

# **Impoverishment Risks, Risk Management, and Reconstruction: A Model of Population Displacement and Resettlement**

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The present paper outlines the  
Impoverishment Risks and Reconstruction (IRR) model  
for resettling displaced populations ]

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# **Impoverishment Risks, Risk Management, and Reconstruction: A Model for Population Displacement and Resettlement**

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*“We must act so that poverty will be alleviated,  
our environment protected, social justice extended,  
human rights strengthened. Social injustice can  
destroy economic and political advances.”*

**(James D. Wolfensohn)**

During the last two decades of the previous century, the magnitude of forced population displacements caused by development programs was on the order of 10 million people each year, or some 200 million people globally during that period. Thus, by their frequency, size, and dire consequences, development-caused displacements have become a problem of worldwide proportions.

## **Social Justice and Forced Displacements**

Compulsory displacements that occur for development reasons embody a perverse and intrinsic contradiction in the context of development. They raise major ethical questions because they reflect an inequitable distribution of development's benefits and losses.

Forced displacement results from the need to build infrastructure for new industries, irrigation, transportation highways, power generation, or for urban developments such as hospitals, schools, and airports. Such programs are indisputably needed. They improve many people's lives, provide employment, and supply better

services. But the involuntary displacements caused by such programs also create major impositions on some population segments. They restrict that population's rights by state-power intervention and are often carried out in ways that cause the affected populations to end up worse off. This raises major issues of social justice and equity. The principle of the "greater good for the larger numbers," routinely invoked to rationalize forced displacements, is, in fact, often abused and turned into an unwarranted justification for tolerating ills that are avoidable. The outcome is an unjustifiable repartition of development's costs and benefits: Some people enjoy the gains of development, while others bear its pains.

The most widespread effect of involuntary displacement is the impoverishment of considerable numbers of people. In India, for instance, researchers found that the country's development programs have caused an aggregate displacement of more than 20 million people during roughly four decades, but that 75 percent of these people have *not* been "rehabilitated" (Fernandes 1991; Fernandes, Das, and Rao 1989). Their livelihoods have not been restored; in fact, the vast majority of development resettlers in India have become impoverished (Mahapatra 1999b).

But this does not happen in India alone. Such impoverishment, with its *de facto* lack of social justice and equity, is manifest in numerous other countries throughout the developing world when involuntary resettlement occurs. Material and cultural losses in each case are vast. No less serious a consequence is the political tension that accompanies forced relocation. Forced displacement epitomizes social exclusion of certain groups of people. It cumulates physical exclusion from a geographic territory with economic and social exclusion out of a set of functioning social networks. The concept of exclusion (Rodgers, Gore, and Figueiredo 1995) adds to the understanding of impoverishment. Sen (1997) argues further that various forms of social exclusion are contrary to the very nature of development, defined as increasing freedom.

Development will continue, however, to require changes in land use and water use and thus make various degrees of population relocation at times unavoidable. Yet, this does not mean that the inequitable *distribution* of development's gains and pains is

itself inevitable, or ethically justified. Such inequity is, in fact, profoundly contrary to the proclaimed goals of induced development. There is no reason to accept spatial rearrangements and their pernicious consequences with resignation as an ineluctable tragedy. Adherence to social justice and equity norms and respect for civil rights and people's entitlements should remain paramount whenever development brings about risks and exacts predictable tolls.

If impoverishment is the looming risk in displacement, the challenge is to organize risk prevention and provide safeguards. This can increase the benefits of development by eliminating some of its avoidable pathologies. It may not be feasible to prevent every single adverse effect. But it is certainly possible to put in place sets of procedures, backed up by financial resources, that would increase equity in bearing the burden of loss and in the distribution of benefits. It is certainly possible, under enlightened policies, to protect much more effectively than current practices do the civil rights, human dignity, and economic entitlements of those subject to involuntary relocation.

The conventional planning approaches that cause many to be displaced and allow only a few to be "rehabilitated" do not adequately protect against risks and loss of entitlements and rights. Without social safety measures, they have led to recurrent failures. In most cases, they have been incapable of preventing the victimization, de-capitalization, and impoverishment of those affected. But the repeated instances of resettlement without rehabilitation point sharply also to congenital defects in the current domestic *policies* of many countries, not just in the planning procedures. We argue that such "development" policies, and the resulting planning methodologies, must be corrected or changed.

There are practical ways to fully avoid specific instances of involuntary displacement, or at least to decrease their magnitude. Although, historically speaking, relocations (as a class of processes) are unavoidable, not every individual case of displacement proposed by planners is either inevitable or justified. Further, even when displacement is planned, mass impoverishment itself is not a necessary outcome and



therefore should not be tolerated as inexorable. There are many ways to reduce displacement's hazards and adverse socioeconomic effects.

Redressing the inequities caused by displacement and enabling affected people to share in the benefits of growth is not just possible but imperative, on both economic and moral grounds. Socially responsible resettlement-that is, resettlement genuinely guided by an equity compass-can counteract lasting impoverishment and generate benefits for both the national and local economy. Yet, much too often, those who approve and design projects causing displacement are deprived of an "equity compass" that can guide them in allocating project resources and preventing (or mitigating) the risks of impoverishment (Cernea 1986, 1988, 1996b; Mahapatra 1991; Scudder 1981). In an attempt to help develop such an equity compass, this paper proposes a risks-and-reconstruction-oriented framework for resettlement operations. It argues against some chronic flaws in the policies and methodologies for planning and financing resettlement and recommends necessary improvements in policy and in mainstream resettlement practices.

## **A Model of Risks and Risk Avoidance**

We present below a theoretical model for involuntary resettlement that highlights the intrinsic risks that cause impoverishment through displacement, as well as the ways to counteract-eliminate or mitigate-these risks. This conceptual model is defined as the *impoverishment risks and reconstruction model for resettling displaced populations*. In elaborating this model, the aim has been (a) to explain what happens during massive forced displacements-a task very important in itself, and (b) to create a theoretical and safeguarding tool capable of guiding policy, planning, and actual development programs to counteract these adverse effects. We believe that this impoverishment risks and reconstruction (IRR) model substantively adds to the tools of explaining, diagnosing, predicting, and planning for development and thus helps create the knowledge compass needed for complex resettlement situations.

In presenting the impoverishment risks and livelihood reconstruction framework, we first emphasize the need for theoretical modeling in resettlement research and briefly

review prior models. Second, we define the four basic functions of this model, and, further, identify and document the principal risks of impoverishment one by one. In the next section, we turn the model on its head, to argue that it intrinsically points the way to risk reversals and can guide strategies for reestablishing resettlers' livelihoods, based on an "economics of recovery." The last part of this chapter compares some of the current mainstream resettlement practices and analytical methods with the new model proposed, and recommends ways to improve resettlement practice and research.

Over the years, students of planned human settlements on new lands have proposed several conceptual frameworks to describe planned settlement processes. By the late 1960s, Chambers (1969) identified a three-stage general model in the evolution of land settlement schemes in Africa. Soon after, Nelson (1973) confirmed this pattern in a synthesis of many experiences with new land settlements in Latin America. Both models-Chambers' and Nelson's-generalized the experience of voluntary settlers and conceptualized the institutional/organizational dimensions of managed land-settlement programs.

Building upon these earlier concepts, Scudder and Colson formulated in 1982 a theoretical model of settlement processes distinguishing four, rather than three, stages: recruitment, transition, development, and incorporation/handing over. The Scudder-Colson diachronic framework was built around the key concept of "stage"; it focused on settlers' stress and their specific behavioral reactions in each stage. Initially, the model was formulated to apply to *voluntary* settlement processes. Subsequently, Scudder extended it to some *involuntary* resettlement processes as well, but only to those involuntary relocations that succeed and move through all four stages, as the model is not intended to apply to resettlement operations that fail and do not complete the last two stages.

Moving to the domain of refugee studies proper, we find the conceptual framework for interpreting refugee situations proposed by Emmanuel Marx (1990). This model was grounded in the sociological theory of networks and centered on what its author termed "the social world of refugees."

From one theoretical framework to the other, these attempts to distill accumulated knowledge into patterns and conceptual models have created intellectual tools that helped many researchers to interpret their particular field findings. They have helped distinguish regularities and build theories on settlement processes. Beyond their merits, however, these models were less productive in some important respects. None of these models has placed at its center the onset of impoverishment, its unfolding, and the process of escaping impoverishment. Among the conceptual models mentioned above only one, the Scudder-Colson model, addressed involuntary resettlements as well, and it did so only for cases of successful resettlement. Historically, however, the majority of involuntary resettlement operations have been unsuccessful. The cumulative impacts of failed resettlements were not “modeled” in the Scudder-Colson framework of stages.

There has been further discussion in the literature (de Wet 1988, Partridge 1989) around these conceptual models-yet certainly not enough, as Scudder (1996) rightly observed. But there was, and is, a broad consensus on the need to persevere in searching for theoretical constructs that explain and illuminate the complexities of resettlement.

The call for developing a more comprehensive theoretical model was perhaps voiced strongest by Brenchin, West, and associates (1991) in their massive volume on the displacement of resident populations from nature conservation parks. The authors maintained that many development decisions that involve involuntary relocation are made without the full anticipation of the general impact pattern triggered. Calling for a model that would define and predict the *cumulative* impacts of displacement and would provide a practical guide, they wrote:

*What is too little understood both by professionals and scholars alike is the social impact of displacement and relocation. When resident peoples are forced to move, certain general impacts can be expected. But the collective social impact on the community or other social organizations differs widely from case to case; to date no model exists to predict the cumulative effect (1991:17).*

The impoverishment risks and reconstruction framework presented in this

chapter aims precisely at rendering these “cumulative effects” analytically understandable, both distinctly and in their interconnection. It does so by modeling the constitutive sub-processes of displacement and the mechanisms for “influencing” them—that is, for preventing or eliminating them through deliberate action. The IRR model builds upon, and further advances, the prior modeling efforts summarized above.

The IRR model has been formulated and developed relatively recently, during the 1990s, in a series of studies (Cernea 1990, 1995b, 1996a, 1998, and 1999; World Bank 1994). A preliminary version was first applied on a wide scale in the resettlement review of almost 200 projects carried out by the World Bank in 1993-1994 (World Bank 1994). The origin of this model is both empirical and theoretical. Empirically, it is derived from the extraordinary accumulation of factual findings during the last quarter century, reported by resettlement studies in many countries. Theoretically, it benefits from the new state-of-the-art achieved by resettlement research during the same period.

### **Similarities in Refugee and Resettlement Situations**

The IRR model has been embraced and applied in a number of studies and in some operational resettlement activities, as will be shown in the last part of this paper. However, a question raised recently is whether this model, initially defined for resettlement caused by development programs, can provide research advantages in studying refugee displacements as well. Both groups—forced resettlers (displaced by development projects) and refugees fleeing violence (wars or armed civil conflicts)—confront many strikingly similar social and economic problems. These two groups are the largest subsets of displaced populations worldwide. Research currently carried out separately on resettlement and post-conflict reconstruction stands to gain substantial knowledge by breaking out of separation and insularity. Indeed, the issue is not to take one conceptual framework and “apply” or transpose it *tale-quale* elsewhere, on another category of processes. The challenge is to test the value-added it provides as a research tool and use it creatively for throwing light on other processes as well. In this spirit, Kibreab (2000) argues that the impoverishment risks and reconstruction model is a relevant tool for refugee related research and practical relief work. “In spite of the

ostensible dissimilarities between oustees' and refugees' situations", Kibreab writes, "a closer examination of the issues reveals that the so-called differences do not limit the scope of the model, but, rather, make it compellingly relevant." In the present version of this paper, however, I do not propose to discuss the applicability of the IRR model to other types of forced displacements

## **Four Basic Functions of the Model**

The impoverishment risks and reconstruction model focuses on the social and economic content of both segments of the process: the forced displacement and the reestablishment. The model is essentially synchronic, in that it captures processes that are simultaneous, but it also reflects the movement in time from the destitution of displacement to recovery in resettlement.

At the core of the model are three fundamental concepts: *risk*, *impoverishment*, and *reconstruction*. These "building blocks" are further split into sets of specifying notions, as will be shown, each reflecting another dimension, or variable, of impoverishment or of reconstruction, (e.g., landlessness, marginalization, morbidity, social disarticulation). These variables are interlinked and influence each other: Some play a primary role and others a derivative role in either impoverishment or reconstruction (largely as a function of given circumstances). Introducing these interlinked concepts considerably broadens the theoretical discourse on resettlement processes, thus helping to illuminate better its nature, inner linkages, pathologies, and socioeconomic remedies.

