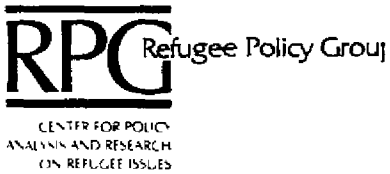
UNITED NATIONS
HIGH COMMISSIONER
FOR REFUGEES

INTERNATIONAL ORGANIZATION FOR
MIGRATION (IOM)



International Symposium

ENVIRONMENTALLY-INDUCED POPULATION DISPLACEMENTS

AND

ENVIRONMENTAL IMPACTS RESULTING FROM MASS MIGRATION$

Geneva, 21-24 April 1996

THE ENVIRONMENTAL EFFECTS OF MASS FORCED MIGRATIONS

Steven Hansch & Karen Jacobsen
The Refugee Policy Group

The Environmental Effects of Mass Forced Migrations

by Steven Hansch & Karen Jacobsen
The Refugee Policy Group

Introduction

In the last ten years there has been much growth in interest around the subject of refugees and the environment. Most of the literature on this subject focuses on the negative impact -- resource degradation -- surrounding established rural refugee camps. In contrast, very little has been published on equally important issues, such as the impact of internally displaced persons or urban refugees, or about positive lessons of mass migration and constructive use of resources. There has also been relatively little discussion about what the long-term significance is of these short-term environmental effects. Few studies, for example, have investigated the extent to which ecosystems have rebounded from the changes caused by mass migrations and the factors that condition ecological recovery.

This paper reviews these issues in the course of summarizing what is known about the forms of environmental impact, both short- and long-term, related to mass forced migrations, primarily in the developing world.

Growing Interest in the Issue

The growing interest is evidenced by the numerous articles written in just the last few years that review the evidence on refugees and environment impact. In the the 1990s, key reviews have been prepared by Surke (1994), Jacobsen (1993), Black (1993), Hoertz (1995), Sapir (1995), and Kelly (1996). An upcoming 1996 issue of the *Journal of Refugee Studies* has been specially devoted to case studies of impact.

There has also been a spate of meetings on the subject during the 1990s. In 1992, the International Organization of Migration (IOM) and the Refugee Policy Group (RPG) held a conference in Nyon, Switzerland entitled "Migration and the Environment."

Two workshops on the "Impact of Mass Influxes of Refugees on Food Security and the Environment in the Third World," were held in November 1992 and in April 1993, one at the Massachusetts Institute of Technology's Center for International Studies, and the second at the Brown University, Rhode Island. In 1993, local NGOs organized a gathering of international experts in Malawi on the impact of the Mozambican refugees.

In April 1994, a joint UNCHS/UNEP International workshop in Nairobi addressed the subject of "Human Settlements and Environment Strategies for Action in the Continuum from Relief to Development." In January 1995 RPG hosted a panel discussion on global trends in global "Refugees and the Environment" was held by RPG in January 1995, as part of the International Development Conference in Washington DC. Also in January 1994, in reaction to the Rwandan

crisis, the World Wildlife Fund convened a workshop in Washington DC to discuss the implications of the habitat destruction in Zaire that was occurring in large part because of the large numbers of Rwandan refugees impinging on the Virungas parks. Notably, the dozen environmental NGOs attending agreed that there need to be new working relationships forged between themselves and the disaster relief NGOs, and with UNHCR.

The Woodrow Wilson Center has begun convening in Washington DC regular meetings that explore the intersections between environment, population, conflict, and migration. A recent example was their March 26, 1996 presentation and discussion on the Environment and Migration.

In September 1995, a conference on the "Environmental Impact of Sudden Population Displacements" was held in Brussels, organized by the European Commission Humanitarian Office and the Centre for Research in the Epidemiology of Disasters at the Universite Catholique de Louvain and there was a panel session at the IRAP Conference in early April 1996 convened in Eldoret, Kenya.

These meetings inspired many questions that build on field studies. Among the most recurring questions are these:

Is there something special about being a refugee or an internally displaced person (IDP) that augments their potential environmental impact? Are refugees characterized by traits, as some observers suggest, that make them exceptional resource degraders? To what extent can the response of the local community, the host government and assistance agencies prevent or offset these tendencies? What are the secondary consequences of refugees' environmental impact? How can adverse health consequences be guarded against? What are the security conflict implications of environmental competition between refugees and local populations?

Measuring Impact: Baseline Comparisons and Rates of Recovery

Environmental change by itself means little. The effects of mass forced migrations must be interpreted against some yardstick. Many studies imply that the yardstick should be the baseline condition of the area. Another yardstick could be the national plan for how that area should be developed. A third standard is the desired or planned uses of natural resources that are felt by the local community.

Impact Compared Against Baseline

Many researchers assume that the appropriate comparison is the baseline condition of the environment immediately prior to the refugee influx. Thus, environmental impact assessments look closely at just how the environment looks at the time of the survey and attempt to contrast this with recent historz.

But comparison against baseline conditions is often problematic where baseline conditions are not well known. There is also a question of which baseline – whether the condition of the habitat immediately prior to the refugee influx, or the average condition over the past ten years, or the condition before any humans settled the area.

What local people and refugees perceive as necessary and even sustainable use of natural resources may be seen by national governments and international agencies as threats to the conservation of particular ecosystems. Refugees and locals may see the use of natural resources in virgin rain forests or game reserves as an obvious solution to the shortages caused by a refugee influx, but this view is unlikely to be shared by their governments or international agencies who are more likely to see this as environmental degradation (Black 1994b; Leach 1993).

