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Enabling Adaptation: Priorities for Supporting the Rural Poor in a Changing Climate¹

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Effective climate adaptation requires an enabling environment—one that grants the poor the rights, resources and access they need to sustain and benefit from ecosystems, governments and markets. Development experience provides important lessons for fostering such enabling environments, including principles of good governance that provide the rural poor with control of the ecosystems on which they depend.

EXECUTIVE SUMMARY

The livelihoods of the rural poor are rooted in the productivity of ecosystems. Climate change, however, is already altering the functioning of these ecosystems in profound—and often negative—ways. Over 2 billion rural inhabitants live on less than \$2 per day. Helping these people to build their assets and incomes will bolster their resilience and adaptive capacity, enabling them to meet the challenges of climate change and ecosystem degradation without sinking deeper into poverty. But how?

Effective climate adaptation requires an enabling environment—one that grants the poor the rights, resources and access they need to sustain and benefit from ecosystems, governments and markets. It begins with fair and equitable governance. Sound ecosystem management—whether at the watershed level, on a shared plot of forest land, or of a particular water body—can reduce the poor's vulnerability to climate-related risks by creating economic opportunities that build livelihoods and increase resilience. Unfortunately, decades of develop-

ment experience have shown that governance failures often rob the poor of effective control of the ecosystems on which they depend.

Just as governance successes, such as Bangladesh's cyclone management system or Guatemala's community forestry program, can reduce vulnerabilities, governance failures stand as obstacles to climate adaptation, depriving the poor of the means and powers to benefit from improved management of natural resources (Batha 2008). Indeed, lack of resource rights and insufficient access to markets, finance, information, and technology are often greater determinants of vulnerability for the poor than climate change itself (Schipper 2007, Ribot 2009). As national and international policymakers turn their attention to climate change adaptation, they should keep in mind that constructing an enabling environment that minimizes these vulnerabilities will be central to any meaningful and lasting increase in the adaptive capacity of the rural poor.

^{1.} The conceptual and factual grounding for this brief is largely derived from the World Resources Institute's World Resources 2005: The Wealth of the Poor (WRI 2005), World Resources 2008: Roots of Resilience (WRI 2008), and McGray et al.'s 2007 report, Weathering the Storm: Options for Framing Adaptation and Development. Please see WRI.org to access these and a range of other climate change-related publications.

I. SEIZING THE MOMENT

Interest in climate change adaptation is mounting quickly among national governments and the international community as a comprehensive new international climate deal through the UN Framework Convention on Climate Change (UNFCCC), grows likely. However, most current adaptation efforts remain tentative and incremental, in part because the international community has yet to forge a commonly accepted model of what successful adaptation should look like, including clear goals and targets (Hedger et al. 2008:10, 14-15).

This brief seeks to help fill this gap. It is formulated in response to an increasingly urgent need for articulating and agreeing upon a vision of effective adaptation—in part to inform the architecture for financing climate adaptation. The paper argues that the poor, and in particular the resource-dependent rural poor, must be a central concern in any effective adaptation funding effort, and that one of the major pillars of an effective adaptation strategy is support for an enabling environment that allows them to build their resilience through natural resource management.

The following section proposes that good governance and fair, representative institutions are crucial to help the rural poor adapt effectively to climate change. The second half of the brief proposes specific governance investments that adaptation funding should support (see Box 1).

II. RATIONALE

Why the Rural Poor?

The rural poor have a long history of coping with climate challenges such as cyclical droughts and floods. In one sense, therefore, it seems strange to suggest that communities that adapt to changing climatic and social conditions on a regular basis should be the focus of climate adaptation funding. But there are three compelling reasons why funders should prioritize this group:

• Development Imperative: Over 70% of the poor still live in rural areas. Failure to help them adapt to climate change therefore undermines broader development efforts. It is critical that dedicated adaptation funding be used to reinforce the development gains of the last few decades by addressing the core obstacles to enhancing the adaptive capacity of the rural poor—lack of income, economic opportunity, technical support, social inclusion, political power, and legal rights (Ribot 2009).

BOX 1 Key Investments to Enable Adaptation

Supporting pro-poor climate adaptation begins by giving primacy to enabling activities that grant the poor the rights, resources and access they need to sustain and benefit from their ecosystem assets.

