

## Chapter 2

# Underlying Risk Factors

The Fourth Priority of the Hyogo Framework for Action (HFA) mandates a reduction in the underlying factors of disaster risk. Honoured too often in the breach, this particular mandate is nonetheless the heart of the HFA and has become increasingly important throughout the period covered by the three published GARs. Global surveys of people involved with DRR have shown that increasing the emphasis on reducing these risk factors is an almost universal concern, one that is intensifying all the time.

The risk factors most often cited include vulnerable rural livelihoods, poor urban and local governance, ecosystem decline, and climate change, with climate change acting as a kind of ‘meta-factor’ inasmuch as it magnifies the others (we will look at this more closely in a later section). Others mentioned are rapid and unplanned urbanization, the expansion of agribusiness (which is often associated with increasing urbanization and environmental degradation) and, most importantly, poverty.

Poverty reduces the ability of people to protect themselves from hazards, obviously because the resources that would be necessary for, say, constructing disaster-resistant lodgings are simply not available to them. In addition, when a disaster strikes, poor people often do not have any assets to buffer their livelihoods or to help them recover from economic losses. Poverty thus exacerbates the effects of disasters, while disasters increase poverty. It is a vicious circle that is referred to in the GARs as the Disaster Risk (DR)-Poverty Nexus.

## 2.1 Rural Poverty

Poor rural areas, especially in isolated or remote regions, are often subject to highly vulnerable housing as well as to weak or non-existent emergency and health services and infrastructure. Likewise, poor rural communities have limited access to productive assets such as land, fertilizers, irrigation, and financial services. All this is associated with political marginalization as well as with discrimination and exclusion of various kinds due to race, gender, or ethnicity, creating structural vulnerabilities that increase with each disaster. If the rural population is far from an urban centre, its markets tend to be considerably weaker than those in communities closer to the more steady and concentrated exchange of commodities characteristic of cities and their surroundings. And underlying all of this is the fact that rural livelihoods are subject to the vicissitudes of national and global markets for agricultural products. We will examine this aspect in more detail later on.

Agricultural livelihoods are exposed directly to weather-related hazards and are most vulnerable to unrecoverable losses from meteorological disasters. Localized hazards such as storms, frosts, heat waves, cold spells, and minor droughts can mean the loss of an entire harvest, while major disasters such as serious, long-term droughts can destroy agricultural production of plants and animals over wide areas for several years. Because the rural poor tend to have access only to the least-productive land, their vulnerability to disaster is greatest and their resilience least. They also suffer an incapacity to recover from crop or livestock losses, which means they are easily pushed to destitution by a single disaster. In regions where there is no significant government safety net, which is the case for most if not all poor countries, there is little to brake their fall into the disaster-poverty spiral.

Even if a particular disaster does not push people into this spiral, over time repeated disasters ratchet up poverty by increasingly weakening livelihoods and steadily undermining the ability of populations to recover, pushing rural households further into chronic poverty and deprivation. This point is particularly relevant to extensive risks, a subject that will be taken up later.

On the other hand, while disasters increase poverty, poverty is an important ingredient in turning hazards into disasters. For example, if poor farmers have access only to relatively unproductive land, they will be forced to overuse the land they have by over-grazing, deforestation, and unsustainable extraction of water resources that magnify hazard levels and aggravate disaster risk. But when people are pushed to their limits, they must focus on surviving in the present even though the strategies for doing so may only exacerbate their problems in the longer term. This exemplifies the business principle that long-term assets do not relieve short-term debts, and is an example of a tactic that might make sense at the micro-level but which almost invariably turns out to be counterproductive or even self-destructive over the longer term.

With food production becoming increasingly globalized at the hands of agribusiness, along with speculative fluctuations in the world prices for agricultural products, small farms have become less viable and the rural poor have been forced

to find either supplemental or replacement livelihoods in non-farm occupations, including food processing, transport, manufacturing, and even finance. In addition, many farmer workers migrate to the cities, either seasonally or permanently, in order to survive and provide remittances to household members who remain in the countryside. While some government aid programs and the efforts of NGOs have made it possible for a relative few of these farmers to remain on the land, the net result has been a burgeoning influx of migrants to the cities, with the attendant problems associated with unplanned and uncontrolled urbanization.

