

ENVIRONMENTALLY-INDUCED POPULATION DISPLACEMENTS AND ENVIRONMENTAL IMPACTS RESULTING FROM MASS MIGRATIONS

International Symposium
Geneva, 21-24 April 1996



**Environmentally-Induced Population
Displacements and Environmental Impacts
Resulting from Mass Migrations**

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**UNITED NATIONS
HIGH COMMISSIONER
FOR REFUGEES**

IOM International Organization for Migration

RPG - Refugee Policy group
CENTER FOR POLICY
ANALYSIS AND RESEARCH
ON REFUGEE ISSUES

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Preface

Following on the successful 1992 IOM/RPG Nyon Conference, Migration and the Environment, the International Symposium on Environmentally Induced Population Displacements and Environmental Impacts Resulting from Mass Migrations convened in April 1996 in Chavannes-de-Bogis, Switzerland offered a platform to go deeper into the question of how to break through the vicious circle of mutually reinforcing environmental damage and mass migration. Participants debated the development of policy guidelines to minimize detrimental impacts and addressed the issue of which entities should initiate and coordinate the various actions necessary to respond to the twin challenge of preventing population movements triggered by environmental damage and mitigating the damage caused by mass displacements.

The Symposium was significant in producing by consensus a Statement of Principles, reproduced below, that sets a framework for action to prevent and mitigate environmentally induced population displacement and to address the negative environmental consequences of mass migration.

At the three-day Symposium a number of background papers were presented, which generated a fruitful exchange among its participants. These debates and discussions are reflected in the Summary of Proceedings. Summaries of the papers and conference statements are also included in this volume.

The Symposium benefited greatly from the wide range of experience and expertise of its 60 participants, who came from over thirty developing and developed countries. They were drawn from government circles as well as from the intergovernmental, non-governmental and academic world. Some held responsibilities at the policy-making level, and several were directly involved in field activities.

In all discussion sessions and presentations, environmental destruction was consistently analysed in its wider socio-economic and political context. This allowed the Symposium to take a significant step forward in the current thinking about the complex connections between natural resource management and use, land tenure legislation, conflict and population displacement.

The three co-organizers hope that as a result of this Symposium there will be increased promotion of appropriate environmental actions in the field.

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List of Acronyms Used Throughout the Book

Arcinfo:	A brand name for a software programme of processing computer images
AVHRR NOAA:	Advanced Very High Resolution Radiometer
CARE:	A US based Non-Governmental Agency
CFC:	Chlorofluorocarbon
DHA:	The Department of Humanitarian Affairs
EIA:	Environmental Impact Assessment
ERDA:	A brand name for a software programme of processing computer images
FAO:	The Food and Agricultural Organization
FEWS:	Famine Early Warning System
GEF:	The Global Environment Facility
GEWS:	The Global Early Warning System on Food and Agriculture
GIS:	Geographic Information Systems
GPS:	Global Positioning Systems

GTZ:	Gesellschaft für Technische Zusammenarbeit (The German Development Cooperation Agency)
IASC:	Inter-Agency Standing Committee
IDPs:	Internally Displaced Persons
IFAD:	The International Fund for Agricultural Development
IGO:	Inter-governmental Organization
IIED:	The International Institute for Environment and Development
IOM:	The International Organization for Migration
IUCN:	The World Conservation Union
Landsat TM:	Land Satellite Thematic Mapper
LWF:	The Lutheran World Federation
MOSS:	Marine Observation Satellite System
NCS:	National Conservation Strategies
NEAP:	National Environmental Action Plans
NGO	Non-governmental Organization
NVDI:	The Natural Vegetative Density Index
OECD:	The Organization for Economic Cooperation and Development
PCI:	Processing Computer Images
RPG:	The Refugee Policy Group
SPOT:	Satellite Probatoire d Observation de la Terre
TFAP:	Tropical Forestry Action Plans.
UNCED:	United Nations Conference on Environment and Development
UNDP:	The United Nations Development Programme
UNEP:	The United Nations Environmental Programme
UNFPA:	The United Nations Fund for Population Activities
UNHCR:	The United Nations High Commissioner for Refugees
USAID:	The United States Agency for International Development

Statement of Principles

Foreword

The number of persons displaced by environmental degradation is continually rising, as is the level of environmental damage resulting from mass migrations. Recognition of the need to address the interrelationship between changes in the environment and migration led to the International Symposium on Environmentally-Induced Population Displacements and Environmental Impacts Resulting From Mass Migrations. The main objective of the Symposium was to discuss practical measures and actions to prevent, mitigate and reverse the environmental degradation causing, and resulting from, population displacements.

Extrapolated from the dynamic discussions at the Symposium, and in the light of the priority issues identified by the participants, the Statement defines and explains the problem and presents basic principles on which concrete action is to be based.

It is the hope of the Symposium co-organizers that this Statement will contribute to a framework for addressing the growing global issue of environmental degradation linked to population displacements. The principles are intended to provide input into policy development and programme planning of governments and agencies working in this field.

The Statement of Principles uses the following terminology:

Environment

The sum of the abiotic (physical), biotic (living), and cultural (social) factors and conditions directly or indirectly affecting the development, life and activities of organisms and populations in the short and long term. (R. Eblen and W. Eblen, The Encyclopedia of the Environment 1994)

Environmentally Displaced Persons

Persons who are displaced within their country of habitual residence or who have crossed an international border and for whom environmental degradation, deterioration or destruction is a major cause of their displacement, although not necessarily the sole one.

Refugees

The 1951 Convention relating to the Status of Refugees defines a refugee as a person who owing to a well-founded fear of being persecuted for reasons of race, religion, nationality, membership of a particular social group or political opinion, is outside the country of his nationality and is unable, or, owing to such fear, is unwilling to avail himself of the protection of that country.

Voluntary Migrants

Persons who for economic, social, cultural, personal or other reasons leave voluntarily the country of their habitual residence. They include poverty migrants in search of (better) economic and social opportunities.

Note: To avoid confusion with the legal definition of refugees given above, the term environmental refugee is not used.

Introduction

As amply recognized at the 1992 United Nations Conference on the Environment and Development (UNCED) and in Agenda 21, the state of the natural environment and human activities are related in a great number of ways. Changes in environmental conditions, whether natural, or as is more frequently the case, man-made, have forced local populations to adapt. In some cases of environmental change, the adaptation has taken the form of migration.

This is not to say that all migration from areas of environmental deterioration is caused by such deterioration. People also migrate for a variety of other reasons, including economic, political, ethnic, religious, and personal. Often, these reasons will be intertwined and migration will be the result of a combination of motivations. It is therefore not always appropriate to identify one single cause as leading to population displacements. The linkage between causes is crucial. Violence could create environmental damage, which in turn may displace local populations. Environmental degradation can cause conflict, leading to displacements. Nevertheless the link between environmental damage and decline, and population movements can be sufficiently strong to justify separate attention.

It is also worth noting that the line between natural and human-induced environmental destruction, particularly in the case of long-term degradation, is often indistinct. In some cases, the impact of human actions on a region will result in what we traditionally refer to as natural phenomena such as flooding or desertification. However, the frequency of an occurrence such as flooding, and prolonged droughts, can be indicative of the negative environmental consequences of human activities.

Table 1 identifies the major types of environmental causes of migration and classifies these by six criteria i.e. time frame, scale and intensity, predictability, reversibility, preventability and organizational repercussions. Reading the table from left to right, displacement of people caused by degradation of the agricultural base and consequent conflict over scarce and declining natural resources (fifth row of the table), for example, is normally of a medium-to long-term nature, the impacts are local and can be severe, the resulting displacements can, to a certain extent, be predicted and the consequences may, sometimes, be reversed. The parties involved with such type of environmental change are national governments, development and environmental agencies, the private sector, and the affected population's own effort. Similar classification is adopted for other categories of environmentally induced displacement.

Just as people move away from the sources of environmental stress, migrations have always exercised an influence on the environment, its severity depending on the migration's scale, its speed, the condition of the receiving environment and many other factors. Table 2 below, which should be read from the top downwards, attempts to provide a structured view of the multiplicity of impacts of migration on environmental change. These impacts are classified by seven criteria, adding political tolerance (by the host countries) to the list.

The concern with the impact of migrants on the natural environment of the host country or region is relatively new and owes more to the involuntary nature of recent migrations -attracting attention for humanitarian assistance rather than secondary concerns such as the environment - than to migration per se. Formerly, the impact of migrants has been seen mainly in terms of the possible benefits to the host country's economic growth. History provides a number of examples where migration has been a source of strength for the migrants and host population alike. Where they emerged, the problems have been more a matter of disparity between the incomes and living styles of the newcomers and the host population, than of environmental deterioration. More recently, however, with the emergence of large-scale and sudden refugee movements that have often brought refugees into areas of already declining environmental and socio-economic conditions, the perception of migration by host populations has changed from being a benefit to being a problem.

This statement of principles deliberately targets the problematic aspects of the wide spectrum of causes and impacts, both on the environment-as-a-cause and migration-as-a-cause sides.

This is not because there is a lack of awareness about the many positive aspects of the processes debated but simply because there is less need to dwell on the positive than on the negative. Thus, in the case of environmentally-induced displacement, the emphasis is on understanding its causes and finding ways of minimizing the problem. In the case of environmental deterioration induced by mass migration, the causes of the displacement are usually understood and the emphasis is on minimizing adverse impacts of the migrant population on the host's environment.

The classifications of environmental causes as presented in Table 1, and environmental impacts as presented in Table 2, have been developed to make it easier to match policy measures to a particular problem.

Table 1 Environmental Change as a Cause of Migration

		Time frame	Scale and intensity	Predictability	Reversibility
Natural causes	earthquakes, volcanic eruptions, flooding, etc.	short-term	local & severe	limited or none	yes, in some cases

	Necessitating disaster relief						ag hel
	global warming, acid rain, pollution of riverways, etc.		long-term and gradual	global, regional & incremental	to some degree	partial and difficult	bila gov pro mu sch env
	industrial accidents		short-term	local & severe	limited or none	sometimes	ow affe fac nat gov
Man-made causes	predictable env. causes of displacement (reservoir construction, nuclear testing, hazardous waste site construction, megaprojects, etc.)		medium to long-term	local and sometimes severe	yes	no	nat gov dev age
	depletion of resources and/or	localized problems (degradation of agric. base; soil, water, wildlife resources)	medium to long-term	basically local, & could be serious	to some degree	sometimes partial	nat gov dev age priv sec effe
	environmental degradation	irreversible problems (severe soil erosion and desertification)	long-term	local to regional & serious to severe	to some degree	no	nat gov bila gov pro int

Table 2 Migration as a Cause of Environmental Change

	Mass, large-scale migration		Smaller scale population movements	
	<i>Displaced persons (including refugees)</i>	<i>Voluntary migrants (incl. econ. migrants)</i>	<i>Displaced persons (including refugees)</i>	<i>Voluntary migrants find. econ. migrants)</i>
	The inflow is often considered a serious environmental problem	For example, migration in search of economic opportunities. The impacts on the environment can be positive or negative.	Environmental impacts more limited but possibility of environmental damage cannot be excluded.	Normally, movement of people in search of economic opportunity. In most cases, a source of economic well-being for the host country, in general as well as in an environmental sense.
Nature of environmental problems				

time frame	short to medium-term	long-term	short to medium-term	long-term
scale	extensive but often clustered	extensive but dispersed	localized	dispersed
intensity	serious; sometimes local natural resource base and social infrastructure disrupted	significant, can be both positive and negative	moderate	low
preventability	to some extent	to a large extent	to a large extent	to a substantial degree
reversibility	to some degree	to a large degree	to a large degree	to a substantial degree
political tolerance	low since problems are caused by non-nationals unless ethnic affinities exist	substantial, environmental problems considered part of national environmental policy	some, in many cases environmental problems can be handled within traditional resource management systems	substantial
organizations involved	refugee-assistance and relief organizations	normally outside the sphere of international involvement. If anything, handled bilaterally.	intervention by refugee assistance agencies less systematic and comprehensive	little involvement of international community, NGOs

I. Environmentally-Induced Population Displacements

The problem

Rapid population growth in developing countries, industrialization, the large-scale exploitation of natural resources, and - not least - conflicts have placed a heavy strain on the natural environment in many parts of the world. The past decades have witnessed an unprecedented increase in the destruction or degradation of the environment due to these and other factors. In various instances this environmental damage has led to the displacement of large numbers of people within their own countries and beyond. Today, 25 million people are estimated to be environmentally displaced worldwide. If environmental predictions, which include climate change, prove correct, the total number of environmentally displaced persons will increase markedly over the coming decades.

Resultant mass movements of people can, in instances of severe environmental destruction or degradation - whether natural and/or man-made - cause problems for receiving countries and displaced populations alike. The latter become uprooted from homes, jobs and communities, and may be viewed as competitors for resources and employment by local populations in the receiving countries (or areas, in the case of the internally displaced). In some cases the migrants may strain the social and economic fabric of the areas to which they relocate.

Making reference to Table 1, it is possible to distinguish several categories of environmentally-induced population movements:

- (i) acute onset movements, with the possibility of return;
- (ii) acute onset movements, without the possibility of return;
- (iii) slow onset movements, with the possibility of return;
- (iv) slow onset movements with predictability (for example, displacement caused by large-scale development projects) with no possibility of return because of human activities;
- (v) slow onset movements, without the possibility of return because of the natural conditions of the area.

A number of measures are suggested for each of these categories, and are further subdivided into preventive, mitigative, and rehabilitative actions. For the purposes of this Statement, preventive applies to actions prior to the movement of persons, mitigative refers to actions taken once the out-migration has begun, and rehabilitative encompasses measures restoring the environment of the home areas, and return or resettlement of the displaced. The actions may be aimed at either the vulnerable populations and/or the environment as appropriate. In some cases, not all three types of actions are applicable. It is recognized that this type of categorization may, at times, be artificial, but it helps provide a framework for identifying appropriate actions.

Categories of Movements and Types of Measures

(i) Acute onset, with return possibility

This kind of movement might be generated by natural disasters such as flash flooding, earthquakes, typhoons, or volcanic eruptions; it could also be the result of man-made disasters such as industrial accidents. At times, the distinction between natural and man-made causes may be unclear.

Prevention

Acute onset disaster situations can often be prevented. The concerted strategy towards natural disaster reduction for the International Decade for Natural Disaster Reduction provides a conceptual framework and places disaster reduction in the perspective of sustainable development, which involves social environmental management and the protection of natural resources.

In addition, effective preparedness is called for in case disasters occur despite preventive measures. In areas that are prone to natural disasters, certain actions can be taken that, while they do not prevent the disaster *per se*, can be considered preventive because they are meant to preempt certain of its effects. For example, early warning and monitoring systems, including up-to-date geographical information and satellite and aerial photographs, are indispensable for scientists and policymakers in both the industrialized and developing worlds to aid in the creation of evacuation plans and maps showing areas of risk for natural disasters and massive population movements.

Application of existing knowledge and technology, the integration of disaster education into national planning with active local participation and the provision of adequate resources can reduce environmental impacts of disasters and minimize population displacements. Extensive communication networks, including alternative communication channels in the event of disaster, are also important for allowing governments and relief agencies to respond quickly with aid for potential migrants or displaced persons. Other important measures include the development of emergency-preparedness systems as well as the creation of special funds, which are essential for assisting those affected by either disasters or accidents. These actions can be crucial in slowing down migration.

Mitigation or Rehabilitation

Involvement of local and international non-governmental organizations (NGOs), and as appropriate, bilateral and multilateral agencies straddles both the mitigative and rehabilitation stages, with relief agencies providing services to ease the plight of the displaced, and development and environmental organizations addressing the need for restoration of the home areas for the return of the displaced. A clear division of labour among the agencies and organizations involved is crucial in order to avoid confusion or duplication of services. Thus strong coordination, laid out beforehand among the different actors, particularly from the international community, is of utmost importance.

(ii) Acute onset, with no return possibility

This applies, for example, to people displaced by nuclear or hazardous waste contamination, or total destruction of home areas due to particularly severe natural disasters. Where such emergency situations or natural disasters cannot be prevented, attention by governments, relief and development agencies, and local communities should primarily be focused on mitigation of the condition of the displaced and assistance to the receiving areas.

Prevention

The concept of disaster reduction as laid out in the results of the World Conference on Natural Disaster Reduction, held in Yokohama, Japan, in May 1994, extends to natural and other disaster situations including environmental and technological disasters and their interrelationship which can have a significant impact on social, economic, cultural and environmental systems. Consequently, all efforts should be undertaken to apply existing scientific and technological potential in order to prevent severe disaster situations which would lead to displacement with no possibility to return. This includes adequate risk assessment, vulnerability analysis, and countermeasures in the fields of infrastructural planning and project implementation, hazard monitoring, and structural strengthening of infrastructure.

Mitigation

Measures could include the elaboration of resettlement policies and provisions (which may encompass income-generation programmes and educational assistance) for the displaced. Similar attention should be given to local populations among whom the displaced resettle. Migrants or refugees may also qualify for long-term medical assistance (particularly in the case of victims of nuclear or hazardous waste contamination), temporary shelter, and fair compensation for their losses.

Superimposed on these measures is a need for tight coordination among NGOs (both local and international), governments (both host and home), and relief and development agencies to effectively and immediately address the above concerns.

(iii) Slow onset, with return possibility

Some of the environmental causes of this kind of movement are deforestation, agricultural or rural decline, reversible desertification, chronic water shortages, resource pollution, and unclear land tenure or resource ownership. For many of these cases, all three types of action - preventive, mitigative, and rehabilitative - may apply. Unlike in category (iv), there is some possibility for the displaced to return to areas of origin, either because the problems causing displacement are less severe, or because the process and its effects may be reversible.

Prevention

Prevention of this type of displacement includes two stages: (1) actions that seek to preempt the displacement, and (2) actions meant to prevent the recurrence of outflow after the displaced have returned. Examples might include early warning of environmental degradation using such tools as Geographic Information Systems (GIS) and aerial photography; the incorporation of long-term resource management and conservation schemes (i.e. the sustainability principle) into national policy; education and awareness-raising campaigns both within the government and among local populations that are either potentially or actually affected by the environmental degradation; and the encouragement of participation, among these populations, in environmental programmes to prevent recurrence of the original problem. With the same objective in mind, national governments need (and have the prerogative) to formulate development priorities in a way that addresses these problems. Some of these measures could be interpreted as straddling prevention, mitigation and rehabilitation. One example is the National Plan to Combat Desertification, a government response to address all stages of the desertification process and related population issues.

Mitigation

In cases of environmental destruction or degradation, especially those with trans-boundary effects (such as water, air, or soil pollution), bilateral, multilateral or regional cooperation in mitigative action is essential. Retraining and temporary assistance to the displaced are other mitigative actions that governments, relief agencies and NGOs can undertake.

Rehabilitation

Rehabilitation would include restoration of the environmentally degraded areas at source area; investment in, and rebuilding of, agricultural infrastructure and/or the areas where the outflow originated; and, where appropriate, the creation of economic incentives and job opportunities, including small-scale enterprises, for the return of the displaced. Environmental rehabilitation should go beyond mere restoration of the local natural resource base and address long-term development objectives. These measures are mostly the domain of the home government, NGOs, development organizations, and international donors. Where environmental destruction is traceable to human activity, awareness-raising campaigns within government and local communities is appropriate.