Priority areas for investment include:

A. Strengthen an enabling environment at the national level.

- Promoting tenure reform for improved resource access and livelihood security.
- Providing market access through regulatory reform to benefit small producers
- Decentralizing authority over natural resources to local levels.
- Providing access to information.
- B. Strengthen local institutions and good governance practices on the ground.
 - Promoting representative and fair natural resource management and use institutions at the local level.
 - Facilitating community participation, especially of vulnerable groups, in natural resource management.
 - Fostering local support organizations.
 - · Communicating success stories.

C. Establish good governance metrics for adaptation

Source: Adapted from World Resources 2008: Roots of Resilience.

- Environmental Imperative: Engagement by the rural poor is necessary for effective stewardship of ecosystems. Their day-to-day lives and livelihoods—as farmers, fishers, forest dwellers and the like—put them in a unique position to manage and conserve ecosystems. Climate change will affect the functioning of these ecosystems in profound and unpredictable ways. Maintaining the health of ecosystems as the climate changes will therefore depend upon access by the rural poor to the rights, powers and resources needed to sustain their livelihoods.
- Moral Imperative: The rural poor have contributed the least to climate change, yet are among the most vulnerable to its effects (UNDP 2007). Over 2 billion people live in rural areas in developing countries on less than \$2 per day. Their historical and per capita greenhouse gas emissions are a fraction of those in rich countries; neverthe-

less, they are especially vulnerable to climate change. Justice would demand that those causing the problem compensate those they harm.

Why Enabling Actions?

Climate adaptation for the rural poor should not be conceived only in technical terms involving new infrastructure investments, technology transfers or ecological management practices. While these may be critical to successful adaptation, they may not be effective without enabling policies and an appropriate institutional environment (see Box 2). A key lesson from decades of development experience is the importance of creating appropriate policies and effective institutions at all levels to support people-centered, sustainable development. This lesson is important to apply to climate adaptation, given the significant overlap between adaptation and development. In this context, building an "enabling environment" should not be seen as a "condition" upon which adaptation funding should depend, but rather as a crucial set of adaptation actions worthy of investment in their own right (McGray et al 2007: 27, 35-36).

At a local level, development research and practice has repeatedly reinforced the importance of good governance (Ribot 2004). What the rural, resource-dependent poor fundamentally require are governance practices that empower community members to manage their ecosystem assets, especially in times of change. When the poor are given power over their ecosystem resources and incentives to use their power for long-term stewardship, their capacities for resource management, innovation, and wealth creation can emerge (WRI 2005). This paper argues that the same findings are likely to apply to climate change: granting the poor resource rights, representation in governance processes, participation rights, and fair access to markets can build the resilience of communities and help them to adapt to their changing climate.

Of course, much remains to be learned about how good governance supports development (Foti et al 2008: 25-26), and this is even more true for adaptation. Given development experience to date, investments in policies and institutions that support control by the poor over natural resources seem likely to empower them to adapt. However, we recognize that the adaptation effectiveness of such investments remains largely untested. Putting in place robust systems for monitoring and learning will be a crucial part of the adaptation process, given how much we do not know.

BOX 2 Key Definitions

Adaptive capacity is the capacity of a community to reconfigure itself in the face of climate change without substantial decreases in function (Resilience Alliance 2009). It is closely associated with the ability to learn, innovate, and cooperate in order to maximize group learning and share benefits. Resilience (below) is a central element of adaptive capacity.

Enabling environment refers to the set of conditions within which the rural poor operate that supports them in efforts to pursue sustainable livelihoods and enhance their adaptive capacity. The enabling environment includes the basic requirements of good governance at both national and local levels (see below), but also incorporates a wide range of other factors, such as a household's access to education, markets, and information more broadly; the state of local infrastructure; and the availability of credit.

Good governance is comprised of those practices at the core of a truly representative and uncorrupt government. Some of the key traits of institutions that reflect good governance practice are: inclusiveness, accountability, responsiveness, equitability, and accessibility (Foti et al. 2008: 25).

