

# The Role of Environmental Degradation in Population Displacement<sup>1</sup>

by Steve Lonergan

## INTRODUCTION

THE UNHCR IN THE 1993 *STATE OF THE WORLD'S REFUGEES*, IDENTIFIED FOUR ROOT CAUSES OF REFUGEE FLOWS. THESE were: political instability; economic tensions; ethnic conflict; and *environmental degradation*. The claim that environmental degradation was a root cause of refugee flows was a direct response to a growing number of articles positing a link between environmental degradation and population movement, and a recognition that the numbers of displaced persons internationally was much larger than indicated by the statistics on refugee flows.

According to many writers, the number of people who have been displaced by environmental degradation is immense. Jacobson (1988) notes that, "environmental refugees have become the single largest class of displaced persons in the world." Homer-Dixon (1991) further notes that environmental degradation is likely to produce "waves of environmental refugees that spill across borders with destabilizing effects" on domestic order and international relations. Speaking of displaced persons unaccounted for in official refugee figures, the Executive Director of UNEP at the time, Mustafa Tolba (1985), stated that "these people are the millions fleeing the droughts of northern Africa, the victims of Bhopal and the thousands made homeless by the Mexico earthquake. They are environmental refugees."

Estimates of the number of environmental refugees start at 10 million (compared to 17 million official refugees); more than half of these are believed to be in Sub-Saharan Africa (Jacobson, 1988; Trolldalen, et. al., 1992; Westing, 1992). Because governments generally take little official account of this unconventional category, Myers (1992) estimates that the numbers may be as high as 25 million. It is also claimed that the numbers are increasing rapidly. The Intergovernmental Panel on Climate Change (IPCC, 1990) noted that the greatest effect of climate change may be on human migration as millions of people will be displaced due to shoreline erosion, coastal flooding and agricultural disruption. Following from this, Myers (1992) projected environmental refugees in a greenhouse-affected world (in yr. 2050) at 150 million persons. Westing (1992) further documented displaced persons throughout the world in 1990 (using UN data), including officially recognized refugees (16.7 million), unrecognized, cross-border "refugees" (3.5 million), and unrecognized, internal "refugees" (21.3 million). He sums these into a category of "total national refugees" with 41.5 million persons. In 1986, the total was only 26.4 million, and he speculates that the growth is due to the addition of "environmental refugees."

The consideration for people who may have been displaced by environmental degradation has reached far beyond a humanitarian concern for a disenfranchised population; in some quarters, it is being considered a "threat to security." Betterton (1992, as cited in Honebrink, 1993) noted that the U.S. military may be needed "to guard the border with Mexico, as it is expected that problems may result from environmental refugees fleeing the Third World." Indeed, the anti-immigration literature in the United States and Europe often claims that immigration is a cause of environmental degradation, thereby bringing the links full circle (see, for example, Beck, 1996; Williamson, 1996; and the literature distributed by FAIR, the Federation of Americans for Immigration Reform). Quotes like the ones below are becoming increasingly prevalent in the popular literature.

It is not antihuman or antisocial to say that too many people can be a problem.... People pollute, and too many people living in an area can degrade that area irrevocably. Immigration at high levels exacerbates our resource and environmental problems. It will leave a poorer, more crowded, more divided country for our children (Lamm and Imhoff, 1985).

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...Immigration has been a substantial cause of the negative environmental news that must be mixed among all the good.... Thus, to what extent environmental problems can be blamed on U.S. population growth, the preponderance of that blame rests on U.S. immigration policy. Only a reduction in numbers will deal with the environmental problem. (Beck, 1996).

While some may feel that such claims are little more than disguised racism—a “greening of hate” might be a better term—it is important to accept that the issue of environmental degradation and population displacement has reached a level of “high politics” discourse. This is true whether viewing environmental degradation as a “cause” or an “effect.”

The purpose of this paper is to clarify the myriad of issues surrounding the linkage between environmental degradation and population displacement. The presentation on the following pages adopts a problem-based approach, attempting to answer crucial questions regarding, for example, the evidence of a link and the potential policy implications of the existing research. In addition, the concern is only with environment as a possible *cause of, or contributor to*, population movement, as opposed to the potential environmental repercussions associated with population movement. The latter concern, while very much in the public debate, has been addressed elsewhere (see Li and Loneragan, forthcoming).