(iv) Slow onset, with predictability, and no return possibility because of human activities

This can be caused by dam construction and other large-scale development projects. In this type of case, persons to be displaced and causes of displacement can be defined in a reasonably clear manner.

Prevention

Before any major development projects are designed, environmental impact assessments (EIA) should be undertaken, with components focusing on the risk of out-migration and the potential environmental impacts in the new resettlement areas of displaced populations. It should be noted that people become displaced not only when their houses are to be directly affected but also when their livelihood is affected. Care should also be taken, when planning development projects, not to fragment a unified community.

Mitigation

Those who have caused the displacement should provide compensation for the displaced, and should undertake a comprehensive resettlement policy, including the reduction of environmental impacts of resettlement. Compensation should take into account the specific needs of the displaced population, including housing, job training, education, and medical assistance. Attention should also be paid to

the situation of the host population.

(v) Slow onset, with no return possibility because of the natural conditions of the area

The causes of this kind of movement can include irreversible desertification or soil erosion, and coastal flooding resulting from climate change and sea-level rise.

Prevention

As these problems are irreversible, preventive action in the very early stages of such environmental degradation is crucial. There presently exist international agreements with precisely this aim, such as those targeting the production of carbon dioxide and chlorofluorocarbons (CFCs). Other specific measures include ones mentioned under prevention in category (iii), above.

Mitigation

Assistance for adjustment and permanent resettlement is the main way of reducing the impact of migration caused by this process. Such assistance can come from international donors and relief organizations; in particular, there is a need for industrialized countries to target the most needy countries. The involvement of local and international NGOs in mitigation measures is indispensable, as is a reliable system of coordination among these various organizations. As with category (ii), a resettlement policy must be forthcoming, ideally involving both the host and home countries in cases of transborder displacement. Mitigation also includes measures such as education and awareness-raising campaigns about the wise use of resources in the area of resettlement; a re-examination of resource management and sustainable use on the part of the home country or area of outflow; and the use of the Global Environment Facility (GEF), which provides technical assistance and investment for projects addressing global environmental problems. Measures may target both the permanently displaced population and the local communities among whom they have settled.

Framework for Action

The following principles form a framework for action that would contribute to the minimization and amelioration of the problem of environmentally-induced population displacements. Although not intended as a comprehensive list of all the measures that must be taken, these guidelines reflect the most important principles which States, international, national and local actors should take into account when proposing practical action. Such action must be based on a holistic and integrated approach.

Root Causes

In order to address environmentally-induced displacements effectively, integrated research needs to go beyond the apparent or superficial causes, and focus on the structural causes which underlie the movements of people. For example, this approach may help solve, at an early stage, competition leading to conflict over natural resources, a factor which is very often at the root of this problem.

State Responsibility

As States have the responsibility to ensure that activities within their jurisdiction or control do not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction (Principle 2 of the Rio Declaration on Environment and Development, 1992), damage caused to other states by those displaced as a result of serious environmental disruption (except for natural disasters and accidents) should incur state liability. Each country bears

the primary responsibility for protecting its people, infrastructure and other national assets from the impact and consequences of natural disasters and other emergency situations. Furthermore, states from which migrants originate have the responsibility to cooperate with receiving countries in efforts to address transboundary movements of people.

Strategic Environmental Planning

Environmentally-induced population displacement should be integrated into strategic environmental action plans and national conservation strategies. These strategic plans must include capacity building for forecasting, monitoring and contingency planning; mitigation and rehabilitation measures; be based on participatory approaches; and be developed in a decentralized way. Furthermore, they should allow for district-level detailed environmental planning which includes migrant-hosting areas. It is important for environmental action plans to be linked to economic development plans.

Economic Approaches and Development Policies

Governments and development agencies must address the issue of economic incentives (either to discourage out-migration or encourage return, where appropriate), sustained economic development of potential outflow areas, and investment in the most needy countries, as these factors are intrinsically linked to environmentally-induced population displacement and its prevention or mitigation. Governments producing environmentally-displaced persons have a responsibility to address the root causes of these displacements through sustainable economic reform, including increased investment in infrastructure, capacity and institutional development and access to credit. Development agencies have a major role in helping these countries in their efforts in this direction.

The incorporation of sustainable development and the integration of environmental concerns into national development policies is essential. This applies to both sending and receiving countries. *Inter alia*, elements can include poverty alleviation, population policy, natural resource -in particular soil fertility-valuation and conservation schemes (including self- and assisted-regeneration activities), productive potential of ecosystems, appropriate technology and agroforestry, afforestation and reforestation, and participatory resource management. Also important is the consideration, within relevant environmental policies, of the costs of population displacements.

Resettlement Policies

Countries should have resettlement policies in order to prepare for those situations in which environmentally-displaced persons cannot return to their home areas. When the movement of people is across borders, these policies evidently involve both the receiving countries and countries of origin. Policy elements might include compulsory EIAs to be carried out before resettlement approval, emergency assistance for those being resettled, assistance to local populations absorbing those resettled, promotion of income-generation schemes for both populations, and involvement of both populations in environmentally-sustainable development projects. As the influx of people in some of the above mentioned cases can be rapid and large-scale, attention to the needs of local communities is a key step towards defusing potential conflict and competition over scarce resources.

Return Policies

Where rehabilitation of degraded source areas is possible, an active policy, on behalf of governments, should be developed which aims at assisting migrants to return to their home areas. The implementation of such policies may be undertaken, or contributed to, by international and local governmental and non-governmental organizations. In those cases where an entire society has

effectively collapsed,- which we can see today in various parts of the world, it is evident that the concept of successful organized return poses increased difficulties.

Finding Alternatives

An effort should be made to assist communities to find alternative livelihoods in the case where current dependency on natural resource use proves unsustainable. Key among these are alternative sustainable land-use systems to adjust for population growth and carrying capacity. As most rural households in the developing world already apply economic diversification as a coping strategy in difficult times, assistance in this field may prove to be effective.

Local Participation

Wide consensus exists that projects not supported by local participation and general awareness (i.e. top-down projects, or those imposed from the outside) are not sustainable in the long run. Thus programmes and projects addressing environmental degradation and subsequent population displacement, its prevention, mitigation and rehabilitation, must encourage the active participation and involvement of the displaced and local communities. Indeed to be fully successful, projects should be incorporated into local structures. They must include education and awareness-raising about environmental problems as well as about the linkages between the environment, the economy and land-use.

Coordination

Coordination of international, national, regional and local actors-whether government authorities, NGOs, relief, development, and environmental agencies, the private sector, or donors-is indispensable for prevention, mitigation and rehabilitation measures. Within the framework of existing coordination responsibilities, mechanisms, and fora, the Inter-Agency Standing Committee (IASC) and notably its Task Force on Internally Displaced Persons, there is a need for active interchange of information and cooperation between refugee/migration-oriented agencies, the development community, and environmental organizations. As there is often already much confusion dealing with large-scale or sudden population movements, those agencies and organizations dealing with the resultant problems must have clear channels of communication among themselves, as well as a clear division of labour in order to act effectively. The government should take a lead in forming effective coordination.

Information about Successful Practices

Organizations involved in both development and humanitarian activities bear a responsibility to share information that may be of benefit to others in similar situations. There is a need for international information-sharing about projects and programmes that have been implemented and that have been shown to be successful in addressing the problem of environmental degradation and population displacement.

Available Technology and Information

Because of the limited communication between the institutions with early-warning information capacity and implementing aid agencies, there is a need for efforts on both sides to exploit this technology for preventive measures. In order to achieve maximum benefit from the use of remote sensing GIS technology, the information collected about areas and populations which may potentially experience out-migration needs to be linked to the understanding of the degree of the coping capacity of the people involved. Information sharing and exchange of technology is required to comprehensively address this issue. Where government opposition to allowing access to information gathered by GIS and other systems is encountered, international organizations and donor agencies should seek

discussions with the authorities on the issue.

There is a need for identification of those areas which may be prone to environmentally-induced out-migration with a view to proactive responses by existing development organizations, donors and governments. This means that existing famine early-warning systems should be adapted to allow for the identification of the potential displacement. At the same time, an international listing showing all relevant information and statistics on displaced communities worldwide should be developed and disseminated.

International Agenda

Due to the acute needs and vulnerability of the environmentally displaced, awareness of their situation belongs on the international agenda and they should be targeted for special projects and assistance. The International Secretariat for the Convention to Combat Desertification would be one organization, amongst others, well-placed to raising public awareness, particularly because the Convention already links land degradation with migration within the National Plans to Combat Desertification. Other means to raise the issue on international and national levels are the strategic environmental plans, such as National Environmental Action Plans, linked to the World Bank's Structural Adjustment Imperatives, and National Conservation Strategies, supported by the World Conservation Union. There are a variety of tools that should be utilized by States and organizations which will highlight their situation and focus international attention on the problem, in the hope of finding viable and effective solutions. The media can be a powerful means of campaigning and this should particularly be exploited by international agencies.

II. Environmental Impacts Resulting from Mass Migrations

The Problem

Mass migrations can have positive effects. However, negative impacts are common where population movements are large-scale and particularly when they take place over a short period of time. Typical examples of environmental problems associated with mass migration could include deforestation, soil erosion and water contamination or depletion. Negative consequences of such impacts in the receiving areas include: (i) a reduction in migrants' well-being; (ii) damage to the natural resource base on which the local economy depends; (iii) economic and political difficulties for the areas hosting mass migrants; (iv) erosion of efforts made by governments and the international community to support sustainable development of the areas concerned. Due to a lack of national resource management as a result of mass departure, areas of origin may also be subject to negative environmental impacts.

This section of the paper will concentrate on countries and areas receiving migrant populations, including populations displaced to hosting areas and populations returning to their areas of origin. As in the first half of the paper, the measures discussed in this section are divided into three phases or sets of action: prevention, mitigation, and rehabilitation. The first refers to actions taken by, for, or jointly with the host country before or just at the beginning of the arrival of the displaced persons; the second refers to measures taken after arrival; and the third refers to programmes and activities undertaken after the departure, or alternatively, the settlement, of refugees or internally displaced persons.

These measures are followed by basic principles underlying all measures recommended for all phases. The recommended measures described below do not constitute an exhaustive list.

Prevention

Emergency Planning

Environmental factors can be built into emergency planning, including early warning systems. Emphasis should be placed on the avoidance of irreversible environmental impacts, such as those on internationally recognized conservation areas. For better emergency environmental planning, use of pre-event environmental impact assessments, GIS, as well as data compiled by local government offices and NGOs may be helpful. Such data or information could include historical data which indicate traditional migration routes and hosting areas. The focus of pre-event environmental impact assessments is on the clarification of environmental conditions and avoidance of irreversible impacts.

Preparedness of the Emergency Team

Staff to be involved in emergency response should be trained in practical environmental actions appropriate during the emergency phase. The aim is to promote a mutually reinforcing relationship between typical emergency responses and environmental measures to be taken in the initial phase. Environmental problems will affect the welfare of those displaced; thus they are also protection issues. Finally, attention to environmental matters at the beginning of mass migrations will save more in the long run than initial neglect.

Initial Reaction to the Emergency

It is important to have an environmental specialist on the emergency team when significant environmental impacts are to be expected. The environmental specialist will conduct a rapid environmental analysis based on the actual situation in the field. The findings of the analysis will be reflected in the basic arrangements that accommodate displaced persons. In cases where an environmental specialist is not included in the emergency team, environmental factors must still be properly taken into account. Thus training of all those involved in emergency responses on basic environmental principles is essential. Also important are early contacts with leaders of displaced populations in order to spread environmental awareness within their communities.

Planning of Camps, Settlements and Transit Centres

The location and the size of sites to host displaced persons are among the most important factors in relation to potential environmental impacts. For example, if these sites are situated in hazardous areas, there may be adverse health impacts, and if placed near internationally recognized conservation areas or areas of high biodiversity, irreversible environmental damage is likely. These considerations should be specifically addressed in the planning of sites. Therefore, physical planners need specialized environmental training. Large camps usually have a more immediate impact upon the local environment than smaller camps which can be more easily linked to local management resource systems.

Coordination

Environmental problems are an inter-organizational challenge. They are also usually problems which require long-term efforts. Therefore, existing coordinating mechanisms and fora must embrace coordination on environmental concerns, both within the contexts of humanitarian assistance and development. This should include coordination of what kind of environmental actions could be taken by which organizations. Particularly at field level, coordination is an established need, and the active involvement of the host country, relief agencies, donor agencies, as well as NGOs, both international and local, is required. A key to effective coordination is the active initiative taken by the host government. Besides programme implementation, coordination should also encompass research, communication, and programme planning.

Awareness Raising

Environmental problems are created by the everyday activities of displaced persons. Thus environmental messages must reach and be clearly understood by those displaced. A number of means are available for this purpose. In the initial stage, however, environmental campaigns, undertaken among the displaced with the involvement of their leaders and supported by local NGOs and (ideally) the host government, seem appropriate. Such environmental campaigns could be reinforced, for example, by tree-marking operations, and by working with local community leaders to spread awareness among the displaced about the importance of natural resources to local communities and the new arrivals.

Mitigation

Environmental Planning

Since environmental matters must be addressed throughout all sectors by different organizations and on a long-term basis, coherent planning is essential to make interventions mutually complementary. Environmental planning, preferably in the form of an environmental action plan for the affected area, must be jointly undertaken by those involved in assistance operations for displaced persons, and must be based on solid economic, scientific and technological principles. For this purpose, an action-oriented environmental impact study is useful.

Economic Incentives

Since environmental problems can be caused by the everyday activities of those displaced and by certain activities of local communities (often increased as a result of the mass influx of displaced persons), it is essential to establish a mechanism to ensure that those everyday activities are conducted in an environmentally sound manner. There is no single model for what kind of concrete actions should be taken for this purpose, but in many cases economic measures are considered most effective. These measures might include limited land-lease programmes near hosting areas, participation of the new arrivals in public works programmes, and exchange programmes of labour-for-resources in place of sale of local natural resources, which is not always viable in cases where displaced persons have little or purchasing power.

Local Participation

It is extremely important to involve displaced populations and, where appropriate, local communities in environmental mitigation operations. This is needed for a number of reasons: (i) for environmental awareness and creation of the feeling among displaced persons that they are contributing to a worthwhile effort; (ii) for the long-term sustainability of such efforts, even after displaced populations have left the areas; and (iii) for the most effective use of available human resources. Special efforts are necessary to reflect the concerns of vulnerable components of displaced persons and local communities. Local NGOs's expertise and networking capabilities are useful in this respect. Community-based institutions within displaced populations should be promoted and encouraged to become more involved in environmental operations.

Environmental Coordination

Effective coordination among those involved in environmental operations should take place, where possible, within existing coordination mechanisms and fora. In cases where these mechanisms and fora do not exist, coordination could also take other forms, such as specially created local task forces to discuss technical aspects of environmental operations. Such task forces could include representatives of displaced persons and locals. The establishment of fora to enable regular contact between local communities and those displaced is another

example. In order to make the latter real effective, some sort of devolution of power is essential.

Environmental Funding

Environmental interventions require long-term commitment, without which all initial efforts could be rendered useless. In this respect, long-term funding is a crucial issue. It may be useful to distinguish between core funding and short-term funding. For core funding, a sustainable monetary source has to be secured. Self-sustained financial mechanisms involving the displaced and locals should be established to the extent possible.

Positive Policy Environment

Basic policies on how to treat displaced persons greatly affect consequent environmental impacts. Policies which enable the maximum use of human as well as monetary resources available for environmental purposes are likely to be the most effective. Examples include employment of the displaced and local populations, use of these groups' traditional knowledge, and use of local NGOs.

Rehabilitation

Rehabilitation for Sustainable Development

Rehabilitation typically means physical restoration of local natural resources (for example, reforestation). However, rehabilitation of the affected areas should not be looked at from a narrow, as-it-was, environmental perspective. The essential point of rehabilitation will be to meet the long-term development needs of local people. Simple restoration of the environment to its original state does not necessarily make sense since the original state is not in most cases the ideal environment for the sustainable development of the areas concerned. An appropriate rehabilitation process should therefore be: *from stabilization to restoration to improvement to sustainable development*, all the while keeping sustainable development in mind as the final objective.

Planning for Rehabilitation

Rehabilitation of the affected areas needs long-term and consistent efforts which address almost all aspects of local people's life. Naturally the host government agencies, local governments, international agencies, NGOs and various other organizations will be involved, in particular where impacts are extensive. Economic diversification for the affected local population may also need to be considered. A smooth, effective and well-planned shift from humanitarian aid to development assistance has to take place early in this phase, not least because humanitarian aid is likely to be reducing and time-limited. Moreover, it often produces a dependency syndrome and promotes lifestyles which are detrimental to the environment. The government's role in developing an effective rehabilitation plan is crucial.

Involvement of Local Communities

Particular attention should be paid to the key processes whereby local people become involved in rehabilitation programmes. Persistent efforts to listen to and identify the real needs of locals; including vulnerable components of the population, will make rehabilitation sustainable in the long run. To initiate and maintain this bottom-up process effectively, the active involvement of local communities and organizations is essential. Their on-the-ground knowledge and networking capabilities within the local community are invaluable.

Sustainable Financing

One of the most common problems that long-term rehabilitation efforts encounter is the lack of sound financing of rehabilitation projects. Material assistance from the government and international community is thus especially important in the initial stage. However, in the long run, such assistance should be phased out so that eventually all rehabilitation efforts will be taken over and sustained by local people. To meet this goal, one approach, albeit complicated, is to establish some kind of revolving fund for rehabilitation and local development. Again the role of local NGOs and local government is very important.

Framework for Action

Integration of Environmental Factors into Assistance Operations

Environmental problems can be caused, and overcome or mitigated, by a variety of decisions and operations undertaken by each organization involved in the assistance operations. Thus, to minimize environmental impacts, it is important to incorporate environmental considerations into all aspects of these assistance operations. This integrated approach has often proven to be among the most cost-effective. Environmental measures should be taken to the point where net benefits are maximized. This principle needs to be incorporated into public policies and programmes.

Regular Exchange of Programme Lessons

Current knowledge of best practices and projects is not always adequate to ameliorate environmental damage. Follow-up activities of this Symposium should include regular convocations of field practitioners to exchange experience and knowledge. In addition, it would be valuable to develop detailed environmental guidelines so that each specialized organization can have a clear idea of how environmental concerns are to be reflected in their specific operations. These guidelines can be usefully complemented by a compendium of successful projects and best practices.

Motivation of Displaced Populations

Individual responsibility for environmentally-sensitive behavior must be actively promoted among displaced persons. This can be done in a number of ways, including, among others, the promotion of individual ownership of environmental resources, proper pricing of environmental goods and services, and, to a lesser extent, taxation. Also important will be measures to make those involved feel direct social pressure not to damage the environment. Related measures could include environmental education and awareness campaigns, building upon traditional knowledge.

Coordination

Many organizations are usually involved in assistance operations. Since environmental problems are related to many aspects of assistance operations, harmonization of approaches to environmental problems among those involved becomes crucial. In particular, there is a need for collaboration between development, humanitarian and environmental agencies. It is desirable for all international organizations and NGOs to develop and implement environmental policies based upon common principles, utilizing existing coordination mechanisms and fora. This is vital in order to enable effective coordination in each relevant situation so that actual field operations of each organization adopt a consistent approach towards minimizing environmental impacts. The policies of the host government dealing with mass population displacements will have an important bearing on actual environmental impacts. Thus the host government needs to also take environmental factors into account when formulating policies concerning these displacements.