So constructed, the conceptual framework captures the dialectic between *potential* risk and *actuality*. All forced displacements are prone to major socioeconomic risks, *but not fatally condemned to succumb to them*.

We use the sociological concept of risk to indicate the *possibility* that a certain course of action will trigger future injurious effects-losses and destruction (Giddens

1990). The concept of risk is posited as a counter-concept to security (Luhman 1993): The higher the risks, the lower the security of the displaced populations. Risks are often directly perceptible, and also measurable through science (Adams 1998), as they are an objective reality. The cultural construction of a risk-be it a social risk or a natural risk-could emphasize or de-emphasize (belittle) its seriousness, could also ignore it, but this doesn't change the objective existence of risks (Stallings 1995).

The modeling of displacement risks results from deconstructing the syncretic, multifaceted process of displacement into its identifiable, principal, and most widespread, components. These are:

- (a) Landlessness;
- (b) Joblessness;
- (c) Homelessness;
- (d) Marginalization;
- (e) Food insecurity;
- (f) Increased morbidity;
- (g) Loss of access to common property resources; and
- (h) Community disarticulation.

Each will be further examined in turn. [**Note:** "Education loss" has been added by the author in a 2002 revision of the IRR model as another essential impoverishment risk; a discussion of this risk is contained in a forthcoming publication about the IRR model]

In examining the risk-anatomy of displacement, most important is the internal logic of the model. The model suggests that preventing or overcoming the pattern of impoverishment requires targeted risk reversal or mitigation. This can be accomplished through focused strategies, backed up by commensurate financing. Turning the model on its head shows which strategic directions should be pursued:

- (a) from landlessness to land-based resettlement;
- (b) from joblessness to reemployment;
- (c) from homelessness to house reconstruction;
- (d) from marginalization to social inclusion;
- (e) from increased morbidity to improved health care;
- (f) from food insecurity to adequate nutrition;
- (g) from loss of access to restoration of community assets and services; and
- (h) from social disarticulation to networks and community rebuilding.

The model's dual emphasis-on risks to be prevented *and* on reconstruction strategies to be implemented-facilitates its operational use as a guide for action. Like other models, its components can be influenced and "manipulated" through informed planning, in order to diminish the impact of one or several components, as given conditions require or permit. That requires considering these variables as a system, in their mutual connections, not as a set of separate elements.

Understanding the linkages among these variables enables decision-makers to trigger chain effects and synergies in mitigating or remedial actions. As a conceptual template, the model is also flexible, allowing for the integration of other dimensions when relevant and for adaptation to changing circumstances.

Beyond individual projects, this framework can be employed in general policy formulation. It can inform all the social actors in resettlement, namely governments and decisionmakers, social researchers, project designers, the resettlers themselves, implementation agencies, other involved parties. This model can be linked with other conceptual frameworks, to achieve complementarity of perspectives and additional knowledge.

The four distinct but interlinked *functions* that the risks and reconstruction model

performs are:

- (1) a predictive (warning and planning) function;
- (2) a diagnostic (explanatory and assessment) function;
- (3) a problem-resolution function, in guiding and measuring resettlers' reestablishment; and
- (4) a research function, in formulating hypotheses and conducting theory-led field investigations.

A brief characterization of each function, or capacity, is necessary.

**The Predictive Function.** The model's *predictive capacity* results from the in-depth knowledge of past processes stored and synthesized by the model. This knowledge helps predict likely problems "hidden" in the new situations: These are conceptualized as the eight major impoverishment risks. The predictions are, in fact, early warnings of major social pathologies likely to recur, warnings that can be issued long before the decision to displace is adopted. Thus, the model equips management and planners with a power to anticipate that is essential in planning for risk-avoidance or risk-reduction.

The practical utility of this function is that it enables both the planners and the would-be displacees to transparently recognize the risks in advance, search for alternatives to avoid displacement, and/or respond with mitigatory measures, bargaining strategies, and coping approaches. Governments, agencies, and planners that omit the explicit identification of the risks in advance expose themselves, and the populations affected, to more unmitigated negative outcomes.

**The Diagnostic Function.** This refers to the capacity of the model to *explain* and *assess*, by converting the general prognosis into a specific on-the-ground diagnosis of the project situation at hand. The model functions as a cognitive tool for guiding assessment fieldwork and "weighing" the likely intensity (high? moderate? low?) of one or another impoverishment risk in a given context.

The practical utility of this diagnostic function is that it reveals-to policy



officials, who decide on triggering displacements, and to the affected populations who incur the consequences-the socioeconomic hazards and possible outcomes of the impending displacements. The specific risk assessment (diagnosis) supplies advance information and recommendations crucial for project preparation and planning of counter-risk measures.

**The Problem-Resolution Function.** The *problem-resolution* capacity results from the model's analytical incisiveness and its explicit action orientation. The IRR model is formulated with awareness of the social actors in resettlement, their interaction, communication, and ability to contribute to resolution. To achieve problem resolution, the part of the model that identifies pauperization risks must be fully reversed, "stood on its head," as will be shown further. As a result, the practical utility of the model increases greatly by moving from prediction and diagnosis to prescription for action. The model becomes a compass for strategies to reconstruct resettlers' livelihoods, "pushing" beyond immediate relief mechanisms and making possible a redevelopment orientation.

**The Research Function.** For social researchers, the IRR model provides a conceptual scaffolding for conducting and organizing their theory-led fieldwork. The model stimulates the generation of hypotheses about relations between key variables in both displacement and relocation. It facilitates the exploration of mutual linkages of and the reciprocal reinforcement or weakening effects between related risks.

The research utility of the model comes from its ability to guide data collection in the field and coherently aggregate disparate empirical findings along the model's key variables. It also makes possible comparisons of responses to risks across cultures, countries, and time periods.

## **Major Impoverishment Risks in Displacement**

Despite the enormous diversity of project-specific situations, the empirical findings of many resettlement researchers reveal the presence of several basic regularities. Clear patterns emerge from this evidence. Comparing these empirical findings, we have

identified eight common processes and constructed a general risk-pattern. The convergent and cumulative effect of these processes is the rapid onset of impoverishment (Cernea 1990, 1995b). Before displacement actually begins, these processes are only impending social and economic risks. But if appropriate counteraction is not initiated, these potential hazards convert into actual impoverishment disasters.

These risks threaten not only the people displaced, they are risks incurred by the local (regional) economy as well, to which they may inflict major loss and disruption. Depending on local conditions, the intensity of individual risk varies. But pattern identification makes it possible *to predict that such risks are typical and are likely to emerge* in future comparable displacement situations.

A concise description of each fundamental risk follows, illustrated by some empirical evidence.

### ***Landlessness***

*Expropriation of land removes the main foundation upon which people's productive systems, commercial activities, and livelihoods are constructed. This is the principal form of de-capitalization and pauperization of displaced people, as they lose both natural and man-made capital.*

Unless the land basis of people's productive systems is reconstructed elsewhere, or replaced with steady income-generating employment, landlessness sets in and the affected families become impoverished. Nayak (see this volume) documents in detail how the Kisan tribe of Orissa, India, has been deprived of its lands, how land compensation failed to restore its land basis, and how landlessness not only set in, but also snowballed into other risks and losses to the tribe. From India's Rengali project, Ota (1996) reports that the percentage of landless families after relocation more than doubled—from 4.6 percent to 10.9 percent; while Reddy (1997) documents that in the coal mining displacements around Singrauli, the proportion of landless people skyrocketed from 20 percent before displacement to 72 percent after. A sociological

study of Kenya's Kiambere Hydropower project found that farmers' average land holdings after resettlement dropped from 13 to 6 hectares; their livestock was reduced by more than one-third; yields per hectare decreased by 68 percent for maize and 75 percent for beans. Family income dropped from Ksh. 10,968 to Ksh. 1,976-a loss of 82 percent (Mburugu 1993; Cook 1993). In Indonesia, a survey by the Institute of Ecology of Padjadjaran University (1989) around the Saguling reservoir found that resettled families' land ownership decreased by 47 percent and their income was halved. Similar evidence is available from Brazil (Mougeot 1989). Findings from anthropological field studies show that loss of land generally has far more severe consequences for farm families than the loss of the house.

### ***Joblessness***

*The risk of losing wage employment is very high both in urban and rural displacements for those employed in enterprises, services, or agriculture. Yet, creating new jobs is difficult and requires substantial investment. Unemployment or underemployment among resettlers often endures long after physical relocation has been completed.*

The previously employed may lose in three ways: In urban areas, workers lose jobs in industry and services. In rural areas, landless laborers lose access to work on land owned by others (leased or sharecropped) and also lose the use of assets under common property regimes. Self-employed small producers-craftsmen, shopkeepers, and others-lose their small business. In the Madagascar Tana Plain project in 1993, for example, those displaced who operated private small enterprises-workshops, food-stalls, artisan units-were not entitled to compensation and lost their place of business and their customers. A survey carried out among tribal households in five villages at Talcher, Orissa (Pandey 1996) found an increase in unemployment from 9 percent to 43.6 percent, accompanied by a large shift from primary to tertiary occupations (when available). Reported reductions in levels of earnings were between 50 percent and 80 percent among tribes and scheduled castes. Vocational retraining, offered to some resettlers, can provide skills but not necessarily jobs. Similar findings come from developed countries. In the Churchill-Nelson Hydro project in Manitoba, Canada, the

economic activities of resettled indigenous people-fisheries, waterfowl capture, fur processing-were curtailed; field studies found a significant increase in nonproductive time in the community.

Joblessness among resettlers often surfaces after a time delay, rather than immediately, because in the short run resettlers may receive employment in project-related jobs. Such employment, however, is short-lived and not sustainable. Evidence compiled from several dam projects shows that the “employment boom” created by new construction temporarily absorbs some resettlers, but severely drops toward the end of the project. This compounds the incidence of chronic or temporary joblessness among the displaced.

### ***Homelessness***

*Loss of shelter tends to be only temporary for many resettlers; but, for some, homelessness or a worsening in their housing standards remains a lingering condition. In a broader cultural sense, loss of a family’s individual home and the loss of a group’s cultural space tend to result in alienation and status-deprivation. For refugees, homelessness and “placelessness” are intrinsic by definition.*

In the Cameroon-Douala Urban project, more than 2000 displaced families were hindered in their efforts to set up new permanent houses; less than 5 percent received loans to help pay for assigned houseplots. According to reports from China’s Danjiangkou reservoir project, about 20 percent of those relocated became homeless and destitute. Violent destruction of shelters belonging to people labeled squatters is used in some places as a means to speed up evictions (e.g., in Uganda in the Kibale Park area). When governments initiate compulsory villagization schemes and force people to resettle, families lose natural and man-made capital assets and tend to experience a lasting sense of placelessness (see evidence from South Africa reported by de Wet 1995; see also Low and Altman 1992, for the concept of “place attachment”). Resettlers’ risk of worsening housing conditions increases if compensation for demolished dwellings is paid at assessed market value rather than replacement value.

Resettlers often cannot incur the labor and financial costs of rebuilding a house quickly and are compelled to move into “temporary” shelters. These resemble the condition of refugee camps, set up overnight. The “emergency housing centers” and “temporary relocation camps” used by some projects as a “temporary” backup (e.g., the Upper Krishna dam and irrigation project in Karnataka, India) often make homelessness chronic rather than temporary. At the Foun-Gleita irrigation project in Mauritania, only 200 out of the 881 displaced families successfully reconstructed their housing; the rest lived precariously for two years or longer in tents or under tarpaulins. In the Kukadi-Krishna irrigation subprojects in Maharashtra, India, 59 percent of the displaced families were found living in temporary/semi-permanent houses 10 to 15 years after their relocation (Joseph 1998). Yet resettlers’ risk of homelessness-related closely to joblessness, marginalization, and morbidity-can certainly be avoided by adequate project financing and timely preparation.

