Preparing for Population Displacement and Resettlement Associated with Large Climate Change Adaptation and Mitigation Projects

Background Paper for the Bellagio Workshop
2-6 November 2010

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The purpose of this workshop is to launch a dialog and research activity on current and future population displacements and resettlement resulting from large scale climate change adaptation and mitigation projects. As a first step towards fostering the discussion, the conference will examine lessons learned from three decades of research into displacement and resettlement associated with large infrastructure and development projects, and then identify how these can be applied to the pressing issue of likely future displacement associated with climate change related projects. There is a continued investment in large infrastructure projects in developing countries, ranging from hydropower and transportation to water transfer schemes and irrigation systems. Past projects were often justified by their perceived contribution to economic development, but future projects are increasingly likely to be driven by efforts to mitigate and adapt to climate change.

Scope of the workshop

This workshop aims to address three types of displacement and resettlement: those induced by mitigation projects, those induced by large scale adaptation projects and infrastructure, and those induced directly by climate change impacts that cause governments to resettle populations in the name of adaptation. This workshop will *not* seek to address the issue of spontaneous migration caused by direct climate impacts, but will focus on population movements linked with climate-related projects.

The term ***displacement*** refers to the movement of population from their place of usual residence to another area. This movement is forced in the sense that in the absence of a project or natural disaster residents would not have chosen to leave the area. The movement can be either internal or international, and is often permanent, though some possibilities of return might exist in certain cases. By contrast, ***resettlement*** is a population movement planned directly by the government or private developers, where an area is chosen in order to resettle the population. The choice can be made after discussion with the affected populations, but can also be imposed upon them. Resettlement can also involve the payment of some compensation for the affected populations.

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Finally, this project defines a ***large scale adaptation or mitigation project*** as any government or private sector led project that seeks to develop infrastructure to reduce climate impacts on economic assets or people groups, to reduce emissions through hydroelectric or biofuel production, or to directly relocate communities from high risk to lower risk areas.

Three types of displacement and resettlement

1) Those induced by mitigation projects

Mitigation efforts are already under way in many countries, and include projects such as large-scale biofuel plantations and hydroelectric facilities. Population displacements can result when community lands are expropriated by eminent domain for hydroelectric dam construction, or as formerly "public" lands are put under biofuel production. Although most hydroelectric facilities have not been developed as "mitigation projects" *per se*, and indeed it is recognized that their reservoirs emit methane and carbon-dioxide (Fearnside 1995, Graham-Rowe 2005), there are nonetheless countless examples of displacement owing to dam construction ranging from large dams (see box texts on the Manantali and Tucuruí dams) to gargantuan ones (e.g., the Three Gorges Dam which displaced more than a million people (Tan 2008)). For biofuels, the history is much shorter, but there is evidence to suggest that land appropriations for jatropha and sugar cane plantations for biofuel production have already taken place in regions such as Africa where property rights are often ill defined (Welz 2009), and there have also been instances of population displacements for palm oil production in Indonesia (FOE 2008). The appropriations can result in displacement of local populations living under traditional land tenure regimes.

BOX 1: Manantali Dam, Senegal River, Mali (Constructed in 1987)

- **Purpose**: hydroelectric power generation, increased dry season flows for irriga ted agriculture, and navigation.
- **Environmental Impacts**: Has had major impacts on flood-recession farming, fisheries, pastoralism, ground water resources, riverine forests, and water-borne diseases. The conversion from flood-recession farming to irrigated agriculture has been much slower and costlier than expected. Irrigated agriculture has actually been less productive than flood-recession farming, and contributes to water-borne diseases via irrigation canals and water-storage areas. [1]
- **Population impacts**: Direct displacements of about 10-12,000 people. A land grab by Moors in 1989, intent on resting suddenly valuable river lands from traditional Hal Pulaar communities, led to the forced expulsion of ~70,000 black Mauritanians. [2] In 2007, 20,000 still remained in camps in Senegal.[3]

Footnotes: (1) Pottinger , L. 1997. "Manantali Dam Changes Will Make a Bad Situation Worse", http://www.africaaction.org/docs97/ irn9711.htm. (2) de Sherbinin, A. 1992. "Mauritanian Refugees: Casualties of Rural Development?" Paper presennted at the Annual Meeting of the Association of American Geographers. (3) "New Hope for Long Suffering Mauritanian Refugees", http://en.afrik.com/ article12370.html (more: http://internationalrivers.org/en/node/665)

2) Those induced by adaptation projects and infrastructure

On the adaptation side, governments are now (and will increasingly be) responding to extreme climatic events (flooding, storm surges) and climate impacts such as recurring droughts, reduced or increased river flows, and sea-level rise. Governments will be seeking to avert major impacts through a variety of infrastructure projects such as large dams for flood control and water storage, water transport schemes, large-scale irrigation works, and sea walls. These projects, in turn, will directly (e.g., through flooding of lands or changing land cover) or indirectly (e.g., through alteration of local ecosystems) displace large numbers of people. Some projects will also act as magnets, attracting large populations seeking economic opportunities as previously inaccessible or marginal lands are opened for development (e.g., new irrigation schemes in drylands).

