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INTRODUCTION

Given inevitable constraints of the fiscal year framework for development planning, not to mention the day to day rush of project design and implementation, development policymakers and practitioners often simply lack the time to engage in longer term strategic planning. While there is usually a general sense of what they want to see happen 10 years down the line, there is still a need to think more systematically about what should be done today to best ensure those goals are actually achieved. In other words, we need to increase our resources for thinking over the horizon and strive to better understand how to get to where we really want by acting earlier in a more coordinated fashion. *Foresight* is intended to help meet this need in a novel way, by offering new insights drawn from cutting edge evidence based academic research. Each issue will be dedicated to a single theme, to be defined through a dialogue between academic researchers and the policymaking community. Articles will synthesize current research from the perspective of what we need to think about today in order to achieve our goals 10 years from now. In this way, we hope to create a new nexus between research, policy and practice by disseminating the latest development research in a practical way that is in tune with the priorities of the development community.

THE IMPLICATIONS OF GLOBAL WARMING FOR DEVELOPMENT ASSISTANCE: THE PROBLEMS WITH MAINSTREAMING CLIMATE CHANGE

Mourad Shalaby and Jon Unruh

Introduction

With research, policy, and treaty endeavours regarding adaptation and mitigation of climate change set to enter a phase of implementation, the implications for international development assistance appear large. How this will happen across the many types of assistance and countries is an important question for both the nature of development assistance and the prospect for successful

adaptation to, and mitigation (reducing greenhouse gas emissions) of climate change. This article looks at two primary issues involved in the inevitable mainstreaming of climate change related development projects into development assistance—financial obstacles, and science/policy.

There are both challenges and opportunities facing the mainstreaming of climate change adaptation and mitigation efforts into development assistance currently provided by bilateral donor agencies and international institutions in OECD countries. From the donor perspective the desire for such mainstreaming is to both

create synergies between policy objectives in various development sectors (climate change, poverty reduction, agricultural development, forest conservation, education, etc.) and to avoid contradictions between climate policy and sectoral policy in development assistance. With regard to the latter, development agencies do not want to finance projects in non-climate sectors that would work against climate change adaptation and mitigation objectives, nor fund climate sector efforts that would work against objectives of other sectors (UNDP 2009).

There is an emerging consensus among international organizations as well as governments that the mainstreaming of climate change efforts (primarily in the form of projects) into development assistance policy and planning is imminent and necessary (Asia Pacific Gateway to Climate Change and Development 2009). The reasons from a development perspective appear clear— climate change is set to impact the developing world much more than the developed world. It is widely believed that the poorest nations and communities will be hardest hit by the effects of climate change because they rely heavily on climate-sensitive sectors, such as agriculture and fisheries. Furthermore, their ability to resist, adapt to, and alleviate the effects of climate change is weaker compared to the developed world, due to the lack of technological, institutional and financial capacity. Simply put, climate change will become an enormous developing-world problem. Local level impacts due to climate change put at risk not only the achievement to date of development gains, but development ambitions and aspirations as well, particularly the attainment of the Millennium Development Goals (MDGs). Each one of the eight MDGs is potentially threatened by climate change impacts (UN Millennium Campaign 2009):

I. Eradicate Extreme Poverty and Hunger

Food security and livelihoods threatened by more intense natural disasters and more unpredictable rainfall patterns

II. Achieve Universal Primary Education

Loss of infrastructure, displacement of families and environmental refugees' migration due to disasters

III. Promote Gender Equality and Empowerment of Women

Women make up two-thirds of world's poor and are more adversely impacted by disasters

IV – V – VI. Child Mortality, Maternal Health and Disease

Increased incidence of vector-borne disease and spread of water-borne diseases; women and children more adversely affected; declining quantity and quality of potable water

VII. Promote Environmental Sustainability

Climate change is an indication of unsustainable practices. Negative impacts on natural resources and ecosystems may be irreversible

VIII. Develop Global Partnership for Development

Climate change is a global phenomenon that greatly affects the developing world. A global response is thus needed.