Impact Measured Against Carrying Capacity

Another frame of comparison when for interpreting refugee impact is the carrying capacity of the area. This frame has added value where the land is intended to play a key role in supporting a growing human population.

How do refugee-related environmental change, including the projects and programs that accompany this change, relate to either the host government's national development and environmental policies and plans of action, or the needs and desires of the local community? What kinds of linkages exist (or should exist) between the environmental and development policies of host governments and those policies and plans of action proposed by international assistance agencies? Similarly, what linkages exist between the environmental plans proposed by refugee agencies and existing community resource management regimes, community needs, community expectations, and the opportunities enhanced or lost for economic programs that depend on local natural resources?

Impact Measured Against Recovery Capability

Another suitable measure frame is whether the ecosystem and soil systems can regenerate and recover within a reasonable time. Rate of recovery is a missing dimension in current understanding of the long-term effects of mass migration. Little is known about the capacity of ecosystems to replenish themselves (with or without help from human agency), and this is one weak link in our ability to interpret the significance of environmental change around refugee camps. There is little research on whether refugee pressures push ecosystems across thresholds beyond which they can no longer recover, or whether these pressures undo ecological relationships in an unusual way. Indicators of this are topsoil loss and species extinction (as in the gorillas of the Virungas parks of Zaire).

The Limits of Environmental Impact Assessments

There is a disconnect between environmental impact assessments (EIAs) and subsequent programs. Principally, EIAs are seen as one-time studies early in an emergency, with little further analysis.

Too often, environmental problems serve simply as warnings for refugee camp planners. Guidelines do not exist which explain how to weigh the inevitable trade-offs in the field. For example, if it is felt that many smaller camps are more gentle on the environment than fewer large camps, but at the same time it is known that many small camps cost much more for provision of assistance and services, how does one decide how far to go in locating refugees? What are the cost

equations and environmental impact thresholds that can serve as guides in applying data for decision-making?

Most environmental mitigation projects (EMPs) are conducted as a series of discrete steps. First, an environmental impact analysis (EIA) is undertaken. Then, during the implementation phase, mitigation projects proceed based on factors unrelated to the original EIA. Conventional EIAs yield a finished product that does not allow new questions and ideas during the implementation phase.

An alternative approach would link impact analysis more organically to the mitigation measures that follow. An EIA should be modeled on a feedback system in which problems that emerge during the intervention phase can be incorporated in to an ongoing impact analysis. An EIA should provide continuous information and guidance to the overall EMP and the EMP should direct the EIA process to ensure that only relevant and specific information is generated when it is needed.

The Principal Forms of Environmental Impact

The presence of refugees affects environmental resources in three ways:

1. Direct impact resulting from refugees' immediate needs (fuelwood, construction materials, water for human needs and animals, bushfood to supplement rations, grazing for herd animals, land for agriculture). It is helpful to think about environmental impact in terms of how it results from refugee needs, rather than as an abstract problem caused by refugees. In doing so, the search for solutions is shifted in a direction that more actively incorporates the refugees and their perceptions. As has been argued elsewhere, efforts to understand environmental impact from the refugees' (and local population's) point of view is an important step in impact mitigation.

2. Market perturbations. Increased demand leads to commoditization of resources. Refugees often exploit natural resources as a means to generate income (Wilson 1994). Local populations also get involved in the trade. Higher prices of resource commodities like fuelwood cause deeper penetration into forests worthwhile and thus increase pressure on resources. This happened in Pakistan and in Malawi, among other places.

3. The generally disrupted social context (arising from both the conflict that caused the refugees to flee and the presence of refugees and their assistance network) weakens traditional community institutions that control resource use, and creates increased possibilities for exploiting resources. For example, guerillas and aid agencies make roads for their own needs, which also facilitate access to forests. From the perspective of local community, presence of refugees means "someone else to blame", and the excuse to exploit resources. Black (1994b) warns that even programs intended to ameliorate environmental impact have their own untoward and unintended negative impacts. For example, the loss of exotic tree species resulting from tree mono-cropping in refugee afforestation programs.

The following list of environmental impacts are presented in order of importance. This echoes a similar synthesis by Thomas Hoerz (1995).

1. **Deforestation:** Loss of forest density, due to extensive, unregulated cutting of greenwood for fuel and shelter material and the reduction of tree cover for crop cultivation and charcoal

production. Loss of forest zones are seen as forest lines move radially from refugee camps and up hillsides causing soil erosion and loss of soil fertiity.

2. **Degradation and loss of grazing land/ground cover.**
-- Removal of undergrowth, brush, shrubs and grazing cover for purposes of land clearance, grazing, and fuel collection. This results in secondary effects of soil erosion (frequently reported from agricultural settlements where bush fires and ring burning are used to clear land for agricultural plots). Loss of vegetative cover is pronounced where refugees maintain sizable herds of goats, camels or cattle. Herds of livestock are commonly maintained by refugees outside of and out of sight of the camps where refugees live. Because cattle roam far and wide, the effects of overgrazing are not readily calculated but range degradation is not an inevitable consequence. It is difficult to substantiate cases of overstocking leading to long-term degradation (Bell 1987). However, the increase in rural population density from the presence of refugees and the need for arable land means that marginal lands such as semi-arid savannas and hilly terrain will be more heavily utilized, either for cultivation or grazing. The erosion of topsoil and general deterioration of soil quality around refugee settlements is an effect that is frequently stated, but observations have been poorly documented.