### ***Marginalization***

*Marginalization occurs when families lose economic power and spiral on a “downward mobility” path. Middle-income farm households do not become landless, they become small landholders; small shopkeepers and craftsmen downsize and slip below poverty thresholds. Many individuals cannot use their earlier acquired skills at the new location; human capital is lost or rendered inactive or obsolete. Economic marginalization is often accompanied by social and psychological marginalization, expressed in a drop in social status, in resettlers’ loss of confidence in society and in themselves, a feeling of injustice, and deepened vulnerability. The coerciveness of displacement and the victimization of resettlers tend to depreciate resettlers’ self-image, and they are often perceived by host communities as a socially degrading stigma.*

The facets of marginalization are multiple. The cultural status of displacees is belittled when they go to new relocation areas, where they are regarded as “strangers” and denied opportunities and entitlements. Psychological marginalization and its consequences (see Fernandes 2000) are typically overlooked in resettlement planning. Yet, cultural and behavioral impairments, anxiety and decline in self-esteem, have been

widely reported from many areas (Appell 1986). Relative economic deprivation and marginalization begins prior to actual displacement, because new investments in infrastructure and services in condemned areas are discontinued long before projects start. Partial but significant loss of farming land (e.g., to roads or canals) renders some small farms economically nonviable, even though physically they may seem to survive. High-productivity farmers from fertile valley-bottom lands tend to become marginalized when moved uphill to inferior soils. Marginalization also occurs through the loss of off-farm income sources, as found in the Nepal Kulekhani Hydroelectric project (Bjonnes 1983, Pockharel 1995) and in Sri Lanka's Kotmale project (Soefstetad 1990).

For urban resettlers, marginalization is sometimes gradual and may occur after relocation, when, for example, resettlers receive temporary jobs (instead of land) that, in the long term, turn out to be unsustainable as income sources. Government agencies also tacitly accept lasting marginalization of resettlers when they consider it "a matter of course" that the displaced cannot restore their prior standards of living.

### ***Food Insecurity***

*Forced uprooting increases the risk that people will fall into temporary or chronic undernourishment, defined as calorie-protein intake levels below the minimum necessary for normal growth and work.*

Food insecurity and undernourishment are both symptoms and results of inadequate resettlement. During physical relocation, sudden drops in food crop availability and incomes are predictable. Subsequently, as rebuilding regular food production capacity at the relocation site may take years, hunger or undernourishment tends to become a lingering long-term effect. Green (2000) provides an extensive overview of the food-related risks for both refugees and resettlers, notwithstanding significant differences between them. In turn, Hakim (2000) documents these risks and consequences in her insightful analysis of the resettlement of Gujarat's Vasava tribe, which was compelled to shift from food crops to cash crops. Convergent findings are reported from virtually all sites. The adverse effects of the Manantali Dam and water-regime management in Senegal were described precisely with the concept

“development-induced food insecurity” (Horowitz and Salem-Murdock 1993). At Sri Lanka’s Victoria dam project, some 55 percent of resettled families were still receiving food stamps even after a long period (Rew and Driver 1986). Because the area of cultivated land per capita in the Bailiamba reservoir in China decreased from 1.3 mu to only 0.4 mu after relocation, local food production became insufficient, and 75,000 tons of annual food relief had to be provided for several years. Nutrition-related risks reinforce morbidity and mortality risks (see further) and largely depend on whether the primary risks of landlessness and joblessness are effectively counteracted.

### ***Increased Morbidity and Mortality***

*Massive population displacement threatens to cause serious declines in health levels. Displacement-induced social stress and psychological trauma are sometimes accompanied by the outbreak of relocation-related illnesses, particularly parasitic and vector-borne diseases such as malaria and schistosomiasis. Unsafe water supply and improvised sewage systems increase vulnerability to epidemics and chronic diarrhea, dysentery, etc. The weakest segments of the demographic spectrum—infants, children, and the elderly—are affected most strongly.*

Empirical research shows that displaced people experience higher levels of exposure and vulnerability to illness and severe disease than they did prior to displacement. An unintended byproduct of large infrastructure programs is often increased morbidity also among area groups that are not displaced. Overall, in the absence of preventive health measures, direct and secondary effects of dislocation include psychosomatic diseases, diseases of poor hygiene (such as diarrhea and dysentery), and parasitic and vector-borne diseases caused by unsafe and insufficient water supplies and unsanitary waste systems. In Sri Lanka, an outbreak of gastroenteritis occurred along the Victoria dam reservoir (Rew and Driver 1986), and in Mahaweli’s System C resettlement site the incidence of malaria rose from 8.9 percent to 15.6 percent (Jayewardene 1995). In the Akosombo area in Ghana, the prevalence of schistosomiasis rose from 1.8 percent prior to resettlement to 75 percent among adult lakeside dwellers and close to 100 percent among their children, within a few years after

impoundment in the 1960s. The Foun-Gleita irrigation project in Mauritania exceeded its anticipated increase of schistosomiasis, reaching 75 percent among schoolchildren; farmers' health also worsened from drinking contaminated water. At Nam Pong reservoir in Thailand, monitoring confirmed that local rates of morbidity-from liver fluke and hookworm infection-were higher than provincial levels, the result of deteriorated living conditions and poor waste-disposal practices.

The interaction between two processes included in the risk model-decrease in health and loss of shelter-has been long established empirically. Research has documented that more vulnerable groups, such as the aged, suffer increased morbidity and mortality rates as an effect of losing their prior homes (Ferraro 1982, Borup and assoc. 1979). Exposure to the "social stress" inherent in forced relocation was highlighted as having differential consequences on mental health across age, gender, and marital and occupational status (Scudder and Colson 1982, Scudder 1985; Turner and Associates 1995; see Appell 1986, for original suggestions on measuring social stress).

Increased mortality rates are reported also as a result either of accidents associated with new reservoirs or epidemic outbreaks around new bodies of water. Lack of proper information and precautionary measures resulted in more than a hundred deaths by drowning at Saguling Dam Lake (Indonesia) during the first 14 months of operation. At Cirata reservoir (Indonesia), 10 people drowned in the first 10 months after impounding (Padjadjaran University 1989).

### ***Loss of Access to Common Property and Services***

*For poor people, particularly for the landless and assetless, loss of access to the common property assets that belonged to relocated communities (pastures, forested lands, water bodies, burial grounds, quarries, etc.) results in significant deterioration in income and livelihood levels. Typically, losses of common property assets are not compensated by governments. These losses are compounded by loss of access to some public services, such as school (Mathur 1998; Mahapatra 1999a, 1999b), losses that can be grouped within this category of risks.*



Kibreab (see this volume) offers a documented conceptual analysis of the linkages between common property resources (CPRs), poverty, and impoverishment risks. Given typical power structures and the vulnerability of the displacees, Kibreab demonstrates that the loss of CPRs has ravaging long-term consequences on their livelihoods and social standing. Empirical evidence shows that in all regions a significant share of the poor households' income comes from edible forest products, firewood, common grazing areas, and public quarries. Loss of these resources leaves a big gap. For example, in semi-arid regions of India, between 91 and 100 percent of firewood, between 66 and 89 percent of domestic fuel, and between 69 and 80 percent of poor households' grazing needs are supplied by lands held under a common property regime (Sequeira 1994). A study of seven projects causing displacements between 1950 and 1994 in Orissa, India, has found that no compensation has been paid for common properties by any of the projects (Pandey and Associates 1998). In the Rengali Dam area in India, prior to displacement all families had access to common grazing lands and burial grounds; after relocation, only 23.7 percent and 17.5 percent, respectively, had such access.

When displaced people's access to resources under common property regimes is not protected, they tend either to encroach on reserved forests or to increase the pressure on the common property resources of the host area's population. This becomes in itself a new cause of both social conflict and further environmental degradation.

### ***Social Disarticulation***

*Forced displacement tears apart the existing social fabric. It disperses and fragments communities, dismantles patterns of social organization and interpersonal ties; kinship groups become scattered as well. Life-sustaining informal networks of reciprocal help, local voluntary associations, and self-organized mutual service are disrupted. This is a net loss of valuable "social capital," that compounds the loss of natural, physical, and human capital (discussed previously). The social capital lost through social disarticulation is typically unperceived and uncompensated by the programs causing it, and this real loss has long-term consequences.*

Dismantled social networks that once mobilized people to act around common interests and to meet their most pressing needs are difficult to rebuild. This loss is greater in projects that relocate families in a dispersed manner, severing their prior ties with neighbors, rather than relocating them in groups and social units. A detailed sociological study by Behura and Nayak (1993) on a dam project in India found various manifestations of social disarticulation within the kinship system, such as the loosening of intimate bonds, growing alienation and anomie, the weakening of control on interpersonal behavior, and lower cohesion in family structures. Marriages were deferred because dowries, feasts, and gifts became unaffordable. Resettlers' relationships with non-displaced kinsmen were eroded and interaction between individual families was reduced. As a result, participation in group activities decreased; post-harvest communal feasts and pilgrimages were discontinued; and common burial grounds became shapeless and disordered. A monograph on the Hirakud dam in India found that displaced households whose "economic status had been completely shattered as a result of displacement" did not become "properly integrated" in host villages for many years after relocation (Baboo 1992). "The people may physically persist, but the community that was-is no more" (Downing 1996a), because its spatial, temporal, and cultural determinants are gone. Historians of migration have also concluded convergently that the costs of population relocation generally go much beyond "simply the financial costs": among the "heaviest costs of all are the severing of personal ties in familiar surroundings, to face new economic and social uncertainties in a strange land" (Sowell 1996). Poverty becomes not just an absence of income and assets-such as land, shelter, food: The loss of reciprocity networks directly worsens the corollaries of poverty-powerlessness, dependency, and vulnerability.

### **Differential Risk Intensities**

The major impoverishment risks, identified and described above, must be seen in their interconnectedness, as a pattern of variables. They affect populations frequently described as being risk-averse. Yet this heavy knot of risks is forced upon them beyond their choice. Affected people must deal with these risks virtually simultaneously, as a patterned situation, not just one at a time. The result is a crisis.

Depending on site circumstances, sector (urban or rural), and season when displacement occurs, the intensity of the individual risks varies; at times, one or another risk may even not be experienced by a particular subgroup. Conversely, other risks, site-specific, may emerge. The individual situation is always richer and somehow different from the general pattern. But the general model is present in all situations, despite variations. What is fundamental for positing the problem theoretically and in policy terms is that forced-displacement situations intrinsically contain a basic risk pattern.

To exemplify variance, we note that gender-oriented analysis revealed that women suffer more severe impacts (Feeney 1995, Koenig 1995, Pandey 1998). Agnihotri (1996) signals blatant discrimination against women in compensation criteria: For instance, entitlement to land compensation for unmarried individuals is set in Orissa at age 18 years for men, but age 30 for women! A comprehensive review of the worldwide evidence on indigenous and tribal groups affected by forced resettlement (Colchester 1999) has demonstrated definitively that such vulnerable groups are much more prone than the general population to impoverishment hazards of the kind discussed above. And insightful field research has empirically documented *why* this is happening by explaining the causes of the particular vulnerability of these populations (Fernandes 1991, 2000; Mahapatra 1994; Nayak 2000).

Children, as an age category, are subject to particularly perverse consequences. Elaborating on the risks and reconstruction model in light of evidence from India, Mahapatra (1999a) suggests that “to the eight-fold impoverishment risk model one may add the educational loss affecting children.” Relocation often interrupts schooling and for some of these children it means that they never return to school. After displacement, as a result of drops in family income, many are drafted into the labor market earlier than what would have otherwise been the case. Differences characteristic to particularly vulnerable groups clearly call for directly targeted responses.

### **Risks to Host Populations**

Host populations are a major actor with a stake in good resettlement, particularly within mass displacements by either development programs or conflicts. Recognizing the

specific risks to hosts is integral to using the risks and reconstruction model and approach.

Obviously, risks to hosts are not identical with the risks to displacees, in substance or intensity, but are related to them and may also result in impoverishment implications. The inflows of displacees increases pressure on resources and scarce social services, as well as competition for employment. Prices of commodities tend to rise and health risks in the host area increase. Cultural clashes (in non-homogeneous areas) are quite likely, and social tensions tend to endure long. Secondary adverse effects on the environment hurt both the hosts and the displacees.

The most effective safeguard for the hosts' interests is an adequately designed and financed recovery plan for the resettlers. The project-planning stage, when relocation sites and host-area populations are identified, is the appropriate time for considering not only the risks to displacees but also the risks to hosts. Experience has proven that, when special opportunities are made available to displacees, it is wise to allow hosts as well, whenever possible, to share such opportunities. This minimizes tensions and competition between the two populations.

In sum, the IRR model captures a broad range of hazards-not only the economic risks, but also the social and cultural ones. It introduces a view on resettlement that reveals the causal mechanisms of impoverishment, its main processes and dimensions. These include income and non-income dimensions of impoverishment, such as assets impoverishment, housing impoverishment, health, nutrition and educational impoverishment, loss of organization, and powerlessness. During displacement, people lose capital in all its forms-natural capital, man-made capital, human and social capital. Actions to safeguard against such capital losses are indispensable, but more than only safeguarding is required. We conclude therefore that reconstructive strategies must be *multidimensional*, taking the form of a comprehensive and systematic resettlement program. This is reflected in the second part of the IRR model, which reverts and converts the risks-pattern analysis into a reconstruction-pattern strategy.