3) Those implemented in the name of adaptation

The last form of displacement, which is induced directly by climate change impacts, will occur where governments seek to move populations out of harm's way owing to changing risks (e.g., flood or low elevation coastal zones), or where they move people from areas where livelihoods are no longer tenable owing to progressive desiccation or saltwater intrusion. Although some argue that resettlement of communities should be a last resort and only undertaken after every other possible adaptation measure has been tried (Barnett and Weber 2010), the reality is that this kind of resettlement is already occurring in some regions. For example, in Vietnam's Mekong Delta and Mozambique's Zambezi River basin, governmental authorities have already resettled agricultural communities in response to recurring floods (de Sherbinin et al. 2010). Similar processes are underway in Inner Mongolia in response to desertification (Zhang 2010) (see Box 3).

Rationale for the workshop

Hugo (2009) suggests that lessons from displacement and resettlement associated with mega-projects can inform future climate-related displacement and resettlement for a number of reasons:

- Displacement from large dams and other mega-projects is analogous to the slow onset effects of climate change (e.g., sea level rise and desertification) in that there is substantial lead time to plan the displacement process and prepare the resettlement destination.
- In both cases there are livelihood impacts and associated with this the powerlessness of the bulk of the populations affected.
- In both cases it is the poor in the affected areas who are most powerless and least able to make plans to move.

Displacement and resettlement affect mostly rural people, who also bear a disproportionate share of the costs of infrastructure on the one hand, and climate change on the other. Similarly, it can be argued that the benefits—whether from infrastructure such as hydropower installations or high GHG emissions that cause climate change—accrue largely to urban dwellers.

BOX 2: Brazil: Tucuruí Dam, Pará (Amazon) (Constructed in mid-1980s)

- **Purpose**: Electricity generation (subsidized energy provided to the aluminum industry)
- **EIA:** Construction predates Brazil's 1986 requirement of an Environmental Impact Assessment.
- **Environmental impacts:** Only 30% of the area was cleared before flooding (part of the submerged timber was later logged with a special underwater chainsaw). Over time turbines suffer corrosion as a result of water acidity due to the decomposition of flooded vegetation. The area of the reservoir's water surface at a water level of 72 m officially 2430 km^2. The loss of forest caused by Tucuruí was not limited to the area flooded. There was a major reduction in fish species.
- **Population impacts:** >32,000 people displaced; several remained without a home one year after the reservoir was filled; others were moved twice, since the initial relocation site ended up flooded; those without land title were denied assistance. More than 1/3 of the flooded area belonged to an indigenous group that was relocated 5 times within a period of 6 years.

Historically, large scale infrastructure and development projects have generally been located on lands occupied by vulnerable populations such as indigenous communities and smallholder farmers. Forced resettlement of entire communities has been a common feature. Agreements about mitigation, compensation, and possibly even later revenue streams to the displaced groups may be forged in advance of project implementation, but equity, accountability, and respect for the rights of the displaced people is often inadequate (Cernea 2000, Robinson 2003). Severe power imbalances between the corporation-bank-government triangle (who plan, build and manage the projects) and the relocated people are a common denominator of most projects. Land disputes are also a common ingredient, and communities in which resettled populations are located may also be significantly affected. The World Bank identified eight economic and social risks of displacement (Cernea 2000):

1. Loss of land
2. Loss of employment
3. Loss of shelter
4. Marginalization *(reduced economic mobility)*
5. Increased morbidity and mortality
6. Greater food insecurity
7. Loss of access to common property/services
8. Social disarticulation *(break-up of community organizations and other groups)*

Civil society pressure to alleviate and /or mitigate some of these problems has had positive effect via the banking sector in the form of the Equator Principles (www.equator-principles.com), initially put forth by a consortium of four banks – ABN AMRO, Citigroup, Barclays, and West LB – and now endorsed by 62 banks from around the world. These principles require environmental impact assessments (EIAs), maintenance of environmental standards, and implementation of social policies consistent with, or above, the standards set by the International Finance Corporation (IFC) as part of the conditions for securing a loan (Heal 2008). The IFC standards include participatory approaches for planning and development of Resettlement Action Plans (RAPs) (IFC 2002).