Responsibility

Environmental problems can be overcome or arrested to a significant degree if: (i) those otherwise causing problems are properly motivated; (ii) assistance organizations incorporate sustainable development, including environmental concerns, in their operations; (iii) development organizations address the problems in close liaison with assistance organizations; and (iv) the government creates a policy environment which encourages sound environmental management. The government's responsibility for the coordination of environmental action needs to be recognized and supported.

Environmental Monitoring and Evaluation

Monitoring the status of the environment should be a part of the regular operations of those organizations involved. An effective way to ensure this is to institute monitoring groups which represent the significant organizations in the area. Environmental monitoring is useful to resolve disputes among displaced populations and locals, among others, arising from environmental damage. Practical indicators need to be developed to track progress against the objectives of environmental projects. There is great untapped potential to use geographical information system techniques for collecting, analyzing, and managing information for decision making on land use planning. With a better understanding of baseline (pre-mass migration) conditions, it is easier to identify changes in habitat.

III. Bridging Migration and Environmental Impacts

Vicious Circle

Two broad patterns of causation have to be distinguished: cases where environmental deterioration is the reason for people's movements (Theme I), and cases where migration is the cause of subsequent environmental problems (Theme II).

A careful assessment of recent experiences of mass displacement and environmental degradation suggests that the pattern of cause and effect often changes as the environmentally displaced of yesterday become today's cause of environmental deterioration in a new location. This might be labeled an environmental or migration equivalent of shifting cultivation. The term, used in tropical agriculture to describe the process of sequential cultivation of crops in cleared areas of forest where people move once they have depleted the fertility of the original site, seems quite apposite to many instances of migration discussed here. As in the case of shifting cultivation, the process, once benign (given low population density and ample scope for restoration of resource productivity) has become unsustainable and a major cause for concern.

Virtuous Circle

Prevention, mitigation and, in some cases, rehabilitation have a major role to play in breaking the seemingly unending cycle of degradation and abandonment. In all cases, corrective action will be a second best approach. The key to lasting solutions to both displacement and environmental degradation must include the promotion of sound economic and environmental policies. Organizations providing assistance to refugees and the displaced must communicate effectively with economic development and environmental agencies as well as with one another.

Effective interventions by refugee assistance and migration organizations can also serve as a major learning opportunity for both the displaced and local populations. This learning can have far-reaching and multiplier effects and, to

some extent, it can replace the work of separate environmental programmes.

Framework for action

Patterns of environment and population displacement need to be addressed not just in reaction to individual incidents of involuntary migration, but in light of long-term trends in the carrying capacity relationship between humans and the areas where they live. Borders are no barriers to either ecosystems or factors inducing population movements. Many environmental crises in one country depend on policies and actions in neighbour countries. Conflicts over land can lead populations to spill over across borders. Therefore, remedial action needs to be based on regional approaches, involving more than one country.

The complexity of the situations described in this Statement of Principles calls for the application of comprehensive and strategic solutions. Simple, *ad hoc* interventions are unlikely to have sustained effect.

Recognizing the political nature of modern complex emergencies, solutions need to address the political power base over the concerned natural resources, and communities and societies. Efforts in the field of conflict prevention should accompany policies and programmes aimed at remedying serious environmental problems and population displacements.

Roles of actors

The exact role of different actors in environmental and population displacement issues needs to be defined in each specific situation. However, the following general principles relating to the distinct actors - as elaborated in the foregoing chapters - should be kept in mind:

displaced persons

full participation in all environmental prevention, mitigation and rehabilitation activities as applicable, including in their planning and decision-making; those who possess technical expertise in environmental management should be encouraged to participate as technical project or programme staff

local communities

active involvement in the planning and implementation of activities of displacement prevention in the areas of origin, and the determination of settlement sites in hosting areas; advice on traditional knowledge about, and on management techniques of the local natural resource base; involvement in mitigation activities for displaced persons as well as - in case of return - in environmental rehabilitation activities

specialized institutes

surveys on vegetation cover and biomass capacity, energy use and the potential carrying capacity of the hosting areas

environmental organizations

promote and carry out conservation and environmental rehabilitation programmes; give advice on environmental planning and management techniques to other actors involved in environmental prevention, mitigation and rehabilitation activities

authorities of origin countries

set in place appropriate national environmental early warning and emergency preparedness systems adapted to sensing the risk of mass population displacement; increased attention to environmental

processes and reinforcement of operational and coordination capacity to address environmental problems related to potential population displacement; integrate the issue of population displacements in national strategic environmental plans, e.g. national plans to combat desertification; assume coordination role of various actors involved in prevention, mitigation and rehabilitation activities, including the determination of resettlement sites for both displaced and returning persons; promote income generation schemes in resettlement areas for both displaced and local people

authorities of host countries

development of policies and programmes which sensitize displaced persons and local people to environmental impacts and problems; integration of environmental concerns, including rehabilitation activities, into national and area development plans; selection of appropriate camp and settlement sites keeping in mind environmental consequences, including those of long-term land settlements, provision of suitable land, development of infrastructures and provision of technical and extension services; involve both indigenous population and displaced persons in the protection of the environment and the management of local resources; assume coordination role of various actors involved in environmental programme activities

donor agencies

promote the adoption of environmental approaches for hosting areas of displaced persons; contribute to the planning and financing of environmental prevention, mitigation and rehabilitation projects; allocation of development funding to address mass migration-related environmental problems; GEF funding for these problems

inter-governmental organizations (IGOs)

in close consultations with governments concerned implement and/or cooperate in programmes aimed at reducing migration-producing change of the environment; provision of technical expertise in environmental protection and search of appropriate (re)settlement sites; develop guidelines to address environmental impacts of relief operations; extend development projects to migrant-hosting areas; in case of mass displacement of population, draw the attention of the authorities of the hosting country on possible consequences of this influx and the settlement of refugees and displaced persons on the environment. Should the authorities request the assistance of IGOs, ensure that the protection of the environment and the management of natural resources are part and parcel of their assistance programme. In doing so, the IGOs involved act in a coordinated manner, both at the national and international levels.

non-governmental organization (NGOs)

act as operational partners in the hosting areas for plans of action or programmes including relief operations agreed between the government of the country concerned and intergovernmental organizations. When carrying out relief operations, keep in mind their impact on the environment and possibly seek advice from bodies competent in environmental matters. Involvement in the remedial of causes which provoked mass population displacements and participate in rehabilitation programmes in the countries of origin, facilitate the dissemination of technology and expertise acquired in other situations, which could be replicated or used with adjustments in new situations. Environmentally oriented NGOs should assist in the monitoring and evaluation of environmental programmes, particularly involving both the indigenous communities and the displaced persons in the development of new techniques aimed at protecting the

environment and increasing the carrying capacity of the hosting areas.

Future Generations

Activities undertaken today in defense of a country's environment do not just benefit those at risk of environmental displacement and the local populations. Their effect will normally be felt by future generations as well, whose range of options can only increase if resource and environmental services are better protected. It is precisely at these generations that the efforts of sustainable development are aimed.

The ideas and recommendations in this statement of principles do not represent a definitive or exhaustive approach to environmentally-induced population displacements or environmental impacts resulting from mass migrations. They can, however, provide a starting point from which the two issues may be viewed both separately and together, and a framework within which those seeking to address the long-term implications of, and possible solutions to, the problems discussed above, may share their experience and expertise.

In order to raise attention to these increasing problems, much more communication is needed, both directly and through the media. This could also contribute to furthering solidarity between the international community and the countries, and individuals directly affected by these issues, which in turn should lead to increased levels of assistance.

Summary of Proceedings

This **Summary of Proceedings** records the range of ideas and points of view expressed in the presentations and voiced by the participants at the Symposium. It should not be inferred that general agreement was either sought or achieved on the many issues considered. The Summary reflects the Symposium agenda; for the sake of clarity, statements and discussions follow the general themes rather than the strict sequence of the agenda time slots. Extracts of statements, presentations and background papers or summaries thereof can be found at the end of this Report.

Opening

The Symposium was opened by Mr. James N. Purcell Jr., Director General of IOM, and Mr. Dennis Gallagher, Executive Director of RPG.

Mr. James N. Purcell Jr. said the joint preparation and organization of the Symposium was a prime example of inter-agency cooperation, and expressed his appreciation to the many donors who had supported it and sent experts to participate.

He recalled that the Symposium built on the problems identified in a January 1992 meeting, *Migration and the Environment*, which was organized by IOM and RPG in Nyon, Switzerland. That meeting had called attention to the need for strategies to assist those forced to leave their homes because of environmental degradation, to increase understanding of traditional coping mechanisms for dealing with environmental change, to address the root causes of environmental migration, and to minimize the impact of refugees on local ecosystems.

The aim of the Chavannes-de-Bogis Symposium was to identify concrete measures to prevent environmentally-induced displacements, to rehabilitate the affected areas and to mitigate negative environmental impacts resulting from mass migrations

(see Extracts from Opening Speech, Annex 2).

Mr. Dennis Gallagher thanked the officers of the three organizing agencies for their having it made possible to hold the Symposium. He expressed the hope that the Symposium would produce both a set of consensus principles and a useful record of discussion. He was confident that the Symposium participants would actively debate potential solutions to the problems under discussion. He used the example of Rwanda, which continues to baffle policy-makers and planners, illustrative as it is of the destructive potential of competition for scarce land and other resources.

Environmentally-Induced Population Displacements

Trends in Environmental Displacement

Introduction: Environmentally-induced displacements stemmed from both natural resource deterioration and disruption compounded by social, political and economic turmoil. Environmentally displaced persons are those who can no longer gain a livelihood in their habitual places of residence because of soil erosion, deforestation, desertification, drought, depletion of fishing stocks, and other related collapses in natural carrying capacity, whether short-term or long-term. Not all environmentally displaced persons leave their countries; many remain internally displaced **(see Extracts from Background Paper, Annex 3).**

A key feature is that environmentally-displaced people move because they have no other choice. Involuntary displacements resulting from environmental change may occur en masse - in one huge wave - or more gradually - in waves and ripples. Participants noted that both the immediate and root causes of environmental displacement can be natural or man-made.

There was a call for better understanding of the causes of environmentally-induced displacements in order to formulate preventive measures. Participants cited numerous rapidly worsening causal factors, such as population growth, prolonged drought (desertification feeds the cities) and economic vulnerability. These factors, when linked to deteriorating environmental conditions such as soil erosion, diminishing water supplies and deforestation, can cause the uprooting of families and whole communities who are thus forced to seek a living elsewhere.

Several participants emphasized that it was often a confluence of trends that ultimately led to uprooting. For example, people could be forcibly displaced when civil disturbances, political turmoil and the break-down of elementary public services led to intolerable conditions of irreversible deforestation and pollution levels causing immediate and noticeable health hazards to the local population, or when rapid population growth coincided with desertification.

Such compound problems, which currently threaten over 135 million persons according to one speaker, have been recognized in recent discussions on desertification and climate change (see the *Almeria Statement on Desertification and Migration*, 1994). Currently there are 115 countries signatory to the *UN Convention to Combat Drought and Desertification*. While 30% of the Earth's land surface is affected by dryland degradation, food production needs to increase by more than 75% in the next 30 years to keep pace with population growth **(see Extracts from Statement, Annex 4).**

The loss of agro-ecological balance undermines food production, which triggers a vicious circle of over-exploitation leading to environmental degradation leading to ever lower yields. Poverty thus keeps growing. This fuels conflict over scarce natural resources, which may set in motion mass population displacements. It was stressed that decreased resource availability or climate fluctuation does not

automatically mean disaster. It is when the environmental degradation and resource depletion are such that local coping mechanisms and traditional forms of land use are no longer adequate that people begin to pack up and leave in large numbers.

One speaker drew attention to the fact that the large and growing number of people displaced through environmental causes included many of the more vulnerable and destitute people of the world. It was reported at the meeting that today there were over 25 million persons displaced for reasons of environmental degradation. Of those, most lived in the African Sahel, the Horn of Africa, other parts of Sub-Saharan Africa, the South-Asian sub-continent, Mexico, and China. The majority of the enumerated regions are also characterized by intense population growth.

One participant argued that the problem of environmentally-induced displacements underscored the fact that there are nations without the necessary control over vital environmental parameters. He illustrated this with the case of Bangladesh, where flooding was the leading cause of displacement. Water levels were strongly affected by upstream neighbouring countries' water management decisions over the course and flow of cross-border rivers.

Until now, policy makers have mainly raised the issue and put the migrants into categories. Yet despite growing awareness, evident from meetings and publications, no institution appears to assume responsibility to deal with the problem of mass displacement. Several participants observed that environmental displacement was not recognized as a singular problem, so that there was no government or UN agency officially designated to quantify and chart it, so as to assist environmentally displaced persons.

Some participants felt that it was therefore less relevant today to define the exact sequence of causes than to gauge more accurately changes in the degree and extent of the problem. It was suggested that the next step should be to identify objective indicators of the extent of environmental displacement. One participant felt it was critical to acknowledge that not all migrants - a very large population - are environmentally displaced persons.

There was disagreement over the likelihood of environmentally displaced persons returning home. Some felt that their focus on return was a defining characteristic. Others claimed that it rarely occurred they actually could return. Massive emigration had traditionally been a solution for populations beset by resource depletion. Increasingly, however, it had become a problem in itself, concentrating population on already over-exploited environments. It was noted by several participants that people who were displaced for environmental reasons could cause deforestation, desertification, and soil erosion in the places they went to, not only because of sudden additional population pressure on fragile environments, but also because of a careless attitude towards the *temporary* host environment. Thus, due to migration, poor environmental practices in one area could translate into environmental damage in other areas, perpetuating a vicious circle, a phenomenon which was further discussed on the third day.

Since the concept of environmentally-induced displacement was quite broad, participants wondered which types of causes the international humanitarian, development and environmental agencies ought to focus upon. Should people uprooted by cyclical flooding, or fleeing a violent dispute over the control of natural resources be considered as environmentally displaced? Should disasters, classified as natural and man-made, sudden-and slow-onset, be considered as proximate or underlying causes? In the end it was agreed that whatever the cause or classification chosen, each category included environmentally displaced persons of concern to international assistance.

Environmentally-induced displacements were said to pose a main problem for policy makers, not least because of a growing reluctance in more and more countries to accept immigrants. Among other policies, measures to prevent immigration by closing borders have become widespread. The phenomenon of environmentally-induced displacements, it was observed, confronted policy-makers with the dilemma of the expectations of the resident population - the electorate - versus the displaced persons' quest for protection and livelihoods elsewhere. Respect for the human rights of the asylum seekers might be in conflict with the understandable desire of resident communities to protect finite resources from unrestricted access for those from without.

Environmental degradation frequently coincides with conflict, and each precipitates mass displacement. There are no conventions or human rights laws that address the needs of environmentally displaced persons. Indeed, there is no accepted duty on the part of the international community to assist such persons. As a result, assistance is given only rarely and haphazardly. Durable solutions, furthermore, are little sought for. One participant asked the Symposium to consider what should be the minimum period after which environmentally displaced persons might qualify for citizenship of the host country.

Case Studies on Environmental Displacement

For reasons of demography alone, the number of people at risk of environmental displacement is bound to grow. For example, Kenya has gone from a population of 6 million in 1950 to 30 million today. Even with a continued decline in population fertility rates, Kenya is expected to have 80 million citizens in the next century. Given the current desertification and soil degradation processes, Kenya will almost certainly produce large numbers of environmentally displaced persons.

Great strides have been made in recent years in the development of methods and technologies for counting the displaced, and for measuring the kinds of environmental change that compel large numbers of people to leave their homes in search of survival elsewhere. Interdisciplinary teams of specialists, comprising sociologists, economists, geographers and ecologists, now combine their skills to track the consequences of, for example, water scarcity and soil deterioration in arid regions such as Mexico, where 900 000 people are uprooted each year mainly because of drought. These people migrate to cities in both Mexico and across the border in the USA. Statistical evidence suggests that Mexico's population will continue to swell. At the same time the country is becoming warmer and drier, which will lead to ever more serious and repetitive droughts threatening ever greater displacement.

One participant shared information about the Aral Sea, in Kazakhstan and Uzbekistan, where severe environmental deterioration has led to mounting pressures towards mass migration. In recent years, the Aral Sea has lost 70% of its volume and become polluted with pesticide residue. With the almost complete collapse of the Aral Sea fishing industry, sedentary fishermen have become nomadic fishermen, migrating for many months at a time far from their original homes. Of the croplands around the Aral Sea, 78% of the irrigated areas are now salinized due to years of over-irrigation. Negative environmental impacts are subregional and interregional, as environmental displacement from one region affects other areas as well. Pollution, decreasing sea levels, and salinized lands are now considered irreversible processes. With ever fewer jobs in agriculture, fishery and industry, some three million people have been uprooted the Aral Sea region. Most of the migration has remained intra-regional, as people turn to relatives to take them in. The two most affected governments are trying to develop new long-term economic programmes and new products suited for export. Otherwise, the already high unemployment rate will only get worse and out-migration will intensify. Though the governments concerned have sought to introduce mitigative programs (e.g. Kazakhstan in 1990), none have been successful. There are fewer opportunities for successful emigration. Besides,

people traditionally feel a strong need to stay near the graves of their ancestors (**see Extracts from Case Study, Annex 9**).

In Senegal, changes in land tenure legislation have exacerbated environmental degradation. Progressive shifts from communal land tenure to privatised ownership have squeezed out a great number of smallholders, which led to in-country displacement, aggravating rural-urban migration and environmental degradation, with the resulting decrease in yields.

In Pakistan, a large part of the population is migratory by tradition. There, the problem is that traditional movements have been exacerbated by floods (1992), development projects such as dams, and the indirect consequences of the Green Revolution which has led to salinization of farmlands, principally in the Peshawar valley. As a result many Pakistanis have sought a livelihood abroad, sending remittances home. Others depend on seasonal migrations, such as nomadic herding into northern mountains. Since 1979, Pakistan has been playing host to over 3 million refugees from Afghanistan. After all those years of refugee-hosting and internal migration, the Government has yet to introduce a more suitable land tenure system for most of the affected areas. Although de jure the national government owns all the land, de facto it has little control over local land use and ownership. At the withdrawal of Soviet troops from Afghanistan, old caseload refugees have begun to repatriate, but it has also brought new waves of Afghan refugees fleeing into Pakistan. Such massive, sudden returns can also cause intense environmental damage. When the main tribe from Baluchistan for instance returned home, they reclaimed land they had viewed as theirs prior to their departure, which led to the destruction of a national park. All in all, fourteen different categories of refugees and mass migrants can be identified in Pakistan, and it is difficult to distinguish war refugees from other migrants.

Prevention and Preparedness

Participants agreed that the problems causing environmental displacement were more difficult to resolve once an exodus movement had been set in motion. Environmental deterioration such as desertification, needs to be addressed before tensions build up, assets are lost, and conflict ensues. However, the prevention of displacement is probably the weakest feature of international assistance.

One speaker said that it was important to look beyond superficial explanations to gain understanding of the structural causes of flight. In his presentation, he argued that environmental impact mitigation was to be raised to more of a science and less of a fire-fighting exercise. He added that solutions must include answers to the question of how affected populations would make a living in the future. More analysis was needed to explore the potential for the diversification of economic opportunities, he added (**see Extracts from Introduction, Annex 7**).