## **2.2 Urbanization and Poverty**

Over half of the world's population lives in urban areas, and this proportion is expected to rise to 70 % in the next few decades. Almost three-quarters of these people live in low- and middle-income countries, with a total of over 900 million of them extremely poor and lacking protection from common life- and health-threatening diseases and injuries. It is expected that almost all of the world's population growth between now and 2025 will take place in urban areas in these poorer regions.

The urban poor are subject to increased disaster risk because of two inter-related processes. First, outward urban and economic development generate new patterns of extensive risk such as flooding and other weather-related hazards, particularly affecting informal settlements on the periphery of large cities as well as in small and medium-sized urban centres. Second, as cities grow they become more densely populated, and there is an inward concentration or intensification of disaster risk associated mainly with earthquakes, tropical cyclones, and floods, causing major asset loss and mortality amongst the urban poor. Contending with these two dynamics is a matter of urban and local governance, and much too often this governance is either desperately inadequate or lacking altogether.

The concentration of private capital and its associated economic opportunities are crucial drivers of urban infrastructure expansion, while population increase is fuelled in large part by the rural-urban migration noted above. Concentrated private capital, however, does not by itself ensure that the supply of land for housing, infrastructure, and services keeps up with population growth, nor does it produce the regulatory framework to ensure that the environmental, occupational, and natural hazard-related risks generated by urban growth are managed adequately or at all. In poor countries, there is often a mismatch between the economic drivers of urban expansion and the institutional mechanisms to manage or govern the direct and indirect implications of economic concentration.

As a consequence, urban expansion in poor countries (and elsewhere) often occurs outside the legal framework of building codes and land use regulations. It regularly takes place without officially recorded or legally sanctioned land transactions. Inevitably, those with the least purchasing power and the least political influence end up occupying land or housing that nobody else wants. Informal

settlements spring up in these areas almost naturally because private investors are not interested in these places for commercial development, while city governments are usually incapable of using them to provide for the housing needs of the urban poor.

These informal settlements are rife with the extensive risks of local flooding, fires, and landslides. In most cities this is due to a significant proportion of informal settlements being built on dangerous sites that lack infrastructure and services. Because most informal settlements are illegal, they usually have no way to access these necessities. In addition, this kind of urban development magnifies hazard levels. Building on green areas, for instance, often occurs with no provision for more effective drainage and produces water runoffs that create floods, while encroaching construction destroys natural drainage channels or flood plains that would ordinarily help dissipate these floods.

At the level of individual households, the absence of land titles in these informal settlements means that the inhabitants have no incentive to improve the standard of their housing, nor do they have access to housing finance or technical assistance. This multiplies the effects of extensive risk, because events that are merely discomfiting in more well-off settlements become daily disasters when they affect defenseless informal ones. Additionally, because there are no land titles and hence no legal record of these settlements, governments often ignore them when it comes to providing infrastructure and services, which intensifies the negative impact of disasters among the poor.

Conditions are worse for poor women, both within these informal settlements and outside them, for they are discriminated against with regard to land tenure and access to income and services. These inequalities exacerbate their vulnerability to disaster risk and compound the effects of poverty on their lives. Unfortunately, there is little gender-disaggregated data available for risk assessments, in large part because this has not been a priority for many governments. It is a priority for many donor organizations, however, so there is hope that this situation can be ameliorated somewhat by their pressure on recipient public institutions.

