Social Impacts and Social Risks in Hydropower Programs:
Preemptive Planning and Counter-risk Measures

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Introduction: Thinking preemptively about impacts

I feel honored to open up the special session on **social impacts of hydropower dams** at this conference. To start the discussion, I would like to place before you a key question and to invite all to discuss it. All of us can contribute to it from our personal experiences. The question is **not which** are the social impacts of dams, but rather: **how should we think** about the social impacts of dam**?** This is a question about mind-sets, and about changes in mind-sets. And it is a crucial question, because how we act against these impacts depends, first, on how we think about them.

To what extent is our thinking, and our planning for dams, oriented so as **to prevent** adverse impacts **before** they happen, rather than to mitigate them **after** they happen? Instead of thinking of social impacts as a set of given and unavoidable effects, can we perhaps think of them differently, say, as a set of **potential risks**, which have not yet materialized, and which can possibly be preempted before they materialize? That is, either avoided completely, or reduced in intensity?

The main argument I will try to develop in this paper is that rather than only trying *ex-post* to mitigate adverse social impacts **after** they happen, it is much more effective to *predict* the social risks in advance, to recognize them transparently, and do *ex-ante* preemptive social-economic planning. But how to predict them, with which analytical tools ? And what risks should we regard as the main social risks ? Crucial to my argument are therefore three concepts: social risks; prediction; and preemption, on which I propose you to reflect and discuss.

Criticism: a call to action. Many policy makers and engineers are often surprised at the severity of public criticism against dam construction, criticism that has sharpened in recent years. Why are the

production of energy through hydroplants – energy that is both clean and renewable, unlike coal or oil – and the storage of water for irrigation-thirsty food-crops, subject to increased public concerns?

It is well known that without electricity there is neither industrialization or new employment at one end, nor elimination of illiteracy and poverty at the other. Yet during the last decade the critique of dam construction and of its social and environmental impacts has not abated: on the contrary, it has increased. Because of their adverse social and environmental impacts, the sustainability and legitimacy of large dams as vehicles of development are being severely questioned. Unless these negative social impacts are preempted by governments through explicit **policy**, **legislation**, **social planning** and **targeted financing**, hydropower expansion and overall development in developing countries will be retarded by increasing social tensions and growing political and environmental opposition. This criticism is sometimes over-inflated, but the part of it which is valid must be absorbed and dealt with as a call to improved action. For this, it is indispensable to think differently, and act differently, about social impacts.

I. Positive Impacts and Preemption of Adverse Impacts

Dams have extraordinary positive social impacts, direct and indirect. Their many multiplier effects have to be measured better and made known wider. Here, however, we plan to focus on remedies for the adverse social impacts, as I will do in this paper.

Conventional "ex-post" thinking about impacts implicitly takes adverse social effects of dams as inevitable, virtually impossible to prevent. The "consolation" is that, somehow, the positive impacts will outsize the negative ones, so that there is a "trade-off". Like in conventional cost-benefit economic analysis, however, the delicate "distribution question" is not asked: **who** captures the positive impacts, and **who** incurs the negative impacts? Can there be a real trade-off if these impact-recipients are different social groups?

We must not think in simplistic terms of "trade off" between positive and adverse effects, because that is tantamount to accepting with resignation the adverse social impacts as a "trade off" for the positive impact. A "trade off" mentality in this case is passive and defeatist in itself. A proactive approach requires preempting –to the maximum extent possible-- the adverse effects from occurring, preventing them, and reducing the risks which cannot be preempted. There are many good practices and tried-out solutions, as the following papers in our sessions will show –and particularly innovative experiences in China– which indicate the great potential of thinking and acting differently, non-conventionally for identifying risks and overcoming the socially adverse effects.

II. Main Classes of Adverse Social Impacts

For identifying the social impacts of dams it is much better to take not a piecemeal, single-dam by single-dam perspective, but rather a river-basin strategic development perspective. Opportunities and needs that are less visible in a single-dam approach appear clearer when a broader river-basin horizon is embraced.