Financial Obstacles to Mainstreaming

The financial burden of mitigating the effects of global warming is one of the main obstacles to the successful mainstreaming of climate change projects into development. Dealing with the impacts of climate change will be costly, not only to repair the effects of destruction and degradation of industrial and agricultural systems and livelihoods, but also mitigation of climate change itself. In any scenario, climate change impacts and mitigation will be expensive and create a substantial financial burden. In one estimate, by 2030, the global cost of mitigation alone could be as much as \$210 billion USD (Haïtes 2009). This takes into account energy supply, industry, building, transportation, waste, agriculture, forestry, and research and development. The adaptation of societies to a changing climate will also be costly, although more unpredictable and imprecise. The main sectors that will feel the most urgent need for adaptive measures are agriculture, forestry and fisheries, and water supply and coastal protection infrastructure.

The funding opportunities for the mainstreaming of climate change projects can be divided into two categories (World Bank 2009): 1) private sector funding, such as incentives that favour environmentally friendly technology in industry, agriculture, and livelihoods; and 2) international agency funding (i.e., official development assistance) such as foreign loans; trust funds; the United Nations Framework Convention on Climate Change (UNFCCC) mechanism; and perhaps most notably, the World Bank, through several contexts: the Global Environmental Facility (GEF), the Adaptation Fund, the Climate Investment Funds, and Strategic Climate Funds.

The Climate Investment Funds (CIFs) deserve particular mention. These are implemented within the Multilateral Development Banks. Their purpose is to bridge the financing and technical gap between the present and the next international climate change agreement. Climate Investment Funds are composed of two distinct kinds (World Bank 2009), 1) the Clean Technology Fund, and 2) the Strategic Climate Fund. The Clean Technology Fund promotes financing for demonstration, deployment and transfer of low carbon technologies that will significantly reduce greenhouse gas emissions— these investments will be made in renewable energies and highly efficient technologies to reduce

carbon intensity, especially in the transport sector, but also in buildings, industry and agriculture. The Strategic Climate Fund will help more vulnerable countries adapt their development programs to confront the new realities of climate change. This will ensure that traditional development efforts, such as reducing poverty and hunger, are climate resilient, i.e. they do not negatively affect the climate.

However, it has been argued that the World Bank, the largest development Bank in the world, is perhaps not the best institution to be in charge of these important climate funds (Friends of the Earth International 2009). The World Bank group is officially the largest multilateral lender for fossil fuel projects, which contribute enormously to greenhouse gas emissions and global warming. With some one billion dollars per year in financing for the oil and gas industry, the World Bank's support for fossil fuel projects has grown from US \$450 million to US\$869 million in the period from 2005 to 2006. At the same time, the proportion of renewable energy and energy efficiency financing in energy projects is comparatively low. Thus there are arguably valid reasons to question the World Bank's position concerning climate change and energy issues, given its fossil fuel endeavours and generally poor environmental performance (Friends of the Earth International 2009).

Further concern is focused on how the World Bank has constructed its Climate Investment Funds, based as they are on the CIFs of earlier initiatives originating in the UK, US and Japan—effectively excluding developing countries from their derivation. It has been argued that the current approach could potentially increase the debt burden of developing countries, because the CIFs will use repayable loans to finance climate adaptation in developing countries (Friends of the Earth International 2009). From a developing country perspective this can be seen as significantly problematic, given that the developed countries are largely responsible for the problem of climate change in the first place. But perhaps the most problematic issue of the World Bank's Climate Investment Funds is that it will create a new structure for financing adaptation and mitigation, outside the existing and internationally recognized UNFCCC accords. The UNFCCC is the main international framework which provides for adequate representation of both developed and developing countries. It is guided by multilaterally negotiated principles, and represents a durable way of financing climate change adaptation in the developing world. Many argue that governments and international institutions should focus on this democratic framework, instead of unilaterally designing new initiatives.