## **2.3 Bad Governance**

Bad urban planning exacerbates these tendencies. The driving force of economic development, fuelled by private capital, skews decisions about where and what to build, leading urban areas to expand into hazardous locations that are sometimes extremely dangerous. Building power plants on fault lines, constructing housing on flood plains, cutting down shoreline mangroves to clear land for various commercial purposes, are just a few examples of decisions that put commercial gain ahead of concern for the lives and livelihoods of local populations or even concern for the sustainability of the commercial projects themselves. Without the moderating force of effective political regulation of economic development, there is no significant way to incentivize putting DRR concerns on anything like an equal

footing with economic gain when development decisions are made. If governance means exercising political authority for the welfare of the community as a whole, then allowing economic development to proceed unfettered is poor governance indeed.

Governments in poor countries aren't stupid, or at least they are no more stupid than governments in rich countries. Poor governance is more a result of much deeper structural irrationalities than it is of political backwardness, whatever 'backwardness' might mean. Earlier it was noted that the way we produce, distribute, and consume, i.e., the way our economic life is structured, is the primary generator of disaster risk. Specifically, however, it is important to note that economic development does not, and in fact cannot occur without some fundamental relationship with political power. The underpinnings of economic life are guaranteed politically, while politics in the world as we know it tends to reflect the distribution of economic power in society. Governments and governance necessarily reflect this essential inter-relationship.

This is why it is important to look at disasters from the point of view of political economy rather than from the perspective of economics as separate or separable from politics. That said, it follows that the nature of economic development is a governance issue of the first order. It reflects the specific relationship between economic and political power in every country and in the world as a whole. Placing DRR at the heart of development decisions will require a fairly important shift in that relationship and in the way we think about the obstacles that stand in the way of reducing the underlying factors of disaster risk. It will require changing the balance of forces between economic and political power so that the latter reflects the interests of the whole community rather than being the handmaiden of commercial developers. While this is not the place to investigate what this means in practice (in part because there can be no blueprint), it is useful to keep it in mind when assessing DRR progress and planning transformative actions to diminish the underlying factors of disaster risk.

As an aside, we should remind ourselves that bad governance is caused in part by bad information. Decisions cannot be usefully made if the information on which they are based is partial, skewed, or even false. But what counts as 'information'? In too many cases, determining economic losses depends entirely on monetary values and thereby underestimates the real costs of disasters to the poor. In rich countries, the monetary value of losses may be high, but their effect on the livelihoods of the affected population may be nowhere near as devastating as the effects of much lower monetary losses on poor people.

What are the real economic and humanitarian losses to a poor family or community that has had its economic infrastructure totally destroyed, even though the monetary value of that infrastructure was low? If they do not have the means to rebuild, their future is in serious jeopardy. If, for example, a school in a poor community is wiped out by a cyclone, what does this mean for the futures of the children and young people who are robbed of their chance for an education? How do you put a price on that? It is not the assessed financial cost of rebuilding the school that is at stake here, but any number of valuable assets that escape

monetization. Yet so many decisions taken by political authorities accept business accounting (i.e., the monetization of everything) as the only legitimate framework for calculating disaster risk. When looking through this lens, it is no wonder that so much remains invisible.

## 2.4 Ecosystem Decline

Ecosystems provide the fundamental necessities of life, such as food, water, protection from extreme weather events, and the purity of the air we breathe. These systems, however, are threatened by unregulated economic expansion and are fast losing their capacity to moderate disaster risk. We are polluting the atmosphere to such an extent that the planet's counterbalancing natural waste removal mechanisms, the so-called 'carbon sinks', can no longer keep up, with the buildup of atmospheric toxins rendering a fast-growing number of areas virtually unlivable. We are using (and abusing) water supplies at a rate that is completely unsustainable in the medium- and long-term, and this is already impacting human life negatively in the near term as well. Unbridled urbanization and uncontrolled agricultural and extractive practices are cutting into the sustainability of food production in the interests of short-term profitability, while small-holding farmers are rapidly being squeezed off the land, with those remaining forced to engage in short-sighted practices such as over-grazing simply in order to survive. Add to this the intensifying volatility and unpredictability of commodity prices due to financial speculation, and you have a recipe for a concatenation of extensive disasters, with intensive disasters as their cumulative outcome.

