



THE CLIMATE AND EQUITY CHALLENGE

For more than two decades, crafting global actions that all nations believe to be equitable has been a central challenge for international climate policy. Contentious debates over how to combat climate-change equitably, and how to equitably assess which countries are most responsible for taking action, has slowed progress toward a global climate agreement.

As climate impacts mount, so does the urgency of resolving this challenge. Those least responsible for climate change are often the most vulnerable to changes in weather patterns, sea level rise, and other impacts, further exacerbating existing inequities. Meanwhile, actions—both to address climate impacts and to reduce emissions—are intertwined with broader equity issues involving livelihoods, health, food security, and energy access.

The urgency of the equity challenge is heightened by recent negotiations for the new international climate agreement in 2015. Parties have determined that the agreement must be both "applicable to all Parties" and remain "under the Convention," raising questions regarding equity that must be addressed by global leaders if the agreement is to build consensus and ambition (UNFCCC 2011).

A New Approach

The World Resources Institute report, Building Climate Equity offers a new approach to the challenge of linking actions to combat climate change with broader equity objectives. This approach places the well-being of people and communities at the core of climate action. Starting at the ground level with compelling evidence from 23 countries, the report illustrates how well-designed policies for low-carbon development and adaptation can promote and enhance the capabilities of the least well-off and most vulnerable. The report demonstrates that climate action and equity are integrally linked and can be mutually supportive, and that the 2015 agreement, in particular, can play a key role in strengthening those synergies. This summary gives the highlights of the report.

A Capabilities Approach to Climate Action

Building Climate Equity draws on the capabilities approach formulated in the development arena by economist Amartya Sen and philosopher Martha Nussbaum (Sen 1999; Nussbaum 2003). The capabilities approach recognizes that human well-being, and the realization of human rights, depends on access to a range of basic capabilities such as the opportunity to pursue a decent livelihood; to benefit from sufficient nutrition, transport, housing, physical safety, and security; and to engage in collective decision making.

Climate policies—both those reducing emissions and those adapting and building resilience to climate impacts—can contribute to protecting and strengthening these basic capabilities. We focus on the capabilities of the least well-off and most vulnerable because their capabilities are most at risk and in need of strengthening.

A Capabilities Approach for Climate Equity

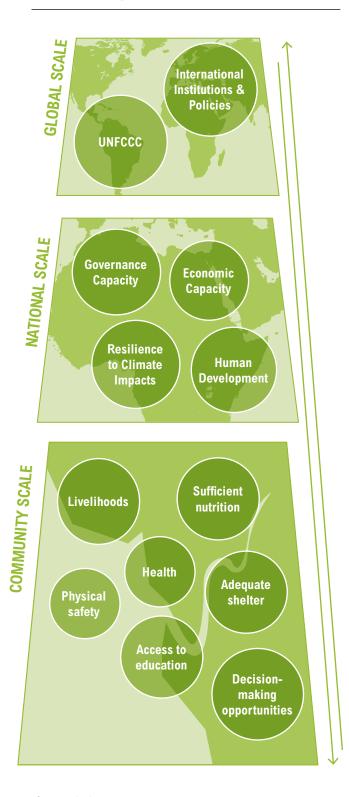
We propose that the international community adopt the capabilities approach as a means of embedding equity in climate policy. The capabilities approach, as it applies to climate equity, rests on two interrelated pillars:

Pillar 1. Sufficient mitigation and adaptation actions are required to prevent the direct impacts of climate change from eroding the capabilities of the least well-off and most vulnerable, now and in the future.

This pillar concerns the direct impacts of climate change on people's capabilities, particularly those of the most vulnerable. It includes impacts that result from inadequate mitigation, insufficient adaptation, or a failure to address loss and damage caused by climate change. Impacts on both current and future generations should be considered.

Pillar 2. Climate policies should be designed to enhance, rather than diminish, the capabilities of those who are least well-off, most vulnerable, and least able to represent themselves.

Figure 1 | Climate Action and Capabilities at Multiple Levels



Source: Authors

This pillar addresses the effects that climate policies themselves can have on human capabilities. Climate policies to reduce emissions or build resilience to climate impacts can either enhance the capabilities of the most vulnerable and least well-off, or exacerbate existing inequities and undermine efforts in other policy arenas.

Applying the Capabilities Approach at Multiple Levels

Grounded in an understanding of equity based on these principles, the report examines the links between climate action and capabilities at multiple, interdependent scales as shown in Figure 1. We highlight how climate policies within countries, including policies directed at both low-carbon development and resilience building, can build capabilities and enhance equity. The report provides recommendations about ways that international institutions and policymakers can support those climate policies that build capabilities at the national and community level.

The report then specifically addresses how the 2015 international climate agreement can take account of and help build capabilities. This approach enhances the meaning of "respective capabilities" within the United Nations Framework Convention on Climate Change's (Convention or UNFCCC) principle of common-but-differentiated responsibilities and respective capabilities (CBDR -RC) (UNFCCC 1992) (Box 1). A pragmatic and multidimensional understanding of national capabilities can assist countries in evaluating the equity of actions in the 2015 agreement. However, the report does not suggest that capabilities become the sole framework for pursuing climate equity. Responsibility for climate change, including historical responsibility, remains fundamental to the equity discussion and to shaping global mitigation and adaptation efforts.