3. **Water Degradation.** The loss or diminution of water sources (including standing bodies of water and underground aquifers). Boreholes with handpumps are often installed in refugee camps and settlements to meet some or all of the water requirements of refugees, but when bore-hole yield declines during the dry season or if the rains fail or if there are mechanical problems, refugees often have to uproot again to search for water. Fear of loss of underground water is a current threat to the Rwandan refugees living in Ngara, Tanzania. Limited access to water has been the bane of large, urgently-established camps such as Hartesheik in Ethiopia.

A related problem is pollution of water sources through fecal contamination of water supplies, which poses health risks for refugees. The consequences for ecosystem health, however, are rarely investigated. Pollution of natural bodies of water can lead to the destruction of freshwater bacteria, shellfish and fish populations.

4. **Reduction of regional biodiversity.** Refugee camps are frequently near fragile environmental zones or game parks that serve as important habitats for endangered species. The most commonly cited example is the proximity of the Rwandan camps to Virunga National Park in Zaire. Refugees exert pressure on these habitat areas through livestock grazing, land clearance, or their search for bush products to complement camp rations. These areas become less able to support diverse flora and fauna. In addition, there is frequent killing of wildlife around refugee settlements. These types of impact are increasingly cited, but poorly measured.

5. **Reduction of land under agricultural production.** While often cited, this impact is not extensive. The area directly converted to camps and settlements is lost, but new lands also are opened up by refugee actions to start gardens and cultivate fields.

6. **Accumulation of undesirable human waste, garbage, or harmful chemicals and pesticides.** Pollution of the countryside was cited as the primary problem in one or two mass migrations, and is routinely a complaint by indigenous populations.

7. **Air pollution** due to increased release of dust into the atmosphere (from loss of ground cover) and from increased wood burning. This effect is particularly problematic in arid regions. Health workers in refugee camps find that upper and lower respiratory tract infections are often among the top two causes of morbidity and child mortality.

Evidence from Key Regions

The primary evidence comes from the asylum countries associated with significant recent or ongoing refugee crises. These include Thailand, Pakistan, Kenya, Tanzania, Malawi, Zaire, Somalia, and Sudan. The majority of smaller (or less salient) refugee situations, such as those in West Africa (Liberia-Sierra Leone and Guinea) in Uganda, Mauritania, Sri Lanka, Bangladesh, South America, and Central America are not well reported. The main findings from the larger cases can be summarized as follows:

Thailand

The Thai/Cambodia (1979-1991) case illustrates how refugee camps create artificial environments where fuel and water resources are brought in from a distance by authorities and where the environmental consequences were thus mediated by wholesale markets, and thereby distributed broadly and thinly throughout the entire economy in a controlled manner. Much of the fuel used by the refugees was from rubber-wood trees.

The UN experimented with fuel saving techniques in the Khmer camps, including bucket stoves, solar energy cookers and alternate fuel supplies. Cambodians and Vietnamese in Thailand lived largely in closed regulated camps. The UN's concern over refugees leaving the camps for fuelwood -- which they did -- was not based on protecting the environment but over the secondary problems of the risks of land-mine injury and rape.

The Thai/Burma border is a different story entirely. Along the Burma border, the major deforestation has been due to commercial agreements between the Thai and Burmese governments who seek to gain export revenues from the sale of bamboo and tik. The consequent loss of forest protection now augments insecurity for the Burmese refugees fearful of armed attacks by the Burmese army.

Pakistan

In Pakistan, the impact of Afghan refugees varied, depending on whether they were in the smaller camps in the tribal areas of the Northwest Frontier Province or in the very large camps around Peshawar. In the tribal areas, refugees entered a region that had been deforested long before their arrival. Fuelwood and construction wood had to be brought in from across the border in Afghanistan, where the impact on forests was much more noticeable. By far the most serious environmental consequences occurred not from refugee impact, but from the consequences of the war that gave rise to the refugees. In the Afghan border areas, the war broke down traditional systems for managing forests. The guerrillas logged the forests in order to finance weapons purchases. New homes were constructed around the war effort. The increased value of timber resulting from the construction boom provided greater incentives for loggers to go further into the forests.

The Afghan refugees' main impact was damage to pine forests in NWFP, less from cutting down trees than from overtapping the pine trees for resin (used for fuel) and from damage to the trees in the process of tapping (fires must be started at the base of the tree to get the resin to flow, these fires often got out of control or caused the trees to crack from the heat). Refugees would also lop trees and remove undergrowth (English 1996). The refugee camps in the tribal areas illustrated a cultural problem that sometimes obstructs attempts by relief agencies to reduce fuelwood usage. UNHCR provided kerosene to camp refugees, as a substitute for firewood, but refugees often sold all or part of it in order to buy firewood for their tandoori ovens which they use to bake bread.

The joint World Bank-UNHCR Reforestation program which was much heralded in Pakistan had mixed results. Part of the program sought to re-establish native "mazari" (Aloe) plantations, from which woody roots were used by refugees as a fuel source. The mazari planting program was very labor-intensive, however and the plants had poor survival rates. The rest of the Reforestation Program targeted deforested areas of pine (Chir and Deodar) in NWFP. However, the main successes of the Reforestation Program seemed to lie in its provision of employment and income for refugees, and in its institutional strengthening of the Forestry Department of Pakistan. The success rate of the seedlings was less of an issue (English 1996; Allen 1986; Echavarria 1996).

