment Forum: Discussion paper presented by the Executive Director of UNEP," January, 2008.

- h) **Negotiate fair trade agreements covering environmental goods and services through the World Trade Organization** that could lead to increased trade in, and dissemination of, climate-friendly technologies in African countries.
- i) **Eliminate or sharply reduce fossil fuel price subsidies** that are for the most part not economically sustainable, distort investment decisions, and primarily benefit the more privileged people in a community rather than those most in need.
- j) **Develop a coordinated and credible process** for delivering government climate mitigation targets.

3.1 Financing climate change mitigation in Africa: Supporting African initiatives

42. **The development finance community has the resources – and is increasingly recognizing its responsibility – to assist African Governments in the establishment of clear and comprehensive legislative and regulatory systems to increase financing of climate change mitigation.** A review of recent efforts by this community to assist developing countries in general provides some insights into the resources available to the development financing community. Over the last five years the World Bank Group and the regional development banks have together invested over US\$17 billion in projects that directly or indirectly contribute to lowering carbon emissions in developing countries. The trend is accelerating, with the World Bank, for example, increasing its renewables and efficiency financing last year 67% to US\$1.4 billion,³⁷ although this still only accounts for 40% of overall energy sector commitments. The bilateral development banks such as the German Development Bank (FMO), Agence Française Développement (AFD), Danish International Development Agency (DANIDA), Swedish International Development Agency (SIDA), and Japan Bank for International Cooperation (JBIC) are also becoming major supporters of climate mitigation. Entwicklungsbank (KfW) is the most active, committing an average of €30 million annually to renewables alone during 2005–2006, and earmarking €1.3 billion for the period 2005–2011.³⁸ One of the most important public funding sources for fostering climate investment is the Global Environment Facility (GEF), the financial mechanism of the UNFCCC. The value of GEF funding for climate change mitigation projects at the end of 2007 stood at US\$2.5 billion, which the GEF secretariat estimates has funded projects equivalent to almost 1.2 billion tons of CO₂ emissions avoided.

43. But, as discussed in the earlier review of low-carbon investment trends, **African initiatives on climate change have been severely hampered from securing a fair share of global financing.** For the most part, this is due to weaknesses in domestic capacity to develop enabling policy frameworks. For instance, the private sector in many most sub-Saharan African countries often has difficulty accessing credit markets, which due to limited liquidity and market instabilities very seldom offers the sort of long-term local currency financing needed for infrastructure investments. Besides large-scale infrastructure, opportunities for more decentralized and cleaner forms of service delivery also exist, for example bio fuelled mini-grids or solar crop drying. Such approaches, however, require new industry actors and new ways of doing business. Change comes slowly as there is limited capital for financing innovation and the costs of new business development and technology transfer are high. Lack of market scale is also a challenge and aggregating sufficient demand is difficult to do commercially. Banks, for instance, are willing to lend to households for small-scale renewables, but only if they can do so on a sufficiently large scale (e.g., 10,000+ customers). Overall, the weak financial markets introduce a bias toward less capital intensive technologies, which in the energy sector means conventional fossil fuel based options.

³⁷ World Bank Group Progress on Renewable Energy and Energy Efficiency in Fiscal 2007.

³⁸ “Background paper for the ministerial-level consultations (Tenth special session of the Governing Council/Global Ministerial Environment Forum Monaco, 20–22 February 2008), including policy options emanating from the President’s summary of the ministerial consultations during the twenty-fourth session of the Governing Council/Global Ministerial Environment Forum: Discussion paper presented by the Executive Director of UNEP,” January, 2008.

44. Besides their domestic weaknesses, African countries also face difficulties related to the conditionalities and high transaction costs normally associated with development finance. The resource allocation framework of the GEF has been cited as an example in this context, and there have been recent calls for “(l)ong-standing concerns...to be sorted out during COP 13.”³⁹ Other concerns that have been raised by African experts regarding GEF include the requirement for co-financing as a pre-requisite for GEF funding. Although good in principle, many African countries have difficulty in mobilizing local funds for co-financing. Further:

African countries lack financial support to assist them in improving the coordination and management of the GEF portfolio in their countries. Other areas of concern to Africa are the additional set of criteria and conditionalities for GEF funding and the adequacy of the GEF resources to meet climate change challenges. Benchmarks should be set by the COP that could be used to quantify adequate levels of resources to fulfill its mandate. The RAF (Resource Assessment Framework) as currently structured is problematic as 25% of the countries receive 75% of the resources and the remaining 75% share the remaining 25%. 90% of African countries fall into the 25% group. Also, countries will be limited to access only 50% of the total indicative allocation in the first two years.⁴⁰

45. Growing pressure is also being put on the Executive Board of the CDM to review procedures and consider adopting rules and methodologies that are more conducive to small and medium scale projects suitable for Africa. **Of special interest here are those rules and procedures concerning: (a) The baseline for the non-renewable biomass; and (b) Flexibility in the application of rules on a project by project basis.**

46. Other areas where the need for support has been expressed include:

- a) Development of capacity building programme at sub-regional and national level focusing on (1) CDM project development; (2) institutional development; and (3) effective private sector participation.
- b) Development of financing products for both public and private sectors with the support of international financial institutions (IFIs) and regional development banks.
- c) Strengthening the association between development finance and carbon finance activities, with the support of the IFIs that will include designing and adopting initiatives that aim to provide accessible finance to CDM project activities in African countries.