To provide a framework for developing and evaluating intended national contributions in the negotiations, the report proposes equity criteria based on national capabilities along with emissions responsibility. The report then suggests how a capabilities approach can focus attention on the ways in which each element of the 2015 agreement can build the capabilities of countries and communities.

A CAPABILITIES APPROACH IN ACTION: EQUITABLE NATIONAL AND LOCAL CLIMATE POLICIES

Putting the right climate policies in place—both for low-carbon development and for climate adaptation and resilience—is a key step in enhancing equity and capabilities. Well-designed climate actions at the national and community levels can protect and strengthen capabilities (see Tables 1 and 2). These policy examples are drawn from case studies in key policy areas from 23 countries around the world.

A transition to a low-carbon economy is critical to ensure adequate emissions reductions necessary to stay below a 2 degree Celsius limit and protect the capabilities of future generations. At the same time, low-carbon actions can protect or enhance capabilities in the near term especially for the least well-off. For example, low-carbon transport systems can help meet mobility needs and provide health benefits for the least well-off.

In designing adaptation and resilience policies, recognizing differing levels of vulnerability, including within countries, is important. To build long-term capabilities and enable communities to adapt, effective policies must first address underlying physical, social, and economic drivers of vulnerability. For example, providing access to credit to early adopters of innovative adaptation and resilience practices, particularly among highly vulnerable populations, and enabling local and indigenous practices to be disseminated, could increase resilience to climate change, address a capability issue, and encourage innovation.

Although in Tables 1 and 2 we distinguish between actions to promote low-carbon energy pathways and actions to promote climate resilience, we recognize multiple overlaps between them in policy areas ranging from forest protection to urban planning. Indeed, sustainable development policies often provide many benefits that include not only mitigation and adaptation, but also other social, economic, and environmental objectives.

BOX 1 | NATIONAL CAPABILITIES AND THE PRINCIPLE OF COMMON-BUT-DIFFERENTIATED RESPONSIBILITIES AND RESPECTIVE CAPABILITIES

To inform the interpretation of "respective capabilities" in the overarching principle of CBDR-RC in the Convention, the report proposes a pragmatic suite of national capabilities.

While the capabilities of individuals and the capabilities of nations are different, they are also closely related. Individual capabilities, such as the opportunity to pursue a decent livelihood, are shaped by social, economic, and ecological factors that are, in turn, shaped by national circumstances and policies. For example, an individual's health status is influenced by the availability of healthcare in a country, while employment and livelihood opportunities are entwined with national economic vitality.

We propose that the concept of "respective capabilities," within the principle of CBDR-RC incorporates the following national capabilities: human development, economic capacity, resilience to climate impacts including physical security and capacity to adapt in the face of climate change, and governance capacity and social support structures. Using these concepts can help countries and others identify and compare contributions and levels of action in general, and identify specific policies appropriate for particular countries. This interpretation of capabilities focuses attention on the relationship between climate change, human development, and climate impacts, all of which are central to the core climate equity challenge.

This capabilities approach should be used in conjunction with attention to emissions responsibility. Acknowledging historical responsibility for emissions is necessary because it allows the inequity of cumulative contributions to rising greenhouse gas concentrations to be explicitly incorporated into the international discussion of climate change. However, responsibility alone cannot adequately address either the issues raised by inequitable climate impacts or the need to share the benefits of climate action and enhance human well-being.

Using a capabilities approach to enhance the concept of "respective capabilities" contributes to the interpretation of the wider principle of common-but-differentiated responsibilities and respective capabilities and can help countries to address the multiple dimensions of climate equity and to craft an effective 2015 agreement.

Figure 2 | Policy Examples Drawn from Low-Carbon Development, and Adaptation and Resilience Case Studies Globally

