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A Clean Solution

Tackling Climate Change and Sustainable
Development Through Clean Technology

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Acronyms

CDM - Clean Development Mechanism

COP - Conference of Parties

ODA - Overseas Development Assistance

UNDP - United Nations Development Programme

UNFCCC - United Nations Framework Convention on Climate Change

“Eradicating extreme poverty continues to be one of the main challenges of our time, and is a major concern of the international community. Ending this scourge will require the combined efforts of all, governments, civil society organizations and the private sector, in the context of a stronger and more effective global partnership for development.”

- United Nations Secretary-General Ban Ki-Moon

“Climate change is the defining human development issue of our generation.”

- UNDP, Human Development Report 2007/2008

Executive summary

Affordable energy is quite literally the fuel for development and poverty reduction. Paradoxically, affordable energy – in the forms it is currently available – is also fuel to the fire of climate change. A deal on technology transfer, to make low-carbon and carbon-free energy accessible to developing countries, is therefore one of the most critical pieces of a new global agreement on climate. A new technology fund offers the best hope of promoting a transition to clean energy pathways in low and middle income countries without constraining their development.

If the international community is to resolve the twin challenges of affordable energy for development and clean energy for controlling climate change and development, both issues must be at the centre of negotiations for the second commitment period of the Kyoto Protocol (referred to here as the post-2012 agreement). The urgency of these crises is so great, and the margins for error so small, that the international community can no longer afford to pursue one objective at the expense of the other. Climate initiatives that constrain the development aspirations of the poor and development assistance that exacerbates the risks of dangerous climate change are no longer viable options.

The United Nations Framework Convention on Climate Change (UNFCCC) and the Bali Action Plan provide a framework for reconciling the imperatives of climate and development. The UNFCCC recognises that developed countries have both greater historical responsibility for creating the climate crisis and far more financial and technological resources to address it. It therefore calls upon them to take the lead in acting to stabilise the climate system in accordance with equity and “common but differentiated responsibilities and respective capabilities.”¹ Conversely, the UNFCCC also recognises the inequities in requiring developing countries to solve a problem that they did not cause and may have limited technical and financial capacity to address. It recognizes that development and poverty eradication are “the first and overriding priorities” of developing countries. It stipulates that implementation of mitigation commitments by developing countries will depend on the extent to which rich countries keep their own promises to provide financing and technology.² However, what has been lacking to date is a practical mechanism to operationalise the UNFCCC principle of financing and technology transfer.

The Parties to the UNFCCC agreed in the Bali Action Plan that enhanced action on development and transfer of mitigation and adaptation technologies will be a critical component of the post-2012 framework to be negotiated in Copenhagen in December of 2009.³ The Bali Action Plan calls on the Parties to consider creating new mechanisms to help developing countries gain access to the technologies they will need to respond to the climate crisis. However, the Bali Action Plan did not answer the most difficult questions regarding the implementation and financing of technology transfer in the post-2012 regime.

These include:

- What mechanisms will be created to accelerate the deployment, diffusion and transfer of affordable environmentally sound technologies?⁴
- How will these mechanisms ensure that transfers of technology are measurable, reportable, and verifiable,⁵ and meet the UNFCCC objectives of serving the needs of the least developed countries⁶ and developing countries with particularly acute sensitivities to climate change?⁷
- How will adequate and reliable funding for such mechanisms be secured?

- How will technology needs be identified and prioritized?
- How can potential impediments posed by international trade rules and intellectual property rights be overcome to allow technology transfer at the scale and cost necessary to have meaningful impact? and
- How can cooperation on research and development of new environmentally sound technologies best be facilitated?⁸

Developing countries have identified technology transfer as a key priority of the Copenhagen negotiations, and have proposed a Multilateral Climate Technology Fund to facilitate the financing, transfer and diffusion of environmentally sound technologies.⁹

ActionAid strongly supports the creation of a new mechanism under the rubric of the UNFCCC. We believe that this mechanism must address the fact that, in addition to the climate crisis, many developing countries are also grappling with a profound development crisis. They face daunting challenges in alleviating persistent poverty and fulfilling the sustainable development aspirations of their people. To help developing countries to address these challenges, the mechanism must do more than focus exclusively on the transfer and diffusion of mitigation technologies for high-impact industrial sectors in the middle-income countries. It must also prioritise technologies that will expand access to carbon-free energy services, particularly in the least-developed countries and to the “bottom billion” of the world’s poorest citizens.