Modifications of ecosystems to increase production of food and fiber have unintentionally led to increasing people's exposure to risk, such as when deforestation of hillsides for agricultural purposes increases the danger of landslides and diminishes protection from high winds and flash flooding. Likewise, as part of deforestation worldwide, destruction of mangroves is removing barriers against storm surges. Since forests play a crucial role in protecting and regulating soil and water catchments, deforestation, which is increasing globally at a rate of 0.2 % a year, is contributing to intensified flood and drought cycles. Many ecosystem modifications like this have been accomplished in the service of economic interests that remain unaffected by the associated hazards that accrue to local, often poor, populations.

Land degradation affects almost 15 % of the global population, primarily in poor areas, although the figure is probably larger if we include areas affected by bad agricultural practices in rich countries as well, where soil exhaustion and erosion, overuse of agricultural chemicals, land poisoning by the extractive industries, and other short-sighted, unsustainable practices are ubiquitous. By poisoning water reserves while at the same time overusing them, these practices are destroying supplies of nutritious food and clean water that are essential to the continuation of

human life. Yet these phenomena are overshadowed as underlying disaster risk drivers by the ongoing, man-made menace of global climate change.

## 2.5 Climate Change

Climate change is denied only by those with a strong economic interest in doing so, and its anthropogenesis is discounted for the same reason by those who accept its reality but do not want to try to do anything about it. A virtual unanimity of climate scientists, however, agrees that climate change is real, increasingly dangerous to human life, and man-made.

Climate change affects nearly every aspect of human activity, and generally does so destructively. With respect to disaster risk, its effects are devastating and are becoming more so. While climate change does not magnify all disasters, it surely intensifies the 80 per cent of disasters that are weather-related. And even though a great deal can be done to diminish disaster risk through actions that are not directed at climate change, it seems clear that in the coming years climate-related disasters, both intensive and extensive, will demand significantly increased attention to this threat to the continuation of human life.

It may even be misleading to list climate change alongside the other underlying risk factors we have been considering. It probably deserves its own category as a *meta-disaster*. By its very nature it does not occur locally, even though local conditions shape its impact in the moment. It does not submit to local actions except where they consist of adaptations to its effects; mitigating or stopping climate change will require global policies that are universally enforced and adhered to under threat of mandatory sanctions.

This makes climate change different from poverty alleviation, unchecked urbanization, or ecosystem protection because these can be dealt with at the level of communities, countries, and regions. It is possible to rebuild informal settlements, improve governance at all geographic levels, repair environmental damage to some extent, and create resilient communities to withstand various specific disasters. Building informal settlements in flood-prone areas can be stopped, although that would probably involve a fairly massive redistribution of resources, not to mention political and economic power, and the disaster-poverty nexus can certainly be broken by social policies qualitatively and quantitatively different from the ones currently in place. We cannot, therefore, put off addressing the structural causes of poverty, upgrading housing in informal settlements, strengthening governance at all levels and managing natural resources much better in low- and middle-income countries (with attention to these issues in rich countries as well). Climate change cannot be used as an excuse to relax our efforts to deal directly with these and other factors underlying disaster risk.

But climate change rolls on, generating more intense weather-related events and in so doing increasing poverty and sapping people's resilience. As a set of countermeasures, what is required is a complete shift in the global economy away from

burning fossil fuels, away from overdependence on carbon-based agriculture, towards a reorganization of global transport, and finally towards a complete overhaul of the way we order our lives, with the consequential shift in political power that all this entails.

This may seem daunting, and of course it is, but what other choice do we have? Technological fixes belong to the realm of fantasy, based on a quasi-religious belief in humanity's capacity for 'innovation' (always seen as technological) and a deep-seated desire to change, "but not too much". Even just mentioning the implications and requirements of climate change takes most of us out of our "comfort zones", (an infelicitous locution if there ever was one, and a polite way of telling people to shut up). There are, however, ways of approaching climate change that identify the lever with which the problem can be made to budge. We will come back to this toward the end of this document.

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Gordy, M.

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