Institutions refer to those public, private, or civic organizations, or rules of the game that "shape social and individual expectations, interactions and behavior" (Ribot 2009: 17; Agrawal 2009:5). Institutions, such as NGOs, village governments, and schools, structure the impacts of climate change on households within a given social and ecological context.

Resilience is the ability to handle stresses or recover from disturbances or shocks. In the most positive sense, it is the capacity to thrive in the face of challenge. Resilience in the context of rural resource-dependent communities is comprised of ecological resilience, social resilience, and economic resilience (Folke et al. 2002:13; Briguglio et al. 2005:6-7; Brenson-Lazan 2003).

We do know — all too well — that the poor are often not granted resource rights and access to important decision processes. They frequently lack legal tenure over the forests, fisheries, and lands they depend on, even if they have lived on or looked after these resources for generations. Often, they are left out of decisions concerning the use of local ecosystems, and many times end up displaced when powerful outside actors gain the right to exploit large forest or fishery concessions or create agribusiness plantations in their neighborhoods. This is occurring at a rapid rate across the Amazon in Brazil today as the forest resources of communities with customary tenure are extracted to make room

BOX 3 Building Enterprise and Resilience through Community-Based Natural Resource Management

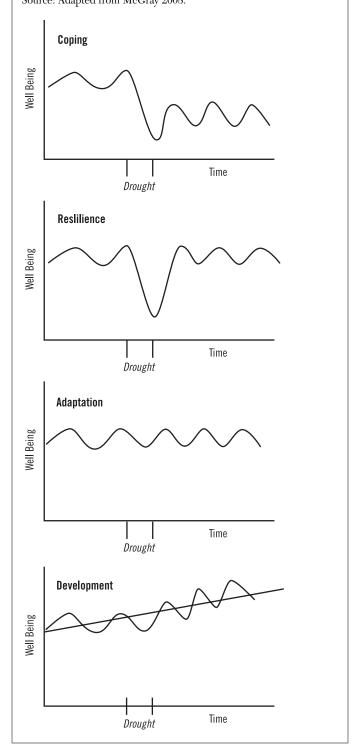
Community-based natural resource management has shown that it can bring many advantages to rural groups, including increased sustainability, more equitable division of common pool resources, political empowerment, and social cohesion. When configured into an enterprise to produce a specific good or service for market, effective community management can also generate considerable income. Indeed, case studies on several continents show that collective resource management provides a powerful platform for developing resilience and increasing the income potential from nature (WRI 2008).

Successful use of collective action to build livelihoods and aid in climate adaptation often starts from a basis of local knowledge and gradually expands. For example, in one South African village, group efforts centered on traditional cattle production, with the government extension service reintroducing indigenous livestock breeds that are hardier in the face of drought. At the same time, small-scale horticulture projects were started to supplement the staple sorghum and maize crops, with some of the projects incorporating new varieties of drought-resistant tomatoes. All these activities were market-based and contained a mix of familiar and new elements that gradually expanded local capacity for farm innovation and joint enterprise (Thomas et al. 2005).

Such local, community-based management and the enterprises that grow out of this management act as vehicles for building resilience. When communities manage ecosystems as business assets whose productivity they want to optimize through sustainable practices, they are building the resilience of these ecosystems and promoting their ability to support not just one business, but a variety of economic options—from agriculture to ecotourism to the marketing of indigenous crafts—thereby improving economic resilience. At the same time, the act of cooperatively managing ecosystem resources as a business builds the community's social resilience, its set of business skills, and its connectivity with outside markets and sources of financial and technical support. These sum to a substantial resilience dividend (WRI 2008).

FIGURE 1 Integrating Adaptation into Development

When adaptation is incorporated into development, rural communities and poor households have a better opportunity not only to survive a climate shock (first graph), recover to where they once were (second graph), or endure the shock as if it were within their usual range of climate variation (third graph). They also have an opportunity to improve their standards of living even as the climate changes (fourth graph). Source: Adapted from McGray 2008.



for agriculture and ranching (Sunderlin et al. 2008:4-5, 19). In most instances, the rural poor do not benefit from the kinds of subsidies, tax exemptions, or favorable regulations that larger, commercial interests receive (Oyono 2007:189-191). Women, indigenous people, and other marginalized groups may face further discrimination. Without leveling the playing field, the poor stand little chance of unleashing the kind of creativity, capacity, and entrepreneurial sprit needed to nurture resilience and adaptive capacity (see Box 2 and Figure 1).