## **The Basic Processes of Livelihood Reconstruction**

The fundamental question to answer now is if the resettlement model can help *predict* and *diagnose* the risks of displacement, can it also guide problem resolution?

The answer is affirmative. The risks and reconstruction model complements its risk diagnosis with an explicit framework for the socioeconomic reestablishment of those displaced. The model is not just a predictor of inescapable pauperization; it is a guide toward counteracting the risks and resolving the problems that displacement creates. The risk model has to be read “in reverse,” turned on its head, and thus it maps the way for reconstructing the livelihoods of those displaced, as will be shown further.

### **Risk Reversals: The Model as Self-Destroying Prophecy**

Robert K. Merton has convincingly demonstrated that the prediction of an undesirable outcome may act as a “self-destroying prophecy” (Merton 1979). It follows that a risk prediction model becomes maximally useful *not* when it is confirmed by adverse events, but, rather, when, as a result of its warnings being taken seriously and acted upon, the risks are prevented from becoming reality, or are minimized, and the consequences predicted by the model do not occur. The predictive-cum-planning capacity of the impoverishment risks and reconstruction model results from the forewarning virtue of the knowledge “packaged” in it. This is how the IRR model “contributes” towards destroying its own prophecy.

Risk recognition is crucial for sound planning. More than offering a general warning, the proposed model serves as matrix for on-the-ground assessment of how the general risks would vary in each local context. It helps identify the specific configurations of displacement risks for each given population. Such on-the-ground risk assessments can-and, in fact, must-lead directly to the planning of counter-risk activities. Use of this model as a tool for project preparation and actual planning of resettlement has been already reported from the field.

As mentioned earlier, the internal logic of the IRR model suggests that to

prevent and overcome the patterns of impoverishment it is necessary to act in time to attack the risks and stop them from becoming reality. Risk identification is not an exercise carried out for academic purposes: it is carried out to *design for action, for risk-reversal*.

Reversing the risk model indicates which directions the action for safeguarding, reconstruction, and development should take. For instance, to prevent landlessness in the wake of displacement, land-based resettlement must be conceived before displacement even begins (relying on options that are likely to fit local land-contingencies). To prevent homelessness, the house-reconstruction program can and must also be designed in advance; it would include not a single method but rather various approaches acceptable to resettlers; and so on.

To formulate this idea more generally, we can say that the IRR model conveys two basic messages: a policy message and a strategy message.

The major policy message embodied in the model is that the general risk pattern inherent in displacement *can be controlled through a policy response* that mandates and finances integrated problem resolution. But this pattern of interlocked risks *cannot* be controlled by piecemeal palliatives.

The strategy message embodied in the model is *that specific resettlement programs* (plans) are required each time, in order to build the bridge from the general risk model to the particular resettlement circumstances and to mobilize concerted actions by interested institutions and social groups. Single means-for instance, just cash compensation-do not respond to all risks. Compensation alone is not a substitute for the absence of strategy and full-fledged resettlement programs.

While it is incumbent upon the state to pursue a policy of recovery and allocate needed resources-financial, organizational, technical, etc.-it would be unrealistic to conceive of reconstruction only as a top-down, paternalistic effort, without the participation and initiative of the displaced people themselves. The required strategy is not a one-actor strategy, for the state alone; rather, it is an all-actors strategy. Despite the

polarized situation to be expected a displacement context, the participation of all relevant actors (resettlers, local leaders, non-governmental organizations, host populations) in reconstruction is indispensable.

Financial and technical means for post-displacement reconstruction differ, of course, between development-caused resettlement and conflict-caused refugee situations. In development-induced displacements, the state is accountable and amenable to provide resources for reconstruction; however, this is not the case when it comes to refugees. Yet, similarities exist: The essential components of reconstruction defined in the model are the same, and such similarities create terrain for experience transfer between post-conflict assistance and development-caused resettlement.

### **The Components of Reconstruction**

The primary objective of any induced involuntary resettlement process should be to prevent impoverishment and to reconstruct and improve the livelihood of resettlers. In further examining the components of this reconstruction, we will follow a slightly different sequence than in the earlier discussion of risks. First, we will address the basic economic variables-land and employment-then, those referring to community reconstruction, housing, and social services.

### ***From Landlessness to Land-Based Reestablishment; and from Joblessness to Reemployment***

Settling displaced people back on cultivatable land or in income-generating employment is the heart of the matter in reconstructing livelihoods. Success tends to be correlated with several options, such as identifying equivalent lands; bringing new lands into production through land recovery; crop intensification or a shift to more valuable crops; diversification of on-farm/off-farm activities; and use of project-created productive resources such as reservoirs, irrigated areas downstream, etc. Investments for creating sustainable new employment in the relocation zone are essential as well.

Agricultural land-settlement schemes have been frequently employed in Africa for creating a new productive basis both for resettlers and refugees. Lassailly-Jacob

documents and compares such experiences in this volume (see also 1994, 1996; Eriksen 1999). In very densely populated areas, land scarcity requires creative approaches. To overcome land scarcity around the Shuikou Dam (China) project officials made a bold effort to convert unproductive hillsides and steep uplands around the reservoir into flat terraces for horticulture or into forested areas. Project-paid mechanical equipment was used for land recovery on a vast scale. Orchards were planted several years in advance of resettlers' relocation, so that trees were close to fruit bearing at relocation time. The approach resulted in some 53,000 mu of fruit trees, 10,000 mu of tea plantations, 26,000 mu of bamboo trees, and more than 200,000 forest trees. This intensified agriculture, and changes in cropping patterns provided new land, work, and livelihood for about 20,000 resettlers. Their average income from the new crops is actually higher than the level anticipated in the project's original resettlement plan. Significantly, this improvement in the resettlers' economic situation occurred even though, on a per capita basis, farmland was reduced in the area from 0.98 mu to 0.32 mu. Complementary strategies and diversification benefited the remainder of Shuikou's resettlers; these included animal husbandry, including duck raising and reservoir fishing (6 percent of resettlers), jobs in the service sector and transportation (13.4 percent), jobs in new enterprises (19.3 percent) (World Bank/OED 1998). Resettlers' initiative in Saguling (Indonesia) saved the fertile topsoil about to be lost in the reservoir area, moving it to upland plots and increasing fertility (Costa-Pierce 1996).

Throughout the developing world empirical evidence confirms that replacing land with land-or in the terms of our model, "land-based resettlement"-is by far a more successful strategy than compensation in cash, which most often fails to lead to income restoration, let alone betterment. In addition, systematic field studies (McMillan and assoc. 1998) have demonstrated that if provided alone, new land is not enough for achieving success even in the case of voluntary settlement. Technical assistance and favorable social policy measures must accompany land-based resettlement.

Project support, combined with resettlers' initiative and resources can turn the loss of land into an opportunity for "farming the waters," in other words, for organizing fish farms in the new reservoirs. Through aquaculture many new reservoirs have been



successfully turned into income sources. In Mexico's Aquamilpa reservoir area, fishing represented a mere 4.1 percent of productive activities among those to be affected in 1989 by the reservoir. But, by 1995, about 60.8 percent of that population was engaged in fishing activities. In the Cirata reservoir area (Indonesia) cage aquaculture workers earned about Rp. 56,000 more a month than rice field workers in the same area before the dam construction (Costa Pierce 1996).

The creation of national parks and biosphere reserves has repeatedly brought the threat of displacement to the door of resident people. Once again, virtually each empirically described case shows that problem resolution depends primarily on resolving land and employment issues. While eviction from traditional lands has been typically disastrous to those affected (West and Brenchin 1991), the few successful cases of physical relocation, such as that of the Mololtoja National Park in Swaziland, are those where good alternative lands had been allocated to the residents in a culturally sensitive manner (Ntshalintshali and McGurk 1991). These cases again confirm the centrality of land for productive reestablishment. An alternative for avoiding eviction is to combine recognition of land rights with employment creation in conservation works, helping resident groups to gain a vested interest in preservation as an income-generating source for themselves (Raval 1991, Wells and Brandon 1992).

Training resettlers in new skills is an effective strategy only if accompanied by actual employment resulting from firm market demand for new skills or from new investments. In the Dudichua Coal Project in India, 225 of 378 farmers displaced by the new mine were retrained and employed (one job per family), attaining earnings about eight times the average rural wage (World Bank 1995d). With limited project support, a group of brickmakers in Argentina (Yacyretá Project) has succeeded handsomely in resuming productive activities and improving their incomes (Mejia 1999, 2000). There are important unresolved dilemmas, however, regarding land-based reestablishment not addressed even in otherwise detailed policies, such as the issue of squatters or of the abuses in the overuse of the eminent domain principle. By definition, urban "squatters" reside on public lands, such as reserves of "right of way" lands and other public lots, often with the tacit acquiescence of municipal authorities. Squatters are also among the

poorest groups of people. When such lands are needed for new projects, displacing squatters forcibly without providing an alternative location aggravates their poverty and only pushes them to become squatters elsewhere. Solutions that alleviate their condition, without encouraging squatting by others, are not easy and need policy and legislative elaboration.

A controversial issue is also the unlimited application of the eminent domain principle. There is much merit in the argument that, when large amounts of land must be given up by their historic owners for new and promising developments, these land owners should become direct co-owners of the new developments, and co-beneficiaries for as long as the new development remains productive. Or, alternatively, rather than expropriating such owners *en masse*, the state could offer them the option of creating a leasing corporation that will maintain ownership of the land but would lease it to the project for, say, 99 years, or for the duration of the new development. This will make unnecessary the imposition of eminent domain, with its dire result of sudden land dispossession and likely chronic impoverishment. The trade-offs involved in such options (and in others) for all concerned, need to be weighed carefully, with flexibility for choosing them when appropriate and without the rigidity of pre-imposed recipes.

Another excellent option for recovery and *improvement* is resettling reservoir-displaced farmers on land newly irrigated downstream. Nonetheless, it is rarely used. Some states in India (Madhya Pradesh, Gujarat, and others) try to relocate oustees into command areas by enacting land-ceiling laws for newly irrigated land, a good administrative solution that should be reinforced by gaining the cooperation of command-area farmers. Overall, the combination of providing land and employment opportunities is an important strategy for recovery, particularly in those situations where neither one alone-land or employment-can ensure the full use of the labor resources of resettled families.

### ***From Homelessness to House Reconstruction***

Better shelter conditions are one of the relatively easy-to-achieve improvements in resettlers' livelihoods. However, this is much more difficult, in the case of refugees

deprived of any compensation for their lost dwellings and assets.

From empirical research worldwide we distinguish at least two findings common in many cultures. First, it is repeatedly confirmed that impoverishment through worsened housing can be effectively prevented through fair recognition of housing reconstruction costs in the displacing project's budget. Second, throughout the world, resettlers tend to display a strong propensity to improve their living standards over past levels: They do so through incremental investments in kind (labor) and cash. Even amid the bleakness of uprootedness and the anger caused by low compensation, the immediacy of the need for family-shelter and the deep-seated aspiration for better lives often coalesce in an all-out effort to build, against all odds, larger and more durable homes. Resettlers use different strategies for this: mobilizing family labor, organizing mutual help, taking out loans to complement the compensation, shifting parts of the compensation for land towards home-building, and staggering reconstruction-laying out first foundations for larger houses and rebuilding them in stages, as the family masters resources and time.

Abundant empirical evidence about resettlers' investment behavior indicates that many use a part of the cash compensation received for their productive assets towards housing. They spend more than the house compensation proper for rebuilding a better dwelling than they had before.

Actual improvements in family housing take one or more of the following forms: more square footage per capita; better quality housing materials, particularly for roofing; connection to services (electricity, water); safer sanitation facilities; space for house gardens; and others. Typical constraints on house reestablishment processes are longer average commuting distances and transportation costs in urban areas, affordability issues and long-term loan (mortgage) burdens, and differential entitlements for the housing of former squatters.

