

Assessing Displacement and Resettlement due to Climate Change Mitigation and Adaptation Projects

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Alex de Sherbinin
CIESIN, The Earth Institute at Columbia University
Email: adesherbinin@ciesin.columbia.edu

Center for International Earth Science Information Network
COLUMBIA UNIVERSITY

THE EARTH INSTITUTE
COLUMBIA UNIVERSITY

Outline

1. Setting the stage
 - Why the subject is important
 - Typology of potential resettlement needs
2. Learning from past resettlement research
3. Recommendations regarding impact assessment for future resettlement
 - Based on a Bellagio Conference, 3-5 November 2010, “Preparing for Population Displacement and Resettlement Associated with Large Climate Change Adaptation and Mitigation Projects”

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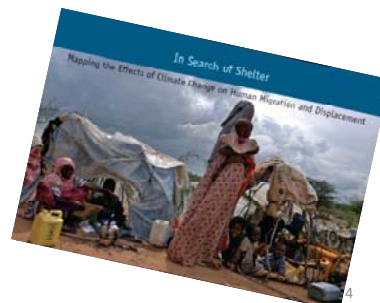
Setting the Stage

SECTION 1

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Antecedents

- Paper by Castro, de Sherbinin, and Vajhalla at the IHDP Open Meeting (2009):
 - “Population Displacements Associated with Environmentally Significant Infrastructure Projects”
- Report by CARE, UNU, and CIESIN involving Ehrhart, de Sherbinin, and Adamo prepared for Bonn Climate talks (2009):
 - In Search of Shelter: Mapping the Effects of Climate Change on Human Migration and Displacement*



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Terminology

- DFDR: Development Forced Displacement & Resettlement
 - Displacement can be short or long term; our focus was on permanent and involuntary displacement
 - We did not focus on spontaneous migration but on organized resettlement (voluntary or involuntary)
- EIA: Environmental Impact Assessment
- SIA: Social Impact Assessment
- HIA: Health Impact Assessment

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Theses

- Climate change has been seen by some as an opportunity to “get development right”
 - learning from past mistakes and promoting more “bottom up” grassroots approaches
- But there is a real risk that climate change will result in business as usual approaches and the same top-down interventions by state and non-state actors
- Realistically, some resettlement will be part of both proactive and reactive climate change adaptation projects
- We can learn from major infrastructure projects in the past to understand what may happen through large-scale climate change adaptation projects and to plan for better results

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At Bellagio we focused on three causes of displacement and resettlement:

1. Owing to major infrastructure projects developed in full or in part in response to climate impacts
2. Owing to mitigation projects
3. Owing to direct climate impacts

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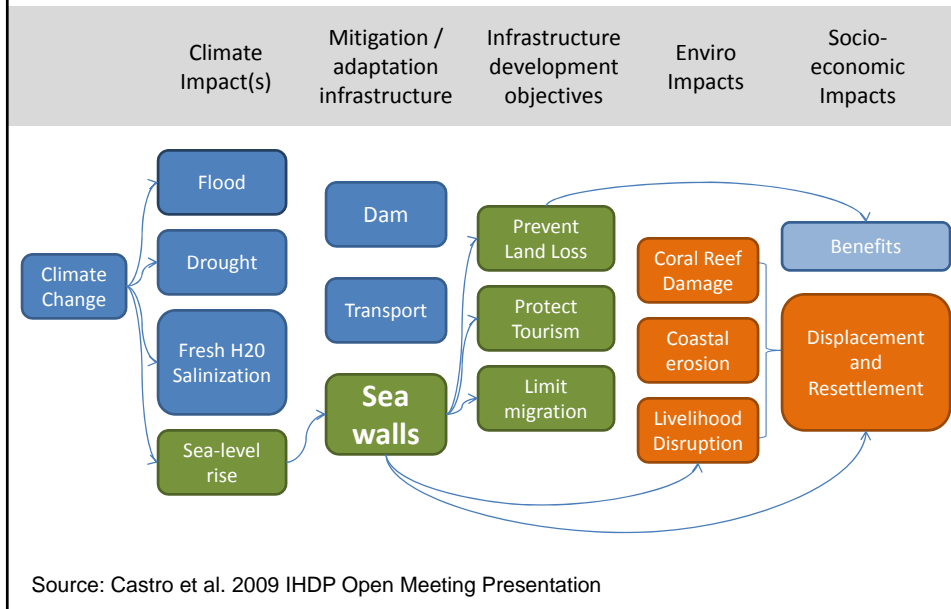
1. Likely Impacts of Climate Change Requiring Adaptation Infrastructure

Impact	Potential Adaptation Response
Sea level rise, salt-water intrusion	Sea walls, dykes, freshwater injection facilities
Decreasing water availability, increasing droughts	Dams, irrigation works, water transfer schemes, desalination plants
Increasing water availability, increasing floods	Dams, dykes, levees, flood control infrastructure