To launch our discussion, I'd suggest that both in a river-basin approach, as well as in one-dam-focused assessments, *four main classes* of such adverse social effects can be distinguished. Our thinking and our recommendations for practical actions can be organized easier by focusing our discussion on these distinct classes of social effects. These four classes are:

- Forced population displacement and impoverishment
- Boomtown formation around major constructions
- Downstream unanticipated changes in agro-production systems; and
- Loss of cultural heritage assets;

The single most complex and difficult among these four categories of impacts is clearly the first – the forced displacement and relocation of reservoir populations. But before I turn in full to the social issues of forced population displacement and resettlement, I will make a few brief comment on the other sets of social impacts, and invite you to discuss them further over the coming two sessions in more detail.

a) Boomtowns

"Boomtown effects" as a collective set of socio-cultural impacts are long known. The sudden inflow of large armies of construction workers and related groups within small, often traditional and remote local communities causes social/health/economic and cultural problems at the local community level. This occurs not only in large dams but even in the case of small and medium size dams like, say, the relatively small dam constructed under the Kenya Third Nairobi Water Supply project, or Nepal's Kali Gandaki dam, and many others. Over the last 15-20 years, the previously known socially destabilizing effects of boomtowns have been compounded by circumstances that made labor-camp settlements into a spreading source for the scourge of AIDS. Further, a frequent planning error in labor-recruitment for many dams (an error that enlarges boomtowns, increases project costs, and decreases the options to reduce adverse impacts on local communities) is the under-employment and under-training of the area population for professions needed in

dam and auxiliary constructions. Local labor is substituted by over-importation of massive labor from outside areas, causing unnecessary social and financial complications and also surreptitiously reducing the long term social sustainability of dams.

b) Downstream Unanticipated Social Impacts of Dams

Vast benefits in irrigation and in flood-prevention dominate the downstream effects of constructing dams and reservoirs. I think that these far-reaching and long-term benefits are belittled and under-estimated by hydropower critics who demonize dams in the current international debate.

However, there are also important negative *downstream social impacts* on certain rivers. Traditionally, downstream impacts have been under-studied and overlooked by dam planners, as well by the authors of many Environmental Assessments (EAs) and Social Assessments (SAs) for projects that finance dam construction (often because these assessments did not take a basin-wide approach). Adverse social and environmental downstream consequences tend to combine (particularly in those rivers – such as the Zambezi, Zaire, Senegal, Niger rivers – which flow through wide and gentle valleys, as opposed to canyon-shaped river courses). In such areas, agriculture has been historically based on the recurrence of natural and limited annual floods, and the local cultivators have adapted their agricultural and settlement patterns to this recurrence: they learned to "absorb" the flood into their agricultural strategics, practicing what is often called recessional agriculture or wetlands agriculture. Damming the annual limited floods and the flow of rich nutrients deeply disrupts recessional agriculture.

c) Loss of Cultural Heritage Assets

Two categories of cultural assets may be lost in dam construction: underground remains of significant historical importance and buildings or places of cultural, spiritual, or religious meanings, created or used by recent/current generations (cemeteries, places of worship, symbolic markers, etc.). Good practices have been developed in many countries in addressing this set of social impacts. It is indispensable that policies and programs for dam construction are fully alert and sensitive to the risks for, and the need to protect and rescue, both categories of cultural endowments.

d) Forced Population Displacements

Today, the sharpest debate about the social liabilities of hydropower development revolves around population displacement and forced resettlement. These are grave issues indeed. Yet, they are NOT intractable.

Three elements explain why displacement processes have overtaken much of the public debate around dams, both in developing countries (e.g. India, Laos, Thailand, Brazil, Argentina, a. o.) and developed ones (in Europe and in the USA).

First, **magnitude of human impacts**: large groups of people are adversely affected, profoundly and enduringly, by imposed material losses and social disruptions.

Second, **absent or weak regulation frameworks**: policies and laws for socially responsible resettlement are still missing now, at the start of the 21st century, in **most** developing countries. Human rights violations bedevil most displacements.

Third, **under-financing**. Classic economic theory regards "cost externalization" as an unsound and unacceptable practice. Yet most dam-building projects practice externalization with no restraint and morality, flying in the face of economic theory and policy discourse. They underestimate the losses caused by displacement, compensate them in utterly insufficient proportion, and externalize the difference as an unbearable burden on the displaced population.

In the following pages I will analyze in more detail the contents of displacement processes, and the risks embodied in them.