Mozambique/Malawi

By far the greatest impact of the one million Mozambican refugees crammed into a small area in southern Malawi, from 1986 to 1994, was deforestation (Wilson 1994). New evidence is becoming available about the longer term repercussions of the widescale deforestation, suggesting that perhaps the forests can return. In reviewing the case of Mozambique, Wilson (1994) finds that most of the country's environmental problems result from war-related concentrations of internally displaced persons in the coastal areas and peripheral to towns. Habitat encroachments have led to increased poaching, and resulting wildlife loss.

Somalia/Kenya

Several authors commented on the effects of deforestation, salinization and consequent soil loss around the mass migrations of Ethiopians into Somalia (1978 to 1990), and from Somalia in to Kenya (1992-1995). Treeless circles with a radius of up to 20 kms have been routinely cited around camps. Recent programs to prevent such damage have been found to be successful only in the specialized reforestation areas. Degradation in the surrounding areas has increased.

Ethiopia/Sudan

Over the 1980s, many hundreds of thousands of Ethiopians settled in eastern Sudan. Their impact was influenced by having camps established where few trees grew. The already austere environment became even more fully stripped of both greenwood and deadwood. Many of these refugees who suffered famine spent their entire days on foot in search of small amounts of fuelwood. At the same time, numerous refugees fled the Sudan in to Ethiopia, such as the Gambella camps.

Rwanda/Zaire/Tanzania

The Rwandan crisis of 1994/95 has been widely noted for the immediate and very noticeable forest clearing around the large camps. Of equal concern to environmental action agencies has been the habitat destruction and killing of wildlife by refugees in long-standing national parks established near to Goma, Zaire and near to Ngara, Tanzania.

In both cases, park rangers are finding the refugees more of a threat to the habitat than the poachers they have been fighting for years. A secondary effect of this tension is that the majority of hospital admissions in the Zaire camps are of refugees with gunshot injuries - and deaths - that result from being found by park security forces while in search of fuelwood and game.

Central America

In Honduras, much of the deforestation around Salvadoran refugee camps resulted from commercial logging to meet the demand from UNHCR purchases of fuelwood which UNHCR provided to the refugees. UNHCR's response to a concern for the increased deforestation was twofold: to seek alternatives within the food ration that required less cooking (e.g., flour instead of whole maize); and, to install more fuel-efficient stoves. In Mosquitia, Nicaraguan refugees lived in small communities and the forests were able to recover swiftly after their repatriation.

Return Migration and Environmental Change

Mass migrations home have been understudied, though repatriation and reintegration programs receive considerable assistance. UNHCR has seen repatriates in through re-establishment of farming communities in many countries -- Laos, Guatemala, Afghanistan, Ethiopia, and Cambodia to name a few. But, few reports have correlated return flows to specific environmental changes.

In El Salvador, where environmental degradation and competition for scarce farmland were among the problems that led to the insurrection in the early 1980s, the return of hundreds of thousands of refugees and IDPs, beginning in 1986 and accelerating in 1989, has led to a perceived need for programs to merge agricultural restoration with long-term environmental planning. In Chalatenango, one NGO (FUNDE) has monitored a pilot project to transfer forest land to the community to cultivate with the understanding that they will shepherd and maintain the forest (Ariadne de Bremond 1993). Because of the highly collectivized social structures that the returning refugees live within --a legacy of political coordination in the Honduran refugee camps, the repatriated refugees have taken readily to working with NGOs to explore new systems of collectivized land use and multicropping.

Synthesis: When are Refugees Exceptional Resource Degraders?

Presently, there is an established body of research on refugees and environmental impacts, including several literature reviews (Black 1994a; Hoerz 1995a; Jacobsen 1994). Two different approaches towards understanding the impact of refugees emerge. One sees refugee impact as overwhelmingly and inevitably destructive. This view focuses on the resource strain imposed by refugees on receiving areas because of the sudden increase in human (and sometimes herd animal) population density. Deforestation occurs as refugees remove greenwood for fuel and shelter.

Grazing lands are denuded by their herd animals. Water sources are consumed and degraded. Because refugees lack incentives to take long-term protective views of natural resources, the result is the degradation of resources at an unsustainable pace.

The second view stresses the importance of understanding refugees' environmental impact in the context of a number of social, political, ecological and institutional variables. These variables include: relations between the refugee and host communities; host government policies towards land appropriation, refugees' legal rights in the area of asylum, economic development trends and the environment; the contributions of NGOs and UNHCR; and, the initial ecological conditions of the receiving region, and how these conditions change over time, as a result of drought, the cycle of seasons, and numbers of people.

This approach takes a long-term view of the consequences of a refugee influx, since it assumes that refugees are likely to remain in the host country for long periods of time. This view argues that refugees' impact is not inevitably harsh and negative, and that with a more complex understanding of how environmental impact occurs, appropriate types of interventions can be implemented that will eventually reduce or eliminate such an impact. In this paper, we cover material that represents both views, but emphasize the second view. We focus on the environmental impact of refugees in rural areas, where their impact tends to be more visible and (somewhat more easily measurable). It is more difficult to observe and assess the impact of both urban refugees and IDPs.

Factors Determinant of Environmental Impact

Do refugees and IDPS have a particular "ecological presence"? Refugees are "Exceptional Resource Degraders" to the extent that they:

a. have short time horizons (and are thus less invested than permanent local people in securing environmental sustainability;

b. are poor (and therefore exceptionally dependent on "free" resources);

c. have immediate needs that can quickly be met by exploiting local environmental resources;

d. are unfamiliar with local forms of resource management.