BOX 3: China: 'Ecologic reinstallation' program to fight desertification, Inner Mongolia (2001-2008), Erenhot area

- **Purpose**: Combating desertification by preserving the grassland
- **Project:** In order to fight desertification in the province of Inner Mongolia, the government of China has initiated a program of resettlement for pastoralist, nomadic populations. These populations were identified as an agent of desertification, due to the overgrazing of their cattle. They can no longer use their land and had to sedentarize and resettle in urban areas, against compensation.
- **Population impacts:** Between 2001 and 2008, it is estimated that about 650,000 people have been relocated in the province of Inner Mongolia through the 'Ecologic reinstallation' program.

The social and demographic consequences of such projects have been studied in the past. However, there is an urgent need to expand research in this area in order to better document the impacts and lessons learned from past infrastructure projects, characterizing the context in which they occurred (temporal, political, ecological, and social). This research will inform new issues and challenges being raised by climate change. Since many countries are already planning large-scale adaptation projects, and significant regional efforts are in place to address major energy, transportation and water issues (e.g., the Initiative for the Integration of Regional Infrastructure in South America), there is an urgent need to better understand the potential social consequences of these initiatives, and in particular the migration flows they might induce. Failure to anticipate and mitigate these impacts may result in future adaptation projects that are counter-productive and actually *decrease* the adaptive capacities of populations at risk.

Our Task

This multi-disciplinary workshop will bring together 19 leading researchers and practitioners (see separate document with participant biographical sketches). The workshop will contribute to establishing a research agenda on the topic of climate change induced displacement and resettlement by designing a research framework for future empirical research, as well as exploring new methods that may be required.

We have divided the topic into the following three themes:

I. Improving the future by learning the past

The purpose of this theme is to understand the magnitude of the social, economic, environmental, and population displacement impact of past projects, and the lessons that can be learned for future ones.

A. Broad lessons from the past

1. What lessons have been learned from experience in government led displacement and resettlement owing to major infrastructure and development projects?
    a) How many people have been displaced by major projects?
    b) How has management of the process (e.g., governance and institutional mechanisms) varied from case to case in recent history?
    c) Who are the winners and losers in infrastructure development?
    d) What are the social and cultural dislocations resulting from resettlement?
    e) What are the social, economic and cultural impacts on receiving communities?
    f) How has resettlement in new locations impacted environmental conditions in those locations?
    g) What are the human health impacts (mental and physical) of these environmental changes?
2. What lessons have been learned from experience with spontaneous (unorganized) resettlement?
3. How directly transferable are lessons from past displacement and resettlement owing to large infrastructure and development projects?
    a) How might the types and geographic locations of infrastructure and development projects (e.g., biofuel plantations) be similar or different from what were common in the past?
    b) How might these differences result in distinct social, economic, and environmental impacts?
    c) Do past lessons hold any relevance for government-led resettlement of populations where climate impacts become severe (e.g. sea level rise or desertification)?

d) In what ways will a changing environmental context, not to mention a more populated and densely settled earth, affect the ability to resettle displaced persons in ways that they are economically productive?
e) How will the scale likely change, in terms of numbers displaced?
f) Could organized resettlement to urban areas be more successful than the past pattern of rural resettlement?

B. Establishing a sound economic foundation for resettlement

1. What are the economic impacts resulting from resettlement on those resettled?
2. How can we place a stronger economic foundation under future resettlement programs so that resettled populations "get back on their feet" more quickly?
3. What is the current practice for economic planning and analytical methodology and how will this need to be changed given likely future displacement from climate impacts and climate related projects?
4. What are the financing sources for resettlement, and how can resources be mobilized in the future?

II. Risks & impact assessments

Contribute to current efforts to establish multidisciplinary approaches to conduct impact assessments prior to project approval/ implementation, as well as the mechanisms through which mitigation strategies can be monitored/evaluated/adapted throughout the project's development.