III. WHAT TO FUND: ENABLING ADAPTATION

As climate negotiators and funders turn their attention to adaptation funding, they should ask themselves how such spending can most effectively support enabling activities. Although investing in robust institutions and good governance is not the sole or even the largest demand for adaptation resources in rural areas, we argue that they must complement more sizable investments in agriculture, irrigation, and other rural development efforts. The recommendations outlined below are by no means exhaustive, nor should they be viewed as a one-size-fits-all solution for adaptation, which we know is highly context-specific. These recommendations illustrate how basic governance principles can serve as the foundation for building adaptive capacity among the rural poor.

A. Support enabling activities at the national level

Funding policy reform and decentralization processes is critical to establish the foundations of good resource governance that can enable climate adaptation.

• Promoting tenure reform for improved resource access and livelihood security. For the resource-dependent poor, the link between secure resource tenure and the ability to adapt to climate change effects is clear. Without the ability to control ecosystem resources, the incentive to use these resources in a way that increases resilience is greatly reduced. Many governments now understand the importance of secure tenure to rural development, but few have explicitly recognized its connection to climate change adaptation. While there is no universally applicable solution to tenure reform, experience shows that, to be most useful, it should achieve: a system of low-cost land registration that is accessible to rural residents; the recognition of customary tenure, including the communal tenure which still prevails in many rural districts; equal rights under the law without regard for gender or ethnicity; and clear and enforceable rights to use state-owned

- forests, fisheries, or other resources through legally recognized co-management arrangements that allocate a substantial share of the sustainable yield of state assets to local users.² That said, tenure reform needs to be carefully tailored so that it does not inadvertently reduce adaptive capacity by reducing mobility. Funders could support a wide range of investments to support tenure reform. Investments in land-related reform, for example, could include surveying land boundaries and implementing low-cost land registration programs.
- Providing market access through regulatory reform to benefit small producers. It is not only important to enhance the resource access and security of rural communities—it is also necessary to provide a regulatory environment in which they can turn their environmental assets into viable sources of income. Small rural enterprises the drivers of economic resilience in rural communities (see Box 3)—often suffer in the face of government bias toward large or urban-based enterprises. This frequently manifests in a tax and regulatory burden that is relatively greater than their larger and politically connected counterparts. It is also often found in permitting and licensing that favors these more influential actors. In addition, rural markets are often plagued by anti-competitive behaviors such as the formation of cartels dominated by local or outside elites. Many of these biases against the rural poor are created by the regulatory environment. Funding tax and regulatory reviews for small and medium enterprises and the analysis and enforcement of basic competition laws could improve the survival rate of small, nature-based enterprises (Larson and Ribot 2007).
- Decentralizing authority to local levels. Decentralizing planning, management and monitoring of natural resources to locally accountable and responsive institutions can support the development and implementation of tenure arrangements that work for the poor. When these institutions—be they village councils, watershed management organizations, or farmers' cooperatives— are formed on democratic principles of representation and are accessible to their low-income constituents, they are more likely to sustain and promote equitable distribution of the benefits of ecosystem services. Funders can play a

Where climate change contributes to migration, such tenure definitions, though more difficult, also become all the more important in order to reduce resource conflicts and assure that migrants can develop livelihoods where they settle.

- crucial role by supporting champions within and outside of government who are advocating for decentralized natural resource management.
- Providing access to information. With their synoptic view of the nation and their access to weather data and climate forecasts, national governments are in a good position to provide rural communities with the information they need to manage ecosystems productively and sustainably with an eye to future climate effects. Investments here may include establishing, operating and disseminating data from meteorological stations; compiling and distributing information on the availability, usage patterns, and ownership status of ecosystem resources; compiling and sharing regional good practices in adaptive natural resources management; and building telecommunications infrastructure that serve the needs of the rural poor, such as real-time connectivity to agricultural produce prices in local markets.