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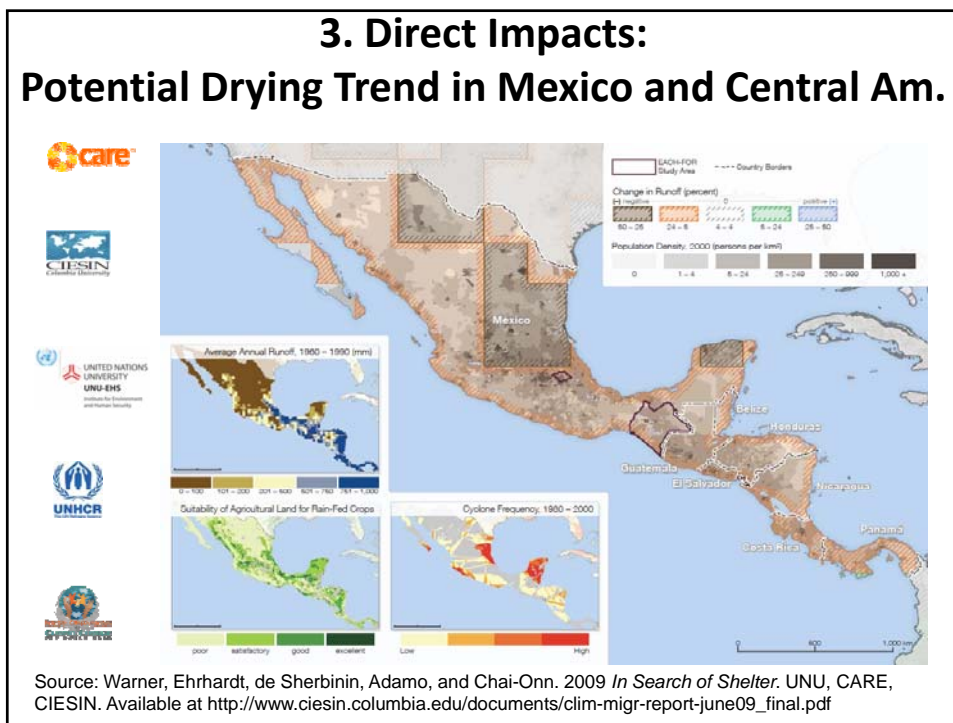
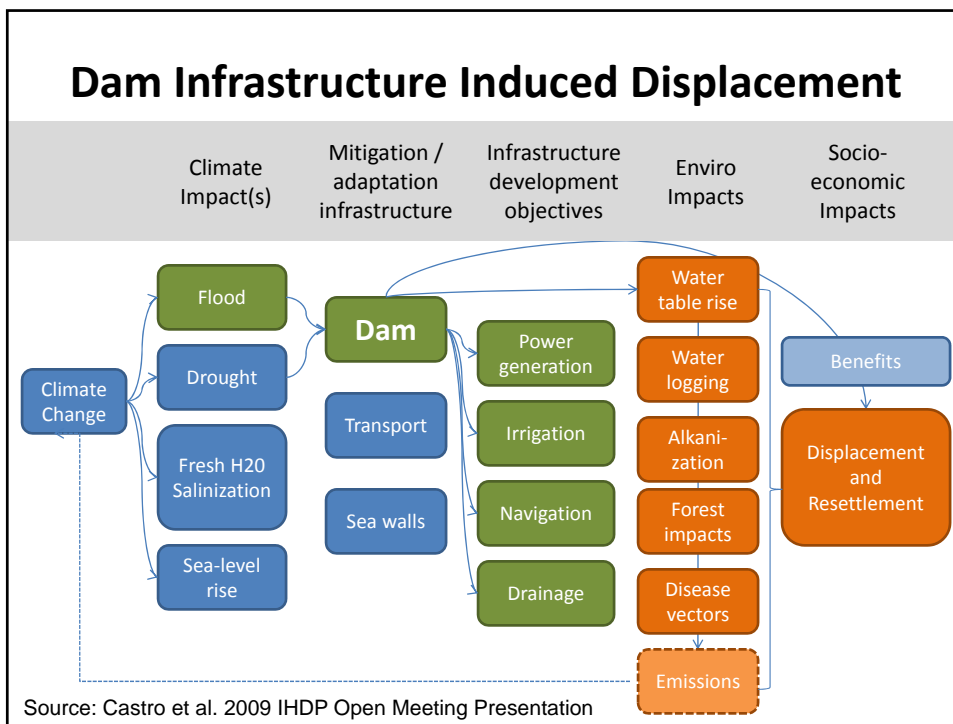
Sea Wall (Adaptation) Induced Displacement