To what extent are these potentially harmful characteristics offset by conditions in the host community, including assistance? The question points to a more general consideration of the factors that affect refugees' environmental impact. There is a growing theoretical and empirical literature on this topic. Key factors are felt to be:

1. Pre-influx ecological conditions. There are few areas of pristine wilderness left in the world, and this is particularly so in many border regions where refugee movements occur. If the receiving region is already deforested or degraded in some way, refugees are likely to have less of an impact than if they are settled in forested areas.

2. Settlement patterns of refugees. Whether refugees are self-settled or settled in camps or agricultural settlements is likely to affect their environmental impact (Black 1994; Jacobsen 1996). No specific studies have been done, but preliminary evidence suggests that self-settled refugees have less of an impact by virtue of their being more spread out and thereby reducing concentrated pressure on resources like pasture flora, woodland and water. Self-settled refugees are often more integrated into the local host community, and thus are more constrained by local resource management regimes and have greater access to local ecological knowledge.

Although camps are intended to restrict refugees' access to local resources, this seldom works effectively, and camp refugees usually have a quite significant impact on the environment. There are specific additional environmental disadvantages associated with camps including their construction and daily operation (Jacobsen 1996). However, there are also positive effects resulting from camps, including improved water sources, and more effectively managed tree nurseries.

3. Size and location of camps. In seeking to reduce environmental damage around large camps, the size and location of the camps are primary considerations. Very large camps of the kind found along the Thai-Cambodian border, in the Peshawar region of Pakistan, or along the Rwanda-Tanzania border, in which hundreds of thousands of refugees are housed, will have different environmental consequences from camps that are smaller and more scattered. Some observers have suggested that camps should be located in areas where there is little cultivated land, forest or pasture, perhaps close to highways which would facilitate the trucking in of the necessary extra resources like fuelwood and water. In Pakistan's Northwest Frontier Province, camps located where there was little vegetation had minimal environmental impact compared with camps that were located in prime forested areas (Allan 1987).

4. When host governments can designate where refugee camps will be situated, they often choose areas poor in resources. Because host governments are aware of the environmental impact of protracted refugee camps, they only allocate lands as sites for camps that are already environmentally impoverished. Were protracted refugee camps to become self-reliant in income, enormous amounts of food aid would no longer be needed, a savings that donors are very mindful of. What donors note less is the automatic environmental protection that stems from refugees taking an interest in the productivity of local lands.

Many planners believe that refugees carry poor or inappropriate land management practices with them and quickly overwhelm traditional systems. Planners who wish above all else to limit environmental damage, try to locate large refugee populations in a few, large camps in areas where environmental decay is already severe, far from resources, far from indigenous communities, and where the refugee impact on ecological carrying capacity will be focused and contained. By treating refugees as a burden, and not as people with ingenuity, this operation is tragically inefficient, particularly in long-term camps where refugees need to develop self reliance. Refugees change their environment, in turn, through their interactions with indigenous populations, their daily consumption, and their coping strategies. Camp planners know that refugees will expend massive amounts of time on foot searching for fuelwood, wood for sale, wood for building materials, and other goods. Refugees will also travel many hours to trade foods and seek informal wage labor. Therefore, planners seeking to maximize refugee well-being will establish many, small refugee camps in close proximity to population centers, rivers, and forest stands that can withstand population burdens and will replenish lost trees.

5. Disruption in the receiving community. This refers to the extent to which the "normal" social conditions of the receiving region are disrupted, either by the refugee influx itself, or by the conditions that led to the refugee movement and have come to affect the receiving area itself. Conflict and the activities associated with conflict in the sending area can disrupt normal resource usage patterns in both sending and receiving areas. For example, road-building by military or guerrilla units enables increased and deeper access to forested areas, as occurred in the Afghan-Pakistani border regions. Local people can take advantage of the social disruption created by both refugees and the conflict situation to ignore resource management regimes in their desire to exploit new markets for fuel-wood.

6. Land use patterns. Despite the central role of land use in the livelihood, health, and durable solutions of refugees, land use is the forgotten cousin of refugee studies.

Refugees rarely can claim a legal right to rent, lease or own land, though institutions can secure land on their behalf. Invariably, through one means or another, refugees use lands and resources on these lands and their resources. Studies need to be conducted on how formal and informal access to land (eg. legal and titling systems, community resources management regimes, customary rights, etc) influence refugees' local integration, decisions about repatriation, and the links between reintegration at home and reconciliation. While often seen as incentives to return, land inaccessibility is an ill-measured barrier to reconstruction and economic recovery. Land use policies are often at the root of forced migrations.

Game reserves, and the imposition of restrictions on local people has reduced access to adaptive strategies among the Tyua Bushmen of northern Botswana and western Zimbabwe (Hitchcock 1995).

7. Assistance programs. Reforestation schemes have been the dominant program for ecological amelioration in refugee camps in Somalia, Pakistan, Uganda and Sudan (CARE Somalia 1987). Less used are techniques used in other, non-emergency environmental programs: co-management relations, issue networks, commonfield practices, education. Some groups promote the purchase of local lands (e.g., the Nature Conservancy, WWF).

Analysts agree on the goal of re-orienting assistance programs so that refugees will pursue good management of local lands and have the means to establish which lands are off-limits to tillage, forestry or clear-cutting. Rather than merely importing curative medical services, implementing agencies might consider cultivating institutional incentives within each refugee camp, achieving ground-up, self-financed health programs, and common property management of local landscapes, trees, fish, game, and other flora and fauna.