B. Strengthen local institutions and governance practices on the ground

Building pro-poor institutions at the local level to manage ecosystems sustainably is as important as national-level actions. Specific efforts include:

- Promoting fair and effective natural resource institutions at the local level. Competent local institutions can greatly enhance the adaptation efforts of the poor. Communitylevel institutions such as water and forest user groups or watershed protection committees, often play pivotal roles in jointly managing ecosystems and negotiating an equitable distribution of the costs and benefits of such management. Associations, such as fishing or farming cooperatives, facilitate access to markets, finance, and other technical and social services that support resource-related enterprises. Providing support for local institutions, which are routinely underfunded, is one way to help build the capacity of communities to manage ecosystems sustainably and increase the benefits they can capture from these ecosystems. For example, farmer cooperatives have a proven record of acting as a platform to help poor farmers pool risks as they experiment with sustainable technologies and business strategies for adaptation—a role that targeted funding from donors could expand (see Box 4)
- Facilitating community participation, especially of vulnerable groups, in decision-making. Adaptation funds can be used to encourage community participation in several ways.

 They can finance community planning processes, group

BOX 4 The Adaptation Benefits of Local Farmer Associations

An example of the positive role that local institutions can play in supporting climate adaptation can be found in the action of farming associations in rural Mozambique. Several of these groups have formed with the help of local NGOs and the government. Over the past eight years they have become a platform for spreading innovative and experimental farming practices that help mitigate the risks of uncertain rains—a problem that has been worsening over the last two decades. By working together in these voluntary associations, villagers have been able to spread the risks of adopting new technologies and experiment with new crop varieties on their own terms. When one farmer in the group tries one new method or technology, the other members invest in different methods—or even different products, such as livestock. The profits of the group are shared so that there is less risk to any individual farmer; even if a new technology does not live up to expectations, the farmer will be supported within the larger network (Thomas et al. 2005:17-18).

The associations have been highly effective on many levels. They have successfully channeled collective action in ways that people in the community have found useful by allowing people to share risks and knowledge. They have been generally open to the poor, with both wealthy and poor households participating. Indeed, they have become particularly popular with women and have strengthened their position in the farm economy. They have also been technically successful: researchers reported that 45 percent of those they interviewed had changed to more drought-resistant species of rice, maize, cassava, and sweet potato as a direct result of their interaction with the farming association. They have also yielded the participants valuable connections to new markets, finance, and other resources (Thomas et al. 2005:17-18, 37).

visioning exercises, and technical support for community resource assessments and mapping exercises. Moreover, in order to ensure that those most vulnerable to climate impacts benefit from adaptation funding, they can support the practice of reserving gender-based or income-based positions on the executive committees of local institutions; training to build the capacity of vulnerable groups to participate effectively in these institutions; and rules to ensure vulnerable groups such as the landless are also able to derive meaningful benefits from effective resource management (World Resources 2005:15–16).

 Fostering local support organizations. Governments and international development institutions are by no means the only possible sources of external support for local adaptation efforts. Local NGOs and other civil society actors are now well-recognized for their support capabilities. Many of these organizations are able not only to give locally appropriate support but also to help community-based enterprises connect to wider markets, knowledge networks, and the political process. Governments and global funders should actively promote the development of these local service providers through budget support, training, and leadership development.

Communicating success stories. Adaptation funders are well positioned to help the rural poor communicate successes to other local, national and international stakeholders. Funders can assist with message development, publication of articles, photographs, maps, and other communication tools and exchange visits. Perhaps most importantly, funders can leverage their in-country networks not only to disseminate success stories but also to create a forum for ongoing learning. Such communication is an essential part of building local understanding and support for successful climate adaptation activities — a necessary step in scaling up adaptation efforts both nationally and globally.

C. Establish good governance metrics for adaptation

Maintaining high levels of funding for adaptation will depend on progress in strengthening governance in the sustainable use of ecosystems. Metrics for assessing the presence and quality of governance in this context have yet to be widely agreed upon. This hinders the learning process and makes it difficult to understand the effectiveness of different adaptation approaches. Relevant existing governance indicators include The Access Initiative global civil society network toolkit (Access Initiative 2006) and those developed for the Hyogo Framework for Disaster Risk Reduction (UNISDR 2008), but they will need modification and testing for use in the adaptation context. Investment in developing, piloting and applying governance metrics for adaptation would make a major contribution to improving governance for adaptation—and thereby help sustain funding support for adaptation more broadly.