1. What are current policy frameworks and "best practices" in the area of displacement and resettlement?
2. What are current regulations and to what degree have environmental, social, and health impact assessments (IAs) allayed negative impacts of development/ infrastructure projects on environmental conditions and population dynamics?
   a) What are the available guidelines for EIAs and population resettlement, and what role have they played (are they playing) in mitigating negative impacts of infrastructure projects?
3. What are the legal mechanisms (available and/or needed) to hold banks/corporations accountable for proposals/agreements made in EIAs?
4. What is the best way to minimize conflict of interests in the elaboration of EIAs?
5. What are the available methods (and need for novel ones) for estimating social and environmental impacts of such projects in both intervention and resettlement areas (e.g., participatory assessment, surveys)?
6. What are potentially novel methods for estimating and monitoring social and economic impacts in intervention and resettlement areas (e.g., using remote sensing data)?

7. What changes might be needed in order to adapt IAs to the context of future climate change related displacement and resettlement?
8. The study of displacement and resettlement has been fragmented among different agencies (e.g. refugee agencies, disaster response agencies, and development agencies) and corresponding research communities. Given the likelihood displacements will increase with climate change, how do we foster truly interdisciplinary research that borrows from all branches?

III. Adaptation programs

This theme will seek to initiate a discussion on the most appropriate ways to implement adaptation programs. In the least developed countries, National Adaptation Programs of Action (NAPAs) have been developed under the Nairobi Work Program of the UNFCCC, and most of them have yet to be implemented. Many developed countries are also in the process of designing their own adaptation programs. Such programs, both in the North and in the South, could involve large-scale population displacements. This is the case of dams and dikes, but also of other infrastructure projects, such as irrigation systems, which might prioritize an area or a population over another. Population resettlements might also be part of adaptation programs, as some governments are already displacing some populations into safer areas. The goal of this theme will be to develop an appropriate framework for the implementation of adaptation programs, both in the North and in the South.

1. There is evidence that migration is being considered in some NAPAs, but there is very little discussion of organized resettlement (Martin 2010). What are the benefits of organized vs. spontaneous resettlement?
2. How are population resettlements envisioned in adaptation programs designed by developed countries?
3. Where is there evidence of population resettled in the name of adaptation?
4. Which compensation schemes can be implemented for those displaced in the name of adaptation? Which ones are already implemented?
5. To what extent could population displacements undermine the benefits of adaptation programs?
6. Are there examples of populations/ethnic groups prioritized over some others in the implementation of adaptation programs?
7. How might the topic of organized or government-led resettlement best be introduced within the UNFCCC framework?
8. Are there other policy fora where guidelines for resettlement in the context of a changing climate might be needed or well received?
9. Could adaptation programs also act as pull factors for migration?

Outputs

In terms of concrete outputs, the workshop will generate three products:

1. A ***journal article*** that presents the problem of population displacement and resettlement in the face of climate change and large infrastructure projects designed to address the impacts, and then outlines a comprehensive research and policy agenda for appropriate ways of addressing the issue.

2. ***Draft guidelines and policy recommendations*** to be used as a starting point for future discussions with policy-makers. We plan to set up a system to inform policy makers and to facilitate integration of considerations of displacement and resettlement in National Adaptation Programs of Action (NAPAs), as proposed by the Nairobi Work Programme of the United Nations Framework Convention on Climate Change (UNFCCC).

3. A strategy to pursue funding for ***future and continued research*** and an outline proposal for the same. The proposal will seek to engage scholars from many disciplines and from developed and developing countries to better assess and understand the impacts of large-scale infrastructure projects, including adaptation projects, in terms of their social and demographic impacts.

In addition, we will undertake two follow up activities.

1. The group will look at the possibility of creating ***study groups or scientific panels*** in population, impact assessment, climate-related, or displacement research networks (e.g., the IUSSP, the International Association for the Study of Forced Migration (IASFM), the International Association of Impact Assessment, the International Network on Displacement and Resettlement (INDR)).

2. After the workshop, with the goal of promoting ***broader discussion*** and eliciting wider feedback on the topic and the proposed research agenda, the workshop leads will organize a Population-Environment Research Network (PERN) ***cyberseminar*** on the topic to take place during the Winter or Spring of 2011. Sponsored by the International Union for the Scientific Study of Population (IUSSP) and the International Human Dimensions Programme on Global Environmental Change (IHDP), PERN has a membership of 1,800 researchers globally, roughly equally divided between high and low income countries, and representing many social and natural science disciplines. Because cyberseminars are online and open to the wider research community (typically ~600 participants are signed up for cyberseminars), it facilitates a broader multidisciplinary discussion, in which opposing views will be openly discussed, needs for future research identified, and future collaborations between different fields established.

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Funding for this workshop has been provided by:

THE ROCKEFELLER FOUNDATION | afd Agence Française de Développement

The Rockefeller Foundation **Agence Française de Developpement**