Prevention comes from integrated and sustainable economic growth, combined with sound resources management. More cooperation is needed between national players, along with a focus on finding alternative jobs in areas where natural resources have been depleted. Several participants emphasized the importance of ensuring long-term economic viability of the affected regions. Without a livelihood, people are compelled to migrate (**see Extracts from Introduction, Annex 5**).

The task, according to several participants, was to understand the carrying capacity of a given environment in order to design sustainable development programmes and policies. Foreign intervention can also be counter-productive in this regard. Relief aid can, for example, encourage people to live in pest-infested areas with less than 400 mm of rainfall. Such areas are only suitable for pastoral forms of livestock raising. Any other productive activity is unsustainable.

As happens elsewhere, according to participants, in Pakistan, prevention and mitigation are severely hampered by lack of knowledge about environmental conditions prior to the influx, in this case, of Afghan refugees in 1979. One environmental organization, the World Conservation Union (IUCN), has a policy to help governments design environmental strategies, i.e. legal and administrative frameworks to develop new environmental structures and new environmental laws. In Pakistan, the IUCN has successfully used participatory rural appraisal methods to develop contingency plans for mitigation at the district level. The first step is that people from without are sent to villages to map the environment and conduct interviews. Ultimately, however, the goal is to involve the local people themselves in programme design and implementation. Since land use patterns in Pakistan differ significantly from one valley to the next, geographers and planners have to make use of participatory techniques to identify and track migrations.

IUCN's strategy has been to build capacity for environmental monitoring and protection at both national and local level - district or provincial - and bolster it through field verification via monitoring stations. The North-West Frontier Province has consequently adopted an action plan which combines a focus on sustainable development with capacity building and natural resource management. The Government now incorporates refugee awareness in its development programmes and continues to prepare contingency plans for mass migration, as it has already done, for example, in Chitral District (***see Extracts from Background Paper, Annex 8***).

It was emphasized that, though linked, early warning has to be distinguished from preventive action. Preventive action and preparedness both depend on early and accurate information about environmental change and human movements. One participant remarked that there is no shortage today of information on where preventive action is needed, but such information rarely translates into policy-making and programming. Regardless of the timeliness of data predicting environmental decay, international programmes are only rarely formulated in response.

However, prediction of environmental disruption is steadily improving because of collaboration between scientists on a number of disciplines. Nowadays soil scientists, sociologists, economists and ecologists teaming up, are able to analyze which land-use patterns are unsustainable, quantifying their findings with geo-statistical techniques.

Monitoring and early warning of environmental deterioration and mass migration have benefited, during the last decade, from the important strides made in the fields of Geographic Information Systems (GIS), Global Positioning Systems (GPS) and satellite image technology. This also includes mapping techniques, which model data on populations and relate them to available natural resources.

Thanks to the variety of global information systems now available, especially the new earth observatory satellites such as SPOT, Landsat TM, AVHRR NOAA and MOSS but also Earthwatch's Early Bird (1996), in conjunction with the progress on the image processing software algorithms, it is much easier to examine changing patterns of land use and the impact of human action on forest and cropland composition. These images are available on a monthly basis (Landsat and SPOT) or a daily basis (NOAA), through private companies. Mapping or image processing software packages, such as the ERDA and PCI are increasingly capable of using data from images (*see page 48 on the use of a SPOT based survey to assess the impact of refugees on the host environment*).

„ For the meaning of acronyms see list at beginning of volume.

Such emerging techniques allow analysts and planners to map, model and examine changes in:

- The natural vegetative density index (NVDI), identifying anomalies that suggest drought or risk of flooding;
- Land tenure systems;
- Population settlements;
- Soil types;
- Start of growing seasons;
- Vegetation cover;
- Human impact on rangeland, agricultural land and water supplies

(see Extracts from Background Paper, Annex 6).

Among the better known early warning systems using these tools, the Famine Early Warning System (FEWS) and the Global Early Warning System on Food and Agriculture (GEWS) are two operational systems developed within the FAO. The FEWS is the USAID Famine Early Warning System which matches aerial imagery with ground-level verification. The FEWS system also directly measures the degree of out-migration from affected areas. Participants spoke of the tremendous potential to exploit these systems further. It was felt that as such data became more readily available, resources should be directed primarily towards training local groups in its interpretation and analysis.

Participants noted that one of the difficulties in measuring environmental change was in finding a frame of comparison - which means deciding what should be considered normal. In fact, in order to define normality, most users of these systems look back only as far as the last non-disaster year. There had been very little analysis of long-term trends.

A lengthy debate followed on the question of just how useful GIS techniques could be. Some participants explained that such techniques were difficult to apply, especially in the field of satellite images, in part because for some areas of the world (in particular the equatorial region where cloud coverage is dense) up-to-date images are rare. Though aerial imagery existed in quite a number of countries, many governments restricted access to it, often on grounds of national security. The Government of India, for one, had a ban on photo-imagery of water resources. The Brahmaputra river, for example, has many important practical and symbolic uses to the nation and its neighbours, but aerial photos, however useful for environmental management purposes, were virtually unobtainable. Aerial photos are not always difficult to obtain, though in Zaire, UNHCR has been able to make a very detailed aerial survey of the camps. In Tanzania, UNHCR and some NGOs, i.e. CARE, have obtained recent aerial photos from the government.

GIS information is often complex, and the advanced analytical instruments and techniques commonly used in leading universities are too expensive for many a developing country. Several participants suggested that the most appropriate data for regular use in developing countries is aerial photographs, taken from planes over-flying zones of interest.

Rehabilitation and Return

It was stressed that environmental restoration went well beyond the mere planting of trees. It included integrated resettlement schemes for returnees, with land-use made subject to informed decision-making by both residents and returnees. Sustainable resettlement for returnees could not be achieved without well-directed environmental management combined with institution-building for future disaster reduction.

Without the certainty that the fruit of such works would go to those who undertook them, it would be hard to find active support for environmental management measures. To induce returnees and residents alike to take an interest in land conservation there should be obvious benefits for the persons engaged in such measures. Programmes to improve land registration and clarify land rights actually forged a link between sustainable livelihood and durable means of environmental protection. In parts of Africa where for cultural reasons, no single individual had long-term rights to land, it could be difficult to mobilize groups to carry out land conservation measures.

A case study on long-term carrying capacity and land use in Ethiopia was reviewed. The repatriation of hundreds of thousands of refugees to certain regions was accompanied by programmes that redistributed land and financed infrastructural development. The Lutheran World Federation (LWF) promoted such programmes through projects that provide agricultural assistance such as store space, oxen, seeds and ploughshares to help farmers who had lost their means of production. Soil and water conservation measures that take into account the root causes of the famines of the 1980s, were being promoted. Women often still walked for long hours to obtain water, and some people still had to move from village to village in search of a livelihood. Conservation schemes have created terraces and bunds, earth dams, river diversions, and irrigation canals. In the past decade, many dams, irrigation systems and other public works have been completed. Experience of LWF in these areas has shown that it is the community itself that must choose which projects they want if they are to have long-lasting effects. It had been observed that external immediate resources such as food aid can easily undermine the long-term incentive of offering farm intrants. It was said that even food-for-work should therefore be used sparingly and not be the cornerstone of relief or development work. **(see Extracts from Case Study, Annex 10)**

It was concluded that the problem of long-term environmental degradation required an integrated response focusing on sustainable development. That is why the Organization for Economic Cooperation and Development (OECD) had established within its Development Assistance Committee (DAC) a working party to strengthen the contribution of aid policies and programmes to environmental sustainability and improved natural resources management. It brings together experts to examine how *Agenda 21*, the global plan of action of the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992, can be implemented. The exchange of best practices among governments and NGOs was cited as an example of this. Similarly, a UNDP, World Bank, IUCN, IIED, and OECD joint taskforce had been set up to define the roles of donors in environmental planning ².

²At its meeting on 23-24 April the DAC/OECD working party agreed that the scope of its work would be to seek to better define the role of aid donors in addressing problems of environmentally induced migration.

Environmental Impacts Resulting from Mass Migrations

While environmental degradation can cause population displacement, the presence of displaced populations in turn may have a heavy impact on the receiving areas. Environmental impact has in the main been studied in circumstances where people have crossed international borders suddenly in great numbers, in other words, in refugee camps and settlements.

Just as environmental displacement is a growing world problem, the environmental impact of mass migrations is also ever more severe and multifaceted **(see Extracts from Introduction, Annex 11)**. Today there are over 50 million refugees and displaced persons, an unprecedented number. One participant foresaw that with the world's growing population, limits to soil fertility, and the upward trend in humanitarian crises or conflicts, displaced populations would continue to grow,

putting ecosystems even further at risk.

Categories of Impact

Participants agreed that water depletion and pollution and loss of forest cover were the most common and serious of the many harmful effects of mass displacement situations. Other forms of impact were less immediate but no less far-reaching. Among such longer-term effects were soil erosion, which could follow from the loss of vegetal cover, as a result of dense habitation of steep slopes and/or from inappropriate cultivation methods. Several participants emphasized how widespread irreversible damage was. Arable soil, for example, unlike savanna vegetation, was extremely difficult to regenerate, once destroyed.

Four categories of negative environmental impact of mass displacements were subsequently discussed:

1. Direct impacts: damage to the ecosystem, primarily to forests and fresh water sources; general pollution of the areas around camps, including solid waste from relief supplies.
2. Indirect impacts: disruption of local and regional markets, price hikes, distortion of social networks around camps, the breakdown of respect for game park barriers.
3. Deterioration of environmental health conditions, i.e. severe strain on sanitation and sewage systems, water supply, and air. Smoke from wood burning is known to be a health risk for the upper respiratory tract. When displaced and refugee women have to walk long distances to gather fuel wood, they risk physical violence including rape (a serious problem in the Dadaab refugee area in North-East Kenya).
4. The fourth category comprises strife between the resident population and the temporary camp dwellers, with political and protection consequences. The presence of large numbers of internally displaced persons (IDPs) and refugees leads to fierce competition for natural resources, often made worse by the total disregard refugees and IDPs may show as temporary residents for local resource management principles and regulations.

Though most of the literature focused on the negative impacts of large temporary settlements and camps, primarily of refugees, it was noted that not all change was damage. Damage must be balanced against improvements by intended environmental change, such as new and improved infrastructure, swamp clearance and pest control. One participant noted that local populations sometimes benefited from the efforts of refugees to clear lands for agricultural purposes, as had been seen in Tanzania (***see Extracts from Background Paper, Annex 12***).

In reviewing the literature, it was found that evidence of negative environmental impact of mass migrations was very patchy, mostly referring to a few key cases where very large numbers of refugees were involved. By now there is a sizeable amount of evidence about the impact of refugees, but actually little is known about the impact of non-refugee migrant communities on the host environment.

Four general limitations to general knowledge to date were identified by different speakers:

1. There is little research that looks at spontaneous settlements of IDPs or other migrants; the focus has been largely on refugees living in organized camps. The capacity to measure the impact of the presence of large numbers of rural migrants on the urban environment

is equally limited.

2. Few baseline data exist to measure environmental impact with any precision. In estimating impact, different authors assume different frames of comparison. Some simply guess what the situation was before. Some judge the environmental effects of migrants measured against the maximum carrying capacity of the ecosystem. Others look at the environment in relation to the objectives set in environmental plans on national or local level.

3. The post-impact, regenerative capacity of ecosystems is poorly examined and ill- understood. No measurements have been made to see if there are thresholds beyond which degradation becomes irreversible. No studies have recorded the rate of recovery of areas that have seen displaced populations return home, though there are ample cases that lend themselves to such research.

4. Even in population receiving areas that have been carefully monitored over a long period, it is difficult to distinguish the environmental change directly caused by the mass influx from that caused by other factors, such as the presence of local or national markets for energy supplies.

In any case, numerous examples were cited which inferred that large camps (beyond, say, 50 000 persons) and settlements for uprooted people usually resulted in rapid deforestation in a circle of up to 15 kilometres, or a one-day return-walk, around them. Large camps also required a system to protect the water supply. In addition, refugees had been seen to travel as far as 100 km to poach game.

Factors that Influence the Degree of Impact

The dominant factor affecting the degree of impact of the presence of large numbers of uprooted was found to be the very choice of having them stay in large camps or settlements. Spontaneously-settled migrants tended to melt into the local communities, and their impact was for a considerable part diluted . Where refugees and displaced were made to live in large camps, the designated sites were often in ecologically fragile areas so that the environmental impact of the camps was bound to be serious. Fortunately, donors were found to show increasing concern about the environmental damage caused by large camps and become more willing to support environmentally sound options.

Where the combined population density of indigenous and immigrant communities was highest, environmental degradation was most pronounced. This could be explained by the fact the impact was more directly evident and concentrated in a confined area, leading more easily to irreversible damage to the local natural resource base.

Several participants raised the issue of ownership and incentives. Immigrants and temporary residents were known to shepherd local resources where they had some title to them, or if there were other incentives to motivate them. But when they couldn't make any claim to use or ownership at all, they might misuse the land in the hosting areas. This was especially the case with refugees; as they had no host country citizenship, they could not obtain a title to land or other natural assets.

It was further observed that a key factor affecting impact was the degree to which the migrants were in touch with the local population. Regular institutional and social contacts made it possible to inform the immigrant or refugee community about local natural resource management strategies - such as common land and other natural resource tenure customs - to introduce incentives to comply with

them and to impose penalties in case of non-compliance.

In this respect, smaller and more dispersed camps and settlements were found to permit and indeed encourage more mixing with the local population. Among other things, the labour market was more open to the guests if they lived in smaller communities. Participants concluded that there was a need for research on how to foster interaction between the local population and inhabitants of large camps.

The opportunity costs of certain activities for the guest households was felt to be a key factor. Fuelwood was not always collected for personal use alone: it could also have a sales objective. In refugee camps worldwide, there is a thriving market for gathered wood, as this is one of the very few income-earning options refugees have. Where refugees have other opportunities to earn some money, reliance on clear-cutting trees seems to be reduced correspondingly. However, it was asserted that little research had been carried out to see what measures really worked to make refugees turn towards other means of income earning.

Case Examples of Environmental Impact

The case of Pakistan was mentioned by several participants. Many areas of Baluchistan and the North-West Frontier Province were greatly affected by the long-term presence of the three million Afghans who had sought refuge there between 1979 and 1985. Views differed on how extensive or serious the impact had been. One participant described monitoring one particular valley using multi-spectral satellite imagery that showed changes in forest cover over a fifteen-year period during which a lot of formerly sparsely forested land had been brought under cultivation. Also, forests had succumbed to excess surface water from both overflowing rivers and irrigation schemes. Much of the deforestation was a consequence of the refugees' practice of lopping the lower branches of trees and resin tapping. Short-term effects on the vegetation cover were invisible to satellites, which had continued to record only the tops of the trees. In the medium to longer term, however, it could be seen that trees had been affected and had lost much of their foliage, so that forests receded (**see Extracts from Background Paper, Annex 14**).

The impact of Rwandan refugees in the North Kivu province of Zaire was also discussed. Africa's first national park, Virunga, a World Heritage site containing a rich biodiversity, was suddenly surrounded by 750 000 refugees in mid 1994, which provoked an instant environmental disaster. Initially, 40 000 people a day invaded the park to collect fuelwood. Due to the fragility of this unique tropical forest eco-system, many effects were irreversible (**see Extracts from Case Study, Annex 24**).

Various speakers presented programmes in which they were involved in a variety of regions. Whether it was in Eastern Kenya, Zimbabwe, Zambia, Uganda or Zaire, in each case, it was felt that wide-scale deforestation caused by the presence of large refugee communities could be reduced through programmes directed at household energy use. Some type of fuel is regularly provided along with fuel-efficient stoves to cook the raw cereals and beans of the general food ration. In the refugee camps around Goma in Zaire, 1 kg of fuelwood per person per day was provided. This assistance was extremely expensive, yet it only satisfied about three quarters to half of the estimated overall refugee demand for fuelwood. In addition, it was found that it did not stop refugees from collecting fuelwood for commerce well beyond the camp boundaries.

The case of Zimbabwe, where 150 000 Mozambican refugees lived in five fully enclosed camps, was discussed. An estimated 12 000 hectares of forest were affected, with a total tree loss of 75%. Programmes implemented to foster recovery proved that woodland of the predominant type in the refugee hosting areas could be made to regenerate fairly quickly. *By limiting harvesting to*

pruning only and by coppicing and pollarding to reactivate growth, the regenerative capacity of a tree is not harmed. The restoration programme was enhanced by measures to ensure the refugees drew tangible benefits from protecting the woodlands. These incentives came in the form of conditional technical and financial assistance **(see Extracts from Case Study, Annex 18)**.

In Thailand, Khmer and Vietnamese refugees' local fuelwood consumption was largely determined by the provision of alternative energy supplies by the UN.

Participants noted that states had a responsibility not only to address cross-border conflicts, but also to take the lead in overcoming the multiple problems mass migration brings. The case of Uganda was proof that environmental protection ought not to be left to international agencies alone. The Ugandan Government had been slow to take the initiative in coordinating medium and long-term assistance to hundreds of thousands of Sudanese refugees. Over 350 000 refugees had come to Uganda during the 1980s and 1990s from Sudan. A German Development Cooperation (GTZ)-assisted project had aimed at strengthening the Uganda Government's planning and coordination abilities. Its goal was to help the government to include mass migration issues in national disaster management plans, to monitor displaced populations, and encourage them to take responsibility for coordinating data, recording baseline conditions, and ensure the full involvement of local institutions in providing relief and longer term assistance, including environmental mitigation measures, to displaced populations **(see Extracts from Case Study, Annex 15)**.

Preventive Action

Participants endorsed the proposition that preventive or early action, including on-site environmental management capacity, was the key to success. Refugee camps actually constituted town and city-type situations, but were seldom established according to environmentally-sensitive plans or regulations. The overriding priority given to relief to save lives, seemed to be at the cost of designing a camp lay-out and building shelter and communal facilities along sound environmental guidelines. All too often the refugees and the international relief agencies believed the refugees would stay for only a short while, but more often than not, they stayed longer than expected. In Africa, the average time refugees stayed in camps was said to be seven years. But even with this knowledge, camps and settlements were rarely built on the basis of sustainable principles. The need was expressed to plan these settlements in line with broader regional development, environmental action plans, and normal urban standards **(see Extracts from Introduction, Annex 13)**.

UNHCR informed Symposium participants that it was currently developing environmental guidelines for refugee situations. Environment-friendly and sustainable practices would be proposed for the key sectors in this respect, i.e. forestry and energy supply.

In cases where mass migrations could not be prevented, it was said, two other principal ways of avoiding major environmental damage could be thought of. One was to locate camps at least 10 to 20 kilometres from fragile ecosystems. The second was to disperse refugees into smaller camps.

In reviewing experience of environmental protection around refugee camps, it had been found that efforts to restrict refugees' access to natural resources through formal policies, coercion, or physical barriers were doomed to failure. Refugees caused the least environmental damage when they understood local resource-use practices and were given incentives to participate in both use and upkeep. This was the case when refugees had some sort of usufruct of local lands; this occurred most often among spontaneously-settled refugees who had become integrated within the local population. In general, refugees respected local

property and resource management regimes better when camps were smaller and refugees had more opportunity to mix with local communities. In larger camps, refugees found themselves competing not only with each other but also with the local population.