III. Forced Displacement, Impoverishment, and Reconstruction

Forced population displacement occurs not only in dam construction, but in all infrastructural (and other) projects that require "land-takings" and are predicated on changing the uses of lands, waters, or forests (see, for instance, the study about the mining industry, the displacements it causes, and the impoverishment risks in those displacements: Downing, 2002)[1]. But if such population displacement are frequent in other sectors as well, what than makes forced resettlements in dam building more visible and problematic than in other economic sectors? (except, recently, urban development). The response is: (1) huge size; and (2) a historic record of past or recent major social disasters, more severe and better known publicly than any other forced displacements.

[1] The Downing study takes a comparable approach with the present paper, employing the impoverishment risks and reconstruction (IRR) model to the analysis of forced population displacements in the mining industries internationally.

a) Size and Content

The **numbers** are indeed overwhelming: large reservoirs may displace tens of thousands of people, and not so rarely, even hundreds of thousands of people. In India, recent research shows that development-caused displacements over the last five decades affected over 50-55 million people (Fernandes, 2005); by sector, India's dam construction alone accounts for the single largest displacements. In China, recent research shows at least 45 million people displaced; dams [for power, irrigation and drinking water] account alone for over half of this number (Shi and Chen, 2004). The WCD report estimates dam-triggered displacements worldwide as between 40-80 million people, even without counting those losing their common lands but not also evicted from houses (WCD, 2000).

Yet the forced displacement problem is not just a problem of numbers: it is mainly a problem of **content**. The fundamentally negative content and effect of forced displacement is the **impoverishment** of those displaced, the vast majority of whom have been poor even before their forced displacement. In India, for instance, a country with a long history of tragic displacements which only this year, in February 2004, has adopted a policy on resettlement, over 75% of those displaced, according to the same Indian researchers, have not been rehabilitated or restored to prior levels. Tens of million of poor people have received insufficient or no compensation, and ended up worse off. Such impoverishment, with its lack of social justice and equity, is manifest in numerous other countries throughout the developing world, particularly in countries lacking policies and legal frameworks protecting the welfare and livelihoods of those displaced.

Conversely, in order to preempt such adverse effects further, and to provide such protection, some countries have taken steps to adopt social policies and legislation regarding forced resettlement. For instance, China has adopted over the last 18-20 years, in its water resources sector, several sets of policy guidelines and standards (Shi and Chen, 2004), each one being an improvement over the previous standards, in order to protect increasingly better those displaced and assist their economic and social recovery and development.

b) Fighting "New Poverty" along with "Old Poverty

Impoverishment by projects whose *raison d'etre* is to reduce poverty is unacceptable, yet it occurs in many projects, time and time again. Fighting poverty must go in two directions: reducing the known poverty that already long exists, and preventing the onset of new impoverishing processes. The first is attracting the attention of virtually 99% of the literature on poverty reduction. About the later, however, we know much less and talk seldom. Perhaps only 1% of the poverty literature addresses the "newly created" poverty, the

impoverishment processes. We know that today almost 3 billion people -or half of the world's population- subsist on less that $2 a day (World Bank, 2001). Shocking as this is, it would yet be simplistic to think of poverty in finite quantified terms –as a finite stock of poor people– at which effective development strategies could gradually chip away and shrink. Poverty is not only a state, poverty is also a process with multiple causes.

Unfortunately, while we battle against the long existing poverty –the poverty inherited, so to say, from yesterday-- our complex world continually triggers processes that also pauperize some people, create new poverty, today and tomorrow. Even development itself is not free from severe impoverishing impacts on certain groups. Day in and day out, the "newly" poor add to the large challenge of fighting the long-existing "old" poverty. The impoverishment caused by development-displacements is part on that "new" kind of poverty. Forced displacements are not the only source of such new impoverishment, other economic and political crises and civil wars contribute their sad additions.

However, when such impoverishment effects tend to occur so to say "on the turf" of development projects, dams included, we do have at hand means to preempt and counteract them. We need to use these means to their fullest. This places high responsibility on preemptive action upstream in new projects – against the potential **causes** and **unfolding mechanisms** of new impoverishment.

c) Reasonable Questions

That forced displacement risks decapitalizing large numbers of small producers, leaving them poor or poorer than they were --and brings also other risks upon their culture, human rights and political power– is certainly not a totally new discovery (although the intensity and proportions of such risks and loses might have not been fully realized historically). But if these risks have been even generally known, several reasonable questions emerge: how are these risks treated in the design of hydropower project? How are they conceptualized and predicted in each case? What is the relationship between social risks and the social impacts of dam projects? To what extent is the knowledge of risks translated in systematic preemptive actions?