Gains in living standards through improved housing conditions, rather than just "restoration," have been documented in numerous projects: in Argentina, by the initial cohorts of resettlers from Yacyretá Dam; in Nepal, by the majority of those displaced by

the construction of the Kali Gandaki dam and its access road (Khodka 1999, Sapkota 1999); in China, by those displaced by the Shuikou dam, for a total of additional 600,000 square meters, i.e., about 25 additional square meters per family (World Bank/OED 1998); in Kenya, by the resettlers from the Export Development project (World Bank 1995a); among others. In Shanghai, families displaced by a Sewerage Project were able to choose between state apartments offered for rent or private apartments made available to resettlers at only one-third of the construction cost (see also Reddy 2000, for the reconstruction of urban dwellings in India). Field studies have reported innovative approaches employed in house reconstruction, such as vouchers in the Republic of Korea. Daily transportation of resettlers by project vehicles to new sites in Togo's Nangbeto Project enabled them to expand the project-supplied core house-unit for each family, by adding additional rooms. In sum, evidence worldwide confirms that homelessness is not an unavoidable risk of impoverishment; in fact, house reconstruction allows room not just for restoring prior standards of living, often very low, but for reconstructing at improved levels.

***From Disarticulation to Community Reconstruction; from Marginalization to Social Inclusion; and from Expropriation to Restoration of Community Assets/Services***

The reconstruction of communities, networks, and social cohesion is essential, yet seldom is it deliberately pursued in current government approaches. Planners tend to overlook these sociocultural and psychological (not just economic) dimensions, and are rarely concerned with facilitating reintegration within host populations or compensating community-owned assets.

The above three dimensions are partly distinct and partly overlapping. The reason for grouping them is to emphasize that manipulating model variables can achieve synergistic effects in reconstruction programs intent on using this potential synergy. Community reconstruction refers to group structures, including informal and formal institutions, while overcoming marginalization refers primarily to the individual family/household level. On-the-ground approaches would differ when villages or neighborhoods are created as *new social units* that need community assets and public

services, or when *fill-in operations* insert scattered resettlers within preexisting communities, increasing pressure on existing services and host-owned common resources.

Recreating community structures and community-owned resources is a complex endeavor that cannot be accomplished overnight. Research on the Mahaweli resettlement program in Sri Lanka (Rodrigo 1991) has concluded that the *initial* allocation of resources to resettlers, including access to common property resources is virtually decisive for resettlers' successful "take off" at the new site. If access to resources is below a critical limit (on a per-family or per-capita basis) the take off is jeopardized, but if it provides a minimal but viable basis, post-resettlement development can build upon it and be successful. Thus, because of its incrementality over the family-owned resources, the access to community-owned resources, in some form or another, often becomes critical for overall successful reconstruction. Findings elsewhere have confirmed this conclusion.

Some of the most interesting experiences in the deliberate preservation of community structures or assistance for the formation of new community networks are reported from China, Ethiopia, Greece, and Mexico. By law, project authorities in China must negotiate with displacees simultaneously as individuals and as community groups. The government resources for financing resettlement are divided in some proportion between households (for individual family purposes) and community bodies represented by township committees (for group purposes). Community-owned assets lost in displacement are valued and financially compensated by the state to enable the reconstruction of the same, or of comparable, community assets, which contribute to the livelihoods of resettlers (Shi and Hu 1994). Thus, by design, some patterns of the social organization of the displaced village are empowered to have a function in resettlement, and thus to continue their existence and role. Furthermore, the Chinese approach is also unique in that it fosters community solidarity in sharing some of the losses (particularly land) and requires some redistribution of non-affected village lands used by the non-displaced farmers to the village members who are displaced and lost land.

Enabling the rebirth of community institutions is paramount for successful resettlement and livelihood reconstruction. From Ethiopia, Woldeselassie (2000) reports the profoundly positive effects of restoring religious village associations and customs after displacement. Organized collective help to the most vulnerable and marginalized community members accelerates re-inclusion. And the experience of Greek resettlers, as analyzed by Hirschon (2000) shows that in re-articulation and reintegration processes, common cultural values can overcome material deprivations, economic disadvantage, and inadequate physical provisions. Thus, community re-articulation is not necessarily a function of regaining economic wellbeing, it can precede it. Mexico's Aquamilpa resettlement program not only restored prior community services, but also built several new community facilities (Johns 1996). Such experiences are precious especially because the restoration of access to community resources tends to occur less frequently than the replacement of private assets, leaving room for competition and conflict between resettlers and hosts. Overall, all these three facets of the reconstruction processes require institution building and concurrence from the host area population.

***From Food Insecurity to Adequate Nutrition; and from Increased Morbidity to Better Health Care***

Nutrition levels and health will depend in the long run on progress in resettlers' economic recovery (see above, land and/or employment). But in the short run, reconstruction requires that sudden disruptions in food supply and risks to health and life are arrested through immediate counteraction, even before full economic reconstruction is undertaken. Borrowing from successful experiences of organized assistance to refugees (emergency relief) can be highly effective for offsetting immediate nutritional and health risks to resettlers and for focusing on most vulnerable groups (children, the elderly, pregnant women, etc.). Sustainable reconstruction, however, requires long-term planning as well, beyond immediate relief measures, together with information and education, to foster needed changes in resettlers' behavior and their ability to cope with the circumstances of the new habitat.

Existing evidence indicates that the food scarcity risks are more readily

recognized by resettlement agencies than the health-related risks incurred by resettlers. Long-term planning is seldom done. Resettlers' coping response tends also to address first the immediately perceivable food needs. A World Health Organization (WHO) study of four countries in the lower Mekong basin (Thailand, Vietnam, Laos, and Cambodia) showed that the most effective long-term strategy for reducing the adverse health impacts of dam reservoirs is institution building in the health and sanitation sectors. The study recommended that all four countries incorporate "a human health component into all integrated river basin development projects" as a safeguard against higher risks of morbidity and mortality (Mather, Sornmani and Keola 1994). Togo's Nangbeto Dam project offered a replicable example of such good practice: It introduced a continuous health-monitoring studies program throughout the construction years. This helped protect the resettlers' and host population's health (Michard, Adam and Aziablé 1992).

The constitutive elements of livelihood reconstruction have been addressed above in sub-clusters, and it is important to repeat that the model inherently emphasizes their interdependence. Therefore, optimizing the reconstruction strategy requires pursuing these directions simultaneously, with internal priorities dictated by local project circumstances.

Overall, the reconstruction part of the IRR model provides the broad chart for pursuing the reestablishment of resettlers along several clear indicators. The evidence quoted demonstrates that

- (a) Impoverishment risks can be successfully attacked and reversed;
- (b) Livelihood reconstruction, however difficult, is feasible along the specific directions identified; and
- (c) The body of replicable positive experiences is growing continuously.

### **Necessary Improvements in Current Resettlement Practices**

How does the IRR model compare to today's mainstream practices in involuntary

resettlement operations generated by development projects?

Evidence indicates that the IRR framework is in some important respects ahead of current mainstream practices, and its wider adoption would significantly improve standards and performances. It brings a set of new elements, different from conventional approaches and methods. It builds upon the more advanced scholarly analyses of resettlement to date and proposes to development programs an improved way of diagnosing, costing, planning, financing, and implementing resettlement. This can substantially correct many of the current analytical flaws and implementation weaknesses, widely and legitimately criticized.

The model is fully compatible with the most advanced resettlement policies in existence today and offers a methodology capable to vastly increase consistency and effectiveness in the implementation of these policies. The World Bank's policy guidelines in resettlement, adopted first in 1980 (and formally strengthened in 1986, 1990, and 1994) have been gradually adopted, in essence, by other organizations, such as the aid agencies of the Organization for Economic Cooperation and Development (OECD) countries (OECD 1992), the Asian Development Bank (ADB) (ADB 1995), and others. Yet more institutional emphasis and incisive monitoring are required for their consistent application. For instance, the economic analytical methodology employed in the preparation of projects under these guidelines is often operationally inconsistent with the guidelines themselves leaving ample room for cost externalizations and very incomplete risk analysis. The impoverishment risks analysis methodology is still to be generalized in such projects, including many co-financed by the World Bank, ADB, or OECD donor agencies. For the vast majority of developing countries, and some developed countries, which do not have any explicit policy for involuntary resettlement, the IRR model can serve as one of the building blocks for formulating such overdue policy guidelines.

As a planning and monitoring tool, the IRR has started to be used in the last four to five years in a number of projects in various countries. From India and Philippines, its use has been reported in resettlement preparation and planning (Thangaraj 1996, Spiegel



1997). Others have used the model in field supervision of resettlement operations and in project implementation monitoring work (Downing 1996a, 1996b; Sapkota 1999). For Lesotho, Scudder has developed operational indicators for measuring impoverishment risks and their actual impacts under the country's large Water Engineering project (Scudder 1999). A workshop of resettlement planners and practitioners from various states of India explored the model's planning potential, with analytical contributions reported in detail in Mathur and Marsden's book (1998).

For the most part, however, the risks of impoverishment are currently not addressed explicitly and systematically during the planning of very many projects that cause displacement. This occurs frequently in domestic projects that are not subject to in-depth and multisided screening; but to a considerable extent it has also been true in projects assisted by various bilateral or multilateral donor agencies or by credit-export entities.

The IRR model is to be used in conjunction with other analytical project tools, and it can help correct and improve some of them. We emphasize primarily the need to correct three entrenched flaws in the routine methodology of planning for such projects, flaws that account for the recurrent undertreatment of impoverishment risks. These include:

- (a) The flaws and incompleteness of the conventional methods for project risk analysis;
- (b) The over-reliance of project justification on the cost-benefit analysis (CBA) despite its glaring insufficiencies; and
- (c) The absence of genuine consultation and involvement of the affected populations.

A few comments on each one are in order.

**Flaws in Conventional Risk Methodology.** Formal "risk analysis" is a subset of project economic and financial preparation methodology, and is carried out routinely.

Yet the risk that displacement inflicts upon affected people are not part of the routine risk and sensitivity analyzes carried out by planners during project economic and financial analysis.

Conventional project risk analysis evaluates the sources and magnitude of risks that may adversely influence the rate of return to project investments. It estimates the switching values of key variables (such as duration of project implementation, cost overruns, availability of local co-financing) and the sensitivity of the project's net present value to possible changes in these variables. A sensitivity analysis is usually carried out for each one of these variables because they can threaten project outputs and the returns to investors. When necessary, the sensitivity tests are developed into alternative project scenarios and contingency actions, all in the effort to minimize financial risk and maximize returns to investments.

But risks to the people affected by the project are not part of the conventional economic risk analysis. While conventional project economic analysis and sensitivity tests are generally designed to identify, estimate, and help prevent the major risks to projects' rates of return and to project investors, they are not designed to also identify and measure the risks posed by the project to the other project stakeholders such as those displaced. This, quite simply, is a basic flaw in the pattern of current project risk analysis. The methodological bias is obvious: While risks to project investors, and to the invested capital, are analyzed and weighed carefully, the risks posed by the project itself to some of the project population, such as the displaced groups, are not subjected to similar rigorous, explicit, and systematic analysis. The risks resulting from displacement are only indirectly risks to investments and they remain out of the "classic" type of investment-risk analysis. This conflicts with the goal of safeguarding people's interests and welfare. It conflicts also with the general policy objective of reducing poverty.

The conclusion, therefore, is that the conventional project risk analysis must be substantially reformulated and broadened, to cover risks to affected people, who are stakeholders in these projects. In other words, project risk analysis must *explicitly* include the risks of impoverishment highlighted in the IRR and design insurance

measures, as well as, to the extent possible, risk safeguards and social safety nets.

The optimal response to predictable impoverishment risks is to search for project alternatives that could eliminate altogether the need to displace people, or could at least reduce the number of displacees. Such alternatives are sometimes technically feasible: for instance, by modifying the routing of a planned highway to circumvent existing settlements; by changing the location of a dam; or by reducing the dam's height. When it is not possible to fully avoid displacement, however, policymakers and planners are guided by the model to conceive special measures targeted against each of the predicted impoverishment risks. These measures could be of an economic, financial, technical, legal, or cultural nature. They should be commensurate with risk intensity. An experienced planner would identify which risks loom larger in each case, how they interact, and which to counteract first to achieve positive chain effects.

**Why Cost-Benefit Analysis is Incomplete.** Further, the overreliance on cost-benefit analysis to justify projects that cause displacement is another fundamental source of mistreatment of the impoverishment risks inherent in such projects. CBA is utterly insufficient because it is only a macroeconomic tool that does not explore *the distribution* of either costs or benefits *among project stakeholders*.

The cost-benefit methodology justifies project investments by determining that the *aggregate* of a project's benefits outweighs the sum of project costs by an acceptable margin. But this justification is not sufficient for several reasons. First, losses and harm caused to the displaced individuals are not compensated by the aggregate benefits of development, because the distribution of these benefits is not tailored accordingly. The displacees are seldom among the direct beneficiaries of such projects. Because the CBA method cannot predict and channel the allocation of a program's future benefits with reasonable certainty, the wholesale accounting of costs and benefits covers up a morally fallacious and haphazard distribution of these benefits. Second, the real losses and full costs of displacement are typically not valued and measured properly. Therefore, they are not included and accounted for fully in projects' CBAs.