Science and Policy Obstacles to Mainstreaming

A separate problem with successfully mainstreaming climate change-related development projects is the

significant divide which exists between the scientific and policy work that has been done on mitigation of and adaptation to climate change on one hand, and the history of international development efforts on the other. This is most easily observed in the proposals by the climate change scientific community with regard to what are thought to be implementable development projects on the ground. This section looks at one of the most popular climate change-related types of development projects—tree planting in a variety of contexts—in order to describe this very problematic divide.

Tree-based carbon storage projects

The prospect of storing atmospheric carbon through tropical tree planting¹ has become a significant aspect of research, policy, and treaty endeavours regarding mitigation of and adaptation to climate change. The biophysical aspects of tree-based carbon storage projects are clearly attractive² and the spatial and ecological requirements are well understood (Kerr et al 2001; Smith 2002; Brown 2002b); demonstrating that constraints to storing this carbon are not biophysical. The constraints are instead socio-political, particularly regarding the livelihoods of those that occupy, claim, and use the lands in question, the forms of governance under which these operate, and the opportunities for development. Yet this is where the scientific and policy literature on the prospects of storing carbon in the tropics is most lacking (Unruh in press).

The calculation of the required land area, the characteristics of lands ecologically suited to storage, and amount of carbon potentially stored have not been matched by the social science research (and assemblage of existing research) needed to assess how realistic carbon storage projects are on the ground, and hence the aggregate effect of sequestration as a mitigation option. The policy domain however, encouraged by the biophysical analyses, has moved forward with a range of policies including aspects of the Kyoto Protocol, the Intergovernmental Panel on Climate Change recommendations (IPCC 2007), and a range of other policy recommendations (e.g., Kauppi and Sedjo 2001; Conference of the Parties 1997; Smith 2002). This section describes the significant divide between the climate change science and policy, and the reality of international development.

¹ Carbon storage here refers to reforestation, afforestation, agroforestry, and the avoidance of deforestation (known in the UN as REDD: Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) activities.

² One analysis showed that over 10 years, 48 tropical and subtropical countries could reduce atmospheric carbon by about 2.3 billion tones. Achieving this would involve over 50 million hectares of land for implementation of carbon-friendly approaches to land use (Niles et al. 2002).

Forest lands, development, and carbon storage projects

Forested lands have played a large role in international development. Saunders et al. (2002) point out that forest communities currently comprise most of the rural poor in the world (also Peluso 1992; World Bank 2002). This has led those involved in the climate change scientific community to conclude that international development in forested areas of the tropics are one of the best areas suited for carbon storage development projects, with benefits for global climate change mitigation, and local level adaptation to the impacts of climate change—both through tree planting.

The problem however, is that a great deal of the carbon storage literature treats complex and vexing socio-political issues within international development as solvable simply with broad carbon project or policy recommendations, which are thought to be achievable in the near-term (e.g., Niles et al. 2002; Toulmin et al. 2005). For example this literature recommends that advances need to be made in tropical forestry, agriculture, range management, local community empowerment, consultation, development, and legal institutions because these are fundamental to achieving tree-based carbon storage objectives. However these have all been priorities in international development for decades, at enormous cost. The reality is that the difficulties in achieving these advances over large areas are daunting (e.g., Evenson and Gollin 2003; Jindal et al. 2008). Assuming that incentives and policies promoted by carbon projects will achieve success where decades of international development efforts have not reveals a disconnect between those who work on carbon storage and those who work in development. This is of particular concern given that many of the same development objectives will become more difficult to attain as climate change progresses and rural livelihoods are increasingly compromised through drought, flood, and changes in agricultural season (Toulmin et al. 2005). African countries for example are already considered to be significantly behind in meeting the Millennium Development Goals (Toulmin et al. 2005).

One example of the imbalance in the development vs. biophysical examinations of the problem is the question of aggregation in analyses. In analyses of carbon storage, the scientific community routinely disaggregates individual tree species by specific densities of wood and growth rates (e.g., Baral and Guha 2003; Thomson et al. 2007). Yet rural inhabitants are analyzed as a single group, as opposed to being disaggregated by, for example, categories of migrants; production systems; degree of market involvement; degrees of legal pluralism; or levels of impoverishment, state resistance, and grievance.