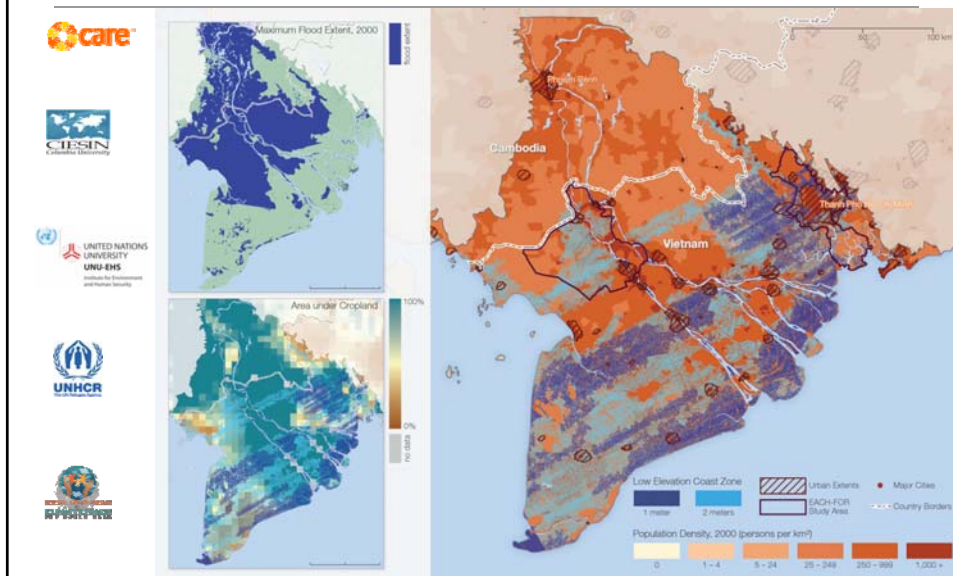
2. Climate Change Mitigation Projects

Objective	Potential Mitigation Response
Reduce GHG emissions	Hydroelectric facilities, large-scale wind farms
Develop biofuels	Biofuel plantations (jatropha, sugar cane, soy, corn)
Increase "sinks" for GHGs	Forest plantations
Geoengineering	Injecting H ₂ S or SO ₂ high in the stratosphere, tampering with ocean albedo, and possibly terrestrial

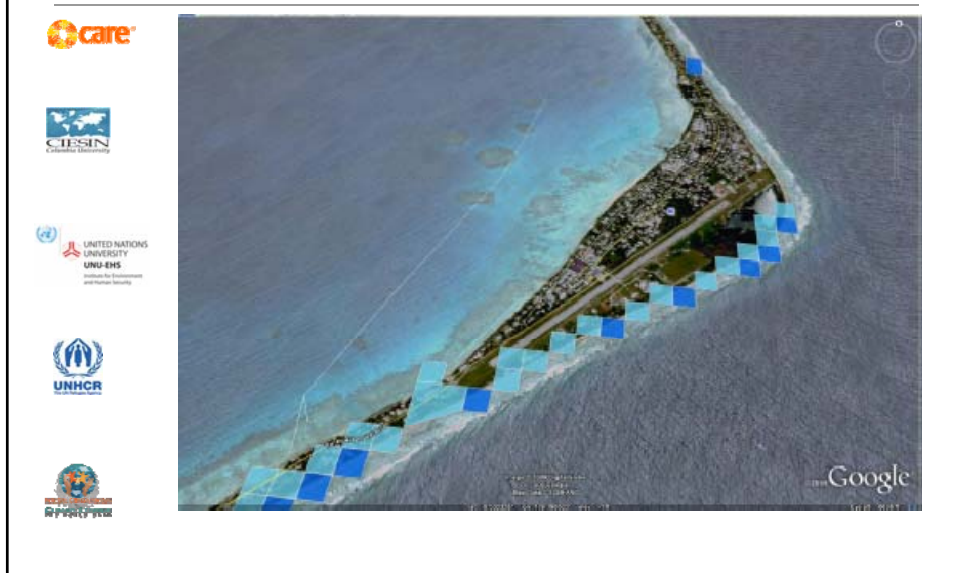




3. Direct Impacts: Sea Level Rise – Mekong Delta



3. Direct Impacts: Sea Level Rise – Tuvalu



Regions Where Resettlement Is Already Occurring

- Inner Mongolia: China's "ecological reinstallation" program aims to fight desertification in drought-prone grasslands by sedenterizing pastoralists
- Mekong: Vietnam has moved communities from river bank to areas further back
- Zambezi: Mozambique has promoted voluntary resettlement from flood plain to higher ground
- Maldives: Government promotes resettlement from outer islands to principal islands

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Lessons Learned from Resettlement Research