It was noted that much of the deforestation around camps could not be explained by the refugees collecting fuelwood for domestic use alone. Fuelwood sales often provided the only lucrative income-earning opportunity. Refugees rarely had other income earning options which could compete with fuelwood commerce. The most durable measures for reducing deforestation near refugee communities, therefore, was to analyze the opportunity cost of different types of use of refugees time, and to foster the more beneficial ones. A rather extreme measure to reduce the attractiveness of fuelwood commerce was proposed: the local markets should be flooded with fuelwood from outside to drive down the price and thus remove the incentive for refugees to deforest (**see Extracts from Background Paper, Annex 17**).

When environmental programmes for refugee camps and settlements were being designed, standard cost-benefit criteria should be applied. *If planners put a price tag on fuelwood and alternative energy sources, for example, they could apply more convenient decision-making criteria* (**see Extract from Background Paper, Annex 23**).

Many participants were convinced that accommodating large populations of uprooted in a few vast camps damaged the environment more than settling them in a greater number of smaller camps. It was said that this was indeed conventional wisdom, but there was insufficient data from solid research to prove it. It was therefore suggested that evidence be sought to convince host governments to agree to the solution of a greater number of better spaced out camps of medium size.

Opinion was divided: was it only a matter of convincing the host governments of the ecological advantages of many smaller camps over a few bigger ones? Environmental considerations hardly play a role in the preference of many host governments for large camps. Defense and interior ministries typically determine the location and size of camps, basing their decision on security considerations and practical concerns. In addition, they were rarely inclined to grant sites in areas where refugees can find a sustainable livelihood, which may become an added inducement to stay longer. To win host governments over to the solution of smaller camps, donor governments should advocate this option in their bilateral negotiations, it was said.

Early Warning and Monitoring

There was some discussion of current applications of information systems which provide early warning information, and monitor environmental change. Several participants compared the relative efficiency of satellite and aerial imagery in determining the status of ecosystems. In Zimbabwe in particular, it was felt that satellite imagery would only mystify an otherwise straight-forward process. *In that country, to assess the impact of mass migration, aerial photographs were used, not satellite imagery*³. Participants agreed that aerial photos were indeed a good source of baseline data. UNHCR has recently conducted a SPOT-based survey of the Virunga park which has suffered severely from the Rwandan refugee influx (*about SPOT surveys, see also page 39*).

³ *In general satellite images allow a look at a given region, showing specifically the main parameters of the zone of interest. For particular purposes, one must choose the most appropriate tool to collect information; this can be satellite images, aerial photos or ground surveys. Satellite images can cover the whole planet and already exist in digital format (so they can be used directly within a GIS and with GPS). SPOT and Landsat Satellite images are part of*

the public domain; that is, unlike with aerial photos, it is not necessary to request this kind of information from governments.

Because baseline data is frequently in short supply, the importance of using the local populations' knowledge was stressed.

To assist in mapping areas on the ground, field staff were experimenting with new techniques, such as the Global Positioning System (GPS), which they found helpful. GPS had been used recently in Goma at a cost of only US\$ 300, well within the means of most relief agencies.

Measures to Mitigate Negative Impacts

One expert observed that an obstacle to effective environmental protection was the fact that relief agencies seemed to assume that mass displacements were short-lived. All too often, humanitarian agencies functioned as though the refugees and displaced would stay for a limited period only, which was actually seldom the case. As a result, it was hard to strike a balance between short-term and long-term strategies, or even make long-term estimates at all. The importance of encouraging refugees, displaced and relief agencies alike to think and plan with a long-term view of the situation was emphasized (**see Extracts from Introduction, Annex 16**).

The case of Rwandan refugee camps received considerable attention. In Zaire, elaborate programmes had been introduced to counteract the deforestation resulting from the influx of a million Rwandan refugees. On the initiative of GTZ, firewood had been distributed to Rwandan refugees since August 1994.

A wide range of field activities aimed at reducing environmental impact were presented by various speakers. Programmes and practices in Eastern, Central and Southern Africa, Central America, and Pakistan could be loosely classified as follows:

- Communication and Education to Foster Environmental Awareness

NGOs routinely use mass media and community education techniques to explain to displaced populations the problems that result from their wood-clearance practices.

- Camp Location

The importance of camp and settlement location was repeatedly brought up. Some felt it was important to site camps in resource-rich areas and establish adequate environmental programmes. Many argued for camps being sited far from any fragile ecosystem. By contrast, one participant proposed to site camps in areas where there was little fuelwood, thus forcing refugees to adopt fuel-efficient cooking techniques.

- Provision of Fuel-Efficient Stoves, and Improved Cooking Techniques

This is one of the most widely-applied and closely studied environmental measures used in refugee settings (**see Extracts from Case Study, Annex 19**). The provision of fuel-efficient stoves has been found to have inconsistent impact on overall fuel consumption. However, as solid baseline data, obtained in a scientifically correct way, were felt to be lacking, one participant remarked there was a lot of pseudo-science about fuel-saving.

Several participants emphasized the importance of combining the introduction of energy efficient cooking practices with environmental education and awareness-raising activities. For example, refugees can reduce their fuel consumption by adhering to these practices:

1. Avoid overcooking
2. Pre-soak the food
3. Cut the food into smaller portions
4. Share cooking with neighbours
5. Use lids on pots (banana leaves are useful lids...)
6. Double-cook more than one item at a time
7. Add water during cooking
8. Use black pots which absorb and store heat
9. Ration water
10. Dry firewood before using
11. Use grass as a fuel source, that is, introduce a non-fuel cooker such as the hay box.
12. Use other types of biomass in addition to firewood

The last point was underlined by a presentation and demonstration of the Peko Pe ; a multi-fuel burner, recently developed in Uganda, which might be promising for future application in camps and settlements for refugees and displaced people **(see Extracts from Presentation, Annex 20).**

Programme-wise, it was thought to be critical to link the provision of fuel-efficient stoves with involvement in reforestation schemes, so that the camp community understood the connection between energy consumption and the need for securing long-term energy supply. Local manufacture of fuel efficient stoves was felt to be necessary and feasible shortly after the emergency phase.

Several participants renewed the call for ration foods that did not require many hours of cooking. For example, some beans and whole grains must be cooked for many hours before they become edible. More processed foods, such as flour, and short-cooking bean varieties should be included in the basic rations. However, the choice was not as dear-cut as it looked. Firstly, food stuffs that take longest to cook tend to be also the most appropriate for humanitarian operations because they have long shelf lives, are relatively cheap and easy to handle. Flour, for instance, may require less fuel to cook, but it also spoils in a matter of weeks. Secondly, it had been frequently observed that refugees consume fuelwood at a high rate, even when their cooking is more efficient. It must be remembered that large amounts of collected fuelwood never reach the refugee household. Instead, they are sold to small businesses such as tea shops and to the local population.

Provision of Fuel to Refugee Households

Some participants recommended to have fuel supplies (e.g. fuelwood, charcoal) distributed at an early stage during emergencies, preferably by independent agencies and personnel. However, fuel supply programmes in the emergency relief phase should be separately financed and not be paid out of the funds for general relief activities, it was felt.

It was suggested that fuelwood distribution be conducted at some walking distance from camps, to avoid dispute among people struggling for firewood. The fact that they are thus forced to carry the wood over some distance also makes the resource more precious to them, reducing excessive use. A problem also occurring at distribution times, with some people, usually the stronger young men, grabbing more than their share, was to be solved with a ration card system and/or by involving refugee representatives in organizing the distribution.

One speaker argued that the objective for any fuelwood provision programme should be to cover 100% of needs. Anything less would not be worth the effort of establishing a programme, he claimed. Without fully endorsing this statement, people generally agreed that attention to refugee fuelwood needs alone would not address fully the demand. Demand often rose as energy became more readily available. For example, though this might never have been a custom, a demand for hot beverages throughout the day might be created, which would then greatly

increase the need for fuelwood.

There was some discussion about the utility of biogas. It was commonly used in Asia, particularly in China and was inexpensive. Biogas is derived from animal and human manure as well as from grass. It was not considered a feasible option for energy supply in the early stages of a camp or settlement s functioning, as its production and distribution formed a complicated process.

One participant suggested that by introducing the Multifuel Combustion System, other types of biomass than firewood can be used as fuel, for instance combustible residues from forestry, agricultural and industrial activities. Energy can be produced by cultivating fast growing herbs (grass) and shrubs in the near surroundings of refugee camps. To have an impact on the indiscriminate use of local fuelwood, the production of these alternative combustibles has to start at an early stage of refugee arrivals.

- Promotion of Collective or Institutionalized Cooking

Collective cooking was believed to reduce overall fuel use considerably - 80% or more. Central communal cooking had been resorted to in numerous mass migrant situations, including Mozambique, Zimbabwe, Honduras and Pakistan. Experience showed that it was not easy, however, for outside organizations to foster this practice.

Whether collective cooking was applicable in all cases was also the subject of debate. It deprived refugees of one of their very few sources of income by taking away their ability to exchange food for cash. Also, central kitchens with prepared foods ran the risk of attracting more people into camps. Communal cooking is unacceptable for populations who harbour a traditional fear of intentional poisoning.

It was suggested that if communal cooking was desirable, it should be pioneered at the early stages of a camp, as it was harder to move from individual cooking to communal cooking than the other way around. Experience had shown that communal cooking could be made palatable by presenting it as a practical way of dealing with the beneficiaries unfamiliarity with donated ration foods, such as whole maize.

- Provision of Materials for Shelter and Crafts

Much of the green wood collected around camps was used for building. To the extent that simple building items (poles, thatch) were provided, or pre-fab shelter materials delivered to refugee camps, there was a decreasing demand for green wood. Participants warned, however, of the danger of the creation of a hand-out mentality. One recommendation was to exchange shelter materials for labour.

- Buying-Off of Livestock

There was little programme experience of mitigating the impact of refugee livestock, which were frequently maintained off-site, out of sight for host country officials or international workers. One measure taken in times of famine, when it was economically unfeasible to maintain livestock, was a buy-off programme whereby humanitarian agencies purchased livestock from the affected population. The animals might then be slaughtered and used as meat in the communal kitchens.

Unfortunately, there was only limited experience among humanitarian agencies of teaching migrant communities sustainable livestock management, range management or controlled burning of land. One participant argued that it was rarely possible to integrate migrants fully into rural agro-ecosystems, except in areas where cash crops were grown or where rehabilitation projects were already in place.

- Commercial Forest Management

There was growing experience of the establishment of woodlots with exotic trees that migrants could harvest for income. Such activities created sustainable forest-like ecosystems, though this type of forest was different from a natural one. However, since displaced populations should not be encouraged to stay longer than necessary one participant warned against encouraging them to plant trees since this could induce them to stay longer. Illustrative of this dilemma was the refugee settlement Dadaab in North-East Kenya, where refugees planted trees in their home compounds and took good care of them, in the knowledge they were there to stay for a while. Supposedly, if refugees were given more space in and around their compounds allowing them to plant their own trees for domestic use, they would cut down fewer trees in an uncontrolled manner elsewhere.

- Diversification of Production Possibilities, in Order to Find Alternate Sources of Income

Several participants stressed repeatedly how vital it was to diversify the production possibilities open to the populations of camps and settlements in order to avoid almost exclusive reliance on fuelwood trade. Since diversification depended upon the conditions and opportunities peculiar to each camp or settlement environment, generalizations could not be made.

- Using the Market Mechanism as a Factor Interacting with Fuelwood Distribution

There were opposing views as to how to do this. On the one extreme there was a participant who argued that fuelwood should be made as scarce as possible, to force refugees to adopt fuel-saving practices in their household cooking. On the other extreme, a participant argued that ideally programmes should supply enough fuelwood to drive prices down, removing the incentive to search for more wood away from the camp.

The bottomline notion that refugee behaviour is affected by the market for energy supply was, however, well accepted by most participants. It is not yet common practice for humanitarian agencies to take account of the impact their supplies have on local markets and the influence of market forces on their programmes.

- Provision of Household Gardens

Tree seedlings were frequently given out to households to be planted in the compounds. These programmes were found to be sustainable, in other words, the seedlings survived there where the beneficiaries expected to remain in the camps for more than a year.

- Restriction and Monitoring of the Migrants Mobility to Avoid Damage to Scarce Natural Resources Through Guards or Patrols

There was some debate over the effectiveness of this measure. Such measures had been taken in a variety of camps and settlements worldwide. Yet in all known cases, notwithstanding movement control, migrants managed to get out of the camps in search of fuelwood. Even where repercussions were known to be severe, refugees braved them to get out for illegal resource depletion. This was illustrated with the case of the Kibumba hospital, north of Goma, Zaire, where many refugees were said to be treated for gunshot wounds incurred while trespassing in the Virunga National Park.

- Integration of Migrants into the Resource Management Systems of the Local Population

This was the approach promoted in Zimbabwe, where Mozambican refugees were integrated into a woodland management scheme, given resources to start up small businesses, and encouraged to learn sustainable forestry practices from the local

population. In this case, work was conducted largely through extension agents. It was noticed that it was difficult to encourage reforestation in areas where local farmers themselves did not plant trees on or around their own land. The NGO responsible for this project had formed committees of refugees and local people to resolve conflicts over resources. Through dialogue, satisfactory solutions could usually be found.

Programmes Promoting Environmental Recovery

It was stressed that there was a need to develop useful quantitative indicators for measuring progress in the restoration of the environment. Several participants urged that the traditional knowledge of local populations be used for monitoring environmental change. On the other hand it was also brought forward that the local population generally had a poor understanding of the regenerative capacity of ecosystems.

For many local populations, the intrinsic value of land is its capacity for agricultural production. Given this, several participants advocated that environmental conservation programmes to mitigate the impact of the presence of huge numbers of refugees and displaced should first try to win over local farmers to the idea. Reforestation efforts should therefore be cast as activities in support of agro-forestry.

This brought the discussion to the overall, relatively widespread environmental interventions such as reforestation schemes combined with seed-lots projects, and seedling multiplication incentive programmes.

In Eastern Iran, range lands had been damaged by Afghan refugees. A UNHCR/IFAD project employed Afghan refugees to accomplish sand dune stabilization, agro-forestry and range rehabilitation activities. It succeeded in halting wind and water erosion and in enhancing bio-diversity. As a pilot project, it showed how technical knowledge could be applied and available refugee labour usefully employed. The premise of the project was to involve refugees who were otherwise idle. Lessons were: 1. Share management with local institutions; 2. Monitor results in real time gain; 3. Promote field experimentation; and 4. Use the professional input of local extension workers. Recommendations were: a) future projects should be integrated in a national framework and make more use of local institutes; and b) they should not segregate the resident population from the refugees, given that project sustainability depends mostly on the former. In this project, refugees were repatriated unexpectedly prior to the completion of the project, which diminished the sustainability of many activities (**see Extracts from Case Study, Annex 21**).

There was debate over what was meant by rehabilitation : organizations such as the World Bank have in principle funds available for economic rehabilitation following involuntary mass displacement It was said however that, both in the case of the Three Gorges Dam Project in China and that of the Narmada Dam project in India, causing the forced displacement of hundreds of thousands of people, the World Bank abstained from involvement.

The Relation between Environmentally-Induced Population Displacements and Environmental Impacts Resulting from Mass Migrations

The final session of the Symposium posed several questions linking issues that had been dealt with separately in the two previous days. These questions brought together the twin issues of environmental causes of displacement and environmental impacts arising from it. Participants discussed the vicious circle: environmental degradation led to mass migrations which further accelerated the

process of environmental overloading in the places of refuge and (temporary) settlement. Some argued that population displacements made it possible for their regions of habitual residence to recover, and thus permitted their return and re-integration at a later stage.

Restoration of the Region of Origin to Prepare for Return

What sort of conditions should be established in the areas of origin before displaced populations could be encouraged to return and re-integrate? Several participants said that it was no use sending displaced people home without first having addressed the problems that had caused them to flee.

There was general agreement that Rwanda was a case in point: a lot of stress was put on repatriation, even though it was unlikely the local natural resource base could support all the returnees if they all went back. To improve Rwanda's returnee preparedness, NGOs such as CARE were active inside Rwanda in agro-forestry projects (*see Extracts from Introduction, Annex 22*). Participants were reminded that an important factor had been the overstressed carrying capacity of Rwanda that had fueled tensions and conflict that had eventually erupted in violence and mass population displacements.

In some cases preparing a country or a region for massive return was a question of simplifying land tenure legislation. It could mean assisting the host government at incorporating resettlement planning for returnee populations into the National Environmental Action Plans (NEAP), National Conservation Strategies (NCS), or the Tropical Forestry Action Plans (TFAP). International agencies could work with local counterparts to promote the implementation of the Biodiversity Convention and related treaties.

Several participants asked for attention to the needs of people who stayed behind when others left, particularly the elderly. The left behind also required institutional assistance to rehabilitate and restore the environment. Frequently, it meant helping them with reforestation activities or give the ecosystem time to regenerate itself. Moving back to the issue of the re-integration of refugees and displaced, it was remarked that the displaced populations had meanwhile acquired skills which could be used once they had returned. Refugee camps create an anomalous situation conducive change. It allows the introduction of development agents which represent a break-away from traditional methods some of which are detrimental to the environment. This provides an opportunity to teach the refugees a number of relevant sustainable environmental practices. A participant who had worked with Rwandan refugees in the early 1960s, had found them more receptive to new, more sustainable land-use and cooking methods than the local resident population, probably because, being in need, they had no choice than to accept the assistance offered. Other factors, however, in particular of a political nature, may undo this advantage and lead to resistance to innovative practices.

Taking a Long-term View

It was suggested that problems of environmental deterioration should not only be addressed when crises such as sudden mass migrations occur. Instead, the very existence of relief programmes should be taken as evidence of the need for preventive development programmes. According to one participant, the only way out of the vicious circle was planning for truly sustainable settlement. However, still very limited preventive and sustainable development planning for disaster prone areas was found to exist.

One speaker drew attention to the importance of understanding the political context of decisions involving types of vulnerability. Developmental approaches must take into account the type of marginalized areas and the type of

vulnerability of the human group using that environment: pastoralists and peasants are environmentally vulnerable in a different way from the socio-economic vulnerability of the urban poor, women, children and the aged, which is aggravated by their living in very poor and fragile environments. Going off into a different direction, a participant suggested that family planning education should be given to displaced populations where fertility is high.

A long-term perspective on recurrent displacements was presented in the form of a comparison between Burkina Faso and Rwanda (*see Extracts from Background Paper, Annex 25*). Case examples of historical trends were used to argue that human communities are increasingly fragmented and unstable because of a) failure to care for the natural environment and b) increasing human population densities. One participant remarked that both Rwanda and Burkina Faso illustrated the cycle of human beings harming the environment until the point was reached that they were forced to leave, subsequently harming the environment in the receiving area. There were similarities, he thought, between out-migration in Burkina Faso, where Mossis and Fulanis have repeatedly migrated away from the central plateau and northern regions due to population pressures, and Rwanda, from where refugees fled to Zaire, quickly overstaying their welcome by ruining the local environment.

Taking a Regional View

One participant said that solutions were only viable and lasting when they took into account the regional dimension, including the region's resources, carrying capacity and sources of conflict. A discussion followed which looked at the need to address not only problems within national boundaries, but also ecosystems and populations which crossed political frontiers. It was stressed that the search for solutions often required a comparative analysis of the relative regional carrying capacity and opportunities for development.