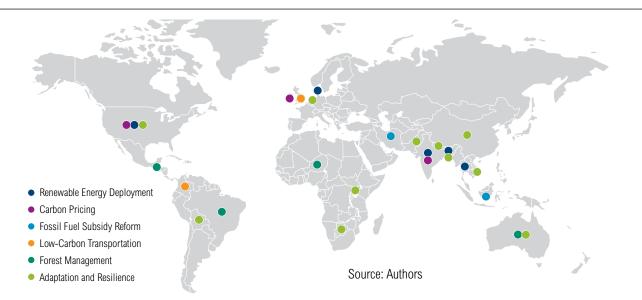


Table 1 | Equitable Climate Policies to Achieve Low-Carbon Pathways

PATHWAYS TO A LOW- CARBON FUTURE	EXAMPLES OF CLIMATE ACTIONS THAT PROTECT OR ENHANCE CAPABILITIES
Renewable energy access and deployment	Scaling-up the use of renewable energy can improve energy security and access while avoiding greenhouse gas emissions, and also can offer long-term economic savings and health benefits (Torres-Duque et al. 2008; Fullerton, Bruce, and Gordon 2008; Palit and Chaurey 2011; Köhlin et al. 2011).
	By making finance for renewable energy accessible to marginalized and nontraditional banking populations (Omwansa and Sullivan 2014) or by designing equitable feed-in tariffs or other mechanisms (Tongsopit 2014; Chrometzka 2014), deployment of renewable energy can enhance capabilities (Mendonça, Lacey, and Hvelplund 2009).
Equitable carbon pricing	Carbon pricing schemes can incentivize emissions reductions, support energy efficiency and security initiatives, and protect or enhance capabilities. Progressive schemes can redirect revenues or other in-kind benefits to vulnerable populations (British Columbia 2009; California 2014).
	International and national efforts to promote carbon pricing or markets should be based on assessments of differential vulnerability and include stakeholder participation to ensure monetary and nonmonetary benefits flow to vulnerable populations.
Fossil fuel subsidy reform	Reduction and eventual elimination of fossil fuel subsidies could contribute to emissions reductions, support energy efficiency and security, and free up resources for other development priorities, all of which could benefit long-term capabilities (Mourougane 2010; IEA 2012).
	Although subsidies often do not provide a direct benefit to the poorest communities, these communities remain the most vulnerable to the effects of reform (Arze del Granado, Javier, Coady, and Gillingham 2012). Reform efforts require careful design and can include transfer mechanisms, broad public communication, and support for core development needs (Hassanzadeh 2012).
Low-carbon transportation planning	Safe and affordable transport options are crucial from a capabilities perspective. Low-carbon transport systems can help meet mobility needs, as well as reducing emissions, and providing health benefits (United Nations 2013).
F	Using policy and finance signals to incentivize development of public transit has been successful in multiple contexts (Road Traffic Technology n.d.).
Community forestry	Strengthening community forest management and community forest rights can help achieve emissions reductions and can also enhance capabilities (Stevens et al. 2014). Efforts to establish legal protections, support community-led reforestation, and support community management can contribute to both climate and capabilities goals.

Recommendations for International Institutions and Policymakers

International institutions and policymakers can help enable national and local governments to undertake the types of equitable climate policies highlighted in Tables 1 and 2. To do this, the report proposes recommendations for a wide range of international institutions and policymakers, including multilateral and bilateral development finance institutions. These recommendations include the need to:

Provide upfront investment for low-carbon pathways and adaptation efforts that are designed to enhance equity and build capabilities, including for equitably designed energy policies;

- Provide technical assistance, capacity building, and guidance to enable countries to formulate and implement the types of equitable climate policies highlighted here;
- Ensure that finance is accessible to those who need it, including nontraditional banking populations, to undertake innovative and locally appropriate climate action;
- Support the implementation of "before and after" vulnerability assessments and evaluations to identify impacts of climate action on the capabilities of affected groups; and
- Enable participatory planning and stakeholder engagement in the development of climate policies across all sectors.

Table 2 | Equitable Climate Policies to Achieve Adaptation and Resilience

BUILDING ADAPTIVE Capacity and resilience	EXAMPLES OF USING CLIMATE ACTION TO PROTECT OR ENHANCE CAPABILITIES
Addressing adaptation needs of the most vulnerable populations	Recognizing that different levels and types of vulnerability exist, both among and within communities, can help generate equitable adaptation and resilience plans that focus on capabilities.
	Integrating assessments of climate hazards with assessments of social vulnerability can result in more targeted and effective policy interventions (Burton et al. 2002; Huq et al. 2003; Adger et al. 2007).
Inclusive participation	Enabling communities and vulnerable populations to determine effective adaptation and resilience strategies through highly participatory processes can increase their ability to take locally appropriate and long-term adaptation measures that protect and enhance their social and economic opportunities (WRI et al. 2011; Osbeck et al. 2010).
Support for innovation	Providing access to credit to early adopters of innovative adaptation and resilience practices, particularly among highly vulnerable populations, and enabling local and indigenous practices to be disseminated, are essential to mobilizing effective adaptation (UNFCCC 2013).
National adaptation planning	Prioritizing the needs of the most vulnerable in national adaptation planning, ensuring their participation in the planning process, and undertaking robust assessments of vulnerability that address capabilities and social and economic contexts, can all play a vital role in achieving equitable adaptation and resilience outcomes (UNFCCC 2013).

OPERATIONALIZING EQUITY AND CAPABILITIES IN THE 2015 CLIMATE AGREEMENT

The 2015 international climate agreement offers a critical opportunity to make fundamental progress on equity issues globally. A capabilities approach to equity can inform two key dimensions of the agreement. The first dimension concerns the content of countries' intended nationally determined contributions (INDCs). An enhanced understanding of respective capabilities can inform how each country's climate actions are determined, including how much and what kinds of action countries take. In addition, countries can incorporate and seek support for specific policies in their nationally determined contributions aimed at building capabilities.

The second dimension concerns the multiple elements of the 2015 agreement. If the 2015 agreement is to catalyze action that supports building capabilities, a wide range of issues are relevant—including mitigation, adaptation, loss and damage, finance, capacity building, technology, and transparency and accountability. Climate policies that enhance equity and build capabilities can be advanced in these areas.

The following proposals for the 2015 agreement could bring a capabilities approach to the equity debate and the agreement as a whole.