#### THE ROLE OF ENVIRONMENT IN MIGRATION MOVEMENTS

Migration has been described as “an extremely varied and complex manifestation and component of equally complex economic, social, cultural, demographic, and political processes operating at the local, regional, national, and international levels” (Castles and Miller, 1993). As complex as migration is, the environment is equally so. And it is similarly problematic to remove environmental processes from the social, economic, political and institutional structures of which they are a part. Therefore, drawing a linear, deterministic relationship between environmental degradation and migration (and security) is not only inappropriate, but impossible, despite the claims of some authors. Nevertheless, we can try to identify certain cases where environment plays an important role as a *contributor* to population movement and attempt to design interventions to minimize the negative impacts associated with such cases.

##### 1. How many refugees and migrants are there?

This is an almost impossible question to answer. The International Organization of Migration estimated that there were over 80 million migrants in 1990 (IOM,

1990). Fifteen million of these were refugees and asylum seekers. By 1992, estimates put the total number of migrants at over 100 million, of whom 20 million were refugees and asylum seekers (Castles and Miller, 1993). However, UNHCR (1995) acknowledges that collecting accurate statistical data on refugees and asylum-seekers is “one of the most problematic issues” confronting the agency, and these figures, indeed all figures cited in this article, must be treated with suspicion.

Nevertheless, rough estimates of the total number of displaced persons are often presented with abandon, either for shock value or for political reasons. Myers (1995) states that China has “120 million internal migrants, and at least ...six million deserve to be regarded as environmental refugees.” He goes on to say that there are now at least 25 million “environmental refugees” (Myers, 1995: 15). The International Organization for Migration (IOM, 1992) goes farther, noting that by the turn of the century there may be *one billion* persons who have been “environmentally displaced from their original habitat.” Such claims lead to much confusion and fear on the part of many, and provide ample “evidence” for those wishing to promote anti-immigration rhetoric in the North.

##### 2. Even if we can not accurately estimate the number of migrants, what have traditionally been presented as the causes of migration flows?

The literature on migration is voluminous, and there will be no attempt to repeat this information here. Theories on the causes of migration flows can generally be categorized into two broad perspectives. The first is a “neo-classical economics equilibrium approach,” which suggests that population movement is a “natural” response to interregional differences in social and economic opportunities, and people generally move from where labour is plentiful and capital is scarce to labour-deficit and capital-rich areas. Thus, the level of development in various regions of the globe is seen as determining the magnitude and direction of migratory streams. Extensions to the neo-classical approach explain population movements based on a combination of “push” and “pull” factors; existing conditions at the place of origin may motivate an individual to leave, or qualities of the area of destination may attract a potential migrant. Demographic pressures, political instability, lack of economic opportunities and, more recently, environmental degradation have been posed as possible “push” factors.

The second approach criticizes the neo-classical economic perspective for placing too much emphasis on the free choice of individuals, and for neglecting the macro-structural forces which lie at the base of the regional disparities to which people respond. Population movements are not unique or isolated events, but

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**B**y the turn of the century there may be one billion persons who have been “environmentally displaced from their original habitat.”

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are related to the international power structure and institutional organization. According to this “structuralist” approach, the explanation for population movements lies in the deeper, underlying forces which structure the unequal distribution of opportunities between regions. Population movements, then, are a response to broader structural forces in society, in particular those associated with the uneven penetration of capitalism which has created substantial spatial inequalities.

The difference between neo-classical economic theories of population movements and the structuralist approach influences all aspects of any discussion regarding the issue. Not only do the theories offer opposing views of the causes of refugee movements, but they also imply very different outcomes. The neo-classical approach, arguing that population displacements are natural occurrences, suggests that they are positive events and that policy development should reflect and reinforce the beneficial aspects of these movements. The structuralist approach, however, emphasizes that population movements are a response to unnatural imbalances in power and opportunities. Consequently, the negative aspects of population displacements are a function of inequities in development, and policy should be developed to address these imbalances and attempt to stem what must be viewed as a consequence of the inequitable distribution of resources in society.