As the economic justification of projects is based on cost-benefit analysis,

compensation levels tend to be brought down as much as possible to obey the cost-minimizing commandments of CBA. The frequent response to displacement, therefore, is to pay the least compensation possible, to externalize a large part of real costs, and to abandon the displaced people to fend for themselves after being uprooted. Even though this response has allowed impoverishment to run rampant in so many cases, it continues to be practiced widely.

The analysis of capital losses (physical, natural, human, and social capital) in the first part of this chapter documented many of the socioeconomic costs that are routinely overlooked under current procedures. A large part of these real costs is treated as “externalities” in current costing practice. Externalized out of projects’ budgets, these costs are left to be borne by those who suffer the displacement. This is why the “justification” of costs to individuals through aggregate cost-benefit accounting is logically crude, and glosses over the real impoverishment impacts. It devalues individuals’ losses and leaves many negative socioeconomic effects unaddressed.

The fact that development projects often produce real long-term gains for beneficiaries does not make the uprooting less painful for the displacees. In real-life terms, personal costs are neither fully subtracted from the aggregate benefits, nor paid for by the project’s beneficiaries. These costs are covered only in small part by the meager compensation for expropriated assets and are borne in disproportionately large part by the population group victimized in the name of the “greater good for the greater numbers.” This kind of spurious rationality conflicts with social justice. It vitiates both development philosophy and planning practice. Moreover, tolerance vis-à-vis this incomplete methodology in project economic analyses also does not encourage planners to seek genuine alternative solutions. In sum, the CBA methodology, and its distorted application, are responsible for unnecessary tolerance of risks and, by omission, the magnification of perverse effects which otherwise could be counteracted.

To overcome the incompleteness of CBA, explicit distributional analysis should be introduced as mandatory in the methodology of development projects. Projects that involve displacement are a special sub-category of projects, more complex in their

effects than others, and they should therefore include a special economic and financial analysis, distinct from CBA. This analysis must be focused on distribution. The “equity compass” requires that *cost and benefits be calculated distinctly for each population category affected, positively or negatively* (rather than indiscriminately for the society at large or for the project as a whole). This requirement flows from the principle that *differential* impacts must be recognized. This is, in fact, the principle that led to adopting safeguarding policies, such as the resettlement policy. This principle should therefore be translated in analytical economic methodologies able to make such differentiation.

The survival of improper methodologies for costing resettlement is due in many countries to the absence of national (domestic) policy and legal frameworks that define the rights and entitlements of people affected by state-imposed displacements or private-sector investments that cause displacement. Within such policy vacuums, arbitrariness easily sets in. Instituting equitable policies, as well as revising outdated policy provisions affecting resettlement (e.g., land acquisition, eminent domain law, and others) needs to occur through a process of open public debate on development’s goals and means, so that not only procedures but also entrenched mindsets among decisionmakers, politicians, and technicians, can be influenced and modified. It will take policy debates and policy decisions within many countries and development agencies to mandate changes in the way project economic analysis, risk analysis, and CBA are applied to projects entailing involuntary resettlement.

Perhaps the most damaging consequence of applying only and often distortingly, the cost-benefit analysis is *the underfinancing of resettlement components* in projects. If the losses to displaced people are not calculated fairly for compensation, and if the economic and financial analysis does not budget the investments needed (above simple compensation) to restart productive activities and trigger development, the resulting financing for resettlement is necessarily insufficient. Consequently, the impoverishment trends cannot be stopped.

In contrast, we argue that the response to displacement/impoverishment risks

resulting from the model must be predicated not just on an “economics of compensation” but on an “*economics of recovery*” and development (Cernea 1999). The difference is fundamental. It requires the full internalization of resettlement costs *and* the allocation of growth-supporting investments, in addition to compensation. It implies an economic analysis of resettlement that goes beyond CBA and would lead to different patterns of financing resettlement.

It must be stated clearly: The cost of productively reestablishing a displaced family and a community is bound to exceed the strict market value of the physical losses imposed on that family or community. By definition, compensation alone is never sufficient for reestablishing a similar socioeconomic basis for resettlers. As long as resettlement planning will be centered on asset-compensation alone, it will not be able to achieve the policy goal of restoring and improving resettlers’ livelihood. This is why it is necessary to build a new economics of resettlement, transforming what now is essentially a compensation-based economics into an economics of recovery. The new economics of recovery would justify growth-enhancing investments in resettlement operations, in addition to providing compensation, to support resettlers’ development. Formulating such an economics of recovery, with its set of analytical tools and measurements, is a professional challenge to economists. But ultimately, affirming and implementing a new economics is a political matter (see also Cernea 1996, 1999), part of a public policy response to hard dilemmas of development.

The conclusion is inescapable: Because government agencies use the weight of the state and the force of the law to impose expropriation and displacement, it is incumbent upon governments to enable those displaced to get back on their feet and share in the benefits made possible by their displacement.

Budgetary resources for enabling livelihood reconstruction can indeed be significantly supplemented through policy decisions for mandating that resettlers’ would share in the stream of benefits from the projects they make possible. Van Wicklin (1999) has identified a vast range of options for providing such access to benefits. Such sharing is not only an equitable way of financing the true costs of reconstruction but also

a necessity, given the limitations of other available resources.

**Resettlers' Participation in Risk Analysis.** Finally, the lack of consultation with the populations likely to be displaced during project preparation and before final decisionmaking compounds the fallacies introduced by inadequate economic analytical methods. It is correctly argued that participation through consultation with potentially affected people is indispensable for “resettlement in development mode” (Bartolome, de Wet, Mander 1999). The weak institutional capacity of state agencies for resettlement planning and implementation in many developing countries (Gill 1999) make participation of affected people even more necessary.

Information and communication between planners and resettlers is instrumental, in this respect, for early warnings and for making possible joint preventive activities. However, transparent information is still a rare occurrence. Dysfunctional communication between decisionmakers and groups affected by displacement are one of the roots of resettlement failure. As Mairal and Bergua (1996) have convincingly demonstrated, the risk-perception of would-be resettlers differs considerably from what technical experts and agencies tend to think about risks resulting from displacement. Their research has confirmed the hypothesis that agencies' failure to grasp what is socially perceived as risks has “played an essential role in the escalation of conflict in the Zaragoza dam area” in Spain.

For resettlers themselves, the predictive (warning) utility of the IRR model is that it enables them, and their organizations, be informed for conscious participation, negotiation, and adoption of coping (resource-mobilization) strategies, with lead time. Resettlers must receive information in a timely and transparent manner, understand well the impending displacement, and overcome disbelief or the tendency to denial. By forecasting the chain effects of displacement, the IRR model helps informed participation and prompts resettlers to search for alternatives, to resist inadequately prepared displacements before they occur, and to pursue their entitlements when displacement is unavoidable.

Conversely, breakdowns in information and communication tend to result in

“reverse participation,” i.e., in active opposition movements against development programs (Oliver-Smith 1994, Dwivedi 1997). The ill-advised position taken by some agencies, which maintain an information embargo about likely displacements and resettlers’ entitlements, virtually guarantees such opposition. Withholding information, instead of participation and transparency, is often “justified” by officials to prevent panic and stress. In fact, however, this is deceptive and self-defeating. It preempts the early mobilization of resettlers in the reconstruction of their own livelihoods. Their energy is an exceptionally important factor, which even the resettlement literature has seldom highlighted.

**Resettlement Research and the IRR Model.** To conclude the presentation of the IRR framework, it is important to briefly outline its use in recent research practice and research literature, since this model was first formulated.

During the last several years, the IRR model has been increasingly discussed by researchers and practitioners and is currently “at work” in numerous development and research projects. A large study carried out by the Institute for Socioeconomic Development (ISED) in Orissa, India, took the IRR model as its conceptual and methodological basis in exploring resettlement processes caused by seven major projects (in dam construction, thermal plants, mining, and industry). The sample included 31 villages and 441 households with 2,274 people, selected from among 95 affected villages with 1,977 households. That study produced one of the most comprehensive and integrated surveys of displacement impacts published to date in India (Pandey and Associates 1998), practically confirming the framework under the demands of a large-scale field investigation. Its key findings are structured along the model’s impoverishment risks. Another study focused on “countering the impoverishment risks,” reported from India’s Rengali dam (Ota 1996; see also Ota and Mohanty 1998); the study measured actual impacts of each risk variable, analyzing counter-risk measures and formulating recommendations about what needs to be done on the ground. Research on impoverishment risk and impacts was started in Lesotho at the request of the international panel monitoring the Water Engineering Project (Hitchcock, Scudder and assoc. 1999). In Nepal (Kali Gandaki Project) the application



of the model in several ongoing impact evaluation resettlement studies has revealed positive experiences and produced operational recommendations (Sapkota 1999).

The theoretical implications and potential of the IRR have also been discussed during the last four to five years in several international scientific conferences that took place in Colombia, South Africa, India, the United States, and elsewhere. Several books and numerous articles have been devoted to discussion of the validity of the model, testing its applicability, or proposing various developments of its elements. A book published in 1999 by Indian resettlement scholar L. K. Mahapatra reports on an original test to which he submitted the model: The author undertook a vast secondary analysis of virtually the entire empirical research literature on resettlement published in India during the last 20 to 30 years, to explore whether or not the IRR model is validated by the findings reported in the research literature. His analysis confirmed the model. Parasuraman (1999) discussed the impoverishment risks identified by the IRR model in his book on displacements in India and concluded that “loss of land is the single most important cause of post-displacement impoverishment in India” (p. 45). M. Basu (1994) explored the linkages between the IRR model and the “basic needs” framework, emphasizing that people’s basic needs are retrieved and addressed in the IRR model. Juliette Hayes derived and developed from the risks part of the IRR framework a “capital loss model” in displacement processes, with intriguing implications for further economic research on capital losses.

Several scholars proposed expanding the IRR by including other risks and losses, such as the loss of access to public services (Mathur 1998, 1999), loss of civil rights (Downing 1996a), or temporary loss of access to schooling for school-age children caught in the throes of displacement (Mahapatra 1999a, 1999b). Whether or not these or other risks should be added to the general risk model is a question deserving reflection, but the very proposals exploit the flexibility and adaptability of the model itself, which is prone to refinements. As this chapter goes to print, Robert Hackenberg’s editorial article in the journal *Human Organization* is opening up a “public discussion” in that journal among anthropologists around the impoverishment risks and the economics of involuntary displacement and reconstruction (Hackenberg 1999).

Significantly, also, the first full-scale research project on conflict-caused refugee populations that explicitly tests and applies the IRR model has been completed by Robert Muggah (1999) in Colombia. This study generated important new findings about internally displaced refugees. It recommends policy and strategy for reestablishing or creating institutional capacities necessary for resettling refugees (Muggah 1999). Crisp, in turn, undertook a critical review of the United Nations High Commissioner for Refugees (UNHCR) program for Mozambique's huge post-conflict refugee population, in light of the IRR framework. In that "shattered society coming together again," Crisp revealed causes of successes and failures in the itinerary "from social disarticulation to social reconstruction" (Crisp 1996).

In short, the IRR is being increasingly used operationally in project preparation, appraisals, monitoring and evaluation work, in designing indicators or formulating recommendations, as well as in theory-led basic research. Further use of the risks and reconstruction model will certainly test its potential in more ways and will explore its relevance for various types of displacements and reconstruction approaches.

Having myself done considerable research and operational work on resettlement, I cannot emphasize enough the difficulties involved in actually preventing and mitigating its impoverishment risks and moral hazards. This is why forecasting impoverishment trends is crucial for adopting and implementing policies that avoid displacement and counteract undesirable outcomes when resettlement is unavoidable. Failure to acknowledge and make known the economic and cultural risks inherent in displacement only allows them to unfold unimpeded in every case. Conversely, equitable policy, plus planning, financing, and implementing resettlement with the participation of those affected, can create the premises for the improvement of resettlers' livelihoods.