Incorporate Equity and Capabilities into Intended Nationally Determined Contributions

 Use equity considerations in formulating and evaluating national contributions

INDCs, which are intended to become the core national commitments in the 2015 agreement, provide a focal point for embedding equity into the agreement. The process established for INDCs in the 2015 agreement should ensure that contributions are equitable as well as sufficient to achieve the objectives of the Convention. The following aspects of equity provide a framework to consider the types and levels of contributions that countries should put forward:

- Emissions responsibility, including historical, current, and projected emissions both in per capita and aggregate terms; and
- National capabilities, including:
 - human development;
 - economic capacity, including consideration of the relative costs of climate action and the economic benefits from taking climate action;
 - □ **resilience to climate impacts**, including physical security and capacity to adapt in the face of climate change; and
 - governance capacity and social support structures.

Table 3 | Potential Metrics to Determine National Capabilities

NATIONAL CAPABILITY	POTENTIAL METRICS
Human development	Human Development Index (health and education), national poverty burden, energy access, Gender Inequality Index
Economic capacity	Gross Domestic Product (GDP), GDP per capita, employment, debt ratio, internal access to credit, relative costs of climate action, economic benefits from climate action
Resilience to climate impacts	Aggregate vulnerability metrics, qualitative acknowledgment of cultural or other vulnerabilities, identification of specific physical vulnerabilities
Governance capacity and social support structures	Accessibility of judiciary, regulatory abilities, qualitative assessment of governance strengths and needs, health care and educational systems

Potential metrics for each national capability are provided in Table 3. Emissions responsibility was discussed in Box 1.

This framework can be incorporated in three ways to facilitate a more equitable and effective set of national contributions. First, countries should integrate equity considerations into their national process for formulating their contributions. Second, the upfront information that countries provide with their INDCs should include explanations or rationales concerning the equitability of their contributions. Along with other up-front information, countries should indicate the specific criteria and factors they use in determining the equitability of their contribution, as well as how the contribution fits into a global level of ambition to reduce emissions (Levin et al. 2014). Finally, the international assessment of countries' contributions should include a review of equity considerations, including a review of specific criteria and factors used in the INDCs.

The criteria proposed here will provide a perspective concerning respective capabilities in terms of a range of countries, while differences between developed and developing countries will nonetheless remain clear. Using these criteria provides a means to evaluate countries' INDCs in terms of the type and levels of actions proposed, while the negotiations should ensure that countries do not

backslide from previous commitments. Although Parties may not agree in 2015 on a specific set of equity criteria and metrics, they should establish a technical process after 2015 that will result in an agreed, common framework for equity criteria (Ngwadla and Rajamani 2014).

Include capabilities-focused policies in intended nationally determined contributions

The benefit of using a capabilities approach to help countries identify specific policies to include in their INDCs is that it encourages an examination of actual pathways—and potential barriers—for achieving equitable climate action. For instance, renewable electrification in a country in which communities have limited energy access could build capabilities while addressing climate change. Likewise, identifying opportunities for fossil fuel subsidy reform, equitable carbon pricing, and community forest policies, could serve both objectives. Considering INDCs in terms of countries' national capabilities provides countries with the opportunity to identify actions that can be undertaken without additional resources, as well as further actions that would be possible with international support. Countries that bring forward adaptation contributions should focus on how integrated planning processes can help build the capabilities of the most vulnerable populations.



Incorporate Equity and Capabilities across Multiple Elements of the 2015 Agreement

1. Focus adaptation and loss and damage on the most vulnerable populations

A capabilities approach highlights the role that well-designed adaptation policies can play in protecting and increasing the long-term well-being and livelihoods of vulnerable populations. One of the primary goals of the 2015 agreement should be to help vulnerable communities build their resilience by providing guidance and support on the impacts of climate change. To achieve this, the 2015 agreement should include a long-term adaptation goal that focuses on the most vulnerable populations and the need to undertake adaptation in ways that address their basic capabilities. The 2015 agreement should encourage all countries, including developed countries, to develop adaptation and resilience strategies for their most vulnerable populations—emphasizing the importance of supporting participatory planning by vulnerable communities and their governments.

BOX 2 | KEY RECOMMENDATIONS FOR THE 2015 AGREEMENT

- 1. Incorporate Equity and Capabilities into INDCs
 - Use equity considerations in formulating and evaluating INDCs
 - Include specific capabilities-focused policies in INDCs
- Incorporate Equity and Capabilities Across the Elements of the 2015 Agreement
 - Focus adaptation and loss and damage on the most vulnerable populations
 - Provide adequate and targeted finance to build capabilities
 - Create a capacity-building facility
 - Develop and deploy innovative technology that focuses on capabilities
 - Strengthen transparency and accountability with a focus on capabilities
 - Establish an equitable long-term mitigation goal
 - Establish cycles of action to strengthen capabilities

Recognizing the increasing importance of loss and damage and the need to develop a response that is robust, consistent, and sustained, the agreement should support the development of national loss and damage scoping studies to identify the needs of particularly vulnerable populations.