SECTION 2

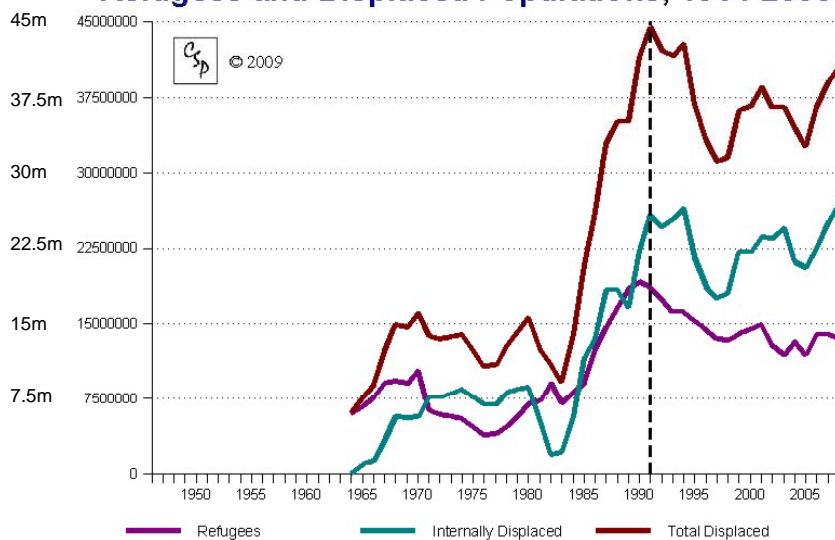
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How Many People Have Been Resettled? How many Displaced?

- No one knows for sure
- Scudder 2010: “By 2000 an estimated 40 to 80 million people had been relocated in connection with 45,000 large dams located around the world”
- Pandey 2010: “The government [of India] estimates that around 21.3 million persons were displaced during 1951-1990.”
- Tan 2010: “1.26m people were displaced by the Three Gorges Dam Project”
 - Official Chinese government figures: 1.3m
- Cernea 2010: “During the last two decades of the 20th century, the magnitude of forced population displacements entailed by development projects [industry, transport, power generation, public building] was estimated at about 10 million people annually.”
 - Currently it may be as high as 15m people annually

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Refugees and Displaced Populations, 1964-2008



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OCHA Study: *Monitoring Disaster Displacement in the Context of CC*

- Focus on sudden onset natural disasters
- Creating a baseline for future monitoring using a rigorous methodology
- In 2008, 36m people were displaced by natural disasters
- Of whom 20.2m were displaced by climate-related disasters
- Compared to 4.6m displaced *in that year* by armed conflict
- Since 1990, the number of natural disasters has increased from ~200 to ~400 per year



Econ & Social Risks of Displacement

- 1-3. Loss of Land, Employment, 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*)

Source: Cernea, M., 2000. *Risks, Safeguards, and Reconstruction: A Model for Population Displacement and Resettlement*. The World Bank.

Four Stage Process

1. Planning for resettlement prior to physical removal
2. Coping with the initial drop in living standards that tends to follow removal
3. Initiation of economic development and community formation activities that are necessary to improve living standards of first generation resettlers
4. Handing over a sustainable resettlement process to the second generation of resettlers and to non-project authority institutions

Source: Scudder T (1985) A Sociological Framework for the Analysis of New Lands Settlements. In: Cernea MM (ed) Putting People First: Sociological Variables in Rural Development. Oxford University Press for the World Bank, New York, pp 145–185