4. FINANCING CLIMATE CHANGE MITIGATION IN AFRICA: ROLE OF UNEP

47. **Following the Monaco Forum, UNEP committed itself to a number of concrete actions to support governments in developing countries**, including those in Africa. These actions are embedded in a strategic approach targeted at reducing barriers to market development, which essentially involves building capacities and easing the costs and risks of entry of new financial actors in the climate-mitigation sectors. The emphasis on capacity building is consistent with the **frameworks approved at COP7 (EITs(2/CP7)) which have the objective of building, developing, strengthening, enhancing, and improving the capabilities of developing countries to achieve the objectives of the UNFCCC, for effective participation in the Kyoto Protocol process, and for the development of action-oriented projects and programmes.** Of the 10 actions that UNEP has committed to, 9 are directly relevant to the African situation and needs. Specifically, **UNEP will take the following actions to help governments and other stakeholders in the region to pursue the policy interventions outlined in paragraph 41 of this document:**

³⁹ Ogunlade Davidson, “Preparation of the Thirteenth Conference of the Parties (COP 13) of the United Nations Framework Convention on Climate Change (UNFCCC) and the Third Meeting of the Parties (COP/MOP 3) of the Kyoto Protocol: Position Paper for African Negotiators” (2007: 17).

⁴⁰ O. Davidson, op. cit., p.19.

- a) **Targeted Support to Governments on Climate Change Mitigation Policies:** The context for this action is that many governments require support in determining, designing, and implementing policy instruments for the climate-mitigation sectors. UNEP will initiate a programme to provide governments with small amounts of technical guidance, advice, and information in a fast, flexible, and responsive manner to help resolve specific issues related to the policy formulation and the implementation process. Targeted support interventions that can quickly respond to government requests have been shown to be an effective policy backstopping tool.
- b) **Create Market-Pull for Technology Transfer through Performance Standards:** The context for this action is that standards and labels present one of the greatest opportunities for inducing technology transfer and, through this, GHG mitigation at least cost. Even though a more efficient appliance may initially cost more than an inefficient competitor, the energy it saves over its lifetime will make it cheaper in the long run. Accordingly, UNEP will support governments in the development and adoption of universal minimum performance standards for energy-efficient appliances. This work would provide an opportunity for African and OECD countries to cooperate in the transfer of low-carbon technology.
- c) **Improve Energy Subsidy Frameworks:** Fossil fuel subsidies in many countries distort the market for low-carbon alternatives. Removing or transferring subsidies to cleaner technologies is not easy as they are usually controlled by parts of government that are distant from energy/climate decisions and are set in legislation; changes to which may be considered politically risky. Accordingly, UNEP will offer short-term institutional and financial support to governments willing to test out changes in energy subsidy regimes in favor of climate-mitigation technologies. Financial support could be used to temporarily level the subsidy regime, allowing cleaner technologies to compete on a level playing field.
- d) **Mobilise End-User Financing for Small-Scale Technology Deployment:** Banks are typically reluctant to finance unfamiliar technologies, and most climate technology applications fall in that category. Furthermore, the development of new lending products imposes significant additional transaction costs on banks, especially at the retail level. Therefore, financial sector awareness of climate, and the ability of banks to manage the additional costs and risks of providing financing to these new markets are crucial for the dissemination of low-carbon technologies. New efforts are needed to initiate and scale up local bank financing of small-scale climate technologies. Therefore, UNEP will launch a programme to mobilize local bank lending for users of small-scale climate technologies. Each intervention would combine banker training with a financial incentive (interest subsidy or risk-sharing option) to help first-mover banks write their first 10,000-20,000 loans for a specific climate technology, the number at which lending to these sectors begins to make commercial sense.
- e) **Promote New Instruments for Managing Risks:** An important new area of risk management for renewable energy projects are instruments that hedge resource risks. This includes wind and precipitation hedges for insuring wind farms and hydro plants against periods of low wind and water availability, feedstock supply insurance for biofuel plants, and exploration insurance for geothermal sites. However, insurers require resource data and models to offer such products which is often lacking in developing countries. UNEP will employ a public private partnership approach to helping insurance industry leaders develop the models needed for insuring resource, supply, and exploration risks in developing countries. This will include combining resource assessment experience of leading laboratories (e.g., NREL, Riso, and NASA) with actuarial expertise within the major insurers and brokers.
- f) **Reduce Transaction Costs of Early Commercial Investments:** The context for UNEP action here is that barriers exist within financial institutions that make it harder to secure internal approval for climate investment proposals. Building a strong internal case that a particular project provides a good financing opportunity often requires tapping the expertise of independent experts, for example, technical specialists to verify that wind data for a proposed wind farm is technically sound. Therefore UNEP will create a Transaction Support Facility to offer small amounts of targeted support to assist in the evaluations and the transacting of loans and investments in the climate mitigation sectors.