2. Provide adequate and targeted finance to build capabilities

Adequate and appropriately directed finance is essential to building capabilities and enhancing equity in the 2015 agreement. To create alignment between countries' actions and finance and to strengthen capabilities, the 2015 agreement should link finance in the post-2020 period with developing countries' finance and investment needs for their national climate strategies and INDCs. The 2015 agreement should also provide for and welcome financial contributions from a range of countries, including developing countries in a position to contribute based on their capabilities.

To ensure that finance results in equitable outcomes, the 2015 agreement should provide guidance to the Green Climate Fund and recommendations to other development finance institutions that they support the implementation of equitable climate policies that build capabilities, such as policies described earlier in this report (for example, equitably designed policies to support renewable energy). The agreement should also encourage development finance institutions to ensure that finance is accessible to nontraditional banking populations including the poor, women, and other marginalized groups.

3. Create a capacity-building facility to build capabilities

A lack of governance and technical capacity constrains many governments from undertaking the planning and analysis needed to take climate action and enhance capabilities (UNFCCC 2014a). Building the capacity of all Parties is fundamental to both ambitious climate outcomes and human development. To prioritize capability building, the 2015 agreement should create a dedicated capacity-building facility, which would serve as a focal point to design, coordinate, support, and manage capacity building across all elements of the Convention. This facility could enhance capacity for policy development, information and assessment (including of

capabilities), institutional coordination, public participation, and effective private sector engagement.

4. Develop and deploy innovative technology that focuses on capabilities

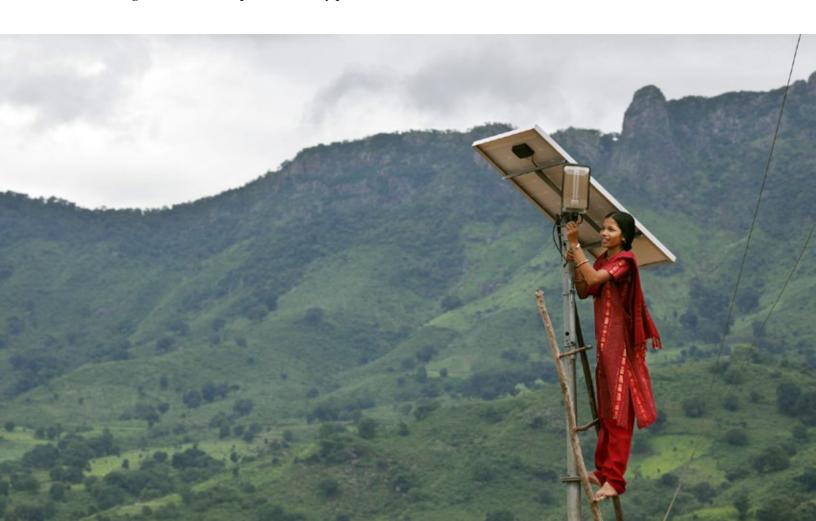
Technology that is accessible to, and designed for, the least well-off and most vulnerable will be essential to advancing low-carbon pathways and adaptation in ways that build capabilities. The 2015 agreement should stress the importance of financial institutions in funding research, development, and deployment of innovative technologies with a particular focus on technologies that can build the capabilities of the most vulnerable and least well-off (for example, technologies relevant to renewable energy access or to climate information for small-holder farmers).

5. Strengthen transparency and accountability with a focus on capabilities

Transparency and accountability are essential for a climate agreement capable of tracking progress and deepening action over time. Simultaneously, effective transparency systems can be useful for assessing whether climate policies directly protect and enhance capabilities within a country. Over time, common standards for all countries should ensure transparency and accountability, yet a stepwise approach can be used in the 2015 agreement to reach this objective, recognizing the differences in countries' capabilities that affect their ability to track and report emissions, climate action, and finance. The 2015 agreement must also ensure support for all Parties to enhance their national capabilities to be able to reach a common level of transparency and to support participatory processes to assess the effects of climate policies on the capabilities of the least well-off and most vulnerable.

6. Establish an equitable long-term mitigation goal

In addition to the mitigation commitments made by countries in their INDCs, some countries have proposed that the 2015 agreement include a collective long-term trajectory for emissions reductions or specific mitigation actions (UNFCCC 2014b). To be successful, long-term goals—such as phasing out greenhouse gas emissions, or moving to a substantial percentage of energy from renewable sources—need to address equity concerns. A longterm goal should be constructed in a way that helps



countries identify specific policies and investments that help build capabilities, such as increased access to renewable energy. In addition there must be recognition that countries with different capabilities will progress toward the goal at different paces and support will be needed to help those countries with lower capabilities achieve the common goal. A phased approach emphasizing technology development, cooperation, and transfer, and including support for capabilities assessments, is proposed to meet these challenges.