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Scudder's 50 Dam Survey

Name of dam	Country/ Countries	Date of completion	Number of reservoir resettlers	Date when last data collected	Outcome ¹	Name of dam	Country/ Countries	Date of completion	Number of reservoir resettlers	Date when last data collected	Outcome ²
Kariba	Zambia ¹	1958	34,000	2002	Four	Ukai	India	1972	52,000	1982	Four
Aswan	Egypt ¹	1967	50,000	1999	One	Arenal	Costa Rica	1960	2,500	1983	One
Kainji	Nigeria	1968	44,000	1991	Two	Karnal	India	1988	5,000	1995	Two
Narayanpur	India	1982	30,600	1997	Four	Messstá	Argentina/ Paraguay	Ongoing construction	>68,000	N/A	N/A
Shuikou	China	1993	67,000	1997	Two	Nan Ngum	Laos	1972	3,500	2001	Four
Yanzian	China	1992	43,176	1997	Two	Cahora Bassa	Mozambique	1975	>42,000	2002	Four
Kinross	U.S.A.	1964	550	1997	Three	Aleman	Mexico	1952	19,000	1999	Four
Katse	Lesotho	1995	1,470	2002	Four	Ceyhan	Turkey	1984	5,000	2000	Four
La Grande	Canada	1995	One village	N/A	N/A	Kossou	Ivory Coast	1972	75,000	1995	Two
Grand Coulee	U.S.A.	1939	2,000	1999	Three	Chixoy	Guatemala	1985	1,500	2002	Four
Nam Theun ²	Laos	Planned only	6,000	N/A	N/A	Fimburewa	Sri Lanka	1971	120	2001	One
Pak Mun	Thailand	1994	1,205	2002	Four	Victoria	Sri Lanka	1984	29,500	2001	Two
Zimapan	Mexico	1993	2,452	1997	Four	Alta	Norway	1987	None	N/A	N/A
Nangbeto	Togo	1987	10,600	1997	Four	Sardar	India	Ongoing construction	>200,000	N/A	N/A
Rapaska	Brazil	1988	26,000	1997	Four	Sardar	India	Ongoing construction	>200,000	N/A	N/A
Garrison	U.S.A.	1953	1,625	2001	Three	Kiamhete	Kenya	1988	7,500	1995	Four
Fort Randall	U.S.A.	1952	95	2002	Four	Saguling	Indonesia	1986	13,737	1999	Four
Osha	U.S.A.	1962	2,100	1994	Three	Cirata	Indonesia	1988	27,978	1996	Four
Kedungombo	Indonesia	1988	24,000	1997	Four	Nomis	USA	1936	14,249	2001	Three
Khao Laem	Thailand	1985	11,694	1999	Four	Cerro Oro	Mexico	1989	26,000	1999	Four
Kpong	Ghana	1982	5,897	1992	Four	Akosombo	Ghana	1964	78,000	2002	Four
Pantabangan	Philippines	1973	13,000	1988	Four						
Bayano	Panama	1976	4,123	1994	Four						
Tucuni	Brazil	1984	23,924	1999	Four						
Manantak	Mali	1988	9,535	1992	Four						
Mohale	Lesotho	2002	2,000 est.	N/A	N/A						
Pong	India	1974	150,000	1994	Four						
Harhela	Pakistan	1976	96,000	1999	Four						
Mozazan	Honduras	1985	3,618	1995	Four						
Hirakud	India	1958	>110,000	1988	Four						

One = improved living standards for majority
 Two = Restored living standards for the majority
 Three = Restored or improved but not project related
 Four = Living standards for majority worsened

Source for this and the following slides: Scudder T (2010). 'Resettlement Outcomes of Large Dams', Chapter 3 in Biswas & Tortajada *forthcoming*.

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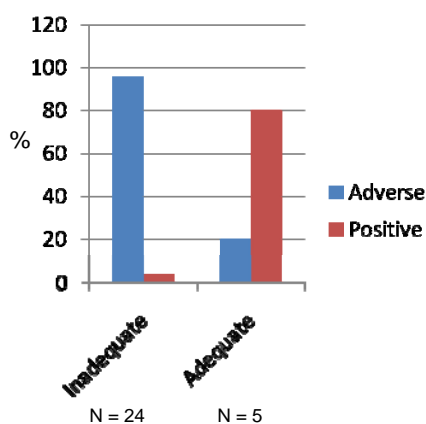
Five Most Important Reasons for Unsatisfactory Outcomes

1. Lack of staff numbers and expertise
2. Lack of finance
3. Lack of political will on the part of implementing agencies
4. Lack of compensation and development opportunities
5. Lack of participation

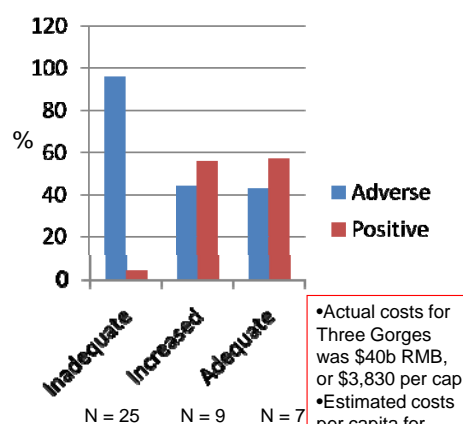
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Results