IV. The Treatment of Social Risks in Hydropower Projects

While every development involves some kind of risks, forced displacement and resettlement stands out as an instance of risk management at its most exacting and difficult complexity. More than the technical

engineering of a big dam – surely a huge, but well charted technical feat – forced displacement of a large mass of people and its relocation elsewhere is a formidably intricate economic and socio-cultural change process. This process starts by causing deep social disruption, expropriations and asset condemnation and losses. It is a process of many unknowns and unpredictable events; and it is prone to elicit strong opposition, born out of human suffering.

Because such major economic and social risks are embedded into the very fabric of the displacement mechanism, carrying out a displacement-cum-resettlement process is not simply a logistic task of transferring people from one site to another: the task is to constantly balance inherent risks with powerful counter-risk measures. It means trying always to be three steps ahead of the risks that threaten to convert from potentialities into hard realities.

Furthermore, handling the social risks in displacement and relocation processes is not an activity confined to one or another point in time. It is a concern that must run constantly along the entire project timeline process, must underpin it, and must to be taken up at all levels of management. This makes it necessary to also examine it at each level.

In this light, the implications for decision making and design of dam projects involving displacement, the implications for how planners *think through* the project's social impacts (recall please that this was the critical question raised at the beginning of this paper) are obvious. This can be empirically examined by reviewing project and policy documents[2]. The identification of social risks must logically be the first premise of any responsible consideration of the social impacts of dam building. That requires risk prediction and analysis as part of the very concept and design of a dam building project. It also requires open and explicit discussion of risks and counter risk remedies by all stakeholders, including in this concept the project's owners, planners, implementators, the project area's inhabitants and all the project's beneficiaries.

Risk Recognition or Risk Denial?

However, in practice, the situation is considerably different. Project appraisal reports for dam projects rarely contain an explicit recognition of social risks and a detailed outline of their content. Planners often get very nervous about identifying risks verbatim and even about specifying the "social impacts" of displacement.

[2] How the risks embedded in displacement/resettlement are addressed can be examined either: (1) at the macro-level of policy frameworks, as a higher level of institutionalized response to the complexities of this induced process; or (2) at the level of the designer planner of a resettlement project component, in advance of project start; or (3) at the level of the individual manager of a project resettlement component, during the execution of displacement and resettlement as an operational activity.

Risk analysis can provide a platform for preemptive action, but first – the presence of serious risks in dam projects with displacement *must be admitted* without cover ups and hesitation.

Instead, a worrisome syndrome visible often in development practice, and sometimes also in research, is the tacit **propensity for risk denial**, and particularly – the denial of ***social*** risks. The denial of risks is seldom expressed verbatim. It takes more pernicious forms: silence about social risks, obliviousness towards risks, or treating them with benign indifference, as if those risks wouldn't exist or wouldn't be serious (see Box 1, further); attempts to belittle the magnitude of risks, etc. Such attitudes are the polar opposite of what is in fact a basic prerequisite of social impact management – namely the upfront identification of risks, candid risks recognition, and the search for serious counter-weights to risks. Avoidance and tacit denials are widespread enough to allow us to identify them as a "patterned behavior", deeply dysfunctional to the project and to resettlement outcomes. Sometime such silence about displacement's social risks is rationalized with a spurious excuse by those who say that talking about risks would scare people. Politicians who advocate projects prefer to be "positive and optimistic" rather than appear concerned about risks and high costs. Such justification for risk cover-ups are little more than a form of information manipulation and withholding. It betrays distrust in the project's own capacity to withstand, preempt, and overcome its intrinsic risks.

Certainly, not all risks are left out from the project preparation reports, diagnoses or plans. I have canvassed a good number of reports on projects entailing resettlement operations, with the purpose to assess what they recognize – and what they do **not** state -- about risks in the respective projects. In many reports I did find sections devoted to the discussion of various risks. The risks mentioned, however, are of a different kind –technical, geological, etc. – but not about resettlement. These are risks to the project; risks to various technical operations; risks in civil works due to inadequate sites; risk to achieving project benefits; currency exchange risks in acquiring equipment; or even some environmental risks, e.g. siltation, etc. What is much too often omitted, however, are the *social* risks to the local population. These are the economic and cultural risks imposed on the area-people affected by the project's right-of-way needs. This omission telescopes into writing resettlement plans that lack a preemptive approach, lack the explicit measures for countering the social risks. The absence of full and transparent conceptualizations of social risks has impact on project content and outcomes. Weak risks conceptualization in project design and in appraisal reports undercuts the action against risks.