7. Establish cycles of action to strengthen capabilities

The set of "cycles" envisioned in the 2015 agreement for strengthening action after 2015, must incorporate equity and a focus on building capabilities (UNFCCC 2014b). Climate action must become more ambitious over time to protect the well-being of those most vulnerable to climate change, while at the same time becoming more aligned with pathways that promote capabilities and enhance equity. The 2015 agreement should require the cycles to strengthen the multiple dimensions of climate action that affect capabilities, including mitigation, adaptation, and support (Morgan, Dagnet and Tirpak 2014). The cycles should include reviews of the impacts of climate change on capabilities; countries' actions and their effect on capabilities; the levels and type of mitigation and adaptation action required to protect and strengthen capabilities; and an analysis of countries' existing capabilities and the levels of finance and other support needed to build capabilities to underpin action. Each cycle should include an analysis of how future actions can be designed to further strengthen capabilities. As noted earlier, the formulation and assessment of countries' commitments after 2015 should be informed by a set of equity criteria (see Figure 2), including those involving capabilities, determined through a technical process in the UNFCCC.

CAPABILITIES AND LONG-TERM TRANSFORMATION

The goal of long-term transformational climate policy should be to protect and strengthen the capabilities and fundamental well-being of current and future generations. Achieving this goal requires a focus on underlying dynamics and drivers of change. It also requires us to apply new perspectives to existing concepts. A capabilities approach offers guidelines for meeting the equity demands of sufficient mitigation and adaptation, while also identifying specific pathways for policy actions that enhance well-being, especially for those who are least well-off or most vulnerable.

At the international level, incorporating capabilities in discussions of contributions and subsequent assessment processes will help focus attention on the need to improve capabilities over time. As policymakers and communities encounter new challenges, a capabilities approach to climate policy analysis and implementation can help keep the long-term enhancement of human wellbeing firmly at the center of attention and build political momentum for transformation. Focusing squarely on the goal of enhancing long-term human well-being encourages proactive approaches to policymaking that promote the wider benefits and opportunities inherent in climate action.

We must look at familiar principles with new eyes. The discussion should not be in the abstract but rather focused on action to achieve particular outcomes—in this case, to preserve and strengthen the capabilities of people in the face of climate change. Over time, this approach will build the capabilities of nations, strengthening their ability to pursue strong climate policies, and generating a global consensus for action.

REFERENCES

Adger, W. Neil, Shardul Agrawala, M. Monirul Qader Mirza, Cecilia Conde, Karen O'Brien, Juan Pulhin, Roger Pulwarty, Barry Smit, and Kiyoshi Takahashi. 2007. "Assessment of Adaptation Practices, Options, Constraints and Capacity." In Climate Change 2007: Impacts, Adaptation and Vulnerability. Contribution of Working Group II to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change, edited by M. L. Parry, O. F. Canziani, J. P. Palutikof, P. J. van der Linden, and C. E. Hanson, 717—43. Cambridge, UK: Cambridge University Press. http://www.ipcc-wg2.gov/AR4/website/17.pdf.

Arze del Granado, Francisco Javier, David Coady, and Robert Gillingham. 2012. "The Unequal Benefits of Fuel Subsidies: A Review of Evidence for Developing Countries." World Development 40 (11): 2234–48. doi:10.1016/j.worlddev.2012.05.005.

British Columbia. 2009. "Tax Cuts Funded by the Carbon Tax." http://www.fin.gov.bc.ca/scp/tp/climate/A2.htm.

Burton, Ian, Saleemul Huq, Bo Lim, Olga Pilifosova, and Emma Lisa Schipper. 2002. "From Impacts Assessment to Adaptation Priorities: The Shaping of Adaptation Policy." Climate Policy 2 (2): 145–59.

California. 2014. "California State Budget 2014–15." http://www.ebudget.ca.gov/FullBudgetSummary.pdf.

Chrometzka, Thomas. 2014. "Tapping Thailand's Solar Potential." GIZ. http://www.giz.de/fachexpertise/downloads/2014-en-chrometzka-pep-infoveranstaltung-netzgeb-pv-indonesien-thailand.pdf.

Fullerton, Duncan G., Nigel Bruce, and Stephen B. Gordon. 2008. "Indoor Air Pollution from Biomass Fuel Smoke Is a Major Health Concern in the Developing World." *Transactions of The Royal Society of Tropical Medicine and Hygiene* 102 (9): 843–51. doi:10.1016/j.trstmh.2008.05.028.

Hassanzadeh, Elham. 2012. "Recent Developments in Iran's Energy Subsidy Reforms." IISD Global Subsidy Initiative.

Huq, Saleemul, Atiq Rahman, Mama Konate, Youba Sokona, and Hannah Reid. 2003. *Mainstreaming Adaptation to Climate Change in Least Developed Countries (LDCs)*. London: International Institute for Environment and Development. http://pubs.iied.org/pdfs/9219IIED.pdf.

IEA, OECD, and World Bank. 2010. The Scope of Fossil-Fuel Subsidies in 2009 and a Roadmap for Phasing Out Fossil-Fuel Subsidies. http://www.oecd.org/env/cc/46575783.pdf.

Köhlin, Gunnar, Erin O. Sills, Subhrendu K. Pattanayak, and Christopher Wilfong. 2011. Energy, Gender and Development: What Are the Linkages? Where Is the Evidence?. Policy Research Working Paper 5800. Washington, DC: The World Bank. http://openknowledge-worldbank-org/bitstream/handle/10986/3564/WPS5800.pdf.