To advance both poverty alleviation and sustainable development objectives equitably and effectively, the proposed mechanism should be guided by the following principles and criteria:

- Funding for the mechanism should be adequate, secure and additional to existing Overseas Development Assistance (ODA);
- Financing from the mechanism should be provided on a grant or concessionary basis and should not be encumbered by unrelated policy conditions;
- The mechanism should be publicly accountable, transparent and representative;
- The mechanism should promote the transition to low-carbon energy pathways;
- The mechanism should prioritise the transfer and diffusion of technologies that promote sustainable development and poverty alleviation; and
- The mechanism should catalyse policy innovations that incentivise the diffusion of technology for sustainable development.

I. Integrating climate change and development through the transfer of clean technology

Affordable energy is quite literally the fuel for development and poverty reduction. Paradoxically, affordable energy – in the forms it is currently available – is also fuel to the fire of climate change. A deal on technology transfer, to make low-carbon and carbon-free energy accessible to developing countries, is therefore one of the most critical pieces of a new global agreement on climate. A new technology fund offers the best hope of promoting a transition to clean energy pathways in low and middle income countries without constraining their development.

If the international community is to resolve the twin challenges of affordable energy for development and clean energy for controlling climate change and development, both issues must be at the centre of negotiations for the second commitment period of the Kyoto Protocol (referred to here as the post-2012 agreement). The urgency of these crises is so great, and the margins for error so small, that the international community can no longer afford to pursue one objective at the expense of the other. Climate initiatives that constrain the development aspirations of the poor and development assistance that exacerbates the risks of dangerous climate change are no longer viable options.

The United Nations Framework Convention on Climate Change (UNFCCC) and the Bali Action Plan provide a framework for reconciling the imperatives of climate and development. The UNFCCC recognises that developed countries have both greater historical responsibility for creating the climate crisis and far more financial and technological resources to address it. It therefore calls upon them to take the lead in acting to stabilise the climate system in accordance with equity and “common but differentiated responsibilities and respective capabilities.”¹⁰ Conversely, the UNFCCC also recognises the inequities in requiring developing countries to solve a problem that they did not cause and may have limited technical and financial capacity to address. It recognizes that development and poverty eradication are “the first and overriding priorities” of developing countries. It stipulates that implementation of mitigation commitments by developing countries will depend on the extent to which rich countries keep their own promises to provide financing and technology.¹¹ However, what has been lacking to date is a practical mechanism to operationalise the UNFCCC principle of financing and technology transfer.

The moral and equitable basis for “common but differentiated responsibilities” is undeniable. Most emissions reductions must indeed come from developed countries, and unless they accept binding targets, the UN agreement will fail to avert climate catastrophe. But the climate crisis is now so acute that the UN agreement could also fail unless ways are found to enable developing countries to accelerate their own shift to low-carbon growth. So little of the Earth’s carbon sink capacity remains that neither developed nor developing countries can continue to pursue development strategies based on the relentless expansion of fossil fuel consumption.¹² By some estimates, to meet the UNFCCC’s core objective of preventing dangerous interference with the climate system, global greenhouse gas emissions must peak in 2013 and decline to 80 per cent below 1990 levels by 2050.¹³ However, if concerted action is not taken, emissions are projected to almost double in that timeframe.¹⁴ The bulk of this growth in emissions will come from developing countries through population increases as well as further industrialisation.¹⁵ Accordingly, it is crucial that the Bali commitment to financing and technology transfer is operationalised so that high-

“ If the international community is to resolve the twin challenges of affordable energy for development and clean energy for controlling climate change and development, both issues must be at the centre of negotiations for the second commitment period of the Kyoto Protocol.”

emitting, middle-income countries in particular are able to reduce their emissions.¹⁶

Without substantial assistance and incentives from the developed world, most developing countries have little choice but to continue to rely on conventional, carbon-intensive sources of energy. The Bali Action Plan therefore calls for “nationally appropriate mitigation actions by developing country Parties in the context of sustainable development supported and enabled by technology, financing and capacity-building, in a measurable, reportable and verifiable manner.”¹⁷