Refugees who returned to Rwanda, where the carrying capacity of the land, according to the speaker, had already been exceeded, while opportunities for human habitation had yet to be explored in the neighbouring areas of vast countries such as Tanzania and Zaire, were engaged in a sadly myopic decision-making process. Right now, the intense focus on negotiating the repatriation of 1.5 million Rwandan refugees was inappropriate when there was insufficient land or means of livelihood the refugees could return to. The repatriation effort ought to be matched with a more energetic effort to identify a sustainable mix of return and resettlement measures that made people stay in places where they could be sustainably supported by the land. As a further illustration of the threat of environmental collapse in the face of hasty mass return, the case of Rwanda's national park was cited. Among the greatest problems inside Rwanda was the challenge to protect the Akagera Park, exposed to serious degradation because a group of pastoralists had recently migrated to the area, bringing some 200 000 head of cattle with them.

One participant reminded the group that pastoralists depended on migration, which was for them the optimal lifestyle. In some instances, environmental degradation prevented them from finding enough grazing even when making ever wider movements, eventually forcing them to settle (Nomads do not make happy urban dwellers said another participant).

Cross-border migrations frequently caused political problems, and the political and environmental impacts were intertwined. It was explained that in the Horn of Africa, cross-border migrations were commonplace. Participants noted that displaced peasants and nomads were more likely to return home if they were in camps nearby than if they had had to seek refuge far away. Those who had traveled far often remained in the new location.

It was suggested that solutions should be based on regional arrangements, that governments should get in touch with one another to forge joint resettlement plans. Indeed, one participant called for a global approach to the problem of forced migration.

Institutional Arrangements

Participants observed that the dialogue between environmental development agencies and humanitarian ones was still far from perfect. Until now, for example, humanitarian agencies had implemented environmental programmes in and around the camps of Rwandan refugees virtually without assistance of environmental agencies. It would be good if rapid-response humanitarian relief NGOs could learn from, and collaborate with, environmental NGOs with expertise in long-term environmental programmes and habitat protection. Environmentally oriented development agencies had an institutional memory that relief agencies lacked on this subject. One suggestion was that environmental agencies be included in the UN Inter Agency Standing Committee which meets regularly under the aegis of the Department of Humanitarian Affairs (DHA).

A participant then asked if there were opportunities for institutional partnerships which should be encouraged, and which agencies should take a leading role in further refining and utilizing the monitoring systems discussed at the Symposium. Several agencies were reviewed. UNEP had a catalytic role, was strong on policy development, worked with governments, and helped with monitoring and assessment, but it was not considered an implementing agency. The role the Global Environment Facility (GEF) could play was debated. One person said that the GEF was not a suitable institution because its limitations did not allow it to look specifically at migration issues. Others pointed out that the GEF could and should be involved in addressing environment/mass migration situations, at least at the project level.

Debate ensued on how best to achieve coordination. Some people were of the opinion that there was virtually no coordinating mechanism available at the field level. Others argued that coordinating mechanisms already existed, but were not used. Coordination was not something one agency did, but something all agencies should adhere to; coordination required all of the following components: leadership, credibility, participation and services. It was also suggested that there was a fundamental problem of policy among governments and that the thinking about refugee problems should be completely overhauled.

In general, the current UN strategy was to assume that the UNDP Country Representative in his capacity of the UN Resident Coordinator would also coordinate responses to the problems of environmentally displaced persons. That provoked the question of who should take the lead in combatting the problems on the reverse side, that is the environmental damage caused by the mass migrations. In Goma, this happened to be UNHCR, who had taken the initiative, but it depended on the situation, since monitoring projects required field presence.

Many participants stressed the importance of raising public awareness on migration and environment issues. One participant called for these subjects to be brought into the international arena through the use of the media. The migration and environment issue should be presented in such a way as to overcome the hopelessness that was too often conveyed by TV coverage, with its emphasis on atrocities. Equally important was it to raise the issues of environment and migration in the countries concerned as an aspect of the national development process.

Symposium Follow-up

Dissemination of Symposium Results

An important output of the meeting was the agreed ***Statement of Principles***. Participants wished them to be broadly disseminated together with the ***Summary of Proceedings***.

One participant insisted these documentary materials should get into the field offices of humanitarian, development and environmental organizations, to stimulate discussion. Literature on these topics did not easily trickle down to field level. For the dissemination of the Statement of Principles and other materials, one participant proposed the media should be made allies.

Follow-Up Studies

It was felt that one weakness of current information systems was their lack of predictive value. They examined environmental change but did not, as yet, discriminate sufficiently between different zones to say which ones would be areas of rapid environmental degradation in the future. Studies of environmental change in refugee hosting areas had to date failed to include control areas for comparison. Suitable control areas would be similar ecosystems nearby that did not experience a population influx.

Most of the follow-up research that was needed, according to participants, was in the appraisal of environmental conservation programmes to determine effectiveness, and to understand better how the environmental impact of refugees compared with that of internally displaced persons.

Programmes and Best Practices

Participants agreed that the most important follow-up activity was the consolidation of lessons from field experience, which would enable donors and programme planners to decide which approaches worked best in protecting and restoring the environment.

UNHCR confirmed it was developing environmental guidelines to direct programme design and implementation. Several UNHCR guidelines were presented at the Symposium.

CARE International was also developing policy guidelines as a framework for integrating environmental management procedures and strategies into relief management operations. These guidelines would emphasize environmental screening, environmental impact assessments, environmental mitigation plans and environmental monitoring plans. General codes of conduct in relief operations already existed within and among NGOs. However, donors tended to have different agendas and impose a somewhat short-term view of support to environmental programmes and projects. CARE guidelines emphasized that relief agencies had a responsibility to initiate environmental rehabilitation on the ground, while working with local NGOs at all stages. According to some participants, NGOs had a comparative advantage over governmental agencies for field-level programme work which they could put to good use in environmental projects.

Meetings to Exchange Experience

Numerous participants stressed the importance of further communication between agencies on environment and migration problems. Follow-up meetings were called for in order to discuss guidelines and share experiences. Several participants

called for linking this Symposium with other meetings. For example, it was felt that the common ground between the findings of this Symposium and the September 1995 conference convened in Brussels by the European Community Humanitarian Office, should be identified and exploited.

In general, participants felt that many problems were now adequately identified but that approaches and solutions still needed consolidation and comparison. Other regional meetings should focus on bringing programme staff together to identify a toolbox of projects proven to be effective, and from which appropriate actions could then be selected for use in future emergencies. It was suggested that meetings of this sort should break into working groups to hammer out practical lessons. One participant proposed that a follow-up meeting should bring the Symposium participants all together again in two years to compare and study follow-up experiences.

Closure

The Symposium was closed by Mr. Nicholas Morris, Director of the Division of Programmes and Operational Support at UNHCR. Mr. Morris warned that the growing numbers of environmentally displaced persons continued to pose an unsolved challenge to the international community. He noted that awareness was growing that environmental destruction was inextricably connected to political strife, conflict over natural resources and international political arrangements. Environmental degradation could no longer be seen as a local, confinable phenomenon.

Mr. Morris called on the Symposium participants to continue to share information after returning to their respective organizations. The complexity of the problem required the simultaneous efforts of a multiplicity of actors, each experimenting with new approaches. The collaboration of the three co-organizing agencies and the seven sponsoring governments and organizations, he concluded, exemplified the type of collaboration and information sharing that needs to be carried forward (*see Extracts from Closing Speech, Annex 26*).

Extracts of Main Contributions

Here follows a compilation of the main papers, interventions and speeches presented at the Symposium. They are presented in the form of extracts which have been approved by the authors. Extracts which have an asterisk (*) after their title number refer to Background Papers or Case Studies which can be ordered from the Symposium Secretariat at the following address:

Symposium Secretariat
Division of Research and Forum Activities
International Organization for Migration (IOM)
P.O. Box 711 Ch-1211 Geneva 19
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1. Extracts from General Background Paper

Symposium Secretariat

Introduction

With a fast-growing and unequally distributed world population - 5.7 billion in 1995 (UNFPA, State of World Population) - the Earth and its resources are under

enormous pressure, and the strain is sharply increasing. Stable and life-sustaining relationships between many societies and their environmental and economic support systems are breaking down in many places. Huge numbers of people are struggling to survive in environmentally-degraded areas and many of these see only one way out of their misery: *leave home and seek better places to live with greater chances of survival*. However, such a refuge tactic seldom provides real solutions; on the contrary, it often creates new problems in the hosting areas, whether urban or rural.

While these problems are occurring more frequently and on a larger scale, awareness of their extent and depth is also increasing. Studies are being initiated, meetings held, and a growing number of field-level projects undertaken (even if to date these address, in the main, damage already incurred). There is a need for progress in two important areas. Firstly, ad hoc approaches - projects addressing only part of the problem - should give way to more **strategic** programme planning and implementation. Secondly, **preventive** measures require much more attention as, particularly in cases of environmental degradation, early intervention has a significant cost-effective impact. Practical guidelines will need to be developed to enable the agencies and governments concerned, to act more effectively when they implement measures to prevent, mitigate and rehabilitate environmental damage.

ENVIRONMENTALLY-INDUCED POPULATION DISPLACEMENTS

The Problem and The State of the Art

The huge weight of human numbers places enormous demands on the earth's resources. World population and resource consumption are rising across most of the globe, but patterns of population growth are far from even, and levels of consumption by no means mirror the distribution of people worldwide. Insecurity over available natural resources is often the result; this creates unstable communities who are ready to leave their home-areas in search of alternative livelihoods. When people actually decide to move, they become environmentally displaced persons.

Human intervention can decrease an eco-system's carrying capacity, or stretch it by technological advances. There are cases where the carrying capacity is exceeded to such an extent that the degradation process becomes irreversible. Rehabilitation of the eco-system then proves an extremely difficult and expensive, or even impossible affair. As, next to climate, the human factor is of paramount importance, practical ways of improving prevention, mitigation and rehabilitation of environmental degradation need to be developed, with the aim of slowing down the process of environmentally-induced population displacements.

There is a clear link between the number of environmentally displaced persons and the poverty level of their home areas. The relation between environmental and other - man-made - problems depends on issues such as economic marginalization, insecurity, social upheaval and political mismanagement. It is preferable - for socio-economic and ecological reasons - to improve people's conditions in their home area, rather than confront the problems of forced migration.

What needs more study are the deeper causes of mass population displacements, and the forms they take. The situational, or circumstantial reasons for people leaving their homes do not very often indicate much about the structural, or underlying causes.

Situational causes include: drought, pestilence, disruption of food production activities, the collapse of government health services etc. These are circumstances which can lead rapidly to disaster.

Structural causes include: long-term processes and trends which exist within a society and in its relations with external communities, the world economy and,

environmental degradation. These processes are political, social, economic and environmental in nature, and are usually interlinked. They lead, over a long period of time, to major changes in situational conditions and so increase the risk of disasters, with the subsequent possibility of displacement.

People who are migrating for environmental reasons fall outside the categories protected by instruments of international refugee law, both in terms of the text and intent of the drafters, and in terms of much current practice. International recognition of environmentally displaced persons as a vulnerable group in need of particular assistance may now be seen as desirable.

Preventive Action

The livelihoods of households and communities in environmentally-sensitive rural areas depend on sustained agricultural production capacity, income generation, and access to natural resources. The degree of sustainability depends on prevailing socio-economic, and ecological factors. Long-term environmental degradation or sudden environmental disruption will decrease people's capacity to cope with their situation. A decision to leave home in search of better living conditions should be considered as the consequence of extreme vulnerability, the tip of the iceberg of multiple survival difficulties. It is of great importance for anyone looking for solutions to this problem, to realize that migration is inevitably the result of a decision taken *in extremis*.

The deteriorating welfare situation of societies and communities moving towards the moment of migration, need to be clearly understood, if early recovery is to be maintained as a possibility. Population displacement **may still be averted** if, during this period, appropriate action is taken. Early warning systems, allowing global surveillance of areas prone to environmentally-induced population displacements, need to be developed. Furthermore research systems are required to establish, for each situation, its specific root causes. With a better understanding of what causes displacement, earlier and more efficient measures can be applied to minimize emigrant flow, and - where possible - help people overcome their difficulties at an early stage, enabling them thereby to remain in their home areas.

Disaster preparedness as an essential tool in facilitating and preventing disruption of the developmental process, is of great importance to all populations living in resource-marginal areas. Given that food shortages are very often the main threat, and the most likely cause of famine and displacements, two levels of preparedness may be distinguished:

- * The first, based on food security, takes the short-term view on how in marginal areas the inevitable food deficits may escalate into emergency and famine. Early warning systems, linked to this food balance, exist nowadays in many countries, often supported by agencies such as the FAO, US-AID and sub-regional organizations (CILSS, IGADD, SADCC). These systems monitor closely food supply situations and include rainfall projections and patterns, crop assessments, and other indicators which provide early warning of the timing and scale of impending food deficits.

- * The second, the environment-oriented, takes a longer-term view of root causes. If the natural resource base of marginal areas can be reinforced, people's vulnerability to environmentally-induced disaster, and subsequent displacement, will be lessened. This requires a comprehensive environmental rehabilitation approach linked to agriculture and livestock keeping - for these sectors provide the bulk of food required.

There is a need for an inventory of those types of practical measures which may avoid people from becoming environmentally-induced displaced persons. Effective prevention may best be achieved with the help of natural resource projects, and sustainable development programmes, which allow marginalized people to improve their livelihoods without compromising future resource needs. Examples are needed for various environmental disruptions, such as desertification, deforestation, soil degradation, pollution and over-exploitation of energy sources.

One disturbing discussion which can be heard now-and-then, is about whether development efforts in so-called super marginal areas (northern Sahel, desert areas), should be stopped. The reason given is, that these people will have no chance in the longer run anyway, because they live in a permanently resource deficient region. As there already exists an out-migration, seasonal or one-way, why bother to try to stem the flow; better to invest in the hosting areas where an environmental disaster may still be avoided. Such talk is all the more disturbing because it neglects two important realities:

* Firstly, there are **people** concerned, and as long as there remain communities who dearly carve a living from declining resources, so long should there be an attempt to help them make it work. In any case, it is well-known that **techniques exist** to make deserts green, given modern irrigation technologies and high investments. (Ref. the case of vegetable production in the Negev desert)

* Secondly it would seem to be much wiser to invest in letting people **stay at home**, than to have to face the problems related to the settlement of displaced persons and over-population in the hosting areas. Socio-political (including ethnic) and economic tensions are often the result of such in-migration.

Other measures to be considered concern the responsibilities of governments of countries facing large-scale environmental problems, and those of international aid agencies. An important mechanism is **national strategic environmental planning** adopted through strategies such as:

- ? National Environmental Action Plans (NEAPs)
- ? National Conservation Strategies (NCSs)
- ? Plans de Lutte Contre la D sertification (PLCDs)
- ? Tropical Forestry Action Plans (TFAPs).

These types of environmental planning may be useful in natural resource management activities for prevention, mitigation and rehabilitation. The role of environmental strategies is to make an **inventory** of existing natural resources, **identify** the priorities and bottlenecks for their management, and **formulate a strategy** for their sustainable use. It is important that development programmes take cognisance of, and work together with, the environmental strategies and plans existing on national or regional level, or in certain sectors (e.g. wetlands, forestry, mountains). This will be of benefit to both plans and programmes.

One recent positive development is that donor agencies have introduced environmental checklists for screening project proposals. This should, in the long-term, result in environmentally-friendlier development programmes. Donor agencies are thereby helping the move away from non-committed natural resource exploitation aiming at development, to committed wise use of natural resources aiming at sustainable development. Especially in resource-marginal areas, where people risk having to migrate in search of richer resource areas, this promising change in donor policy may have a considerable impact.

Mitigative Action

Once environmentally displaced persons are on the move, and regions with marginal natural resources have started to show clear population decline, ad hoc measures, even efficiently implemented ones, are usually incapable of stemming the exodus. Mitigative action needs to be undertaken in the home areas, all along the migration routes, and in the hosting areas. This should be part of an overall strategy, which not only aims at reducing the environmental impacts of the migration itself, but also at encouraging a return flow by ensuring improved conditions in the home areas. In cases where environmentally displaced persons cross international borders, for example, host governments will have great difficulty stopping an influx just by closing their frontiers. There is plenty of proof worldwide that such a measure alone is not capable of solving the problem. Displaced persons will continue to find ways of crossing, host areas will continue to cope with sharply increased populations, and home areas will go on having to find solutions for the problems of environmental degradation. Interrelated mitigative measures, should, through a strategic approach, become mutually reinforcing.

For example, in several countries where there have been considerable moves from rural areas to the cities due to environmental degradation in the home areas, initiatives are being taken to help people return to their land. This *retour à la terre* approach is two-pronged, in that it establishes work with people in the poorer neighbourhoods and bidonvilles of the cities and establishes, through project activities, close contacts with the home villages. The aim is also two-pronged, i.e. (i) to avoid family members joining earlier arrived urban dwellers, and (ii) to promote the return of the urban dwellers to their villages and assist them in living off the land anew.

The essential point here is that there should be a permanent exchange of information between the home and host areas of environmentally-induced displaced people. This exchange should be based on positive action to link the situations in both areas and restore the natural resource base in the home area. Closer monitoring of the entire migration process will permit an understanding of quantitative and qualitative aspects of environmentally caused displacements and possibilities for return.

Rehabilitation

Adequate support is seldom available for rehabilitation measures in environmentally degraded or disrupted areas. This may be because of the high expenditure and complex technical inputs needed to restore the damaged natural resource base. Special programmes need to be developed to effectively address rehabilitation, even if they require extra fund-raising efforts.

One difficult problem specific to environmental rehabilitation in home areas is that the original population has been reduced by out-migration. This process, which the French call *désertification rurale*, leaves a limited human resource capacity - both in quantity and in quality - to do the rehabilitation work needed.

Policy Guidelines and Roles of Different Actors

To address the field of environmentally-induced population displacements more effectively, the following actions are needed:

- (a) appropriate policy development within agencies and governments
- (b) a move away from reactive interventions to pro-active strategies and action plans
- (c) the development of a world-wide monitoring capacity which would look closely at environmentally sensitive areas

- (d) the establishment of a platform where information can be exchanged on important issues between governments and agencies

Governments of countries which are most concerned with this problem need assistance from international agencies, both to develop their in-house capacity in dealing more effectively with the situation and to get relevant information on cross-border related issues and successful practice elsewhere.

In ecological zones which are sensitive to environmental degradation (e.g. arid and semi-arid zones, coastal areas, rain forests, wetlands), but also in many overpopulated areas (Rwanda, Burundi, Northern Ethiopia, Pakistan, Indonesia, Bangladesh), special programmes and conventions may be extremely helpful in organizing a more strategic approach. In order to guide governments and agencies action, there is a need for guidelines explaining how to deal with environmentally-induced population displacements. Existing policies may need adapting to cope with, and indeed palliate such massive human and environmental disasters. Some policy considerations - including preventive, mitigative and rehabilitative actions - are:

- the mandates of organizations, the roles of governments, and their respective capacities and limitations - in this field of intervention
- identification of areas prone to environmental exodus
- sustainable development approaches as preventive measures
- the underlying causes of population displacement
- the circumstantial reasons why people decide to move
- the implications of population reduction for the home areas, and possible rehabilitation measures
- impact of environmentally displaced persons on the migratory route, and appropriate mitigative measures
- potential impact on hosting areas, early warning, early mitigative measures and long-term planning

The policy consideration of sustainable development approaches as preventive measures has of course been tackled at the 1992 UNCED Conference in Rio de Janeiro. However, there seems to be reason enough to remain vigilant in this field, as with time, UNCED's conclusions and recommendations - Agenda 21 - are slowly ebbing away into oblivion. Environmental policies, guidelines, checklists and impact assessments are exactly the sort of tools agencies and governments should apply to their development and relief operations, if environmentally-induced population displacements are to be reduced. The principles of sustainability in development programmes and other activities (emergency relief, rehabilitation, and even nature conservation programmes) no longer need study now, but should be put into practice.