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## References

- Adams, John. 1998. *Risk in a Hyper-Mobile World*, Geography Department, University College, London.
- Agnihotri, A. 1996. “The Orissa Resettlement and Rehabilitation of Project-Affected Persons Policy, 1994--An Analysis of its Robustness with Reference to Impoverishment Risk Model.” In A. B. Ota and A. Agnihotri, (eds.), *Involuntary Displacement in Dam Projects* pp.19-42. New Delhi: Prachi Prakashan.
- Appell, G. N. 1986. “The Health Consequences of Social Change: A Set of Postulates for Developing General Adaptation Theory.” *Sarawak Museum Journal*, 36:43-74.
- Asian Development Bank (ADB). 1998. *Handbook on Resettlement. A Guide to Good Practice*. Manila: Office of Environment and Social Development, ADB.
- Baboo, Balgovind. 1992. *Technology and Social Transformation. The Case of the Hirakud Multi-Purpose Dam Project in Orissa*. New Delhi: Concept Publishing

- Bartolome, Leopoldo, C. de Wet, and H. Mander. 1999. *Displacement, Resettlement, Rehabilitation, Reparation and Development*, Draft Paper, Cape Town: World Commission on Dams.
- Basu, Malika. 1994. "The Basic Needs Approach in Displacement Situations." *Mainstream* July.
- Beck, Ulrich. 1990. "On the Way towards an Industrial Society at Risk: An Outline of an Argument." *International Journal of Political Economy*. 20:51-69.
- Behura, N. K. and P.K. Nayak. 1993. "Involuntary Displacement and the Changing Frontiers of Kinship: A Study of Resettlement in Orissa" In M. Cernea and S. Guggenheim, (eds.), *Anthropological Approaches to Resettlement: Policy, Practice, Theory*, Colorado, Boulder: Westview Press.
- Bjornnes, Inger-Mari. 1983. *Socio-Economic Analysis of Effects from the Kulekhani Hydroelectric Project, Nepal*. University of Oslo, Department of Geography.
- Borup, Jerry H., D.T. Gallego and G. H. Pamela. 1979. "Relocation and its Effect on Mortality". *The Gerontologist*, Vol. 19, No. 2, 135-140.
- Brenchin, S. R., P. West, D. Harmon and K. Kutay. 1991. "Resident Peoples and Restricted Areas: A Framework for Inquiry" In West and Brenchin (eds.) *Resident Peoples and National Parks*, Arizona, Tucson: University of Arizona Press.
- Cernea, Michael M. 1986. *Involuntary Resettlement in Bank-Assisted Projects: A Review of the Application of Bank Policies and Procedures in FY 1979-1985 Projects*, Agriculture and Rural Development Department, Washington, D.C.: World Bank
- Cernea, Michael M. 1988. *Involuntary Resettlement in Development Projects: Policy Guidelines in World Bank-Financed Projects*. World Bank Technical Paper No. 80, Washington, DC.: World Bank.
- Cernea, Michael M. 1990 *Poverty Risks from Population Displacement In Water Resources Development*, HIID Development Discussion Paper No. 355, Harvard University, Cambridge, MA.
- Cernea, Michael M. 1995a Social Integration and Population Displacement: The Contribution Of Social Science. *International Social Science Journal*. 143:1:91-112.
- Cernea, Michael M. 1995b Understanding and Preventing Impoverishment from Displacement: Reflections on the State of Knowledge. Keynote Address, International Conference on Development Induced Displacement. University of Oxford, England. *Journal of Refugee Studies*. 8:3:245-264.
- Cernea, Michael M.. 1996a. "Bridging the Research Divide: Studying Refugees and Development Oustees." In Tim Allen (ed.) *In Search of Cool Ground: War, Flight & Homecoming in Northeast Africa*, Boston: UNRISD.
- Cernea, Michael M. 1996b. Public Policy Responses to Development-Induced Population Displacement. *Economic and Political Weekly*, 311515-1523
- Cernea, Michael M. 1998 "Impoverishment or Social Justice?" A Model for Planning

- Resettlement.” In H.M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettling Project-Affected People in India*, Delhi: Oxford U.P.
- Cernea, Michael M. 1999. “The Need for Economic Analysis of Resettlement: A Sociologist’s View.” In Michael M. Cernea (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Cernea, Michael M. 1999. “Mutual Reinforcement: Linking Economic and Social Knowledge about Resettlement.” In Michael M. Cernea (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Cernea, Michael. M. 1999. “Development’s Painful Social Costs,” Introductory Study in S. Parasuraman, *The Development Dilemma. Displacement in India*, McMillan Press and ISS.
- Chambers, Robert.1969. *Settlement Schemes in Tropical Africa*. Routledge & Kegan Paul, London.
- Chambers, Robert and J. Morris. (eds.)1973. *Mwea, An Irrigated Rice Settlement in Kenya*. München:Weltersforum Verlag,
- Colchester, Marcus (ed.). 1999. *Sharing Power: Dams, Indigenous Peoples and Ethnic Minorities*, World Commission on Dams, Draft Thematic Paper.
- Cook, Cynthia (ed.) 1993. *Involuntary Resettlement in Africa*, Wash, DC: The World Bank.
- Costa-Pierce, Barry A. 1996. Sustainable Reservoir Fisheries: An Ecosystems Approach. Draft, Processed
- Crisp, Jeff. 1996. *From Social Disarticulation to Social Reconstruction*. Paper presented to the 2nd International Conference on Displacement and Resettlement, Oxford, Sept.
- de Wet, Chris. 1988. Stress and Environmental Change in the Analysis of Community Relocation, *Human Organization*. 47:2:
- de Wet, Chris. 1995. *Moving Together, Drifting Apart*. :Johannesburg: Witwatersrand U.P:
- Downing, Theodore E. 1996a. “Mitigating Social Impoverishment when People are Involuntarily Displaced.” In C. McDowell (ed.) *Understanding Impoverishment* Providence, Oxford: Berghahn Books.
- Downing, Theodore E. 1996b. Personal communication.
- Dwivedi, Ranjith. 1997. *Why Some People Resist and Others Do Not: Local Perceptions and Actions Over Displacement Risks on the Sardar Sarovar* Working Paper Series 265. The Netherlands, The Hague: Institute of Social Studies.
- Eriksen, John H. 1999. “Comparing the Economic Planning for Voluntary and Involuntary Resettlement Projects.” In M. Cernea (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The

- World Bank.
- Feeney, Patricia. 1995. *Displacement and the Rights of Women*. Oxfam, Policy Department, Oxford; Oxfam.
- Fernandes, Walter. 1991. "Power and Powerlessness: Development Projects and Displacement of Tribals." *Social Action*, 41:3:243-270.
- Fernandes, Walter. 2000. "From Marginalisation to Sharing the Project Benefits." In M. Cernea and C. McDowell (eds.) *Risk and Reconstructing Livelihoods*, Washington, DC: The World Bank.
- Fernandes, Walter, J. C. Das, and S. Rao. 1989. "Displacement and Rehabilitation: An Estimate of Extent and Prospects." In Fernandes W. and E. G Thukral (eds.) *Development, Displacement and Rehabilitation*. New Delhi: Indian Social Institute.
- Ferraro, Kenneth F. 1982. "The Health Consequences of Relocation Among the Aged in the Community." *Journal of Gerontology*, 38.1:90-96.
- Giddens, Anthony. 1990. *The Consequences of Modernity*. Stanford: Stanford U.P.
- Gill, Maninder. 1999. "Dams and Resettlement as Development: A Case for Building Good Practice" *Cultural Survival Quarterly* 23:3:57-63
- Green. Reginald H. 2000. "Food Security in Refuge and Return: Some Aspects of Entitlements, Markets and Modalities." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Guggenheim, Scott E. 1994. *Involuntary Resettlement: An Annotated Reference Bibliography for Development Research*. Washington, DC: World Bank.
- Hackenberg, Robert A. 1999. "Advancing Applied Anthropology, Victims of Globalization: Is Economics the Instrument Needed to Provide Them a Share of the Wealth?" *Human Organization*, 58:4:438-441.
- Hakim, Roxanne 2000. "From Corn to Cotton: Changing Indicators of Food Security Amongst Resettled Vasavas." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Hayes, Juliette. 1999 *Participatory Development. Mitigating Against Impoverishment in Involuntary Resettlement*. Dissertation. London School of Economics and Political Science, London. Processed.
- Hirshon, Renee. 2000. "The Creation of Community: Well-Being and Wealth in an Urban Greek Refugee Locality." In M. Cernea and C. McDowell (eds.) *Risk and Reconstructing Livelihoods*, Washington, DC: The World Bank.
- Hitchcock, R., T. Scudder, J. Ledger and M. Mentis 1999. *Lesotho Highlands Water Project, General Review*, Report # 20, Report Prepared for Lesotho Highland Development Authority, Processed.
- Horowitz, Michael and M. Salem-Murdock 1993. "Development-Induced Food Insecurity in the Middle Senegal Valley." *Geo-Journal*,.30:2:179-184.
- Jayewardene, Ruwani A. 1995. "Cause for Concern: Health and Resettlement." In H. M.

- Mathur (ed.) *Development, Displacement and Resettlement. Focus on Asian Experiences*, Delhi: Vikas Publishing House.
- Johns, Kathryn. 1996. Report on the Resettlement Program of the Aquamilpa Hydroelectric Project. Draft, unpublished.
- Joseph, Johnny. 1998. Retrofit Economic Rehabilitation. Using Impoverishment Risks Analysis-The Maharashtra Experience.. In H. M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettling Project-Affected People in India*, Delhi: Oxford U.P.
- Kaplan, S. and Garrick, B.J. 1981 On the Quantitative Definition of Risk, *Risk Analysis* 1:1:11-27.
- Khodka, Chhatra. 1999. *House Construction after Displacement under Nepal's Kali Gandaki Hydropower Dam Project*. Photostudy. Beltari, Nepal: KGEMU
- Kibreab, Gaim. 1996 "Proceedings of the Conference on Changing Patterns of Settlement and Resettlement in Southern Africa." Rhodes University, Grahamstown, January.
- Kibreab, Gaim. 2000 "Common Property Resources and Resettlement." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- König, Dolores. 1995 "Women and Resettlement." In R. Gallins and A. Ferguson (eds.), *In The Women and International Development*, Vol. 4., CO, Boulder: Westview Press.
- König, Dolores and Tieman Dierra, 2000 " The Effects of Resettlement on Access to Common Property Resources." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Kothari, Smitu. 1995 "Developmental Displacement and Official Policies." *Lokayan Bulletin* 11:5:9-28.
- Lane, Charles. 1996 *Pastures Lost*, Nairobi: Initiative Publishers.
- Lassailly-Jacob, Veronique. 1994 "Government-Sponsored Agricultural Schemes for Involuntary Migrants in Africa: Some Key Obstacles to Their Economic Viability." In H. Adelman and J. Sorenson. (eds.), 1994 *Refugees: Development Aid and Repatriation*, CO, Boulder: Westview Press.
- Lassailly-Jacob, Veronique. 1996 "Key issues in Preventing Impoverishment in Land-Based Resettlement Programmes in Africa." In C. McDowell (ed.) *Understanding Impoverishment: The Consequences of Development-Induced Displacement*, Providence, Oxford: Berghahn Books
- Lassailly-Jacob, Veronique. 2000 "Reconstructing Livelihoods through Land Settlement Schemes - Comparative Reflections on Refugees and Oustees in Africa." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Low, Setha and Altman, I. (eds.)1992. *Place Attachment*. New York: Plenum Press.

- Luhman, Niklas 1993. *Risk: A Sociological Theory*, New York: Aldin de Gruyter.
- McMillan, Della F et al. 1998. "New land is not enough: Agricultural Performance of New Lands Settlement in West Africa." *World Development*, 26:187-211.
- Mahapatra, L.K. 1991. "Development for Whom?" *Social Action*, 41:3:271-287.
- Mahapatra, L.K. 1994. *Tribal Development in India, Myth and Reality*. Delhi: Vikas Publishing House.
- Mahapatra, L.K. 1998 "Good Intentions or Policies are Not Enough: Reducing Impoverishment Risks for The Tribal Oustees." In H. M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettlement Project-Affected People in India*, Delhi: Oxford U.P.
- Mahapatra, L K. 1999a "Testing the Risks and Reconstruction Model on India's Resettlement Experiences." In M. Cernea (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Mahapatra, L K. and Sheela Mahapatra. 2000 " Social Rearticulation." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Mairal, G. J. and A. Bergua 1996. "From Economicism to Culturalism: The Social Impact of Dam Projects in the River Esera." Paper for the Conference of the European Association of Social Anthropologists, Barcelona, July.
- Marx, Emanuel. 1990. The Social World of Refugees: A Conceptual Framework, *Journal for Refugee Studies*, 3:3:189-203..
- Mather, T. H., S. Sornmani and K.A. Keola. 1994. *Incorporating A Human Health Component into Integrated River Basin Development and Management*. Report of Mission to the Lower Mekong Basin, Geneva: WHO, processed.
- Mathur, Hari Mohan. 1998. "Impoverishment Risk Model and its Use as a Planning Tool." In H. M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettlement Project-Affected People in India*, Delhi: Oxford U.P.
- Mathur, Hari Mohan. 1999. "The Impoverishing Potential of Development Projects. Resettlement Requires Risk Analysis." *Development and Cooperation* No. 6 Frankfurt: Deutsche Stiftung für Internationale Entwicklung
- Mathur, Hari Mohan and Marsden, David, (eds.) 1998. *Development Projects and Impoverishment Risks*, Delhi: Oxford U.P.
- Mburugu, Edward K. 1993. "Dislocation of Settled Communities in the Development Process: The Case of Kiambere Hydroelectric Project." In Cynthia C. Cook. (ed.) *Involuntary Resettlement in Africa*, World Bank Technical Paper No. 227, Washington, DC: World Bank.
- Meikle, Sheilah and Zhu Youxuan. 2000. "Employment for Displacees in China's Social Market Economy ." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank...