Once again, there are also many examples to the contrary. Over the last decade, an increasing trend toward upfront risk recognition in resettlement is obvious in many project plans, in documents of major

development agencies, and in the research literature (Mathur and Marsden, 1998; Rew, Fisher, and Pandey, 2000; Mahapatra, 1999; Sapkota, 2000; Ota and Agnihoti, 1996; ADB, 2003). Under the auspices of the University of Oxford, and the UK Department for International Development, a series of studies on displacement enrich further the risk perspective in resettlement by highlighting its specific complexity, the political and the legal dimension of displacement, as well as the increasingly strong resistance of displaced population displacement and to the projects that externalize risks (de Wet, 2004; Koenig, 2001, 2002; Oliver-Smith, 2002). As it is to be expected, the intellectual landscape is changing faster in the research literature that theorizes and studies resettlement's risks than it filters in the actual planning processes in public or private sector projects that must actually manage these risks. But indications multiply that the risk-recognition perspective advances gradually in resettlement policies and planning practices as well.

Box 1.

How Displacement Risks Can "Disappear" on Paper:
Has the Consultant Forgotten them ?

Under-estimation of the typical displacement risks in hydro-projects is illustrated well by an article on "*Managing the Risks of Private Hydro Development in Nepal*" published in a largely circulated journal about hydropower dams. Its author describes himself as a "management professional in hydropower development" and analyzes two of Nepal's dam projects – Khinti and Bhote Koshi. One would expect him to advise carefully his clients about the forced displacement and impoverishment risks imposed by such projects on locally affected people, and the need to counteract them. Yet these risks are not part of the author's thinking pattern: he seems uncomfortable to even mention them explicitly, as typical, by name. On his horizon there is room only for risks to the project itself and to its private owners, while eviction risks to the local population are obscured. Here is his long but biased list: "country risks" to foreign investors; "risks of credit worthiness"; risks of "expropriation and nationalization of the power plant"; "monetary risks" as risks to the investors from inflation; risks in repatriation of developers' profits or "tax risks"; "market and revenue risks", such as "lower demand risks" or "low generation capacity"; other "project risks" defined as "various construction risks", including "time and cost overrun risks", "*force majeure* risks", "geological risks", "socio-economic and environmental risks" (not specified) and "project design and performance risks". After which the author proceeds to suggest strategies for "insulating" the project owners by passing on to the Government some of the most critical risks….. (R. S. Shresta, 2000).

Making risks "disappear" on paper and in reports doesn't make them disappear from real life. That consultant's blinkered vision leaves the clients and projects which he advises uniformed and unprepared to deal responsibly with displacement and impoverishment risks. If a private sector project would follow this "management consultant's" advice, it will be caught unprepared for risks and impacts it itself causes. The risks brought upon the area population –whose lands are expropriated and who is de-capitalized by displacement-- will sure have worse impacts without informed preemptive planning.

The risks listed above are real and relevant –our aim is not to belittle them either-- and must be considered in hydropower dam planning. But so are the risks to the area population. And this is precisely the point of our argument: that many dam projects consider only some risks, to some stakeholders, while risks to local stakeholders –like the risk-set intrinsic to resettlement– remain invisible "beyond the horizon".

The Asia Development Bank, for instance, has launched a special program of technical assistance to 4 Asian countries (China, India, Laos, and Vietnam) explicitly dedicated to *Capacity development for risk management in resettlement* (Price 2003a, 2003b). And similarly the World Commission in Dams has recommended a risks model as analytical tool for resettlement triggered by dam building (WCD, 2000).

c) Risk escapism has short legs…..

To sum up on the important issue of risk recognition and risk denial, we conclude that it is necessary to bring displacement risks to the surface in order to counterweigh them with preemptive and constructive solutions. Risks escapism has short legs. It weakens sound management rather than helping it. Risks that are uncovered are likelier to go unaddressed than the risks that are highlighted. They are likelier to eventually explode with aggravated effects than if they were addressed timely. For *managing* resettlement effectively and in a socially responsible way, risk recognition and prediction from the outset is a *sine qua non* principle.