Because of the strong linkage between population growth and environmental degradation, it is clear that a strategic population policy needs to accompany all other measures. Such a policy could consist of one, or both, of two main elements - family planning and resettlement. Family planning, however widely promoted nowadays, still shows but limited results in effective population growth reduction.

Resettlement programmes as an organized - and therefore controlled - process of migration, are also of importance, although they meet with many social and practical problems.

Problems related to the migration route of environmentally-induced population displacements, and strategy choices, will also need to be addressed. Those international agencies, best placed to monitor and intervene in this intermediate phase between uprooting and new settlement, need to be identified.

Instead of creating a new field of environmentally-induced population displacement (or more commonly, environmental exodus), it would seem to be much more logical to improve on existing policies developed over many years. To achieve such policy improvement and integration, each agency will need to look at the general principles and desirable practices involved in addressing environmentally-induced population migrations, and incorporate these into their own agency-specific programme policy. Information on general principles and desirable practices should be developed through international meetings, such as this Symposium, and made available to agencies and concerned governments.

ENVIRONMENTAL IMPACTS RESULTING FROM MASS MIGRATIONS

The Problem and The State of the Art

The numbers of internally-displaced people and other forced migrants have risen sharply during the last decade. In cases where settlement is organized, the areas allocated are usually economically marginal, and frequently environmentally sensitive. The carrying capacities of these hosting areas are often exceeded by the influx of new displaced persons, which can result in serious damage to the local natural resource base.

In cases of so-called spontaneously-settled displaced persons, it is evidently difficult both to measure the extent of the problem, and to address subsequent environmental impacts. Various studies (e.g. Timothy Bell's in 60s and 70s, Dr Rachel van der Meeren, 1996, and UNHCR, 1995 and 1996) show that spontaneously settled displaced persons have, because of their large degree of integration into the local society, a much lower adverse impact on the local environment, than those internally displaced and refugees who are settled in camps and organized settlements. Spontaneous settlement usually means absorption into the local society - very often facilitated by kinship or ethnic alliance - and shared resource use. If small numbers of displaced persons are well dispersed over large areas and local communities, the resource balance is less likely to be disrupted.

The real problem lies with the massive in-migration of displaced persons forced into environmentally - and therefore usually, economically - marginal areas. As such areas seem to be the most preferred option for local governments as land for camps and settlements, their potential for sustaining refugees and internally displaced persons is bound to be limited in time and in resources. If no active attention is paid to this problem, the medium term result is often social tension over scarce resources and serious resource degradation (soil erosion, water pollution and depletion, deforestation, desertification). Only in recent years has this issue been more seriously and coherently addressed. Projects and programmes aimed at reducing environmental impact in hosting areas are being undertaken, and **Environmental Impact Assessments** (EIAs) are beginning to provide the technical and social information necessary for the implementation of environmental action plans. EIAs have been undertaken around recent mass refugee situations in Zaire, Tanzania, Uganda, Kenya, Nepal, Iran and Pakistan. This is not a completely new concern to agencies working with refugees: as early as 1983, an environmental impact assessment was made under the title *Soil-erosion, fertility and structure. Forestry assessments of the problems and programmes for action* in the Qala en Nahal refugee land settlement in Eastern Sudan (the now internationally adopted term of EIA was then not yet in use). EIAs addressing environmental impacts resulting from mass migrations should adopt the **migrant-affected area** approach. Natural resource management is very much a matter for both local population and displaced persons and the advantage of EIAs is that from the beginning, concrete measures can be formulated for joint implementation.

The nature and extent of environmental impacts resulting from mass migrations also need to be discussed. It may be clear that the choice of preventive, mitigative and rehabilitation measures depends very much on the type and extent of the impact. The most common environmental impacts observed are: soil erosion (both physical and fertility), deforestation and more general degradation of all vegetation (this can be up to a radius of many miles from the settlements), encroachment into protected areas (national parks, nature reserves, wetland areas), destruction by roads, adverse impacts on the local population's natural resources.

Population figures can be useful in establishing the scale of displaced-person influxes in hosting countries and areas, and the magnitude of impacts on local natural resource bases. It can also help to show to what extent the local population may be affected by such unexpected and unwanted human influxes. In the case of Ngara, the popular way of indicating the scale of influx in an otherwise very sparsely populated area, was to say that the main camp of Benaco, had become, after Dar Es Salaam, Tanzania's second city... More precisely, to give just one example, the refugee demography and population density in the Moyo District of Northern Uganda changed between 1980 and 1991 from 35 to 66 persons per km², giving a refugee/Ugandans ratio of 1:1.

The cross-sectoral nature of the problem - **humanitarian/development aid and environment** - demands relevant information from both sectors. The gap between the two sectors concerned will need to be bridged both at headquarters level and - more importantly - in the field.

Examples of techniques used in addressing environmental impacts resulting from mass migrations:

- GIS monitoring
- EIA studies environmental surveys (biomass inventories, cooking practices, energy consumption etc.)
- firewood supply, organized firewood collection
- energy-saving projects (cooking practices, economic devices, change of food ingredients, blankets to save heating energy)
- alternative energy sources (solar, grass, crop residues, kerosine, gas)
- alternative construction of shelter s and communal buildings
reforestation and
- reforestation projects
- agro-forestry practices soil and water conservation works
- environmental awareness-raising and education

Preventive Action

Despite worldwide interest in the environment, the subject of mass migration and its impacts on the environment has not hitherto received much attention. Such impacts are, however, often immediate, extremely negative, and leave little chance of easy remedial action. If attention is paid at all to this problem, it is usually at a late stage in the occurrence of mass displaced-person influxes. Damage control and damage limitation are usually the leading themes, and remedial action is very much repair-oriented. Hardly any manuals, guides, training, experts, or early-action blueprints exist for dealing with the adverse environmental impact of many mass displaced-person/refugee situations. In short,

there is a lack of clear policies.

Early warning systems which make use of pre-event EIAs and surveillance techniques (such as satellite images, aerial photography and ground surveys) can only be really effective if they are linked to ground surveys (ecological surveys, and interviews in communities concerned). Short-term planning of preventive measures can be undertaken with the help of the data thus acquired.

Examples of preventive measures which can be applied on the basis of early warning knowledge:

- ? Economic measures to stimulate or regulate trade between surplus and deficit areas
- ? Destocking of livestock with least disturbance of the markets
- ? Credit to farmers for agricultural inputs
- ? If really necessary, relief operations to help the most vulnerable

In cases where it is known that mass population displacement may occur, for whatever reason (Sahel -recurrent drought, Burundi - socio-political tension, Nigeria - socio-political tensions, Bangladesh -recurrent floods), the possible exit routes are usually known. Even the potential hosting areas can be prognosticated. Pre-event EIAs would therefore be very useful tools, not so much to prevent, as to prepare for the likelihood of mass influxes. This disaster-preparedness capacity has been developed over the years by governments and international aid agencies, however, without sufficient attention being paid to environmental factors. If these could be built into existing early-warning and disaster preparedness systems, preparatory environmental measures could be undertaken.

Disaster preparedness, specifically focussing on early environmental planning and management, can be achieved through preparatory measures such as early identification and planning of camps and settlements, field surveys of potential biomass and wood energy quantities, preparation for tree marking, and identification of alternative energy sources. A further important early measure would be the identification of local expertise in the field of environment (forestry, household energy, alternative energy, site planning and development, environmental education).

Mitigative Action

As the environmental issue is of a multi-sectoral nature, a holistic approach to dealing with environmental impacts resulting from mass migration, is essential. The reparation of damage caused by mass migration should be undertaken in the light of the potential for long-term development opportunities for the population - indigenous and displaced - and considering available natural resources. Environmental problems merit a mature place in humanitarian work, the more so because they have multiple causes and effects, which may, if ignored or only partly mitigated, be disastrous in the long-term for host populations and displaced persons alike. For this reason, uni-sectoral mitigative actions cannot provide efficient solutions.

Environmental strategies and action plans are the best policy tools to adopt, as they are by nature of a comprehensive and integrated nature, and can therefore easily be the basis for further programming. The logical process would thus be:

EIA ? Environmental Strategy ? Environmental Action Plan ? Programme Implementation

Particular attention needs to be paid to protected areas and nature reserves, as they tend to be treated as easily exploited sources by displaced communities, and are in consequence very often irreversibly damaged. A rule of thumb for refugee settlements and camp sites is that they should be located at least 10 km, and

preferably 20 km, from protected areas such as parks, nature reserves, and wetland or Ramsar sites. International environmental agencies, such as IUCN and WWF-International (both with field offices in many developing countries), local environmental agencies (of which there are many these days), and environmental government departments (natural resources, forestry, natural parks) will be able to provide valuable advice on local resources, land tenure issues, forest capacity and protected areas.

A very important principle which should be adhered to in all mitigative action in hosting areas is the earlier-mentioned migrant-affected area approach. Fortunately this way of dealing with environmental problems is increasingly accepted. It implies, that for example, that with reforestation activities, local people should be fully involved, and where possible, tree nurseries run by both displaced persons and host country nationals.

Migrant-affected areas are often located in environmentally marginal zones. The presence of a sharply increased population after a mass influx, usually provokes serious land and vegetation degradation. Scientific observation allied to on-the-ground confirmation - including the use of local expertise - is an increasing necessity in the analysis of such environmental problems, for three main reasons:

- (i) to enable more precise estimations of the damage caused, formulation of mitigation measures, and calculation of environmental costs
- (ii) to establish environmental monitoring systems capable of assessing change over time
- (iii) to allow for the evaluation of environmental activities.

Quantified evidence regarding the scale of possible environmental impacts, and knowledge of the cost, to all parties concerned, of inaction or alternative courses of action are essential to the process of policy development within organizations, as well as to fund-raising activities. It is important to show that greater and better coordinated spending on mitigation and preventive measures can considerably improve the overall efficiency of refugee aid by minimizing the real cost of refugee-induced environmental impact on the host natural resource base. **Environmental accounting** could be an important strategic tool for agencies and governments. One is that the cost of refugee-related environmental damage and the issue of mitigating these costs is given priority in the debate between the host and the donor community. A recent UNHCR study on *Economic and Financial Assessment of UNHCR's Environmental Policies* (Ivan Ruzicka, December 1995) takes the view that environmental aspects of refugee assistance should be subject to cost-benefit analysis despite their association with a major humanitarian issue. The other is that prevention and mitigation of adverse environmental impacts resulting from mass migrations are usually much cheaper than rehabilitation of damage after the repatriation of refugees. The case of Malawi shows this. A shift in policy emphasis from mitigation and rehabilitation to prevention and mitigation is indicated.

Rehabilitation

After repatriation, or return of refugees and displaced persons to their home areas, the problem of environmental damage in the hosting areas needs to be addressed. Environmental rehabilitation programmes are more expensive than preventive measures such as tree-planting during the hosting period. UNHCR, for example, estimates the costs of rehabilitating former refugee areas to be at least 10% higher than those of controlled wood harvesting (for fuel and building) coupled with reforestation during the refugees' stay.

Even when preventive and mitigative measures are undertaken, there will usually be an extensive over-exploitation of local natural resources, and special environmental rehabilitation programmes may need to be implemented. Because of the scale and technical demands of these, host governments will often need assistance from UN agencies, NGOs and donors. Environmental rehabilitation should, where possible, go beyond the status quo ante, also addressing the longer term development issues of the areas concerned.

Policy Guidelines and Roles of Different Actors

The fact that environment has been for so long the orphan of humanitarian relief and development programmes, has had a number of negative consequences. These lie mainly in the fields of efficiency, organization, finance and politics. The existence of a clear policy along with an accompanying set of conditions will allow considerable gains in all these fields. Particular attention needs therefore be paid to how environment can be integrated into other sectors of humanitarian intervention, such as camp/settlement identification and planning, household supply, water, shelter, other infrastructures, and health. UNHCR is currently developing environmental guidelines for the following sectoral activities: supplies and logistics, site selection and planning (very important!), shelter, health, food, household energy, water, sanitation, community services, education, forestry, livestock management, fisheries, agriculture and income generation. For a total of 15 refugee assistance sectors, environmental factors will be progressively integrated into existing programming. This will permit the full incorporation of environmental work into UNHCR's routine operations, supported by adjusted budget requests, budget allocation and project agreements.

General policy guidelines for host governments and agencies need to be elaborated. Each agency, however, will need to develop its own environmental policy, which will be agency-specific, and respond to its own particular programme needs. Policy guidelines will therefore have to be based on a wide variety of experiences. Principles such as **prevention, integration, cost-effectiveness** and **participation** will be helpful as guiding criteria to be applied when environmental problems are addressed.

Participation of displaced persons/refugees has proved to be an important tool in supporting all mitigative and preventive measures; it has also been shown to raise awareness about environmental problems.

Environmental education activities, as complementary measures, can help to further orient people towards improved natural resource use and management. These activities need to be built into policies as standard project elements. Only linked to concrete benefits will environmental education and awareness-raising be truly effective. Such an approach has been adopted nowadays by various NGOs working in this field.

Environmental issues can be effectively addressed through (i) full collaboration and dialogue with all parties involved, i.e. local communities, displaced persons/refugees, government services, NGOs and UN Agencies, and (ii) active coordination of environmental activities. On the local level, an **environmental task force** will be an important tool ensuring coordination and information exchange.

BRIDGING THEME

The way people manage the natural resources available to them, determines the degree of sustainability. This is true for both home and hosting areas. Prevailing family- and community-level strategies in resource production and consumption should therefore be taken into consideration. A further important aspect is the existing professional environmental expertise within the displaced-person community. This could very well be exploited to address

environmental impact in hosting areas; specialists, such as foresters, energy experts, park wardens and educationists, along with experts from the local community, should be recruited for mitigation projects in hosting areas. The various ways of using this type of technical potential need to be clarified, and its essential role stressed.

Studies in the hosting areas of environmentally-induced displaced persons could help to explain more about the real reasons for their displacement, and could shed light on the extent and type of environmental degradation in the home areas, and how this affected people in their livelihoods. Combined with the information about displaced person's own experience in the hosting areas, and the impact on the local society and environment, such studies may be useful in bridging the link between back home and the new settlement areas, which would seem to be an important basis for any attempt to promote or organize a return.

Pull factors in the question of migration and environment need also to be looked at, especially in cases where rural exodus seems to be related to the attraction of urban promise. As both themes -environmentally-induced population displacements and environmental impacts resulting from mass migrations - are concerned with the sectors of environment and humanitarian relief and development, cross-sectoral coordination needs to be addressed.

2. Extracts from Opening Speech

James N. Purcell, Jr.

Director General, International Organization for Migration (IOM)

This Symposium has been planned and prepared since mid 1995 as a joint activity of UNHCR, IOM and RPG. It is a prime example of good inter-agency cooperation. Thanks to the efforts of representatives of Governments, development co-operation agencies and relief and environmental organizations as well as individual expert from both developed and developing countries the Symposium has become a reality.

The Symposium is the follow-up to a conference on *Migration and the Environment*, organized jointly by IOM and RPG with the financial support by the Government of Switzerland, in January 1992 in Nyon, Switzerland. Among other things, that meeting emphasized the need to:

- address the causes of environmental migration,
- understand the needs of those forced from their homes by environmental degradation,
- develop strategies for those whose displacement by environmental degradation cannot be averted in order to help them relocate and adapt to their new homes, and
- develop more effective strategies for assisting refugees and other migrants so as to minimize negative impacts on the environment and reduce long-term dependence on assistance.

Five years later, it can be said that although there has been progress in the implementation of these recommendations, much still remains to be done. The main objective of the present Symposium is to discuss practical measures and concrete action including prevention, mitigation and rehabilitation whenever this is appropriate. These should comprise i.a. the possibilities for risk sensing of environmentally induced population movement, the means to prevent or reduce environmental destruction caused by mass migrations, and measures to mitigate ongoing degradation processes in order to diminish emigration. The Symposium aims at addressing and identifying measures to reduce negative impacts on the environment by mass migrations. Furthermore, the Symposium considers requirements

and activities of rehabilitation of degraded environment, where this is feasible and can offer a viable economic base for the resettlement of returning displaced populations and the life of local people in areas affected by mass migrations.

A small group of experts and staff members of the three organizations -UNHCR, IOM and RPG- has prepared a Draft Statement of Principles for consideration by participants in this Symposium. The Statement of Principles contains a number of basic considerations and recommendations for practical action. This document, in a revised form is the main outcome of the Symposium for consideration by Governments, intergovernmental and non-governmental organizations, including environmental and development agencies.

3. Extracts from Background Paper

ENVIRONMENTALLY-INDUCED DISPLACEMENTS: THE STATE OF THE ART

Dr. Norman Myers

Background analysis

Environmental refugees are people who can no longer gain a secure livelihood in their homelands because of long-term environmental problems such as soil erosion, deforestation, desertification and record droughts. These problems are aggravated by population pressures and poverty, leading to grand-scale land hunger and unemployment. In their desperation, people concerned feel they have no alternative but to seek sanctuary elsewhere, however hazardous the attempt might be. Not all of them have fled their countries, many being internally displaced. But all have abandoned their homelands on a semi-permanent if not permanent basis, having little hope of a foreseeable return.

All in all, there are at least 25 million environmental refugees. The figures compare with 23 traditional refugees - people fleeing political oppression, religious persecution and ethnic troubles. It also amounts to one person in 225 worldwide. If a similar proportion were applied to Britain, it would comprise one quarter of a million people. Moreover, the total of environmental refugees is expected to double by the year 2010, and to continue to increase as growing numbers of impoverished people press ever harder on overloaded environments. When global warming takes hold, there could be as many as 200 million people overtaken by sea-level rise and coastal flooding, by disruptions of monsoon systems and other rainfall regimes, and by drought of unprecedented severity and duration. Most environmental refugees are in the African Sahel, the Horn of Africa including Sudan, other parts of Sub-Saharan Africa, the Indian sub-continent, and Mexico and China. Another one million people, displaced by public works projects such as large dams, are scattered throughout developing countries. These estimates constitute no more, and no less, than a first-cut assessment. They are advanced with the sole purpose of enabling us to get a handle, however preliminary and exploratory, on an emergent problem of exceptional significance. Moreover, the estimates are cautious and conservative. Note that, for instance, there are already 135 million people threatened by severe desertification, and 550 million people subject to chronic water shortages. While certain of these people will have been included in the 25 million figure, many could well have been driven to migrate without being counted as environmental refugees. Poverty serves as an additional push factor associated with the environmental problems displacing people. Other factors include population pressures, malnutrition, landlessness, unemployment, over-rapid urbanization, pandemic diseases and government shortcomings, together with ethnic strife and conventional conflicts.

Policy responses: background

The issue of environmental refugees is a manifestation of extreme deprivation, fear and despair. While it derives from environmental problems, it is equally a

crisis of social, political and economic sorts. As such, it could readily become a cause of turmoil and confrontation, leading to conflict and violence. Yet even as the problem becomes more pressing, our policy responses fall further short of measuring to the challenge. Environmental refugees have still to be officially recognized as a problem at all. In addition, there are limits to host countries capacity, let alone willingness, to take in outsiders.