Levin, Kelly, David Rich, Jared Finnegan, and Yamide Dagnet. 2014. "Ex-Ante Clarification, Transparency, and Understanding of Intended Nationally Determined Mitigation Contributions." Working Paper. Washington, DC: World Resources Institute. http://www.wri.org/sites/default/files/WRI-WP-national% 20contributions-v5.pdf.

Mendonça, Miguel, Stephen Lacey, and Frede Hvelplund. 2009. "Stability, Participation and Transparency in Renewable Energy Policy: Lessons from Denmark and the United States." *Policy and Society* 27 (4): 379–98. doi:10.1016/j.polsoc.2009.01.007.

Morgan, Jennifer, Yamide Dagnet, and Dennis Tirpak. 2014. "Elements and Ideas for a 2015 Paris Agreement". Report. Washington, DC: World Resources Institute.

Mourougane, Annabelle. 2010. "Phasing Out Energy Subsidies in Indonesia." OECD Economics Department Working Papers 808. Organisation for Economic Co-operation and Development, Paris. http://www.oecd-ilibrary.org/economics/phasing-out-energy-subsidies-in-indonesia_5km5xvc9c46k-en.

Ngwadla, Xolisa, and Lavanya Rajamani. 2014. "Operationalising an Equity Reference Framework in the Climate Change Regime: Legal and Technical Perspectives." Research Paper. Mitigation Action Plans and Solutions (MAPS), Cape town. http://www.mapsprogramme.org/wp-content/uploads/Paper_Operationalising-ERF.pdf.

Nussbaum, Martha. 2003. "Capabilities as Fundamental Entitlements: Sen and Social Justice." Feminist Economics 9 (2-3): 33–59. doi:10.1080/1354570022000077926.

Omwansa, Tonny K, and Nicholas P Sullivan. 2014. "Prepaid & Payas-You-Go Models for Asset Financing Analysis of Mobile-Money Business Models for Kickstart (irrigation Pumps) and M-KOPA (solar Panels) in Kenya." University of Nairobi, Nairobi. Accessed July 11, 2014. http://erepository.uonbi.ac.ke/handle/11295/36056.

Osbeck, Maria, Neil Powell, Åsa Gerger Swartling, and M. Hoang. 2010. "Reconciling the Multiple Dimensions of Rural Livelihoods in Mangrove Systems in the Red River Delta." In *Stakeholder Agency in Rural Development Policy: Articulating Co-Governance in Vietnam.* Hanoi: World Agroforestry Centre (ICRAF).

Palit, Debajit, and Akanksha Chaurey. 2011. "Off-Grid Rural Electrification Experiences from South Asia: Status and Best Practices." Special Issue on off-Grid Electrification in Developing Countries 15 (3): 266–76. doi:10.1016/j.esd.2011.07.004.

Road Traffic Technology. n.d. "Central London Congestion Charging, England, United Kingdom." Road Traffic Technology. http://www.roadtraffic-technology.com/projects/congestion/.

Sen, Amartya. 1999. *Development as Freedom*. Oxford: Oxford University Press.

Stevens, Caleb, Robert Winterbottom, Katie Reytar, and Jenny Springer. 2014. Securing Rights, Combating Climate Change: How Strengthening Community Forest Rights Mitigates Climate Change. Washington, DC: World Resources Institute.

Tongsopit, Sopitsuda. 2014. "Thailand's Feed-In Tariff for Solar Power: Calculation, Impacts and Future Directions." Energy Research Institute, Chulalongkorn University. http://www.esi.nus.edu.sg/docs/default-source/event/sopitsuda_thailandssolarfit.pdf?sfvrsn=2.

Torres-Duque, C., D. Maldonado, R. Perez-Padilla, M. Ezzati, G. Viegi, and on behalf of the Forum of International Respiratory Societies (FIRS) Task Force on Health Effects of Biomass Exposure. 2008. "Biomass Fuels and Respiratory Diseases: A Review of the Evidence." *Proceedings of the American Thoracic Society* 5 (5): 577–90. doi:10.1513/pats.200707-100RP.

UNFCCC. 2010. "The Cancun Agreements: Outcome of the Work of the Ad Hoc Working Group on Long-Term Cooperative Action under the Convention." In *FCCC/CP/2010/7/Add.1*. Cancun: UNFCCC. http://unfccc.int/resource/docs/2010/cop16/eng/07a01.pdf#page=2.

———. 2011. "Report of the Conference of the Parties on Its Seventeenth Session, Held in Durban from 28 November to 11 December 2011. Addendum. Part Two: Action Taken by the Conference of the Parties at Its Seventeenth Session. Decisions Adopted by the Conference of the Parties." In FCCC/CP/2011/9/Add.1. Durban: UNFCCC. http://unfccc.int/resource/docs/2011/cop17/eng/09a01.pdf.

———. 2013. "Third Synthesis Report on Technology Needs Identified by Parties Not Included in Annex I to the Convention." In FCCC/SBSTA/2013/INF.7. Warsaw: UNFCCC. http://unfccc.int/resource/docs/2013/sbsta/eng/inf07.pdf.

———. 2014a. "Synthesis Report on the Implementation of the Framework for Capacity-Building in Developing Countries." In FCCC/SBI/2014/2. Bonn, Germany: UNFCCC. http://unfccc.int/resource/docs/2014/sbi/eng/02.pdf.