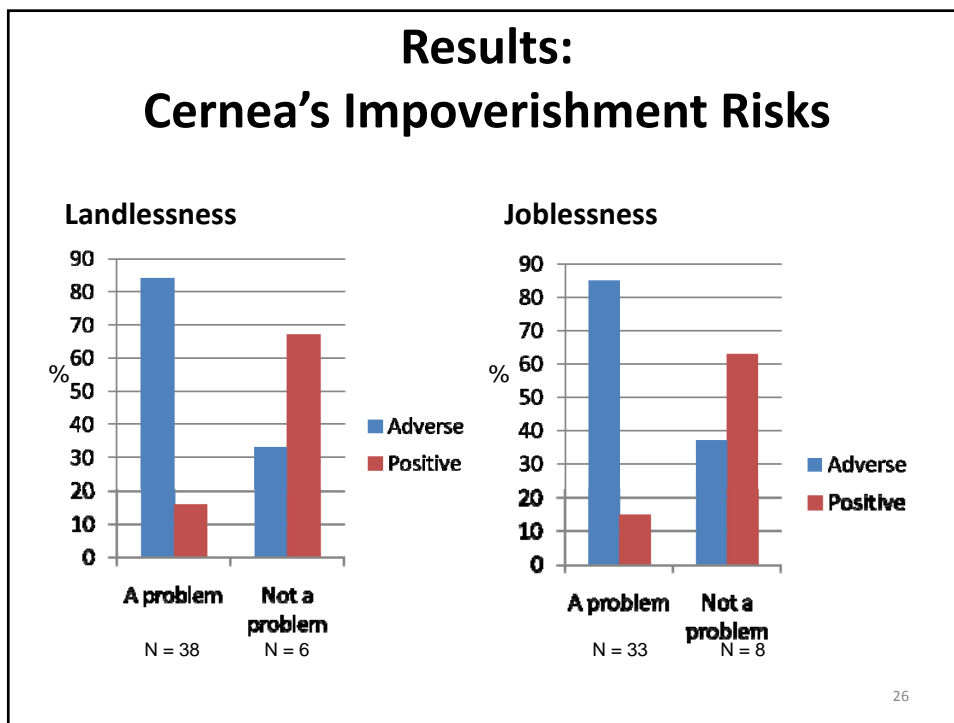
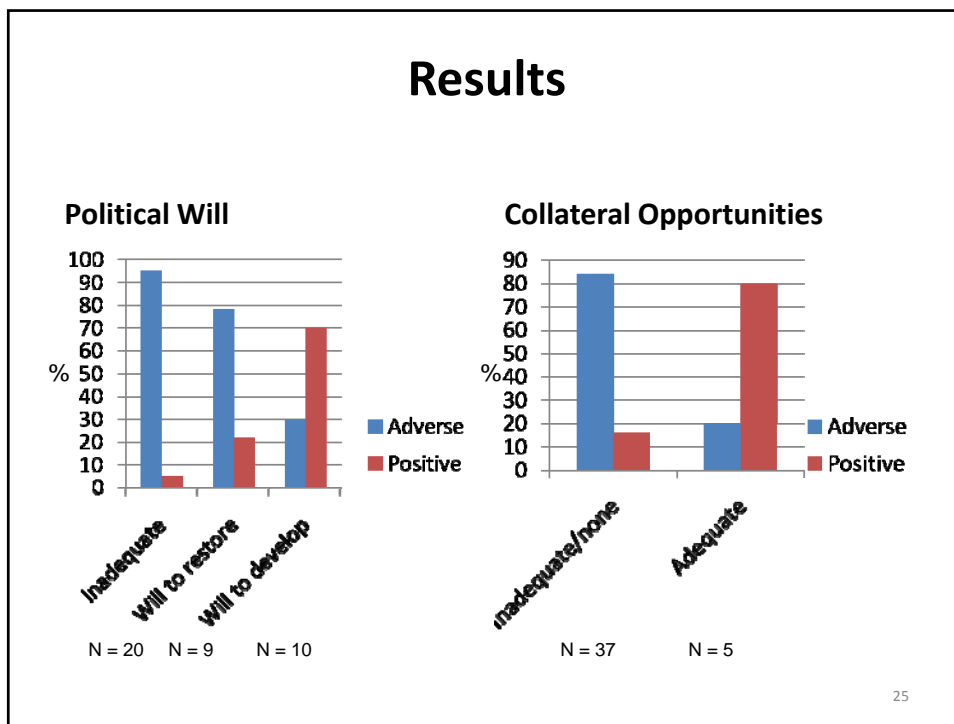
Numbers & Expertise of Staff