V. A Tool for Risk Prediction in Resettlement

If risk-prediction is essential for preempting or reducing adverse social impacts, how can the general and specific social risks germane to forced displacements be predicted in project practice?

a) The IRR model: premise, concepts, functions

Social research has produced the necessary risk-analysis tools, and the "best practice" in development has already tested them. The last part of the paper will concisely describe one of these several tools: **the Impoverishment Risks and Reconstruction Model (IRR) for resettling displaced populations.** (To explain this model in full detail, a background paper is available for distribution to Conference participants.)

The IRR model was developed based on the empirical findings from a large number of development projects, many financed by the World Bank , ADB, IDB, or OECD aid agencies, and on resettlement research by numerous independent scholars, synthesized into this model (see Cernea, 1990, 1995, 1997, 2000). This risk-framework was first applied in the World Bank in 1993 on a large project portfolio, to analyze a set of 192 projects entailing forced resettlement processes (see Cernea, Guggenheim, and assoc., 1994). Subsequently it was refined and is currently employed in the work of various development agencies and of many scholars.

Our premise in proposing this model is that, if overall displacement as such cannot be preempted by project optimization studies and technical alternatives[3], than the preemptive action must be re-directed against one or another, or several, of the distinct component-risks involved in displacement. This is why *de-composing the displacement process into its constitutive "parts", as well as re-grouping the counter-actions to risks into an integrated reconstruction strategy, is essential.*

In considering the usefulness and wider applicability of the IRR model which I present below, it should be noted that the paradigm of basic risks has found its way in the last 5-6 years into policy documents and operational handbooks for resettlement issued by major development agencies. In addition to the World Bank's updated resettlement policy OP 4.12 (World Bank, 2001), the just published World Bank practical *"Sourcebook on Involuntary Resettlement"* (2004) explains the IRR model for practitioners. The Asian Development Bank has included the IRR in its handbook for poverty reduction and, in turn, the Inter-American Development Bank recommends the IRR methodology both in its formal resettlement policy and statement of "principles" in resettlement (IDB, 1998). The "*Handbook for preparing Resettlement Action Plans"* issued by IFC (International Finance Corporation, 2002) for use by private sector corporations emphasizes in turn the IRR's template of basic poverty risk.

Many other examples can be given[4], but I would like instead to highlight the **overall meaning** of this broad adoption of a risks-based analytical methodology in resettlement work: it suggest a shift in thinking towards *identifying potential risks early on*, towards breaking past silence around very specific, tangible poverty risks in forced displacement. In sum, it suggests a shift in mind-sets towards ex-ante preemption. Mobilizing institutional and financial action resources for ex-ante preemptive planning and targeted implementation support can reduce the size and scope of adverse ex-post social impacts.

The IRR model is built upon three fundamental concepts: risk, impoverishment, and reconstruction. These "building blocks" are further split into sets of specifying notions, each reflecting another dimension or variable of impoverishment or of reconstruction. The overall impoverishment process of those displaced is "de-constructed" in distinct eight main components and their interconnection is illuminated, enabling not only better understanding but also better-targeted preemptive action.

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[3] Avoiding or reducing massive displacement through technical optimization of dam projects should always be the first line of preemption. Many examples demonstrate that such reduction can be achieved through searching for the least displacing dam-site and through reducing dam-height and maximum water-level in the reservoirs.

[4] [4] The Brookings Institution has published a large study on development-induced displacement focusing on the model of impoverishment risks and reconstruction (IRR) in resettlement and on human rights (Robinson, 2003).

The risks and reconstruction framework can perform the following four distinct functions, depending on the purpose for which it is used:

1. *A predictive function*, to anticipate risks to be expected in programs entailing displacement and resettlement ;
2. A *diagnostic function* in the field, to guide operational project preparation in assessing the likely presence, absence, and intensity of each specific impoverishment risk*;*
3. *A problem-resolution and planning function*, to help select project measures commensurate with each identified risk, for its preemption or mitigation; and
4. *A research methodology function,* to guide the study of displacement, to generate hypotheses, and to organize, conceptualize and interpret the findings.