Governance in developing countries

The primary problem related to governance in the developing world with regard to carbon storage projects is that the recommendations in the climate change literature assume that a developing country government is in full control of all lands within its country's borders, or has influence in those lands which results in local compliance rather than resistance. However, this is often not the case. There is a significant experience and evidence with regard to governance in rural areas of developing countries currently not included in the carbon storage discussion, which has effectively problematized such an assumption (e.g., Bruce and Migot-Adholla 1994; McAuslan 2003; Okoth-Ogendo 2000; Platteau 1996). Nevertheless the broad conclusion that simply 'better policies' or 'greater political will' are needed in developing country governance in the context of implementing carbon forest projects is common (e.g. Antle and Diagana 2003; Noble and Scholes 2001; Saunders et al. 2002). This perspective assumes elements of development which in reality are not in place in many countries, nor are they realistically achievable in the short or medium-term in most cases. In reality the derivation and implementation of improved policies, laws, and 'political will' in the developing world, particularly over large multi-country areas needed for carbon storage to be an effective mitigation option, is unrealistic within the needed time-frame (Unruh in press). The problems of enforcement, deep and long-lasting resistance to and suspicion of land-related policies, corruption, and discrimination, severely compromise this time expectation. Climate change discussions do not adequately address the real nature of power, political will, policy-making and project implementation in the developing world, resulting in overly generalized, lofty and unrealistic statements. For example, "in a country with well-defined property rights and corresponding financial institutions, farmers could plausibly participate in a domestic or international market for tradable emissions reductions credits" (Antle and Diagana 2003, 1181). As well, carbon trading (aspects of which include financial credit for carbon sequestered and retained) requires a very robust operation of the rule of law, from the local to international (e.g., Saunders et al. 2002; Jindal et al. 2008), which in reality is closer to the situation in developed countries.

The issue of land tenure policies alone is monumental. The incompatibility between customary and statutory land rights systems in the developing world has had major repercussions on governance, development, and the role of property in capital formation (e.g., Bruce and Migot-Adholla 1994; McAuslan 2003; de Soto 2000). Recommendations in the carbon literature for increasing indigenous people's control over their lands so as to better manage forests (e.g., Saunders et al. 2002; Delville 2000) fail to recognize that such control has been an ongoing struggle for some time and is very difficult to



achieve (e.g., Meek 1949; Frykenberg 1977; Engerman and Metzger 2004). This difficulty is underscored by the reality that countries with significant violent conflict (governance failure) within their forests comprise over half of the world's tropical forest areas apart from Brazil (CIFOR 2003).

Local benefits of carbon storage projects

The problematic nature of local community benefits with regard to carbon storage projects has received little attention. The primary issue is that predicted carbon related benefits to communities are not compared to pre-existing benefits that would be changed or lost with the implementation of carbon storage schemes. An understanding about how the two sets of benefits compare in quantity, quality, type, functionality, and who within communities will gain and lose is fundamental to the adoption of benefits associated with carbon projects (including agroforestry as a benefit). However, the scientific and policy climate literature regarding benefits associated with such projects does not make such a comparison. Instead, generalized 'benefits' for local communities are described, along with the implied assumption that such benefits will encourage adoption of changed practices (e.g., May et al. 2003; Jindal et al. 2008; Toulmin et al. 2005; Smith 2002). Such benefits are then assumed to be a significant part of development for local communities. The recommendations promoting only the benefits associated with carbon forestation, without a comparison to existing benefits that would be replaced or changed, are common (e.g., Bass et al. 2000; Toulmin et al. 2005).