8. Host government attitudes and policies towards the environment, development and refugees. The environmental planning and management (or lack thereof) that exists prior to a mass influx is an important determinant of environmental impact (Stevenson 1996). In Malawi, according to Stevenson, "The refugee influx merely exacerbated the country's existing land degradation and deforestation problems. What has happened in refugee-impacted areas merely foreshadows what will happen throughout Malawi particularly if population growth continues to climb."

Government policies towards refugees can directly affect their impact. In Tanzania, the government does not allow refugees outside camp areas, so they cannot cultivate land outside camp

areas. In Uganda, the government has been much more liberal in its approach to refugees, viewing them as a resource. Sudanese refugees have been given the opportunity to establish agricultural settlements in Ikafe and East Moyo, with government support.

Can Refugees Have A Positive Environmental Impact?

Many who write about the effects of mass migrations assume that all change is for the worse. Most environmental impact assessments are carried out and written in search of those effects that are intrinsically damaging. There is little literature that credits refugees with positive impacts. Indeed, few refugees bring new resources with them to an area, besides their labor. Yet, refugees often help to landscape and terrace previously untouched lands. For example, refugees from Guatemala who settled in the Yucatan Peninsula of Mexico during the 1980s have helped to develop dense forests into productive uses, have excavated ancient ruins to promote tourism, and established sustainable villages lined with groves of trees.

Mass migrations can have ecological effects deemed beneficial for health and economic reasons. Where populations have increasingly cut down bushland, tsetse flies have been eradicated from these areas, opening up more land to agricultural production.

Perhaps one of the clearest positive consequences arises from the indirect effects of reforestation programs implemented by international agencies, such as the World Bank/UNHCR program in Pakistan. This program provided employment and income for refugees and locals, and it strengthened the institutional capacity of the Forestry Department. In general, increased donor support for reforestation direct benefits the host country.

Another indirect positive effect is that refugees' environmental impact or the generalized threat to resources that occurs in the context of a refugee movement can serve to create greater environmental awareness on the part of both the host government and local populations. Many host governments have shown increased concern about the risk posed to their resource base after a mass influx, e.g., Malawi. Although this awareness can lead to accusations against refugees and can even provide governments with the excuse to restrict refugees, if this tendency can be managed with assistance from international agencies, the increase in environmental consciousness is a boon to developing countries.

Secondary Effects of Environmental Change

The literature on impact can be confusing when references to environmental impact refer indiscriminately to both impact of humans on the environment and to the very different, secondary effects of environmental change back on to humans. These latter, secondary effects by the environment on refugees are largely in the areas of protection, food security, and health. Protection problems associated with refugees' environmental impact include:

1. Threats to women who travel distances from camps to find scarce firewood, and who are subject to attacks en route. The worst example of this occurs in the Dadaab complex in northern Kenya, where rape of Somali women refugees is a constant problem.

2. Direct threats from government military or police forces seeking to protect national resources. In Kibumba and Benako camps, refugees haul significant quantities of killed wildlife and fuel-wood back from nearby game parks. As a result, many of the refugees are shot by forest rangers in Zaire.

Environmental impact of refugees interfaces with use of lands for food production. Because of their fame for environmental damage, refugees are often denied legal permission to use any land outside of their immediate camps. In some cases, countries prohibit refugees from growing food within camps also. Competition over scarce water and the loss of soil that has been seen around refugee camps reduces the potential for cultivating crops efficiently.

The impact on refugees' health is largely through two avenues: air pollution from wood burning, causing respiratory illness, and polluted water sources causing transmission of water-borne disease. In many camps, the introduction of chlorination to the water supply has been found to reduce mortality more than any other intervention, though at a fraction of the cost of other interventions.

While shelter captures a major share of UN budgets for refugees, environmental clearing, sanitation education, and disease prevention remain under-funded. Food assistance and therapeutic medicine also comprise much of the total resources delivered. Case management, in-patient and trauma clinics, and hospitals continue to be the top priorities of implementing agencies, even though they have less effect on the morbidity or mortality than do environmental or preventive measures.

Long-Term Implications of Environmental Impact

What has been noted most often about environmental change around mass migrations is the immediate impact. Even where long-term environmental changes are noticeable, it is far harder to clearly attribute long-term changes to causes of "mass migration" that occurred in the past.

Deforestation surround refugee camps has been described as following a series of phases (Biswas 1994; Macek 1995). The first wave involves the collection of deadwood from the surrounding forests for use in cooking and construction. The second stage focuses on cutting dead and live branches. In the third phase, refugees cut the trunks of trees and in the fourth dig up the roots. The fourth phase concludes in the failure of land to retain moisture and soil. Short-term intense deforestation is frequently seen around refugee camps where refugees seek shelter and fuel materials. Then, in the medium-term, refugees frequently move into commercial activities in which the sale of wood is profitable. According to studies cited by Bina Agarwal, wood use increases two- to three-fold if consumers are in relatively close proximity to forested areas.

There has been relatively little literature on the long-term impact of refugees on the surrounding areas. Anecdotal evidence suggests that more often than not, refugee consumption patterns reach a sort of equilibrium with local capacities. Research is very needed on this topic, however. For example, comparisons are needed of before (baseline), during (rates of impact), and after (recovery, restoration) in areas such as southern Malawi, northern Kenya, and eastern Bangladesh.