As the Bali Action Plan suggests, the effectiveness of the post-2012 framework will largely depend on the commitment of developed countries to transfer and help deploy appropriate, climate-friendly technologies in developing countries. This will require a substantial transfer of resources and capacity from developed countries. The 2006 Stern Review has estimated the necessary incremental costs of low-carbon investments in developing countries to be at least \$20-30 billion per year.¹⁸

II. Clean energy and sustainable development

Developing countries must meet burgeoning domestic energy demands if they are to continue to raise the living standards and expand the economic opportunities of their growing populations. This is an urgent development challenge. Worldwide, about 1.6 billion people still lack access to electricity, and over 2.5 billion people still depend on biomass as their primary source of cooking fuel.¹⁹ Lack of access to reliable modern energy services can adversely affect public health, constrain educational opportunities, and impede the realisation of other important dimensions of human development and well-being.²⁰

Renewable energy sources and energy efficiency improvements have the potential to provide the energy needed for human development while delivering substantial poverty alleviation, sustainable development and environmental benefits.²¹ “Negawatts” produced by investments in energy efficiency are often the cheapest source of available energy.²² Expanded use of renewable energy increases independence of energy consumption and can protect businesses and households from the vicissitudes of global energy markets.²³ Switching from coal-fired power plants to renewable sources of electricity can substantially improve air quality and public health outcomes. Public transit systems can dramatically improve urban air quality and increase the mobility and economic prospects of the urban poor. Replacing biomass with clean cooking fuels can reduce the millions of premature deaths of women and children due to indoor air pollution, and can improve women’s economic and educational opportunities by eliminating the need for them to collect firewood and other fuels.²⁴ And distributed renewable energy options can outperform grid-based schemes for rural electrification.²⁵

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III: Technology transfer in climate negotiations: from Rio to Copenhagen

A mechanism to facilitate the widespread transfer, diffusion and deployment of climate-friendly technologies will be an indispensable component of the post-2012 agreement. The UNFCCC sets out the basic framework for transferring environmentally sound technologies from developed to developing countries. The UNFCCC requires Parties to the Convention to promote and cooperate in the development, application, diffusion and transfer of relevant technologies, practices and processes in accordance with the Parties' common but differentiated responsibilities.²⁶ Article 4.5 of the Convention requires developed countries to "take all practicable steps to promote, facilitate and finance ... the transfer of, or access to, environmentally sound technologies and know-how to other Parties, particularly to developing countries to enable them to implement the provisions of the Convention."²⁷ Additionally, Article 4.7 recognises that the implementation of developing countries of their UNFCCC commitments (including the formulation and implementation of national programmes containing mitigation and adaptation measures under depends upon the provision of financial and technological resources by developed countries.²⁸

At the seventh Conference of Parties in Marrakesh, the Parties created a framework to develop "meaningful and effective actions" to implement the broad principles articulated in Article 4.5. The Parties identified five key areas in which such actions would be prioritised:

- Technology needs and needs assessments;
- Technology information;
- Enabling environments;
- Capacity building; and
- Mechanisms for technology transfer.²⁹

They emphasised that actions within the framework must be undertaken in a "country-driven," "integrated" and participatory and inclusive manner.

The Kyoto Protocol, agreed by the Parties at COP-3, created the Clean Development Mechanism (CDM) as a conduit for financing low-carbon investments in developing countries. The CDM was designed to enable companies in developed countries to offset their emissions at low cost by purchasing emission reduction credits from low-emission, sustainable development projects in the developing world.

The Bali Action Plan reaffirmed that the responsibility of developing countries to mitigate their climate impacts should be understood in terms of what is "nationally appropriate ... in the context of sustainable development," and supported by technology, financing and capacity-building assistance from developed countries.³⁰ It calls for "enhanced action" regarding technology development and transfer to support mitigation and adaptation efforts.³¹ However, the Bali Action Plan did not answer the most difficult questions regarding the implementation and financing of technology transfer in the post-Kyoto regime.