### 3. What role does the environment play as a contributor to population movement?

#### a) The Advocates

Although there is growing awareness of, and interest in, the relationship between environmental change and population movement, the traditional literature on migration has largely ignored the connection. In their report to the Trilateral Commission (*International Migration: Challenges in a New Era*), Meissner et. al. (1993) never once mention environment or resources. Rogers (1992) in his discussion on migration presents four key indicators of “migration potential:”

- population growth;
- economic restructuring;
- increasing economic disparities; and
- increased refugee flows.

Again, environment is not mentioned. Other recent reviews on the causes of migration which fail to

include environmental degradation or resource depletion as factors include Appleyard, 1991; and Massey, et al, 1993). This stands in stark contrast to the statements in *The State of the World's Refugees* (UNHCR, 1993), which clearly identify environmental degradation as a root cause of population displacement, as mentioned above (it is worth noting, however, that the 1995 volume by UNHCR does not make a similar claim).

Countering the traditional perspective on migration is a growing literature which claims that traditional theories fail to recognize the true extent and complexity of migratory responses to environmental degradation (cf. Hall and Hanson, 1992; Kavanagh and Lonergan, 1992; Fornos, 1993; Stoett, 1993; Lee, 1996; Suhrke, 1992, 1996; Vlachos, 1996). Most attention has focused on the plight of “ecological refugees” or “environmental refugees” (El-Hinnawi, 1985; UNHCR, 1993). While the World Commission on Environment and Development (WCED) identified environmentally-induced population displacement as a “recent phenomenon” (WCED, 1987), there is little doubt that throughout history people have had to move from their land because it has become degraded through natural disasters, warfare or over-exploitation. Intuitively, it makes sense that environmental change may affect socio-economic conditions which, in turn, could lead to out-migration. Indeed, recurrent droughts and extreme flooding have uprooted millions of people, although whether environmental catastrophes were the root cause of such movement is unclear.

The concern that environmental degradation will produce “waves of refugees,” however, is more recent, based largely on the writings of El-Hinnawi (1985), Jacobson (1988) and Myers (1993; 1995). Suhrke (1992) labels this group the “maximalists.” Supporting their arguments is the fact that environmental disasters such as floods, droughts and earthquakes are displacing ever larger numbers of people, not necessarily because the severity of these events is becoming greater,<sup>2</sup> but because population density, especially in regions which are prone to disaster, is increasing rapidly. Land and resource scarcity elsewhere may also be a strong contributor to these increases in density in vulnerable areas.

Since its first official use in 1985 by El-Hinnawi in his United Nations Environment Programme (UNEP) report, the phrase “environmental refugee” has appeared with increasing frequency in the literature on environment and development. “Environmental refugees” are defined by El-Hinnawi as:

...those people who have been forced to leave their traditional habitat, temporarily or permanently, because of a marked environmental disruption (natural and/or triggered by people) that jeopardized their existence and/or seriously affected the quality of their life (El-Hinnawi, 1985, p.4).

Jacobson (1988) notes that “environmental refugees have become the single largest class of displaced persons in the world,” with an estimated 10 million environmentally-displaced persons in the late 1980s, compared with 17 million official political refugees displaced by warfare, strife and persecution (see Table 1). And the conclusion by the UNHCR is unequivocal: “There are, nevertheless, clear links between environmental degradation and refugee flows” (UNHCR, 1993, p. 18). While the UNHCR claim may be true, it does not necessarily follow that environmental degradation has been the cause of a majority of “refugee” flows.

b) *The Contrarians*

Despite these claims, it remains that there has been little substantive research directed at the question of the role of environmental change in population movement. Considerable confusion has arisen over definitions, the size of these “refugee” flows and whether one, indeed, can isolate environmental causes from the complex set of variables affecting population movement. While there is a sense that drastic environmental change may affect the structural forces which, in turn, link to population movement, the environment is seen as little more than a “contextual factor” which is taken into consideration in decision-making (Suhrke, 1992, labels this perspective the “minimalist”). The arguments presented by the “maximalists” (it is claimed) are ill-founded, and based on anecdotal information.