III. CONCLUDING REMARKS

Five interlocking messages emerge from the above analysis and guide our approach to climate adaptation by low-income rural communities:

• The rural poor should be a priority for adaptation funding. They are among the most vulnerable in the face of

- climate variability and change and least responsible for causing climate change.
- Activities to strengthen climate adaptation among the
 poor cannot be separated from activities to tackle poverty.
 Adaptation activities must be conceived as part of a
 broader rural development strategy and proceed from an
 understanding of how low-income families make a living,
 how they perceive risk, and what social and political constraints they face.
- Ecosystems are assets. Indeed, ecosystems are among the
 most valuable assets available to the poor. Appropriate
 management of these assets can increase their productivity as well as their resilience to climate challenges.
 Removing obstacles and creating incentives to enable
 this sustainable and resilient ecosystem use should be a
 central focus of adaptation efforts.
- The adaptation agenda must be anchored in a "good governance" agenda. The linkages among poverty, the environment, and governance are well-established: governance obstacles routinely prevent the poor from accessing the wealth of nature. Without governance reforms, including tenure reform, access to information and participation, and the building of effective and inclusive local institutions, the poor cannot pursue nature-based livelihoods that are both profitable and flexible enough to respond to a changing climate.
- Good governance practices must be complemented by other enabling conditions to be effective. Resource rights and local institutions alone are not enough to foster successful adaptation. Rural communities require market access, a fair regulatory environment, funding for priority infrastructure and technology investments, freedom from gender and ethnic discrimination, and training to develop the business and management capacities for financial viability and social and environmental sustainability. Furthermore, putting in place robust monitoring and learning systems is critical to help us better understand the relationship between good governance and ability of the poor to adapt to climate change.

These messages form the foundation of the "enabling activities" that can and should be supported by adaptation funding. Early investments in strengthening governance with tools like those outlined in this brief will go a long way to improving the overall effectiveness of adaptation investments targeted at the rural, resource-dependent poor.

REFERENCES

- Agrawal, A. 2009. The Role of Local Institutions in Adaptation to Climate Change. Forthcoming. Washington, DC: World Bank.
- Batha, E. 2008. "Cyclone Sidr would have killed 100,000 not long ago" AlertNet, November 16, 2007, http://alertnet.org/db/ blogs/19216/2007/10/16-165438-1.htm (accessed December 5, 2008).
- Brenson-Lazan, G. 2003. *Groups and Social Resilience Building*. West Hartford, CT, USA: Amauta International, LLC. Online at http://www.communityatwork.com/resilience/RESILIEN-CIAENG.pdf.
- Briguglio, L., G. Cordina, S. Bugeja, and N. Ferrugia. 2005. Conceptualizing and Measuring Economic Resilience. Malta: Islands and Small States Institute, University of Malta. Online at http://home.um.edu.mt/islands/resilience_index.pdf.
- Folke, C., S. Carpenter, T. Elmqvist, L. Gunderson, C.S. Holling,
 B. Walker, J. Bengtsson, F. Berkes, J. Colding, K. Danell, M.
 Falkenmark, L. Gordon, R. Kasperson, N. Kautsky, A. Kinzig,
 S. Levin, K.-G. Mäler, F. Moberg, L. Ohlsson, P. Olsson, E.
 Ostrom, W. Reid, J. Rockström, H. Savenije, and U. Svedin.
 2002. Resilience and Sustainable Development: Building
 Adaptive Capacity in a World of Transformation. Background
 Paper for the Environmental Advisory Council to the Swedish
 Government. Stockholm: Swedish Ministry of the Environment. Online at http://www.sou.gov.se/mvb/pdf/resiliens.pdf.
- Foti, J., DeSilva, L., H. McGray, L. Shaffer, J. Talbot, J. Werksman. Voice and Choice: Opening the Door to Environmental Democracy. Washington, DC: World Resources Institute. Online at http://www.wri.org/publication/voice-and-choice.