These include:

- What mechanisms will be created to accelerate the deployment, diffusion and transfer of affordable environmentally sound technologies?³²
- How will these mechanisms ensure that transfers of technology are measurable, reportable and verifiable,³³ and meet the UNFCCC objectives of serving the needs of the least-developed countries³⁴ and developing countries with particularly acute sensitivities to climate change?³⁵
- How will adequate and reliable funding for such mechanisms be secured?
- How will technology needs be identified and prioritised?
- How can potential impediments posed by international trade rules and intellectual property rights be overcome to allow technology transfer at the scale and cost necessary to make a meaningful impact? and
- How can cooperation on research and development of new environmentally sound technologies best be facilitated?³⁶

These issues may prove difficult to resolve in the larger context of the negotiations. China maintains that the principle of “common but differentiated responsibilities” in the UNFCCC and Bali Action Plan exempts middle-income countries that are heavy emitters from the responsibility of assuming any binding commitments to reduce their emissions.³⁷ In support of this position, they cite the developed world’s disproportionate historical contribution to the problem and the continued disparity in per capita emissions between the developed and developing world.³⁸ They also point out that legally binding targets are worthless if the countries concerned do not have the capacity and means to implement them in the first place.

Instead, the G-77 and China have emphasised the central role that technology transfer must play in helping poorer countries to voluntarily reduce the carbon intensity of their economic output.³⁹ Towards this end, they have called for an enhanced mechanism for financing and facilitating the transfer of technology to developing countries.⁴⁰ China, for its part, has also emphasised the potential barriers to technology transfer posed by intellectual property rights, and has called for compulsory licensing for patented environmentally sound technologies, “specific legal and regulatory arrangements to curb negative effects of monopoly powers,”⁴¹ and a Multilateral Technology Acquisition Fund that could buy out of intellectual property rights.⁴²

Many of these positions may not be easily accepted by the United States and other developed countries that must be included in a post-2012 framework for it to have any hope of success. Much will depend on the leadership of the new US Administration. The US has historically refused to take on binding emissions reductions commitments without key developing countries, notably China, doing the same. It has emphasised that China is now, or will soon be, the leading emitter of greenhouse gases, and that climate stabilisation objectives simply cannot be reached without China’s participation. Moreover, the proposals for enhanced mechanisms of technology transfer generally anticipate that they will be largely or entirely financed by developed countries. However, developed countries are unlikely to agree to transfer taxpayer funds to developing countries on the scale that will be necessary to make a meaningful impact, particularly to countries that have not taken on reduction commitments of their own.⁴³ This is particularly true in the US, where overseas development assistance of all kinds is often viewed with scepticism.⁴⁴ Alternative,

'innovative' funding proposals, such as schemes to tax international shipping or air travel, involve an unprecedented incursion on sovereign taxing authority and empowerment of global bureaucracy that is likely to be a political non-starter in the US and other developed countries. And developed countries have traditionally been vigilant in protecting the intellectual property rights of their companies. If the enormity of the climate challenge is not sufficient to induce them to relax their positions, then the prospect of reaching a climate deal in Copenhagen will be greatly threatened.

IV: Technology transfer for poverty alleviation and sustainable development

A primary objective of a technology transfer mechanism must be to reduce the greenhouse gas emissions of high-impact industrial sectors in middle-income countries. These sectors are among the fastest growing sources of emissions, and offer enormous opportunities for achieving emissions reductions at the scale necessary to make an impact on the global crisis.

However, it will also be critical to transfer and diffuse technologies that more directly address the development crisis. The mechanism must therefore include technologies that can expand access to carbon-free energy services, particularly in the least-developed countries and to the "bottom billion" of the world's poorest citizens. In particular, this should include smaller-scale renewable energy and efficiency projects that provide direct sustainable development benefits for local communities.

There are several reasons for including mitigation technologies that are appropriate for community-level projects in the mechanism. First, including these technologies will enable the least-developed countries that generally do not have large and rapidly growing energy and industrial sectors to benefit from the mechanism.⁴⁵ Second, it will enable the mechanism to help capture mitigation opportunities that directly integrate poverty alleviation and sustainable development objectives.