**Table 1. Estimates of “Environmental Refugees”**

For example, Myers (1993) estimates that that for every person who moves across an international boundary to escape environmental pressures there may

be two or three similarly displaced people who move within their territory of nationhood—so-called “internally displaced persons.” Myers adds these two categories of population movement together and estimates the total number of “environmentally displaced” persons to be as high as 25 million (he further predicts, as a worst case scenario, that this figure may increase to 150 million by the year 2050 as a result of the “greenhouse effect” and rising sea-levels). Westing (1992) speculates that the growth in the world’s refugee and internally displaced population from 26.4 million in 1986 to 41.5 million in 1990 may have been attributable to environmental degradation, which has forced people from their land.

The writings noted above which have popularized the phenomenon of “environmental refugees” are problematic for reasons which are both definitional and substantive. First, the words “estimate” and “speculate” above are used advisedly: in most cases these figures are little more than educated guesswork—there is little empirical evidence with which to authenticate these authors’ claims (Mougeot, 1992).

Second, there is too often an uncritical acceptance of a direct causal link between environmental degradation and population displacement. Implicit in these writings is the belief that environmental degradation—as a possible cause of population displacement—can be separated from other social, economic or political causes. It must be recognized that the degradation of the environment is socially and spatially constructed; only through a structural understanding of the environment in the broader political and cultural context of a region or country can one begin to understand the “role” it plays as a factor in population movement.

Third, not only are the definitions offered for environmental refugees ambiguous and inconsistent, the projections of future numbers do not take into consideration adaptation, there is no discussion of the role of public policy—or other factors—in the increase in the numbers of displaced people, and the analyses are, in most cases, quite superficial. Why do people continue to move into Mexico City and Chongqing, China, two of the most polluted places on Earth? Why does severe environmental degradation not generate large out-migration in many cases?

Last, some authors are concerned that there is no legal basis for the definition of “environmental refugee.” Not only does this conflict with the standard definition of refugees which was codified in the 1951 Convention and 1967 Protocol relating to the Status of Refugees, but it may undermine current work towards using broader human rights criteria to determine refugee status (McGregor, 1993).

Despite these criticisms, it is important not to trivialize the potential role environmental change may play in population movement. It is entirely possible that the impact of environmental degradation and re-

source depletion on population movement may be even more important than these authors suggest.

#### **4. What does “environment” mean in the context of migration?**

Part of the difficulty in determining what role the “environment” plays as a cause of, or contributor to, population movement is that authors interpret “environment” quite broadly, or keep it ill-defined. El-Hinnawi (1985), for example, notes three categories of “environmental refugees:”

- Those temporarily displaced because of an environmental stress such as an earthquake, or cyclone, and who will likely return to their original habitat;
- Those permanently displaced because of permanent changes to their habitat, such as dams or lakes; and
- Those who are permanently displaced desiring an improved quality of life because their original habitat can no longer provide for their basic needs.

In these three categories, El-Hinnawi has incorporated three very different groups of migrants. In the first case, there is a temporary movement from physical danger; the second category involves development projects where individuals are forced to resettle within a region (and there is a question how many “internal” refugees are generated by these processes); and the third reflects a voluntary movement based on the “push-pull” model noted above.

It is useful to categorize environmental stress, as follows (Loneragan, 1994):

- **Natural Disasters**  
Natural disasters include floods, volcanoes and earthquakes. They are usually characterized by a rapid onset, and their impact (destructiveness) is a function of the number of vulnerable people in the region rather than the severity of the disaster, per se. Poor people in developing countries are the most affected because they are the most vulnerable. (Droughts, despite a slower onset, are also included in this category.) Recent earthquakes in Pakistan and flooding in many regions of the world indicates not only the destructiveness of disasters, but their ability to displace large numbers of people.
- **Cumulative Changes or “Slow-Onset Changes”**  
Cumulative changes are generally natural processes occurring at a slower rate which interact with—and are advanced by—human activities. The processes include deforestation, land degradation, erosion, salinity, siltation, waterlogging, desertification and climate warming. Human-induced soil degradation is one factor

which directly affects economic sufficiency in rural areas. Water availability is another factor which may affect sustainable livelihoods. Do factors such as water scarcity and human-induced soil degradation in and of themselves cause population displacement? The linkage is much more indirect; in most cases, one or more of rapid population growth, economic decline, inequitable distribution of resources, lack of institutional support and political repression are also present.