This lack of comparison between the two sets of benefits ignores the progress that has been made in understanding common property forest resource management, which focuses on benefits (and supporting institutions) currently held (e.g., Ostrom et al. 1999). It also ignores how the two sets of benefits are realized. Of the 1.2 billion people in the world who live in extreme poverty, 90 percent depend on forest resources (World Bank 2002). The benefits associated with the way that the impoverished interact with resources are largely short-term, attending to immediate needs, whereas benefits associated with carbon storage projects are almost exclusively long-term. The rural poor pursue livelihood systems that capitalize on flexibility in the short-term, meaning frequent change in use, resource access, and dependence on multiple products (e.g., Bass et al. 2000; Unruh 2006). The impact of climate change on Africa for example, will exacerbate conditions of

poverty by reducing yields and disrupting water supplies (Black 2006), further reducing the time-horizon for decision-making, and lessening the prospect for tree planting and retention, which is done for long-term benefit.

Carbon storage related benefits will only lead to successful tree planting if 1) the existing benefits are of lesser near-term livelihood utility; 2) if the change from one set of benefits to another requires little risk, particularly given the risk averse nature of impoverished forest dependent communities; or 3) if carbon project benefits are only added to and do not replace, diminish, or subvert current benefits—which is unlikely. Even if payments are made to entice participation, such payments are made in exchange for a change in the way current benefits are realized, in other words, stopping forest degrading activities (and associated benefits) and changing to tree planting and conservation activities (with separate benefits). The purpose of promoting benefits associated with carbon storage projects, according to the literature (e.g., May et al. 2003; Jindal et al. 2008), is to replace existing practices that are thought to be unsustainable, extractive, change often, and cause resource degradation. Expecting local communities to abandon one set of practices and benefits for another is essentially expecting them to make a large gamble. A great many rural communities are generally not open to such a gamble, particularly those that are impoverished or marginalized (e.g., Unruh 2002). Transitioning from one set of practices and benefits to another takes time and results in a shift in who benefits within communities, often creating a 'winners and losers' scenario that, while not always inevitable, can create resistance by potential losers. Such a shift is better understood in the development literature (e.g., Lawson 2007; Moyo and Yeros 2005).

The introduction of carbon related development practices would mean that their adoption (and realization of associated benefits) and the abandonment of others would occur over time as the two benefit sets are compared as to their short-term favorability. Thus, an exclusive focus on the benefits from carbon storage projects (as in the literature concerned with tree-based approaches) can make them seem attractive in an aggregate ecological or economic sense. In reality, however, other issues such as type of benefit, utility, time-horizon, ownership of benefits, poverty, conflict, and local to global political and economic forces, can easily overwhelm what makes sense in a selected context (May et al. 2003; Silver et al. 2000).



CONCLUSION AND SUMMARY OF POLICY RECOMMENDATIONS

Although efforts to initiate carbon related international development projects in the tropics are laudable, the climate change research and policy communities appear to be looking at what constitutes 'development' differently than those who have been practicing international development 'on the ground'. And while individual community-based carbon storage development projects can be 'made' to work with enough individual attention, they are not replicable in the frequency and with the pervasiveness and degree of success needed to be a global carbon mitigation option.

The primary attractiveness of carbon storage in the tropics is biophysical. Socio-politically, however, the tropics is where policy implementation is presently least feasible. In order to resolve this difficulty there needs to be 1) a much more robust inclusion and integration of the existing academic and applied social science in the carbon storage discussion, and 2) a more integrated scientific and policy effort in the future with regard to the social and biophysical sciences. The depth and precision of the biophysical work needs to be matched by an equal understanding of the socio-political domain, so that development, governance, and local benefits can be used to further and not hinder tree-based carbon storage as a mitigation option.

If climate change is to be mainstreamed into development planning and international aid, with all the financial commitment this entails, then rich countries must take primary responsibility. An obvious first step is that wealthy countries finally agree to increase official development assistance to the recommended 0.7 percent of GDP. They must also implement deep cuts in

greenhouse gas emissions to slow climate change and hence alleviate the eventual impacts.