Third, it may better align the contributions of the mechanism with those of the private-sector carbon finance markets. The vast majority of the financing that has been mobilised by the Kyoto Protocol's Clean Development Mechanism (CDM), for example, has gone to large-scale industrial and infrastructure projects located in middle-income countries. These projects are attractive to private investors because they generate large amounts of credits at relatively low cost.⁴⁶ Thus, a mechanism that focused on the transfer of industrial-scale technologies might compete directly with the CDM (or its successor), and could suppress the supply of available credits for the private-sector market. Conversely, small-scale projects in the least-developed countries have found it much more difficult to attract carbon finance because of their higher transaction costs and perceived risks, as well as because of the design and policies of the CDM itself.⁴⁷ Focusing on these kinds of technologies would allow the new mechanism to fulfill a set of compelling needs that have largely been overlooked by private-sector carbon finance markets.

V: Recommendations: principles for a new technology transfer mechanism

ActionAid believes that in order to advance both climate and sustainable development goals equitably and effectively, a proposed mechanism should be guided by the following principles and criteria:

- **Funding for the mechanism should be adequate, secure and additional to existing Overseas Development Assistance (ODA):** Developed countries should commit to provide stable funding that is sufficient to the task at hand, and that will remain so in the future.⁴⁸ This funding should be new and additional to ODA. Developed countries should not divert funds from other development assistance programmes in order to meet their commitments under the UNFCCC⁴⁹ and the Bali Action Plan to finance the transfer of environmentally sound technologies.⁵⁰ Similarly, funding provided outside the authority of the UNFCCC should not be regarded as part of these commitments.⁵¹
- **Financing from the mechanism should be provided on a grant or concessional basis and should not be encumbered by unrelated policy conditions:** In accordance with basic principles of equity and “common but differentiated responsibilities and respective capabilities”, Article 11 of the UNFCCC specifies that a mechanism for the provision of financial resources and transfer of technology should operate on a grant or concessional basis.⁵² The mechanism should be used to support policy reforms to facilitate investment in clean technology in carbon-intensive sectors such as energy, transportation and forestry, and for community-level renewable energy and energy efficiency projects. However, it must be sensitive to preserving the domestic political space to craft policy solutions that are responsive to local needs. Funding therefore should not be tied to unrelated issues such as reforms in macroeconomic policy.
- **The mechanism should be publicly accountable, transparent and representative:** The new mechanism should operate in accordance with generally accepted principles of public accountability and responsiveness in global governance,⁵³ and the UNFCCC’s requirement that financing mechanism have “equitable and balanced representation of all Parties within a transparent system of governance.”⁵⁴ It should provide ample space for citizen input and oversight. Technology needs should be identified through a participatory, country-driven process that gives key stakeholders from government, civil society and business a meaningful voice in assessing alternatives and designing and implementing technology transfer strategy plans.⁵⁵
- **The mechanism should promote the transition to low-carbon energy pathways:** The mechanism should only finance technologies that are environmentally and socially sustainable and will facilitate a shift away from fossil fuel-based energy sources. Investments in fossil-fuel technologies, biofuels, nuclear power and large-scale hydropower facilities that do not meet World Commission on Dams standards should not be eligible.⁵⁶ The mechanism should prioritise initiatives that improve the efficiency of existing infrastructure and systems.
- **The mechanism should prioritise the transfer and diffusion of technologies that promote sustainable development and poverty alleviation:** The mechanism should prioritise affordable, locally-controlled energy production and distribution technologies that can provide secure and affordable energy services to 1.6 billion of the world’s poorest citizens

who currently lack electricity. It should also prioritise technologies that promote the economic self-determination and disproportionate burdens of poverty that fall on women. It should also promote endogenous innovation, so that developing countries can acquire the means to develop their own technology solutions.