- **Accidental Disruptions or Industrial Accidents**  
This category includes chemical manufacture and transport and nuclear reactor accidents. The two most obvious examples are the nuclear accident at Chernobyl, in the former USSR in 1986, and the Union Carbide accident in Bhopal, India, in 1987. Between 1986 and 1992, there were over 75 major chemical accidents which killed almost 4000 persons worldwide, injured another 62,000, and displaced over 2 million (UNEP, 1993). Most of these displacements, however, were temporary. In the case of the accident at Bhopal, despite the death of 2,800 people and illnesses to 200,000 more, there was virtually no mass movement of population out of the region.

- **Development Projects**  
Development projects which involve forced resettlement include dams and irrigation projects. In India, for example, it has been estimated that over 20 million persons have been uprooted by development projects in the past three decades (Fornos, 1992). The Three Gorges Dam project in China - expected to displace over 1 million persons - and the Sardar Sarovar Dam project in India are the most notable present examples. Rapid urbanization in some regions of the world is also forcing people from their land; conversion of agricultural land to urban uses has long been a phenomenon in the North, and increasingly this is the case in the South as well.

- **Conflict and Warfare**  
Environmental degradation is considered by many to be both a cause and effect of armed conflict. Although the evidence of wars being fought over the environment is weak (except, of course, over land), there is an increasing use of the environment as a “weapon” of war or, as Gleick (1990) notes, as a “strategic tool.” One obvious example in this category was the threat by then President Ozal of Turkey to restrict the flow of the Euphrates to Syria and Iraq in order to pressure Syria to discontinue its support of Kurdish separatists in Turkey. Other examples include the purposeful discharge of oil into the Persian Gulf during the Gulf War and the destruction of irrigation systems during conflicts in Somalia. Such activities have similar—and, indeed, more immediate—consequences as the slow-onset changes noted above. But in these cases, it seems

clear that the “environment” is merely a symptom of a larger conflict, and the root cause of any population movement is the conflict itself, and the reasons behind it.

##### 5. *How does one reconcile these different aspects of environment?*

Collectively, it is claimed that these “environmental” changes have resulted in millions of displaced persons. The global deterioration of the environment, continued population growth, and increasing resource scarcity will likely play an increasing role in population movement in the future. But are these factors all “environmental?” And what are the links to migration?

To understand causal relationships, and to better design policy interventions, it is imperative that these five categories be treated separately, and not considered collectively as “environmental degradation.” In some cases, there is minimal impact on population movement, while in others, the role of “environment” is extremely difficult to ascertain. It is clear, for example, that *industrial accidents* have had relatively little impact on migration, with the exception of Chernobyl. Most accidents have resulted in a short-term relocation, but very few (of the more than 2 million cited above) have been displaced permanently from their homes. In the context of other changes, this is a relatively minor concern.

Development projects, while there is little question that they displace large populations, should also be treated separately from other categories. The magnitude of some of the projects is, indeed, daunting, and it has caused the World Bank to avoid any projects which involve major resettlement programs (such as Sardar Sarovar in India). In theory, these projects include a resettlement component, and are unlikely to produce the “waves of environmental refugees” that Homer-Dixon cautions about.

The links between *natural disasters* and population displacement are also problematic. Sadako Ogata, the UN High Commissioner on Refugees, stated in 1992 that the “majority of refugees are found in arid and semi-arid areas of the poorest countries of the world.” Examples of the devastating impact of natural disasters, however, generally come from Bangladesh, Central America, Haiti and South Korea. There is little question that the number of people affected by natural disasters has increased markedly over the past three decades (from 28 million in the 1960s to 64 million in the 1980s). Population growth—particularly in vulnerable areas—and poverty have combined to make larger numbers of people susceptible to environmental disasters. And while the number of homeless is significant, it does not imply that these people migrated to different regions or countries. Indeed, some authors claim

that sudden-onset disasters have resulted more in increased death rather than increased flight (Lee, 1996).