- Gbetibouo, G. A. 2008. Understanding Farmers' Perceptions and Adaptation to Climate Change and Variability: The Case of the Limpopo Basin, South Africa. IFRPRI Research Brief No. 15-8. Washington, DC: International Food Policy Research Institute.
- GNCSODR (The Global Network of Civil Society Organizations for Disaster Reduction). 2009. *The Global Network of Civil Society Organizations for Disaster Reduction: Home.* Online at http://www.globalnetwork-dr.org.
- Hedger, M., T. Mitchell, J. Leavy, M. Greeley, A. Downie, and L. Horroks. 2008. Desk Review: Evaluation of Adaptation to Climate Change from a Development Perspective. Brighton, UK: Institute of Development Studies.
- McGray, H., A. Hammill, R. Bradley. 2007. Weathering the Storm: Options for Framing Adaptation and Development. Washington, DC: World Resources Institute. Online at http://www.wri.org/publication/weathering-the-storm
- McGray, H. 2008. *Elements of Adaptive Capacity*. Ppt. Presentation. Washington, DC: World Resources Institute.
- Millennium Challenge Corporation. 2008. Selection Indicators.
 Washington, DC: Millennium Challenge Corporation. Online at http://www.mcc.gov/selection/indicators/index.php
- Larson, A. and J. Ribot. 2007. "The poverty of forestry policy: double standards on an uneven playing fi eld." Sustainability Science.
- OECD. 2008. Accra Agenda for Action. http://www.oecd.org/dataoecd/58/16/41202012.pdf

- Oyono, P. R. 2005. "The Social and Organisational Roots of Ecological Uncertainties in Cameroon's Forest Management Decentralization Model." *Democratic Decentralization Through a Natural Resource Lens.* Ed. J. Ribot and P. Larson. US: Routledge.
- Ribot, J. 2004. Waiting for Democracy. Washington, DC: World Resources Institute.
- Ribot, J. 2009. *Vulnerabilities do not just come from the Sky: Toward Multi-scale Pro-poor Climate Policies and Governance.*Forthcoming. Washington, DC: World Bank.
- Resilience Alliance. 2009. *Adaptive Capacity*. Online at http://www.resalliance.org/565.php
- Schipper, L. 2007. Climate Change Adaptation and Development: Exploring the Linkages. Norwich, UK: Tyndall Centre Working Paper No.107. Online at: http://www.tyndall.ac.uk/publications/working_papers/twp107.pdf
- Sunderlin, W., J. Hatcher, M. Liddle. 2008. From Exclusion to Ownership? Challenges and Opportunities in Advancing Forest Tenure Reform. Washington, DC. Rights and Resources Initiative.
- TAI (The Access Initiative). 2009. The Access Initiative Assessment Toolkit. Washington, DC: World Resources Institute. Online at http://www.accessinitiative.org/resource/the-accessinitiativeassessment-toolkit.
- Thomas, D., H. Osbahr, C. Twyman, N. Adger and B. Hewitson. 2005. ADAPTIVE: Adaptations to climate change amongst natural resource-dependant societies in the developing world: across the Southern African climate gradient. East Anglia: Tyndall Centre for Climate Change Research, University of East Anglia.

- UNDP (United Nations Development Programme). 2007. Human Development Report-Fighting climate change: Human solidarity in a divided world. New York: UNDP. Online at: http://hdr.undp.org/en/media/HDR_20072008_EN_Complete.pdf
- UNISDR (UN International Strategy for Disaster Reduction). 2005. *Hyogo Framework for Action:* 2005-2015. Online at http://www.unisdr.org/eng/hfa/hfa.htm.
- World Bank. 2008. Governance Matters: Worldwide Governance Indicators, 1996-2007. Online at http://info.worldbank.org/governance/wgi/index.asp.
- World Bank. 2009. The Moving Out of Poverty Study: An Overview. Washington, DC: World Bank. Online at http:// go.worldbank. org/8K2Q8RYZ10
- WRI (World Resources Institute). 2005. A Guide to World Resources 2005: The Wealth of the Poor. Washington, DC: World Resources Institute. Online at http://pdf.wri.org/wri2005_guide.pdf.
- WRI (World Resources Institute). 2008. World Resources 2008: Roots of Resilience. Washington, DC: World Resources Institute. Online at http://www.wri.org/publication/world-resources-2008-roots-ofresilience

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