- Mejia, Maria Clara. 1999. "Economic Dimensions of Urban Involuntary Resettlement: Experiences from Latin America." In Cernea, M (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Mejia, Maria Clara. 2000. "Economic Recovery after Involuntary Resettlement: The Case of Brickmakers Displaced by the Yacyretá Hydroelectric Project." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Merton, Robert K. 1979. *The Sociology of Science: Theoretical and Empirical Investigations*. Chicago: University of Chicago Press.
- Michard, J. L., K. Adam and M Aziablé. 1992. *Le Recasement Des Populations Affectees par la Construction du Barrage de Nangbeto*, Coyne et Bellier.Processed.
- Mougeot, Luc J.A. 1989. *Hydroelectric Development and Involuntary Resettlement in Brazilian Amazonia: Planning and Evaluation*. Edinburgh: Cobham Resource Consultants.
- Muggah, Robert H.C. 1999. *Capacities in Conflict, Assessing the State's Resettlement of IDPs in Columbia* Draft, Processed.
- Nayak, Ranjit. 2000. "Risks Associated with Landlessness: An Exploration Towards Socially Friendly Displacement and Resettlement." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Nelson, Michael. 1973. *Development of Tropical Lands: Policy Issues in Latin America*. Baltimore: Johns Hopkins U.P.
- Ngaide, Tidiane. 1986. *Socioeconomic Implications of Irrigation Systems in Mauritania: The Boghe and Foun-Gleita Irrigation Projects*. Unpublished Masters Thesis, University of Wisconsin-Madison.
- Ntshalintshali, C. and Carmelita McGurk. 1991. "Resident People and Swaliland's Molotja National Park: A Success Story," in West and Brenchin (eds.) *Resident Peoples and National Parks*. Tucson: University of Arizona Press.
- OECD (Organization for Economic Co-operation and Development). 1992. *Guidelines on Aid and Environment*. Paris. DAC.
- OED (Operations Evaluation Department, World Bank) 1993. *Early Experiences with Involuntary Resettlement: Impact Evaluation on Thailand, Khao Laem Hydroelectric Project*. Washington, DC: The World Bank.
- OED. 1998. Operations Evaluation Department. *Recent Experiences with Involuntary Resettlement, Overview*. June. Washington, DC: The World Bank.
- Oliver-Smith, Anthony. 1994. "Resistance to Resettlement: The Formation and Evolution of Movements" In *Research in Social Movements, Conflicts and Change*, CN, Greenwich: JAI Press.
- Oliver-Smith, Anthony and Hansen, Art 1982. *Involuntary Migration and Resettlement*;

- Causes and Contexts. In A. Hansen and A. Oliver-Smith, (eds.) *Involuntary Migration and Resettlement*, CO, Boulder: Westview Press.
- Ota, A.B. 1996. "Countering the Impoverishment Risks: The Case of the Rengali Dam Project." In A. B. Ota and A. Agnihotri, (eds.), *Involuntary Displacement in Dam Projects*, pp. 150-178. New Delhi: Prachi Prakashan.
- Ota, A. B. and R. N. Mohanty. (eds.)1998. *Development Induced Displacement and Rehabilitation*, New Delhi/Bhubaneswar: Prachi Prakashan.
- Padjadjaran University. 1989. *Environmental Impact Analysis of the Cirata Dam, India*, Padjadjaran: Institute of Ecology,
- Pandey, Balaji. 1996. "Impoverishment Risks: A Case Study of Five Villages in Coal Mining Areas of Talcher, Orissa." Paper presented at the workshop on Involuntary Resettlement and Impoverishment Risks, New Delhi,
- Pandey, Balaji. 1998. *Displaced Development. Impact of Open Cast Mining on Women*, New Delhi: Friederich Ebert Stiftung
- Pandey, Balaji and Associates. 1998. *Depriving the Underprivileged by Development*, Bhubaneswar: Institute for Socioeconomic Development.
- Parasuraman, S. 1999. *The Development Dilemma. Displacement in India*, MacMillan Press and ISS.
- Partridge, William L. 1989. "Involuntary Resettlement in Development Projects." *Journal of Refugee Studies*. 2:3:373-384.
- Pearce, David W. 1999. "Methodological Issues in the Economic Analysis for Involuntary Resettlement Operations." In Cernea M. (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Pokharel, Jagdish. 1995. "Population Displacement and Compensation Planning in Kulekhani Hydro-electric Project, Nepal" In H. M. Mathur (ed.) *Development, Displacement and Resettlement. Focus on Asian Experiences*, Delhi: Vikas Publishing House.
- Raval, Shishir R. 1991. "Gur National Park and the Maldharis: Beyond Setting Asside" In P.C. West and S.R. Brenchin (eds.) *Resident Peoples and National Parks. Social Dilemmas and Strategies in International Conservation*. Tucson: University of Arizona Press.
- Reddy, I.U.B. 1998. "Involuntary Resettlement and Marginalization of Project-Affected-Persons: A Comparative Analysis of Singrauli and Rihand Power Projects." In H.M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettlement Project-Affected People in India*, Delhi: Oxford U.P.
- Reddy, I.U.B. 2000. "Restoring Housing Under Urban Infrastructure Projects in India." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank.
- Rew, Alan W. and P.A. Driver. 1986. *Evaluation of the Victoria Dam Project in Sri*

- Lanka*, Volume III. Initial Evaluation of the Social and Environmental Impact of the Victoria Dam project, Annex J Social Analysis, Annex K Environmental Analysis. Mimeo.
- Rodgers, Gerry, C. Gore and J. B. Figueiredo. (eds.)1995. *Social Exclusion: Rhetoric, Reality, Responses*. Geneva: International Institute for Labor Studies.
- Rodrigo, Milan L. 1991 *Resources and Livelihood: Differential Response to Change and Planned Development A Case From The Mahaweli Irrigation Project In Sri Lanka*. Doctoral Dissertation, Cornell University, Ithaca, New York, Processed. Ann Arbor, Mich.: University Microfilms International, 1991.
- Sapkota, Nogendra. 1999. *Impoverishment Risks and Evaluation among Seriously Project Affected Families in the Kali Gandaki Hydropower Project*, Nepal, Beltari: KGEMU
- Scudder, Thayer. 1981. What it Means to be Dammed? *Engineering and Science*, 54:4.
- Scudder, Thayer. 1985. "A Sociological Framework for the Analysis of New Land Settlements." In Cernea, M. ed., *Putting People First: Sociological Variables in Development* (1st ed.), New York, London: Oxford U.P.
- Scudder, Thayer. 1991. "Development-Induced Relocation and Refugee Studies: 37 years of Change and Continuity among Zambia's Gwembe Tonga." *Journal of Refugee Studies*, 6:3:23-152.
- Scudder, Thayer. 1996. "Development-Induced Impoverishment, Resistance and River-Basin Development" In Christopher McDowell, (ed.), *Understanding Impoverishment* Providence, RI-Oxford: Berghahn Books.
- Scudder, Thayer. 1999. Personal Communication.
- Scudder, Thayer and Colson, Elisabeth. 1982. "From Welfare To Development: A Conceptual Framework for the Analysis of Dislocated People." In Hansen A. and A. Oliver-Smith (eds.) *Involuntary Migration and Resettlement*. CO, Boulder: Westview Press.
- Sen, Amartya. 1997. *Social Exclusion: A Critical Assessment of the Concept and Its Relevance*. Paper prepared for the Asian Development Bank (processed).
- Sequeira, Debra. 1994 Gender and resettlement: An Overview of Impact and Planning Issues in Bank-Assisted Projects. Draft paper prepared for the Bankwide Resettlement Review. Washington, DC: The World Bank, January.
- Serageldin, Ismail. 1994. *Nurturing Development: Aid and Cooperation in Today's Changing World*. Washington, DC: The World Bank.
- Shi, Guoqing and Weison Hu. 1994. *Comprehensive Evaluation and Monitoring of Displaced Persons Standards of Living and Production*. National Research Centre of Resettlement(NRCR) Hohai University, Nanjing.
- Soeftestad, Lars T. 1990. On Evacuation of People in the Kotmale Hydro Power Project: Experience from a Socio-Economic Impact Study. *Bistaandsantropologen*,.

- Sorensen, Christian. 2000. "Alebu: Eritrean Refugees Return and Restore their Livelihoods." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Sowell, Thomas. 1996. *Migrations and Cultures: A World View*. New York: Basic Books.
- Spiegel, Hans. 1997. Letters to the author.
- Stallings, Robert A. 1995. *Promoting Risk: Constructing the Earthquake Threat*. New York: Aldin de Gruyer.
- Thangaraj, Sam. 1996. Impoverishment Risk Analysis-A Methodological Tool For Participatory Resettlement Planning." In McDowell C. ed., *Understanding Displacement*.. Providence, Oxford: Berghahn Books.
- Thangaraj, Sam. 1998. "Addressing Impoverishment Risks: Some Examples from World Bank-assisted Projects." In H.M. Mathur and D. Marsden, (eds.) *Development Projects and Impoverishment Risks: Resettlement Project-Affected People in India*, Delhi: Oxford U.P.
- Turner, R.J., B. Wheaton and D. A. Lloyd.1995. "The Epidemiology of Social Stress." *American Sociological Review*. 60:104-125.
- Van Wicklin III, Warren. 1999. "Sharing Benefits for Improving Resettlers' Livelihoods. In Michael M. Cernea (ed.) *The Economics of Involuntary Resettlement: Questions and Challenges*, Washington, DC: The World Bank.
- Wells, Michael and K Brandon with L. Hannah (eds.) 1992. *People and Parks. Linking Protected Areas Management with Local Communities*, Washington, D.C.: The World Bank, World Wildlife Fund, USAID.
- West, Patrick C. and Steven R. Brenchin (eds.). 1991. *Resident Peoples and National Parks. Social Dilemmas and Strategies in International Conservation*. Tucson: University of Arizona Press.
- Woldeselassie, Abutte. 2000. "Emergency Resettlement in Ethiopia: the Beles Valley Scheme." In M. Cernea and C. McDowell (eds.) *Risks and Reconstruction*, Washington, DC: The World Bank..
- Wolfensohn, James D. 1995. *Address at the Annual Meeting of the World Bank and IMF*, Washington, DC: The World Bank, October.
- Wolfensohn, James D. 1997. *The Challenge of Inclusion*, Annual Meetings Address, Washington, DC: The World Bank Group.
- World Bank. 1990. *Involuntary Resettlement*. Operational Directive 4.30. Washington, DC: The World Bank.
- World Bank.1994/1996. *Resettlement and Development: The Bankwide Review of Projects Involving Involuntary Resettlement 1986-1993*, Washington, DC: The World Bank
- World Bank. 1995a. *Kenya-Project Completion Report Kenya: Export Development Project*. Report No. 13886, Washington, DC: The World Bank

- World Bank. 1995b. *India-Project Completion Report India: Dudhichua Coal Project*. Report No. 13938, Washington, DC: The World Bank.
- World Bank. 1995c. *Korea-Project Completion Report Korea: Taigu urban Transport Project*. Report No. 14711, Washington, DC: The World Bank.
- World Bank. 1996. *China-Shuikou Reservoir Resettlement*. Project Completion Report. Washington, DC: The World Bank.
- World Bank. 1998. “*Recent Experience with Involuntary Resettlement, Overview.*” Operations Evaluation Department, Washington, DC: The World Bank.