The category of *cumulative, or slow-onset, change*, may well be the most important in terms of being a force in population migration, but it is also the most difficult to measure. Environmental changes such as increased water scarcity and soil degradation may be one factor among many facing a potential migrant. As was noted before, removing environmental processes from the social, economic and political processes in which they are embedded is virtually impossible.

##### 6. *What is the evidence presented for a link between environment and migration?*

Numerous examples are presented to substantiate the link between environmental change and population movement, but the most common are the Sahel in Africa, El Salvador, Haiti, and Bangladesh (El Hinnawi, 1985; Hall and Hanson, 1992; Surhke, 1992; Myers, 1995). There is little doubt that each of these regions/countries has experienced significant environmental stress: droughts, deforestation, soil degradation, and flooding are the most notable. But it is also clear that there are a myriad of other social, economic and institutional processes which are present. Rapid population growth, inequitable land distribution, civil war, extreme poverty, and so on. For example, the Kissinger Report of 1984 attributed the conflict in El Salvador to poverty and inequality; the conflict in the country has resulted in over a million people displaced. But what role did the environment play? Deforestation, exploitation of coastal resources, and the civil war have resulted in substantial environmental damage in the country (Hall and Hanson, 1992). In turn, as Leonard (1989) notes,

If deterioration of these natural resource systems continues, political and social instability will be exacerbated as will economic stagnation and rural poverty. This phenomenon in turn will constrain future economic and social development in all seven countries of greater Central America.

Is environmental degradation a root cause of population movement in El Salvador? It likely played a role, but it was certainly not a root cause.

Another often used example is the Sahel, where droughts and famine have severely impacted people in almost every country in the region. But poverty, marginal agricultural land, institutional constraints, war, inflation and landlessness not only increased the vulnerability of the population to climate variation, but affected the ability of individuals and communities to adapt to a changing environment. The people became more vulnerable, not because of environmental degradation, per se, but because of a host of other social, eco-

nomic and institutional factors.

The same is true in all cases which are used as “evidence” of environmental refugees. The key factor is that certain populations are becoming more vulnerable to environmental change because of other factors; primary among these are poverty and resource inequality, coupled with population growth, institutional constraints, and economic insufficiency.

**7. *Is there evidence to the contrary? That environmental change is not linked to migration?***

This question is equally problematic. Direct evidence refuting the claim that environmental factors influence population migration suffers the same difficulties of isolating one factor as all studies. Mougeot (1992) did review World Bank projects to determine if environment was a proximate cause of population movement and found no evidence of a connection, but the scope of this study was very limited. It is clear that there remains a need to better understand the linkages between environmental change and population displacement, to identify regions and populations most vulnerable to environmental degradation, and to lend support to the populations at risk. And despite the fact that evidence provided to identify the link between environmental degradation and population displacement is highly speculative, it is important not to trivialize the role the above factors increasingly may play in population movements. Individuals, families and communities have a remarkable ability to adapt to changing and distressed conditions, and the initial response is to develop stronger safety and coping mechanisms to deal with adverse ecological and economic circumstances. But continued environmental degradation and resource depletion coupled with increasing impoverishment in certain regions is placing a heavy burden on these adaptation responses, and they are becoming powerful impelling factors in population displacement.

**8. *What types of environmental problems might there be in the future which could affect migration?***

The Intergovernmental Panel on Climate Change (IPCC) noted in 1990 that the greatest effect of climate change may be on human migration as millions of people will be displaced due to shoreline erosion, coastal flooding and agricultural disruption. Based on this, Myers (1992) projects “environmental refugees” in a greenhouse-affected world (by the middle of the next century) at 150 million persons. While this may be an overstatement, it is true that sea-level rise and coastal flooding will require significant adaptation on the part of some countries, particularly those which have large populations living within a meter of sea-level. The IPCC adds that up to 360,000 km of coast-

line might be affected.

None of the estimates of migration associated with global warming gives any consideration to adaptation mechanisms. While there may be significant implications for some regions, these changes will occur slowly, and by all accounts, most communities and regions will be able to adapt without substantial social or economic cost. Again, the most vulnerable will be the poor, with few options in the face of environmental change.

Water scarcity and poor air quality are other problems which come to mind. But Amman, Jordan—with severe water scarcity—and Mexico City—with the world’s worst levels of air pollution—are both growing very rapidly from in-migration. Indeed, in some instances, it is easier to find cases of people moving to regions which have suffered environmental degradation than moving away from those regions.