To have any programmatic value, however, research needs to investigate both the changes over time in areas intensely affected by mass migration, and the changes that were called for in national environmental plans of action, or national forestry plans, or local community programs.

Displaced Persons and Urban Impact

While rural refugee camps grab many of the headlines, millions of refugees and internally displaced persons flee to large cities, such as Maputo, San Salvador, Mexico City, Lima, Khartoum/Omdurman, Kampala, Katmandu, Peshawar, and Hong Kong. Literature on their impact is scant, in large part because it is hard to differentiate the displaced from the non-displaced. Again, much of the environmental impact is mediated by markets, which aggregate demand from all quarters. However, due to their numbers alone, refugees and IDPs certainly contribute to geographical expansion of urban areas, displacing farm and park lands. In part because refugees and IDPs who go to live in urban areas remain urban residents indefinitely, the physical expansion of urban areas tends to be irreversible. Cities rarely recede in size.

Approaches of Humanitarian Agencies

At the moment, UNHCR is finalizing its handbook on Environmental Guidelines, which state its operational policy on environmental impact, mitigation and rehabilitation. These guidelines are intended for use by UNHCR's implementing partners (NGOs), and they address five environmentally related sectors, including forestry, livestock and domestic energy (Gurman 1996). However, even if a clear environmental policy does emerge from UNHCR, the absence of enforcement procedures together with the relief agencies continuing need to operate under host government constraints make implementation of such a policy difficult. Such a policy also requires political will on the part of UNHCR, but this too is problematic, in part because UNHCR has traditionally seen itself primarily as a humanitarian organization, not a development one and still less an environmental one.

As far as the environmental policies of NGOs operating in camps are concerned, recent surveys of European and North American NGOs (Black 1994b; UNHCR 1995) found that few NGOs have developed formal environmental policies although there are a large number of recommended practices for reducing environmental damage around camps. Many NGOs do carry out ad hoc environmental assessments and do seek to incorporate environmental considerations into practices such as fuelwood use (for example, by encouraging the use of more efficient or alternative stoves, and by providing rations that take less cooking time), camp cleanup and maintenance programs and the monitoring of water problems (Gurman 1991; Black 1994b).

Other changes in existing camp and settlement structures that have been suggested by UNHCR and NGOs (but not yet widely implemented) include risk analysis of potential emergency camp sites, sustainability of settlements, environmental monitoring, unconventional sources of energy, and improved waste disposal.

Host governments have great power to mediate environmental impact, through determination of where camps will be located, through policies that define the rights of refugees (in areas such as mobility, permission to lease land, permission to develop camp lands).

Mitigation Efforts

Measures used by agencies to mitigate environmental impact have included:

- *Locating camps where the draw on local resources will not lead to irrevocable damage to ecosystem communities;*
- *Communication and education programs that raise the environmental awareness of refugees;*
- *Provision of fuelwood or charcoal to refugees for their cooking needs;*
- *Provision of and education around fuel-efficient stoves;*
- *Buy-off of the refugees' livestock;*
- *Restriction of access by refugees to parks and water sources;*
- *Restriction on refugee mobility – enforcement of arrests when refugees are found outside of camps;*
- *Increased support for national guards to protect parklands;*
- *Provision to refugees of shelter materials – tents, plastic supports, and other structural materials to reduce the need for greenwood.*
- *Commercial forest management as in Rhino Camp, Uganda, where refugees buy into large-scale timber production;*
- *Diversification of production possibilities of refugees so that selling of fuelwood is not the only cash-earning activity; and,*
- *Provision of household gardens for local afforestation.*

Restoration Efforts

Measures to help restore the ecosystem include:

- *Repatriation of the refugees or resettlement elsewhere;*
- *Dispersal of camp populations to smaller camps in the region;*
- *Support of nurseries that give saplings at zero or low cost to refugees and locals;*
- *Food for work supported afforestation projects;*
- *Establishment of arborel zones where the refugees are given some responsibility for maintaining a restored habitat;*
- *Development of land banking schemes with the refugees.*

New Directions and Research Needs

This paper has summarized what is known from the recent literature on refugee impacts. There are numerous situations where refugee and IDP impacts remain poorly measured, including Liberia, Angola, Burma, Peru, the Philippines and Bosnia. Research is clearly needed to fill current gaps in understanding the impact of IDPs, the implications of mass migration to urban areas, and the consequences of people forced to migrate because of environmental cases.

To strengthen programmatic planning, studies are needed to accurately measure the ecological changes that may differ between large refugee camps and smaller/dispersed refugee settlements. Little is now documented that ties together environmental issues, coping strategies, assistance needs and the question of access to land. Refugees, IDPs and repatriated refugees frequently state that being able to find land is their primary worry. How they use natural resources is thus intimately linked with local systems of land tenure, expropriation and nationalization, war or demobilizaton compensation, leasehold patterns, cooperatives.

Research also needs to (1) address gaps in our understanding and (2) put our knowledge to use in devising systems of prediction and early warning. Further research is needed that ties together evidence about both impact of mass migrations and long-term changes -- succession of ecological communities, soil stability, whether parks survive intact, connections between habitats, and micro-climate change. International agencies need to work together to lay out and construct an international monitoring system to examine where fragile habitats exist proximate to populations prone to mass migration.

Mapping Areas in Danger of Negative Impact

Knowledge of the forms and dynamics of environmental impact of populations should be incorporated into a system of ongoing surveillance that tracks those areas around the world deemed to be fragile and near to populations that may migrate. Contingency planning for mass forced migrations needs to become specific: regions should be identified where irreparable damage from mass migrations may occur.