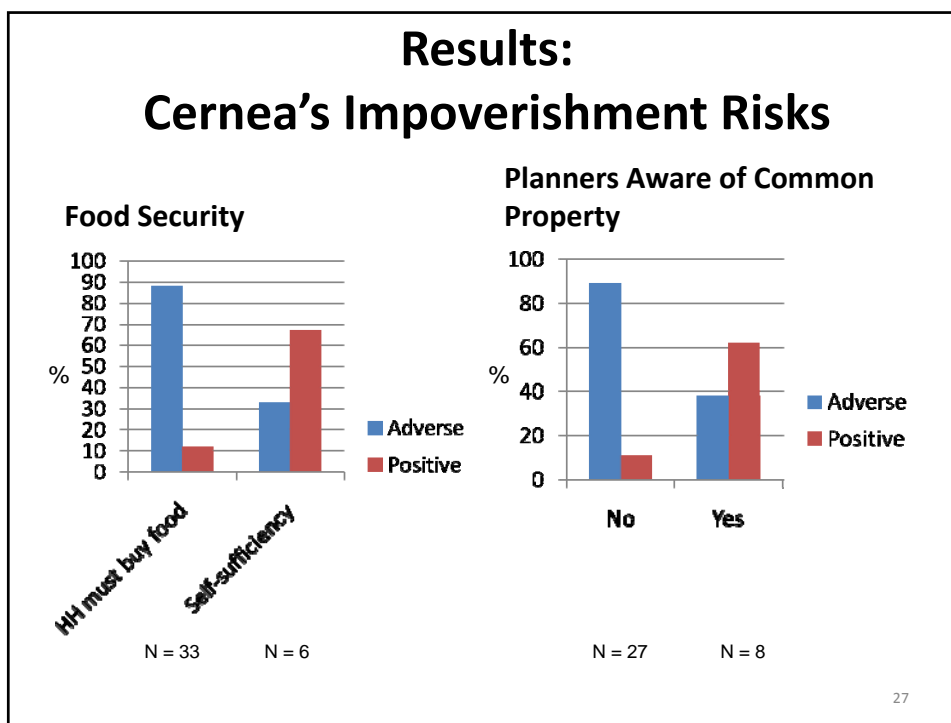


Adequacy of Funding for Resettlement & Rehabilitation



•Actual costs for Three Gorges was \$40b RMB, or \$3,830 per cap
 •Estimated costs per capita for Nam Theun 2 are US\$3,800





Development Opportunities

- Rural households pursue diversification strategies
- Irrigation and cultivation of high value crops
- Tree crops like rubber
- Reservoir draw-down agriculture (crops and pasture land)
- Fisheries and aquaculture
- Rural employment generation and enterprise development
 - Common in China; micro-credit desirable

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Projects with the Following Have Better Results:

- Opportunities for participation
 - Ita Dam in Paraguay: resettlers managed planning & implementation
 - e.g., Indigenous groups are shareholders in the Hydro Quebec project
- A clear project authority
 - preferably one responsible for the whole project, not multiple agencies responsible for different pieces
- The goal of *improved* living standards
 - Focus on development, not just compensation
- Later projects outperform earlier projects
 - Guidelines *have* improved results over time

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Concluding Thoughts

- Some of the greatest impacts are the least tangible: cultural dislocation, loss of dignity, stress, chronic health problems
- Managing risk is going to be increasingly central in a 2+ or 4+ degree world
- Expect the unexpected: Many of the most damaging impacts of large dams and DFDR are unforeseen

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Mali: Manantali Dam



- Located on the Senegal River, construction completed in 1987, displacing 10-12,000 people.
- **Purpose:** hydroelectric power generation, increased dry season flows for irrigated 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:** A land grab by Moors in 1989, intent on resting valuable river lands from traditional Hal Pulaar communities, led to the forced expulsion of ~70,000 black Mauritians.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/im9711.htm>. (2) de Sherbinin, A. 1992. "Mauritanian Refugees: Casualties of Rural Development?" Paper presented 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>)

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Recommendations for Impact Assessments & Resettlement from the Bellagio Conference on "Preparing for Population Displacement and Resettlement Associated with Large Climate Change Adaptation and Mitigation Projects"

SECTION 3

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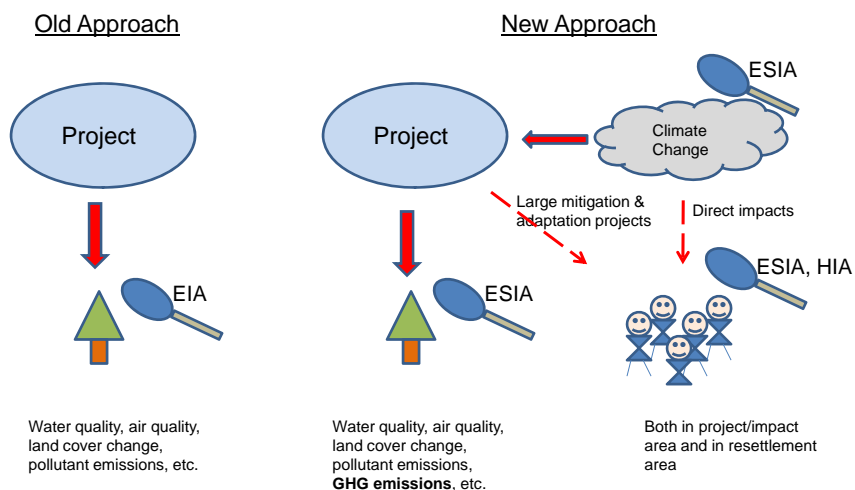
Conference Participants



Back Row (left to right): Alula Pankhurst*, Philip Fearnside*, Greg Wannier*, Alex de Sherbinin, Graeme Hugo*, Tony Oliver-Smith, and Francois Gemenne
Front Row (left to right): Sarah Lahmani, Balaji Pandey, Susana Adamo, Michael Cernea, Charles Ehrhart, Gary Krieger*, Marcia Castro, Burton Singer*, Yan Tan, Philippe Boncour, and Shi Guoqing*