- g) **Catalyse the Creation of New Financial Products and Services:** African and other developing country markets require specialized climate finance instruments for which the product development costs can far outweigh the near-term market potential. Although interested, most financial actors still prefer to wait on the side-lines instead of acting as first-movers. This wait-and-see attitude of traditionally risk-averse financial institutions is compounded by an overall lack of information, experience and tools needed to quantify, mitigate and hedge project and product risks. UNEP will implement a *Financial Innovations Facility* to help first mover financiers prepare and launch a stream of new climate finance instruments in developing countries. The facility would cost share certain incremental aspects of the financial product development process such as market assessments, business modeling, financial engineering, and regulatory and legal reviews.
- h) **Develop Methodological and Analytical Tools to Scale Up the CDM:** The context is that new methodologies and analytical tools are needed for sectors that have thus far failed to benefit from any substantial CDM investment, such as agriculture and forestry, transport, sustainable biofuels, and demand-side energy efficiency. The objective underlying the design of these tools should be to support increased market efficiency and increased access to carbon finance for low-income countries and communities. UNEP can work with governments to develop cutting-edge CDM methodological tools and related analytical and knowledge sharing products. In complement to such measures, UNEP will also support the development of pilot approaches to ‘programmatic’ and ‘sectoral’ CDM, which is widely viewed as essential for scaling-up the power of carbon finance.
- i) **Share the Costs of Carbon Asset Development in Africa:** As observed in preceding sections of this document, sub-Saharan Africa has thus far failed to substantially benefit from the carbon market. With industrial mitigation potential being small and the majority of opportunities lying in rural areas, the transaction cost of initial African carbon projects has been particularly high. However, once the first projects have been completed others will develop more easily and the market will grow. UNEP proposes to create an *African Carbon Asset Development Facility* to scale up carbon investment in Africa by providing small grants to overcome the initial cost barrier of project completion. Support would be directed towards first-of-a-kind transactions that are specifically adapted to the local context, have high potential for replication, and can stimulate growth and commercial investment in the sector.

48. **The preceding actions are all aimed at helping different key actors in African and other developing countries make their first interventions in the climate sectors and move up the experience curve towards a progressive mainstreaming of low-carbon technologies into their portfolios.** Table 3 summarizes initial thinking about how UNEP’s Monaco follow-up actions might support African government efforts under each of the suggested policy options, though not intended as a rigid structure. The approaches and tools involved are all based on UNEP’s programme experience. In this context UNEP does not act as a bank and is therefore not directly involved in financing commercial projects or companies. UNEP sees its comparative advantage in giving strategic advice and incentives to change attitudes and help mainstream investment across the new climate change mitigation sector.

Table 3: Matching UNEP ‘Monaco actions’ to the suggested policy options for African governments.

SUGGESTED POLICY OPTIONS FOR AFRICAN GOVERNMENTS	<i>UNEP support can be delivered via Monaco action(s)*</i>
Strengthen capacities in all aspects of climate mitigation markets development...	1, 4, 6
Address the environmental, social and political challenges associated with utilization of the large hydro power potentials that exist on the continent.	5
Remove regulatory barriers and create financial incentives for small and medium-scale clean energy enterprises to expand clean energy access for poorly served populations...	1, 3
Increase the focus on energy efficiency, including demand side management initiatives...	2
Increase the share of renewable energy supply within the energy and transport sectors...	5, 6
Improve availability of appropriate forms of financing for climate mitigation technologies...	4, 5, 6, 7
Develop new strategies for reducing emissions from deforestation and degradation that also achieve shared benefits for livelihoods and biodiversity conservations...	1, 8, 9
Negotiate fair trade agreements covering environmental goods and services through the World Trade Organization for increased trade in...climate-friendly technologies.	1
Eliminate or sharply reduce fossil fuel price subsidies that are for the most part not economically sustainable, distort investment decisions...	3
Develop a coordinated and credible process for delivering government climate mitigation targets.	1, 8, 9
*SELECTED UNEP ‘MONACO ACTIONS’ (numbered reference list below)	
1. <i>Provide targeted support to governments on climate change mitigation policies</i>	
2. <i>Create market-pull for technology transfer through performance standards</i>	
3. <i>Improve energy subsidy frameworks</i>	
4. <i>Mobilize end-user financing for small-scale technology deployment</i>	
5. <i>Promote new instruments for managing risks</i>	
6. <i>Reduce transaction costs of early commercial investments</i>	
7. <i>Catalyze the creation of new financial products and services</i>	
8. <i>Develop methodological and analytical tools to scale up the CDM</i>	
9. <i>Share the costs of carbon asset development in Africa</i>	