Strengths and Comparative Advantages of Institutions

Future studies comparing levels of environmental change need to measure the different roles and influences of institutions. Which agencies are the most cost effective at providing an on-site monitoring presence? Which agencies are best at conducting qualitative, rapid-rural appraisal-like surveys of refugee practices? Which agencies are best adapted for forging new community resource management practices?

In summary, mass forced migrations do impose unsustainable burdens on many receiving ecosystems. But the long-term ramifications are barely understood. Meanwhile, new strategies to attenuate and ameliorate the negative effects are only now being widely shared and understood. In the future, programs of environmental protection can build on these project experiences and fit them into a larger system of global environmental monitoring and protection.

References

BELL, R.H.V. (1987) "Conservation with a human face: conflict and reconciliation in African land use planning," David Anderson and Richard Grove (eds.) *Conservation in Africa, Peoples, Policies and Practice* Cambridge: Cambridge University Press.

BLACK, R. (1994a) "Forced Migration and Environmental Change: the Impact of Refugees on Host Environments," *Journal of Environmental Management*, 42: 261.

----- (1994b) "Environmental Change in Refugee-affected Areas of the Third World: the Role of Policy and Research," *Disasters* 18(2): 107-139.

----- (1992) *Refugees and Environmental Change: Global Issues* London: Kings College, pg. 10.

CARE Somalia (1987) "Hiran Refugee Reforestation Project: Final evaluation (CDA Forestry Project, 16 February 1987). referenced in Waldron & Hasci (1995).

ENGLISH, R. (1996). U.S. Department of State. Personal communication

GTZ (Gesellschaft fur Technische Zusammenarbeit) (1994). *RESCUE, First Year Report*, April 1993 - April 1994. GTZ, Federal Republic of Germany.

HITCHCOCK, R 1995 "Centralization, Resource Depletion, and Coercive Conservation Among the Tyua of the Northeastern Kalahari" *Human Ecology* Vol. 23 #2 pp 169-198.

HITCHCOCK, R & HUSSEIN H (1987) "Agricultural and Non-Agricultural Settlements for Drought-Afflicted Pastoralists in Somalia" *Disasters* Vol. 1 #1.

HOERZ, T. (1996) "Participatory systems to mitigate environmental degradation in refugee hosting areas of East Africa." Unpublished. Nairobi, January.

----- (1995a) "Refugees and Host Environments: a review of current and related literature," Refugee Studies Programme, University of Oxford. Draft.

----- (1995b) "Reducing Environmental stress in refugee-affected areas: a multi-level strategy," Refugee Studies Programme, Oxford University. Draft.

JACOBSEN, K. (1994) *The Impact of Refugees on the Environment: a Review of the Evidence* Washington D.C.: The Refugee Policy Group

----- (1996) "Refugees" Environmental Impact: the Effect of Patterns of Settlement," *Journal of Refugee Studies*, forthcoming.

KELLY, C (1996) *Disaster and Environmental Change: Population Displacement Impacts and Mitigation Options* Bethesda, Maryland.

KEOHANE, R. & LEVY, M. (1996) *Institutions for Environmental Aid,*

Pittfalls and Promise Cambridge, MA: MIT Press.

KIMANI, Muriuri J (1995) *Meeting Energy Requirements in Refugee Situations* Eschborn, Germany: GTZ PAS, first published in Goma, Zaire.

McMICHAEL A J (1993) *Planetary Overload, Global Environmental Change and The Health of the Human Species* Cambridge: Cambridge University Press

OMARA-OJUNGO, P (1992) *Resource Management in Developing Countries*

PERCIVAL & HOMER-DIXON (1996) *Environmental Scarcity and Violent Conflict: The Case of South Africa* American Association for the Advancement of Science

STEVENSON, K. (1996) "Environmental Concerns in a Refugee Context: The Malawi Experience" Forthcoming

SUHRKE, Astri (1994) "Environmental Degradation and Population Flows" *Journal of International Affairs* Vol. 47/#2

UNCHS/UNEP (1994) "Human settlements and environment strategies for action in the continuum from relief to development," International Workshop, Nairobi, 25-27 April 1994. Nairobi, UNCHS/UNEP.

UNHCR/FAO. (1994) *Tanzania: Environmental Assessment Report of the Rwandese Refugee Camps and the Affected Local Communities in Kagera Region, 2-30 June 1994.* PTSS Mission Report 94/29N. Dar es Salaam, UNHCR/FAO Environmental Assessment Mission.

WALDRON & HASCI (1995) "Somali Refugees in the Horn of Africa: State of the art literature review," *Studies on Emergencies and Disaster Relief, No. 3. Nordiska Afrikainstitutet.*

WILSON, K. B. (1994) Internally Displaced, Refugees and Returnees from and in Mozambique. *Studies on Emergencies and Disaster Relief, No.1. Nordiska Afrikainstitutet.*

ZETTER, R. (1995) Shelter Provision and Settlement Policies for Refugees; A state of the art review. *Studies on Emergencies and Disaster Relief, No.2. Nordiska Afrikainstitutet.*

Refugee Policy Group

CENTER FOR POLICY
ANALYSIS AND RESEARCH
ON REFUGEE ISSUES

1424 16th Street, NW . Suite 401
Washington, DC 20036
Phone 202-387-3015 . Fax 202-667-5034

Rue Gautier 7
CH-1201 Geneva . Switzerland
Phone 22-731 33 60 . Fax 22-738 92 68