b) Impoverishment Risks

The cognitive and analytical advantage of the IRR model results from the information about past processes "stored" and synthesized in the model. It saves time and efforts by obviating the need to starting anew the general risk analysis in each project, from "square one", and instead offers *ex-ante* a tested starting point: the matrix of eight basic impoverishment risks which, in light of historical experience, are predictable in most forced displacement situations. It directs towards impoverishment measurements not only in terms of income, but also in terms of employment opportunities, health care, nutrition and food security, commonly owned assets, education, shelter, or social capital. Indeed, the eight most common impoverishment risks captured in the IRR model are:

(a) landlessness;

(b) joblessness;

(c) homelessness;

(d) marginalization;

(e) increased morbidity and mortality;

(f) food insecurity;

(g) loss of access to common property;

(h) social (community) disarticulation.

Each is presented – only briefly – below. Further, it will be shown how for each of these basic risks the second part of the IRR framework turns the risks matrix on its head and derives counter-risk strategies through targeted project provisions.

(1) **Landlessness**. Expropriation of land removes the main foundation on which many people build productive systems, commercial activities and livelihoods. Often land is lost forever, sometimes it is partially replaced, seldom fully replaced or fully compensated. This is the main form of de-capitalization and pauperization of the people who are displaced. Both natural and man-made capital are lost.

(2) **Joblessness**. Loss of wage employment occurs both in rural and urban displacement. People losing jobs may be landless agricultural laborers, service workers, or artisans. The unemployment or underemployment among resettlers may linger long after physical relocation. Creating new jobs for them is difficult and requires substantial investment, new creative approaches, and relying more on sharing project benefits.

(2) **Homelessness**. Loss of housing and shelter may be only temporary for many people, but for some it remains a chronic condition for long periods. Loss of home is perceived also as loss of identity and cultural impoverishment. Loss of dwelling may have consequences on family cohesion and mutual help patterns if neighboring households of the same kinship group get scattered. Group relocation of related people and neighbors is therefore preferable over dispersed relocation.

(3) **Marginalization**. Marginalization occurs when relocated families lose economic power and slide down towards lesser socio-economic positions: middle income farm-households become small landholders; small shopkeepers and craftspeople lose business and fall below poverty thresholds, and so on. Human capital (skills) may be lost or rendered obsolete. Economic marginalization is often accompanied by social and psychological marginalization, expressed in a drop in social status, in resettlers' loss of confidence in themselves and in society, in a feeling of injustice and vulnerability.

(4) **Increased morbidity and mortality**. The exposure of the poorest people to illness is increased by forced relocation, because it tends to be associated with increased stress, psychological traumas, and the outbreak of parasitic and vector-born diseases. Serious decreases in health levels result from

unsafe water supply and sewage systems that proliferate epidemic infections, diarrhea, dysentery, etc.

(5) **Food insecurity**. Forced uprooting diminishes self-sufficiency, often dismantles local arrangements for food supply, and thus increases the risk that people will fall into chronic food insecurity. This is defined as calorie-protein intake levels below the minimum necessary for normal growth and work.

(6) **Loss of access to common property**. Poor farmers, particularly those without assets, suffer a loss of access to the common property goods belonging to communities that are relocated (e.g., loss of access to forests, water bodies, grazing lands, etc.). This represents a form of income loss and livelihood deterioration that is typically overlooked by planners and therefore uncompensated.

(7) **Social disarticulation**. The dismantling of community structures and social organization, the dispersion of informal and formal networks, local associations, etc. is a massive loss of social capital. Such disarticulation undermines livelihoods in ways usually not recognized and not measured by planners, and is a cause of disempowerment and impoverishment.

The risks discussed above differentially affect various categories of people: rural and urban, tribal and non-tribal groups, children and the elderly. Research findings show that women suffer the impacts of displacement more severely than men[5].

c) Risk-reversals and the paths of reconstruction

Before displacement actually begins, the social and economic risks of impoverishment are only impending risks. The concept of *risk* is about processes that are potential, not yet actual, that may happen but also that may NOT happen – if adequate counter-risk measures are taken. But if preemptive counteractions are not initiated, these potential hazards convert into actual, materialized impoverishment. Therefore, the internal logic of the IRR as an analytical and problem-resolution tool prescribes that overcoming impoverishment requires to confront the potential risks preemptively, early on.

[5] An increasing research literature on the differential impacts of these risks on women, on host populations, and in different contexts is available.