Likely the greatest impact on people’s decision to move will be degradation of the land, through deforestation and inappropriate agricultural practices. Salinization and waterlogging of irrigated land will reduce output and increase the economic discrepancies between regions. However, even land degradation is a gradual process, which allows for adaptation.

There is a need for further study of the adaptation mechanisms available to individuals and communities. How have regions coped with environmental stress? Why hasn’t resource scarcity resulted in major migrations? What types of adaptation mechanisms can donor nations assist with?

**9. *What conclusions can be drawn from the above information?***

The four general conclusions below (some of which are adapted from Lonergan and Parnwell, forthcoming), reflect the answers to the questions above.

- *Generalizations about the relationship between environmental degradation and population movement mask a great deal of the complexity which characterizes migration decision-making.*

Much of the literature suggests a deterministic cause and effect model where a set of environmental stresses will result in a similar response—migration—from individuals and communities. This may occur with certain forms of environmental catastrophe, where there is no option but to move. But in general such a model is very misleading. Levels of internal differentiation within communities are typically high, and thus people will have different levels of ability to cope with environmental stresses. Furthermore, people’s “tolerance thresholds” are highly variable, being surpassed very readily in some (perhaps the more footloose members of a rural community), and being almost insurmountable in others (for instance, older residents who

have a strong attachment to the home area and thus a built-in inertia). A proper appreciation and understanding of the complexity and diversity of human responses to environmental degradation is essential if we are to identify the full extent of the phenomenon and plan accordingly.

- *It is extremely difficult to isolate the specific contribution of environmental change in many forms of population*

cess. There are three important stages in the movement process: survival—using movement as a means of obtaining relief from environmental stresses; recovery—where movers are able to use their movement to recover from the problem, and consolidate their position; and finally, improvement—where a person is able to use movement as a means of enhancing their position and prospects, in which case a return to the place of origin may be less likely to occur. The prospects of

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*It is apparent that environmental degradation and resource depletion may play a contributing role in affecting population movement, often filtered through contexts of poverty and inequity.*

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*movement, especially those which are more “voluntary” in nature.*

It may be relatively easy to identify the parallel occurrence of environmental degradation and population movement, but assuming a causal link may be misleading and dangerous. In reality, movement takes place in response to a combination of environmental, economic, social and political (including armed conflict) stimuli. Thus separating environmental processes from the structures within which they are embedded is both difficult and a distortion of reality.

- *There is also an implicit assumption in the literature that movement is an assured means of obtaining relief from environmental pressures.*

Despite the ancient Chinese proverb that states “Of thirty ways to escape danger, running away is the best” (from El-Hinnawi, 1985), it is not necessarily the case that movement always reduces environmental—or other—stress. In reality, movement may lead to the substitution of one set of stresses (environmental) for another (economic, social, political and/or further environmental stresses). Movers may have to accept whatever opportunities come their way in the new location.

- *An important question—often overlooked where the central preoccupation is with identifying the volume of the migratory movement—concerns the future intentions of environmentally-displaced persons, not least with regard to the duration of their sojourn.*

Do migrants intend to return to their home area, if that option is available, or remain in their new location? The answer to this question will have a significant bearing upon their actions and behaviour in their place of refuge, and is also crucial to the planning pro-

cess. Reaching any one of these stages will be a function of the severity of the environmental crisis and the opportunities which become available to the displacee through movement.

#### POLICY RECOMMENDATIONS

These four general conclusions underscore the difficulty in developing policy prescriptions to deal with the issue of environmental degradation and population movement. Migration is a complex phenomenon, and it is not clear what role environmental degradation plays in influencing a person’s decision to migrate. It is also difficult, if not impossible, to isolate environment from other social, economic, and political factors. And there has been a dearth of research that focuses on individual or collective human perceptions and evaluations of actual and expected conditions of the environment as a source of insecurity and migration stress. Developing policy prescriptions in this context, therefore, is a risky enterprise, at best. However, accepting these difficulties, two sets of recommendations are presented below. The first set presents general policy recommendations for assisting communities and regions under environmental stress, particularly where that stress may contribute to population movement. The second set provides specific policy recommendations for agencies involved in setting refugee policy.