———. 2014b. "Parties' Views and Proposals on the Elements for a Draft Negotiating Text." UNFCCC. http://unfccc.int/resource/docs/2014/adp2/eng/6nonpap.pdf.

United Nations. 2013. Creating Universal Access to Safe, Clean and Affordable Transport. New York: United Nations.

WRI (World Resources Institute), United Nations Development Programme, United Nations Environment Programme, and World Bank. 2011. World Resources 2010–2011: Decision Making in a Changing Climate—Adaptation Challenges and Choices. Washington, DC: World Resources Institute. http://www.wri.org/sites/default/files/pdf/world_resources_report_2010-2011.pdf.

PHOTO CREDITS

Cover photo, pg. 9, Abbie Trayler-Smith / Panos Pictures / Department for International Development; inside cover photo, Timothy Mwaura; pg. 7 Julien Harneis.

ACKNOWLEDGMENTS

We would like to thank the many people who contributed to the ideas and discussions that have shaped the report. We greatly appreciate the guidance and earlier reviews provided by Jennifer Morgan, Manish Bapna, Heather McGray, Athena Ballesteros, Kitty van der Heijden, Yamide Dagnet, Helen Mountford, Peter Veit, Ranping Song, Alex Doukas, Robin King, Caleb Stevens, Apurba Mitra, Bharath Jairaj, Taryn Fransen, Free de Koning, Lily Odarno, Ferzina Banaji, Rhys Gerholdt, Lawrence MacDonald, and Tesfay Woldemariam.

Special thanks go to WRI's office of the Vice President of Science & Research, particularly Janet Ranganathan, Daryl Ditz, and Allison Meyer, who assisted us tirelessly through the publication process. Further thanks go to Carni Klirs, Hyacinth Billings, Polly Ghazi, Emily Matthews, and Mary Paden for their invaluable editorial and design support.

We are also grateful to the following external experts for sharing their expertise and feedback, though responsibility for the final product rests fully with the authors and WRI: Tara Shine, Lavanya Rajamani, Ana Toni, Saleemul Huq, Jose Garibaldi, Vice Yu, and Jared Finnegan.

Finally, we would like to thank Mary Robinson and the Mary Robinson Foundation - Climate Justice for our partnership on climate justice and equity issues.

ABOUT THE AUTHORS

Sonja Klinsky is an Assistant Professor in the School of Sustainability at Arizona State University

Contact: sonja.klinsky@asu.edu

David Waskow is the Director of the International Climate Initiative in WRI's Climate Program

Contact: dwaskow@wri.org

Wendi Bevins contributed to the report in her capacity as a Research Analyst in WRI's Climate Program

nesearch Analysi in whis chimate Frogran

Contact: wendi.bevins@gmail.com

Eliza Northrop is a Research Analyst in WRI's Climate Program

Contact: enorthrop@wri.org

Robert Kutter is a researcher, editor, and the founder of Kutter Consulting

Contact: contact@kutterconsulting.com

Laura Weatherer is an Intern in WRI's Climate Program

Contact: lweatherer@wri.org

Paul Joffe is Senior Foreign Policy Counsel in WRI's Climate

Program

Contact: pjoffe@wri.org

ABOUT WRI

WRI is a global research organization that works closely with leaders to turn big ideas into action to sustain a healthy environment—the foundation of economic opportunity and human well-being.

Our Challenge

Natural resources are at the foundation of economic opportunity and human well-being. But today, we are depleting Earth's resources at rates that are not sustainable, endangering economies and people's lives. People depend on clean water, fertile land, healthy forests, and a stable climate. Livable cities and clean energy are essential for a sustainable planet. We must address these urgent, global challenges this decade.

Our Vision

We envision an equitable and prosperous planet driven by the wise management of natural resources. We aspire to create a world where the actions of government, business, and communities combine to eliminate poverty and sustain the natural environment for all people.

Our Approach

COUNT IT

We start with data. We conduct independent research and draw on the latest technology to develop new insights and recommendations. Our rigorous analysis identifies risks, unveils opportunities, and informs smart strategies. We focus our efforts on influential and emerging economies where the future of sustainability will be determined.

CHANGE IT

We use our research to influence government policies, business strategies, and civil society action. We test projects with communities companies, and government agencies to build a strong evidence base. Then, we work with partners to deliver change on the ground that alleviates poverty and strengthens society. We hold ourselves accountable to ensure our outcomes will be bold and enduring.

SCALE IT

We don't think small. Once tested, we work with partners to adopt and expand our efforts regionally and globally. We engage with decision-makers to carry out our ideas and elevate our impact. We measure success through government and business actions that improve people's lives and sustain a healthy environment.

Each World Resources Institute report represents a timely, scholarly treatment of a subject of public concern. WRI takes responsibility for choosing the study topics and guaranteeing its authors and researchers freedom of inquiry. It also solicits and responds to the guidance of advisory panels and expert reviewers. Unless otherwise stated, however, all the interpretation and findings set forth in WRI publications are those of the authors.





10 G STREET NE SUITE 800 WASHINGTON, DC 20002, USA +1 (202) 729-7600 WWW.WRI.ORG