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Old School and New School



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Lessons from DFDR for CC-induced DR (1)

1. CC and DRR communities have much to learn from resettlement research and praxis
2. CC at least offers sufficient time for advance planning
 - Resettlement should be one in a range of options, and usually a last resort
 - Yet leaving it off the table could be irresponsible
3. CC discourse often focuses on “moving people”
 - Yet the main issue is impoverishment risks; rehabilitation & reconstitution of livelihoods, communities, etc.
 - Too much focus has been placed on compensation, not enough on rehab.
 - Resettlement is a transformative process, not a one-time relocation
4. For resettlement from direct impacts, there are likely to be fewer resources for resettling people
 - There is no project generating revenues to be shared
 - There may be adaptation funding (e.g. Copenhagen Green Climate Fund)

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Lessons from DFDR for CC-induced DR (2)

5. There is more and more funding for adaptation
 - This results in pressure to disburse funds quickly, which may compromise EIA/SIA/HIA quality
 - Rules of the game need to be fair and equitable
6. There needs to be better training of resettlement professionals
 - E.g., China’s Institute of Resettlement Research at Hohai University
7. Future resettlement is more likely to be rural to urban
 - Running out of room for “land for land” compensation
 - Providing appropriate livelihood options will be critical
 - Move from a static to a transformative view of resettlement
8. Must bear in mind what likely future climate impacts will be in resettlement locations

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Lessons from DFDR for CC-induced DR (3)

9. There is a need to prepare host communities to receive resettlers and in some cases to compensate them
10. In certain circumstances, offering people compensation with freedom to choose destination may work well
 - But elderly, young, and weakest members of community may need help
11. Guidelines on resettlement are helpful, but there may be a need to set up legal frameworks
 - Without laws communities have no legal recourse when violations occur
12. Need to build a realistic discourse in the policy community
 - Sound the alarm without being “alarmist”
 - May be useful to talk about “managed migration”

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Warnings from Past Experience

1. Unclear land tenure makes it less likely that communities will be compensated or properly resettled
 - E.g. biofuel soy project in Paraguay, REDD related “economic displacement”
2. Past resettlement has sometimes been politically motivated
 - Be aware that CC may be used as a pretext for land grabs or ethnic targeting
3. Communities are not homogenous
 - Be aware of inequities within communities
 - Ensure that all have access to compensation and dev opportunities
4. Guidelines on resettlement
5. Expect the unexpected

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Impact Assessment Recommendations

1. If possible, set up a legal framework that insures independence of IAs
 - IA has historically been primarily a matter of “damage control”
 - For infrastructure & dev projects, a lot of pressure to “get things moving”
 - IA professionals are under considerable pressure to “soften” findings; conflicts of interest are common
 - Independent audit groups, selected by a third party (*not* project proponents or developers), should conduct IAs
2. SIA and HIA need to be given as much emphasis as EIA
3. Professional training of IA professionals in relevant fields is important for good results
 - A lot of “cross dressing” (e.g. anthropologists conducting HIAs, engineers conducting SIAs)

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IA Recommendations

4. Affected communities should be involved in assessments and in decisions regarding compensation, resettlement locations, and post-resettlement development projects
5. Baseline surveys and ongoing M&E are critical
6. Agreements with regards to ongoing M&E and investment in development projects need to be established up front
 - In the project/concession agreements (e.g. for dams or biofuel plantations)
 - In lender covenants
7. Short videos are an effective means of communicating key findings from the IA to top project managers
 - Photographs and remote sensing data can be vey effective for this
 - But someone still needs to read the report!

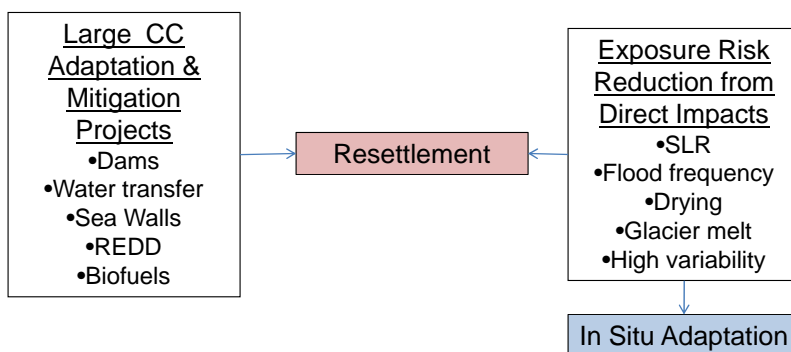
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For more information visit
<http://www.ciesin.columbia.edu/confluence/CCDR>

THANK YOU!

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Diagram



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