#### *What types of policy recommendations can one make globally?*

Despite the complex nature of migration flows, and the ongoing debate on the role of environmental degradation as a cause of, or contributor to, migration, there is little doubt that we need to give greater consideration to environmental deterioration and resource scarcity in our development assistance activities. This implies a major emphasis on promoting sustainable de-

velopment and its ecological, economic and social manifestations, and ensuring human security. More specific recommendations include:

- Develop a system to help anticipate migrations which might be triggered by environmental disruptions;
- Focus efforts on identifying adaptation mechanisms, and how these mechanisms might be reinforced in vulnerable communities and regions;
- Develop case studies of how environmental degradation influences migration, with specific consideration of developing procedures to assist those affected by environmental disruptions;
- Develop better working relationships among human rights, environment, population and migration organizations;
- Involve migrants and refugees directly in the development of programs to assist those affected by environmental deterioration;
- Recognize the cumulative causality of environmental degradation and population movement, and assist receiving regions to ensure minimal environmental impacts of the migration flows;
- Provide assistance to countries most vulnerable to future environmental change; and
- Recognize that human rights and the environment—indeed, human security and all its components—should be the cornerstone of any assistance policies.

Can we make more specific policy recommendations that are relevant to government agencies?

As noted above, environmental degradation and resource depletion are only two of many factors that may contribute to insecurity and, as a response, population movement. Other key factors surely include population growth and an inequitable distribution of income and/or resources (often linked to impoverishment). The following quote from the World Commission on Environment and Development (WCED, 1987) is telling:

...Poverty is a major cause and effect of global environmental problems. It is therefore futile to attempt to deal with environmental problems without a broader perspective that encompasses the factors underlying world poverty and international equality.

This implies that policy prescriptions should focus on promoting sustainability in resource use, reduc-

ing rates of population growth, and addressing the inequitable distribution of income and access to resources between and within countries. Such policies should also incorporate activities which will assist in reducing both the biophysical and social vulnerability of individuals and communities to environmental change. Examples include:

- An increase in support for family planning in developing countries. Since population growth is a threat to the environment and to the economic livelihood of many people, it is imperative that birth rates are brought down.
- There must be greater focus on agricultural activities in developing countries. This should focus on reducing erosion and deforestation, and increasing the sustainability of small farms in marginal areas.
- Greater effort should be made to improve education and awareness with respect to the environment. This includes care for the environment and sustainable resource use.
- In this context, an adequate supply of freshwater is crucial. It is also imperative that treated water be recycled to agricultural uses. Inefficient use of water, water loss in urban areas, and the lack of systems to use recycled water greatly affect social welfare.
- There must be greater capacity building in the administration of environmental programs. This ranges from increased support for NGOs in the environmental field to the development of government agencies that can participate in international environmental work.

The complex nature of environment—population linkages makes it difficult to develop policy recommendations that are as concrete as many would like. However, it is apparent that environmental degradation and resource depletion may play a contributing role in affecting population movement, often filtered through contexts of poverty and inequity. In turn, it is clear that some population movements—particularly large scale, mass movements—have a negative impact on the natural environment of receiving regions. In order to develop a more concise policy agenda, it is imperative that further attention be given to the links among environment, population and poverty; to which groups are most vulnerable to environmental change; and to identifying vulnerable regions and future “hot spots” of insecurity and potential migration/refugee pressure.

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#### Notes

<sup>1</sup> A note on terminology: Throughout the text, three terms are used to denote the role of the environment as a cause of, or contributor to, population movement. My strong preference is to use the term "environmental migrants" or "environmental degradation and population displacement." These terms encompass the range of cases where environmental degradation may result in a voluntary move, an impelled move, or a forced move. However, the term "environmental refugees"—which implies the movement was forced and that international protection is required—has entered the popular language through the various articles and books noted throughout this document (some of them published by the UN). In cases where direct reference is being made to previous work which uses the term "environmental refugees," this term is kept, but included with quotation marks.

<sup>2</sup> It should be noted that, with global warming, the magnitude and frequency of extreme events is expected to increase, further exacerbating this problem.