Similar to how its risk analysis de-constructs the multidimensional displacement processes into distinct risks, the IRR also de-constructs risks-reversal into a set of distinct efforts for rebuilding the livelihoods of those displaced (what the ADB defines as "pro-poor support activities"[6]). These are, potentially, able to lead:

1. From landlessness to land-based resettlement;
2. From joblessness to reemployment;
3. From homelessness to house reconstruction;
4. From marginalization to social inclusion;
5. From increased morbidity to improved health care;
6. From food insecurity to adequate nutrition;
7. From loss of access to restoration of community assets and services; and
8. From social disarticulation to rebuilding networks and communities.

The strategic orientation towards reconstruction indicate that the IRR methodology is not just a predictor of inescapable pauperization: on the contrary, it maps the roads for restoring gradually, block by block, the livelihoods of the displaced. Analyzing how this road towards containing poverty is followed in resettlement projects is, in my view, a priority task for project evaluation for managers, and for social scientists.

The IRR methodology is not limited, of course, to the basic risks outlined above. It encourages contextual project analysis for discerning risks not common in all displacements but which emerge because of particular local characteristics. Displacement and resettlement processes are "inherently problematic institutional processes" (de Wet, 2003) and risks related to defective institutions range on a long spectrum[7]. To give only one example of a project-level diversified analysis of risks in a dam-project, I invite you to read the chapter devoted to risks and risk management in the "social development plan" for the Laos Nam Theun 2 Hydroelectric Project (see NTPC 2, 2003), which can stand as an example of good preemptive planning (see some elements in Box 2).

[6] ADB *Fighting Poverty in Asia and the Pacific. The Poverty Reduction Strategy of the Asian Development Bank*, November 1999, Manila.

[7] This is always the task of social analysis, to be carried out as part and parcel of preparing dam projects . The IRR methodology provides the scope for complementing the analysis of general impoverishment risks and of their local shapes and intensities, with the identification of other possible project- and local-specific risks.

Box 2.

Nam Theun 2 Hydropower:

Project Risks and Reconstruction, Preemptive Planning and Budgeting

The Social Development Plan prepared for the Laos Nam Theun 2 Hydroelectric project devotes a special chapter to risk analysis and counter-risk measures, including the budgeting necessary for these risk-preemption measures. Under local circumstances, this project analysis addresses the general risks discussed above to land tenure, employment, community structures, etc., but also examines, as a specific project assessment can and must do, the particular risks that are specific within the given local context, social and geographical: for instance, the *"risks specific to plateau resettlement", the "risks specific to downstream resettlement area", the "risks associated with livelihood options"*, and so on (page 2-6).

This detailed analysis doesn't "add" any risk that does not appear likely in the given context. But it consciously explores those risks perceived through analysis as present in real life, and likely to surface during project implementation. Than the analysis goes further and explores the *"local institutional and social capacity"* to withstand the risks of the project, scheduling activities to strengthen this capacity

Counter-risk measures need an adequate budget. And indeed, the project doesn't shy away, and it answers the critical cost question: how are the measures to counteract these various risks going to be paid for ? A special section is devoted in the risk analysis (Ch. 8) to *"Budgetary Mechanisms to Address Risks"*. It highlights the detailed breakdowns and the costings of individual measures, with *"itemized expenditures and various additional budget categories specifically to address risks*"(page 8-12). For those measures that can be planned precisely, like those required to preempt housing-related risks, the budget has a *"fixed scope"*, while for others the expenditures are more flexibly budgeted, including major contingencies for possible cost-overruns. The project also establishes a *"Social and Environmental Remediation Fund"*, set aside to *"provide for the maintenance of other resettlement assets, and deal with any remaining problems which have arisen during the resettlement process*". To give assurances to the affected population, the project undertakes to provide Letters of Credit to the Government *"to ensure access to the (remediation and contingency) funds as required, …no matter what may occur"* (page 8-13).

{Laos: Nam Theun 2 Hydroelectric Project}

The underlying methodological premise of the risk-focused framework is fertile in that it encourages a mind-set always "on the alert" for identifying emerging problems (potential risks), so that preemptive action may help arrest the detrimental unfolding of events. This path, moving ahead and timely to prevent or reduce adverse possible social impacts in hydroelectric projects before they explode and "strike", is surely better than the back-road of trying to cure them later, after they unfold.

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