Additionally, attention must be paid to preventing the reversals in human development and the MDG achievements that may come about by climate change. In other words just as the development community is finally starting to make a dent on the massive challenge of poverty, literacy and disease in the achievements of the MDGs, the gains made are threatened by the impacts of climate change. A related concern voiced by the international development community is that some of the previous financial commitments made regarding development aid might now go towards climate change rather than attaining MDGs

At the same time there is a clear paradox between the achievement of the MDGs and the mitigation of climate change. On one hand, economic growth and development may help to reach certain MDGs, such as the reduction of poverty and the improvement of health. But on the other hand, the destructive threat of climate change is forcing us to reconsider the benefits of economic growth and prioritize sustainability and cautious economic development.

Ultimately, although political priorities fundamentally guide ODA policy, the mainstreaming of climate change adaptation and mitigation projects needs to target local adaptive capacity, ideas, and community engagement and participation, so as to benefit the most vulnerable by supporting their societies, health and livelihoods, and thus helping, not hindering, the achievement of the MDGs.

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BIOGRAPHICAL NOTES

Mourad Shalaby has a Bachelor's degree in Human Environmental Geography from the University of Montreal, where he conducted multiple studies on urban issues in Third World countries, field assessments of land management, Environmental Impact Assessments and Natural Resources managements. He also has a certificate in Trade, Development & the Environment from the London School of Economics, where he conducted research on the issue of Climate Change and the role of the United States of America. He is currently enrolled in the Geography Masters program at McGill University, where he is preparing a Thesis on Climate Change, Development and Adaptation in the Congo Forest Region.

Jon Unruh is Associate Professor of Geography at McGill University, where he works upon human geography and international development, with a focus on Africa. Holding a PhD from the University of Arizona, his research interests include Postwar land tenure and the relationship between land tenure and environmental change, with a current focus on migration, land tenure and environmental change in southern Zambia, and postwar property rights and sustainable livelihoods. His most recent publications include Unruh JD (2007) "Urbanization in the developing world and the acutely tenure insecure". *City: Analysis of Urban Trends, Culture, Theory, Policy, Action*. 11: 115-120.; and Guyer J, Lambin E, Cliggett L, Walker P, Amanor K, Bassett T, Colson E, Hay R, Homewood K, Linares O, Pabi O, Peters P, Scudder T, Turner M, Unruh J (2007) "Temporal heterogeneity in the study of African land use: interdisciplinary collaboration between anthropology, human geography and remote sensing". *Human Ecology*. 35: 3-17



ABOUT THE INSTITUTE FOR THE STUDY OF INTERNATIONAL DEVELOPMENT



The research and teaching of development issues has long been a major strength of the Arts Faculty, and of McGill University more

generally. The creation of the Institute for the Study of International Development (ISID) in December 2008 will allow McGill to take advantage of the presence of literally dozens of faculty members and hundreds of graduate and undergraduate students working directly on development related issues to become a leading interface between the worlds of academia and development practice. In particular, we will build on our strong relations with donor agencies such as the Canadian International Development Agency (CIDA), the International Development Research Centre (IDRC) and the World Bank, as well as with individuals with direct experience in promoting international development through the appointment of Professors of Practice for Public-Private Sector Partnerships, such as the Rt. Honourable Joe Clark. ISID also works closely with the Faculty of Agricultural and Environmental Sciences and with the McGill School of the Environment

ISID will also be integral to the Arts Faculty's ability to address the three academic priorities identified by the University: internationalization, interdisciplinarity and inquiry-based learning. Indeed, it is the most logical place from which to spearhead them. Development studies and research is inherently both international and interdisciplinary. Through ISID, new networks for attracting international attention to McGill, including the appointment of a Fulbright Visiting Research Chair in Development Studies in September 2010, and for creating new opportunities for McGill students and faculty members to study and research abroad will be established, while ISID will also help consolidate access to existing networks. Ultimately, ISID's goal is to help ensure that more cutting edge research makes its way into the classroom where students can become active participants by helping to bring together, under one organizational umbrella, various research and teaching activities now scattered throughout the Faculty and the University.

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