- **The mechanism should catalyse policy innovations that incentivise the diffusion of technology for sustainable development:** There is a wide range of policy initiatives that low- and middle-income countries could be encouraged to adopt to reorient their economies toward low-carbon development pathways while promoting sustainable development.⁵⁷ Energy efficiency standards and incentives, feed-in tariffs for renewable energy, and renewable energy portfolio standards, for example, have all proven effective in a number of different policy contexts.⁵⁸

Endnotes

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2. UNFCCC, Art. 7.
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4. Decision 1/CP.13, "Bali Action Plan", para. 1(d).
5. Decision 1/CP.13, "Bali Action Plan", para. 1(b)(ii).
6. UNFCC, Art. 4.9.
7. UNFCC, Art. 4.8.
8. Decision 1/CP.13, "Bali Action Plan", para. 1(d)(iii).
9. Proposal by the G77 & China for a Technology Mechanism under the UNFCCC.
10. UNFCCC, Art. 3.
11. UNFCCC, Art. 4.7.
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15. *Ibid.*
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19. International Energy Agency, *World Energy Outlook 2006*, p. 157, 421. 2006.
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26. UNFCCC, Art. 4.1(c).
27. UNFCCC, Art. 4.5.
28. UNFCCC, Art. 7.
29. Decision 4/CP.7, <http://unfccc.int/resource/docs/cop7/13a01.pdf#page=22>
30. UNFCCC, *Report of the Conference of the Parties to its thirteenth session, held in Bali from 3 to 15 December 2007*, Decision 1/CP.13, "Bali Action Plan", para. 1(b)(ii).
31. Decision 1/CP.13, "Bali Action Plan", paras. 1(d), 1(e).
32. Decision 1/CP.13, "Bali Action Plan", para. 1(d).
33. Decision 1/CP.13, "Bali Action Plan", para. 1(b)(ii).
34. UNFCC, Art. 4.9.
35. UNFCC, Art. 4.8.
36. Decision 1/CP.13, "Bali Action Plan", para. 1(d)(iii).
37. China's Views on Enabling the Full, Effective and Sustained Implementation of the Convention Through Long-Term Cooperative Action Now, Up to and Beyond 2012, September 2008.
38. Lewis, Joanna I. China's Strategic Priorities in International Climate Change Negotiations, *The Washington Quarterly*, 31:1, at 162; National Development and Reform Commission of the People's Republic of China, *China's National Climate Change Programme*, section 5.1.1, June 2007.
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43. P. Baer, T. Athanasiou and S. Kartha. 2007. *The Right to Development in a Climate Constrained World: The Greenhouse Development Rights Framework*, at 10.
44. The aid contribution of the United States as a percentage of GDP has almost always been lower than other industrialized nations, and has never met the internationally agreed target of .7 percent of GDP. Anup Shah, *U.S. and Foreign Aid Assistance*, in *Global Issues* (2008), at <http://www.globalissues.org/article/35/us-and-foreign-aid-assistance#RichNationsAgreedatUNto07ofGNPToAid>
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46. These projects do not necessarily generate concomitantly large sustainable development benefits. For example, billions of dollars in offsets have gone to mitigation efforts such as the destruction of trifluoromethane (HFC-23) at refrigerant factories that deliver few discernible local development benefits. Wara, M. "Is the Global Carbon Market Working?" *Science* 445, 2007. The CDM is also hampered by serious problems that limit its effectiveness in delivering mitigation benefits. See McCully, Patrick. *The Great Carbon Offset Swindle: How Carbon Credits are Gutting the Kyoto Protocol, and Why They Must Be Scrapped*, in Lori Pottinger, "Bad Deal for the Planet: Why Carbon Offsets Aren't Working...And How to Create a Fair Global Climate Accord," International Rivers, Berkeley, CA. 2008.

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49. UNFCCC, Arts. 4.1c, 4.3 and 4.5.
50. Proposal by the G77 & China for a Technology Mechanism under the UNFCCC; China's Views on Enabling the Full, Effective and Sustained Implementation of the Convention Through Long-Term Cooperative Action Now, Up to and Beyond 2012, p. 2, September 2008.
51. Proposal by the G77 & China for a Technology Mechanism under the UNFCCC.
52. UNFCCC, Art. 11.1. *See also*, UNDP's proposal for a Climate Change Mitigation Facility, UNDP, *Human Development Report 2007/2008: Fighting Climate Change: Human Solidarity in a Divided World, Summary*, p. 30; Proposal by the G77 & China for a Technology Mechanism under the UNFCCC.
53. *See, e.g.*, Steven Herz & Alnoor Ebrahim, *A Call for Participatory Decision-Making: Discussion Paper on World Bank-Civil Society Engagement*. Civicus, 2005.
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