As a result, immigrant aliens present abundant scope for popular resentment, however unjust this reaction. In the wake of perceived threats to social cohesion and national identity, refugees can become an excuse for outbreaks of ethnic tension and civil disorder, even political upheaval. Already migrant aliens prove unwelcome in certain host countries, as witness the cases of Haitians in the United States and North Africans in Europe. No fewer than nine developed countries, almost one in three, are taking steps to further restrict immigration flows from developing countries. Yet measures to relieve the plight of refugees of whatever kind have drastically diminished in relation to the growing scale of the problem. Although the annual budget of UNHCR has recently been expanded to \$1 billion, the agency is increasingly unable to meet the present demand for food and shelter to support refugees of traditional kind alone, much less to invest in repatriation or rehabilitation of these further refugees. Meantime the world's refugee burden is carried overwhelmingly by the poorest sectors of the global community. In 1990 the twenty countries with the highest ratios of official (traditional) refugees had an annual per-capita income of only \$700.

By far the best way to deal with the problem is to pre-empt it: to recognize it, to comprehend it, and to respond by tackling the sources of the problem rather than waiting and paying a higher price through reacting to symptoms of the same problem. The key to this difficult prospect is understanding -probably the resource in shortest supply right now. With a proper sense of what is at stake, there is still time for policy responses to ensure that migration - provided it is controlled, planned and orderly - can again become the positive force it has frequently been in the past.

4. Extracts from Statement

DESERTIFICATION, ENVIRONMENTAL MIGRATIONS AND CONFLICTS

GrØgoire von Kalbermatten

The elaboration of the UN Convention to Combat Drought and Desertification in countries experiencing serious drought and/or desertification, particularly in Africa, is meant to bring about a sort of New Deal between members of the international community, development practitioners and local population to reverse land degradation in arid land.

At present, the number of signatories has reached 115, and 29 countries have ratified. Gathering the statutory 50 ratification for the Convention to enter into force will be achieved within the year. In other words the first Conference of the Parties will take place in 1997.

Today, over 1 billion people are at risks of desertification and some 70% of the 5200 million hectares of dryland used for agriculture around the world are already degraded. Thus 30% of the Earth's land surface is affected by the degradation of fragile drylands. And this at time the Director General of FAO reminds us that world food production will have to increase by more than 75 over the next 30 years to keep pace with population growth. UNEP estimates that desertification costs the world \$ 42 billion a year. We must recognize that there is much more to desertification than the containment of moving sand dunes. It is difficult to grasp the full impact of the loss of the agro-ecological balance in arid lands but is it safe to say that desertification reduces the land's resilience to natural climate variability, that it undermines food production and

contributes to famine, that it deeply affects the socio-economic conditions of the local population, thereby triggering a vicious cycle of poverty, ecological degradation, migrations and conflicts. The impact of consequent hardships and erosion of cultural integrity cannot be over emphasized. It is estimated that over 135 million people may be at risk of being displaced as a consequence of severe desertification. For instance, the Almeria Symposium organized by the Government of Spain and this Secretariat in February 1994, explored a few key relationships such as the relationship between desertification, migration and urbanization or desertification, migrations and conflicts.

The Conference Habitat II which will take place in Istanbul by the beginning of June 1996 focuses on urban development as the major challenge for sustainable development in the next millennium. Desertification feeds the cities. For example, between 1965 and 1988, the population of Nouakchott, Mauritania's capital, rose from 9 to 41% while the proportion of nomads fell from 73 to 7%. Nomads do not make happy slum dwellers. Some long term perspectives for West Africa project a constant migratory flow from Sahelian regions to coastal cities. Urban population in the region will reach 271 million people in 2020 which represents 3.5 times the present numbers. Some other studies estimate that about 60 million people from desertified areas will push towards the North, into Arab North African countries or the European shores, with a consequent disruption of socio-economic stability there. In short we may say that desertification's downstream impacts spread far beyond the drylands. While the above examples relate to Africa we must not forget that nearly half the population affected by desertification lives in China, with another potential for migrations on a phenomenal scale should the Convention's implementation in that country turn out to be a failure. One might describe this Convention in various manners. It is the first significant multilateral instrument to be adopted after the Rio Earth summit. It integrates environment protection with a more sustainable and human development. It balances the interests of the North and the South in meeting the expectations of the latter with respect to the global management of natural resources. It provides donor countries with an enhanced convergence of operational policies and the needed framework for integrated strategic planning. It identifies the primacy of the fight against poverty to restore degraded land. Without pretending to innovate in the technical aspects of the combat against desertification, the Convention draws the -sometimes bitter- lessons of past experiences to propose another of managing natural resources. In a sense, the Convention is probably the first legally binding international instrument which replaces so clearly the notion of Aid with one of partnership. This partnership, of course, associates the government, the NGOs and the local communities with the international donors. We can summarize it in one sentence: no partnership in the outcome without a partnership in the process.

Environmental migration results from a combination of pull and push factors. Clearly, it is not going to be possible to implement local area development programmes in the 40,000 territories of the CILSS countries. But local area efforts under the Convention will contribute to stem the push factors. They are an essential part of a comprehensive response to the problem of mass displacement of people from arid lands. As such, they must receive due attention from developed country Parties to the Convention and all countries concerned with the issue of environmental migration in the twenty first century. If this Convention is ignored, it will be at everybody's cost.

5. Extracts from Introduction

ENVIRONMENTALLY-INDUCED POPULATION DISPLACEMENTS PREVENTIVE ACTION

Prof. Edwin A. Gyasi

Background

Population displacements have increased world-wide within and among nations. People get displaced for various reasons. Some are forced out by real or imagined political and cultural threats such as civil wars and religious and ethnic persecution. Others may move, migrate or get displaced because of low incomes, unemployment, poverty, famine and other such dire economic circumstances borne out of various factors such as government policy failure, political instability and degradation of the life-supporting environmental resources. Population displacements do not appear to be inherently disadvantageous. It may enhance socio-economic situation by reducing pressure on land in the source area. Development in the destination area may be stimulated by greater utilisation of its natural resources and other opportunities through the labour, skills, enterprise and capital of the displaced. However, population displacement could retard development in the source area by depriving it of human and capital resources, and by relocating such resources elsewhere, especially in a few urban centres, thereby widening spatial disparities in development. It may worsen living conditions by overcrowding, unemployment, environmental pollution and over stressing of natural and infrastructural resources, and by social tension, conflicts and vices such as crime and prostitution in the destination centres. These adverse effects are increasing owing, in no small measure, to environmental degradation, hence the need for measures to prevent those human displacements that cause them, most especially in Sub-Saharan Africa and other developing regions, where the phenomenon of environmental refugees or environmental migrants has assumed the most alarming dimensions.

Preventive action

Preventive action must necessarily focus on the causes rather than the symptoms of environmentally-induced population displacements. In this respect, we recommend as follows:

1. Policy: Countries have formulated or are in the process of formulating National Environmental Action Plans (NEAP), National Population Policies (NPP), National Agricultural and/or Rural Development Programmes (NAP/NRDP) and Integrated National Development Plans (INDP), all embodying policies and action plans for promoting favourable conditions for human habitation. A real challenge is the strengthening of national capacities for translating policy inspired development plans into sustainable real action programmes through institutional capacity building, training and extension, most especially at the grassroots.

2. Jobs: A key to preventing environmentally-induced population displacements is jobs. Promising, in this respect, are jobs and incomes generated on the basis of environmental rehabilitation and improvement programmes, and on the basis of projects founded on local resources, through a participatory community-based bottom-up strategy with Gos and NGOs playing a central role, to enhance sustainability.

3. Early Warning Systems: Preventive measures can only hope to be effective, if they are based on accurate and timely information on emerging adverse climatic, edaphic, biotic, hydrological, agro-ecological and other such biophysical changes that precipitate population displacements. Thus, it becomes imperative to strengthen the capacities for early environmental warning, through the development of early warning facilities such as satellite remote sensing, modern weather stations and other monitoring mechanisms, and to strengthen the capacity for storage, retrieval, analysis and dissemination of the information so gathered, making use of GIS, radio, TV and other modern means of communication. Similar capacities must be developed to generate information for pre-empting explosion of social and political conflicts likely to induce massive human exodus.

4. Co-operation and integration: Often, the problem is not one of lack of institutions and programmes for preventing displacements as is commonly assumed, but rather a lack of institutional co-operation and of activity or programme integration. The issue then becomes one of institutional and programme harmonization.

5. Research: Environmentally-induced population displacements is a dynamic process. Its causes vary, and it keeps on changing its form, trajectory and impacts, hence the need for strengthened capacity for sustainable research into this insidious form of human dislocation, to inform preventive action.

6. Education: Lastly, but not the least, is the need to foster public awareness of the hazards of mass human displacements, and of the need to prevent such hazards by popular education of civil tolerance and responsible and sustainable management of the environment.

Conclusion

Policy-inspired development planning to prevent environmentally-induced population displacements, has, far too often, been characterized by rhetoric and precious little action. Now is the time to intensify action through concerted global effort, massively funded by the richer countries of the North, along the lines of the Marshall Plan, to avert a looming and, in many instances, a real catastrophe of environmentally-induced population displacements, most especially in the poorer countries of the South.

6. Extracts from Background Paper

SATELLITE MONITORING AND AERIAL PHOTOGRAPH ANALYSIS FOR EARLY WARNING OF MIGRATION RISKS

Dr. Susanne Groten

Early warning of migration risks factors on continental to national level is possible to some extent based on monitoring of climatic conditions, crops and vegetation. For this, meteorological satellites are used, especially NOAA, providing vegetation index image series. For the inventory of problem areas, e.g. detected on NOAA images, Landsat and SPOT satellites are giving useful background information, especially, if integrated with biophysical, administrative and socio-economic data in a Geographic Information System (GIS). A number of indicators can be derived from remote sensing for estimating the pressure on natural resources and the vulnerability of population to environmental risks. Estimations of the possible quantitative effects of the problem on agricultural, rangeland production and food security can be obtained by GIS modeling. At inter-village level, enlarged aerial photographs can be used to map land claims by different villages or clans, if necessary without visiting the terrain. For areas claimed by neighbouring villages or groups, a solution can be found at an early stage, before escalation of latent conflicts.

Locating a potential problem zone using meteorological satellites

The identification and the exact location of a problem is the first step towards finding solutions. If the location is only vaguely or wrongly known, management actions may be counter effective: e.g. relief supplies to areas, which have no, or no severe food shortage will lead to a disruption of local market prices and discourage local food producers. From vegetation index images of the NOAA satellite a number of products can be derived by GIS modeling, which may be used to estimate migration risks:

- * Vegetation index anomaly ? drought and risk of flooding, pests
- * Map of the number of consecutive anomaly years ? depletion of reserves
- * Delay of the start of the growing season ? failure of sowing

Inventory of problem zone by retrieval of information in a GIS data base

For an irregular anomaly area, information may be obtained through queries in the GIS data base, either as information aggregated per (administrative) map unit or per pixel by moving the cursor on a map displayed on the computer screen. Information in the map can be linked to other maps with the same coordinate system, and to table via the key columns. Examples of retrieval of background information are:

? Administrative and infrastructure information

- * average density of population per pixel > total population of potential problem zone(s)
- * administrative zones, settlement names > number of inhabitants of settlements
- * composition of population in terms of % age classes, social groups...
- * road infrastructure > distance to roads > number of (non)accessible population
- * relevant point infrastructure linked to tabular attribute information: hospitals, schools, deep wells, food stocks...

? Biophysical information

- * soil types > relative fertility, erosion risks, vulnerability of degradation, behaviour in wet/dry condition (for transport)...
- * vegetation types > relative availability of fuel wood, local medicines, forage
- * rainfall/meteo-data > normal rainfall, variability, rainy period (accessability)

? Agronomic, land use and economic information

- * % crops grown in area > subsistence and cash crops, food habits
- * crop calendar > activity calendar during growing season, difficult periods
- * area suitable for cultivation > land to man ratio > population pressure
- * average agricultural income from cultivation
- * average income from other sources
- * % normal budget allocation, requirements for essential aspects like food, housing, school fees, agricultural inputs.

For including in the GIS data base, a selection of minimum set of standardized indicators should be made per country and region, taking into account available data sets, but also area specific ones depending on the varying nature of the

problems. The establishment of schematic data models can help to decide, which data sets and formats would be relevant.

Verification and analysis of information

Before any (false) alarm is given, available information should be cross-checked, because all data, including remote sensing can contain errors.

Impact assessment through GIS modeling

Through GIS modeling of national vegetation index data, quantitative estimates can be done for a number of possible effects:

- impacts on agricultural production
- impact on rangeland production
- impact on food security and migration risks: coping ability and vulnerability index
- other effects:
 - estimation of wood energy production/consumption
 - estimation of water consumption/availability for men and animals (feasible?)
 - estimation of impact of food production on capacity of households to pay school fees
 - estimation of locust risk areas with NOAA

Organizing follow up and detailed monitoring

Monitoring creates knowledge and knowledge creates responsibility to take action. Therefore it is essential that a follow up is organized after risk assessment, first for preventive action, and if not possible otherwise, for problem mitigation.

Based on these early warning data, planning of possible interventions should be done, such as:

- relief operations in temporary problem areas
- economic measures to stimulate or regulate trade between surplus and deficit areas
- destocking of animals with least disturbance of the markets
- structural preventive land use planning

Before undertaking action, it is however advisable to monitor developments locally, identify the most vulnerable groups and to understand the problem perception of local people.

Monitoring for prevention of structural migration risks at sub-national level

Conclusion: Early warning of migration risk factors on continental to national level is possible to some extent based on monitoring of climatic conditions, crops and vegetation. For this, meteorological satellites are used, especially NOAA, providing vegetation index image series. For the inventory of problem areas, e.g. detected on NOAA images, Landsat and SPOT satellites are giving useful background information, especially if integrated with biophysical, administrative and socio-economic data in a geographic information (GIS). A number of indicators can be derived from remote sensing for estimating the pressure on natural resources and the vulnerability of population to environmental risks. Estimations of the possible quantitative effects of the problem on agricultural, rangeland production and food security can be obtained by GIS modelling. At intervillage level, enlarges aerial photographs can be used to map land claims by different villages or clans, if necessary without visiting the terrain. For areas claimed by neighbouring villages or groups, a solution can

be found at an early stage, before escalation of latent conflicts.

7. Extracts from Introduction

MITIGATION OF ENVIRONMENTALLY-INDUCED POPULATION MOVEMENTS

Dr. Adrian Wood

Introduction

This is probably the most important current area of action and involvement with respect to the displacement of people and was frequently mentioned in the introductory statements to this Symposium. But just what does mitigation mean, what sort of actions does mitigation include, and who needs to be involved? First it is essential to identify the meaning of mitigation. According to the Oxford English Dictionary it means reducing the severity of a phenomenon, and is most commonly used with reference to reducing negative impacts which are created. Hence with respect to environmentally-induced population displacements it refers to both:

1. reducing the scale of the phenomenon of displacement itself, in other words reducing the overall or net amount of displacement, and
2. reducing the impacts effects which the displacement of people causes.

Mitigation is relevant to situations where movement is already on-going and where there is a need to reduce the flow and the negative results which it produces. In this situation, mitigation often has to be introduced at short notice; it can be a form of fire-fighting because prevention was not possible or has failed. But it should not involve an set of ad hoc measures developed at short notice, what might be called a knee-jerk reaction. Rather, mitigative measures should be thought about seriously, and planned, so that they are effective and efficient.

Extent of the action required

Mitigating the Effects of Displacement

With respect to the most common use of the term mitigation, where attention is given to reducing **the negative** effects which the displacement of people causes, we must ask questions about:

- what types of impacts might need to be addressed,
- where might these impacts occur
- what and who might be affected,
- over what period of time mitigation might be necessary, and
- which people and organizations should be involved **in the mitigative actions.**

Types of impacts

At this meeting the concern is primarily with environmental impacts, especially the direct impacts upon the environment which displaced people make to meet their daily needs. However, it should be recognized that there are also indirect impacts because of the social and economic pressures which the displaced people create. These may in turn affect land use systems and the environment. Such impacts are often the result of, or are worsened by poverty, and so the way in which displacement affects the economic welfare of the migrants as well as people in the areas where they settle should be addressed.

Areas where impacts may occur

The destination is usually the major area of concern with respect to mitigation and certainly needs much attention. However, there can be impacts in other areas because of displaced people. For instance, along the route which they travel displaced people in transit may have impacts, especially through the dissemination of disease. Also in the source area which they leave there may be impacts as land use systems suffer from a shortage of people for appropriate management. In neighbouring areas the resettlement one, there may be impacts through economic or ecological linkages. A current example is the downstream and up-slope impacts of wetland drainage by environmental refugees moved from the northern highlands of Ethiopia to the south-west in the mid 1980s.

What and who might be affected?

While the focus of this meeting is on the environment in the areas affected by displaced people, it should be recognized that impacts can affect both the migrants and the local people. Both groups require attention as failure to recognize the changing situation of each in relation to the other may lead to conflicts. In addition it should be recognized that socio-economic processes, as well as environmental ones require attention even when the focus is upon the environment, because, as is well known, poverty and economic pressures are often driving forces behind misuse of natural resources.

Time period for mitigation activities

While mitigation usually refers to the immediate impacts which displaced people cause, it should be remembered that the impacts of displacement may occur over a long period of time. The problems with wetland drainage in south-west Ethiopia have only just begun to appear some ten years after the settlers arrived. Similarly, some of the problems faced by the locals and settlers in the resettlement areas established in Zambia after the Kariba Dam was constructed are now becoming serious because population growth and economic adjustment have put new pressures upon systems of land use which those planning the resettlement thought acceptable.

Who should be involved in mitigation?

It is clear that many actors can be involved in mitigation activities. While external emergency agencies may be most active on the ground in the initial stages, it is important that local government authorities are brought into mitigative processes as early as possible. In addition, mitigative measures can be undertaken by those who are displaced and those who are affected by displacement, with or without external support. Where local involvement is possible it will help ensure the sustainability of mitigative action, and where the degree of external support can be minimized it will help reduce the risks of dependence.

When considering mitigative measures it is necessary to take a holistic view, looking in depth at all the physical locations or areas with which displaced people are involved, directly and indirectly. In addition, it is important to understand the socio-economic, political and ecological systems in each of these areas as any external interventions may have important implications for these systems, for example, changing the dynamics of farming systems, environmental management.

Finally, under this heading, it is also necessary to recognize that advance planning, in a strategic manner, is the best way to approach mitigation of the negative impacts of displaced people. However, the experience with this is very variable as support for the resettlement of displaced people has often been poor and ineffective when imposed by government authorities. This raises the question of participation, by displaced people and local communities in the planning of such support measures.

Mitigating Displacement

Mitigation to reduce the net flow of people resulting from a displacement process links closely with some prevention and rehabilitation activities in the source area which may reduce the original outflow as well as encourage return flows.

In addition to the usual discussions about environmental rehabilitation to facilitate people remaining in, or returning to their home areas to practice their existing way of life, it is necessary to pay increased attention to economic diversification and economic development as ways of addressing some of the problems created by environmental degradation. Environmental rehabilitation is often a long-term measure and may not be able to keep pace with population growth. Hence attention may need also to be directed to the development of alternative ways of making a living in the source areas so that displacement does not occur or return is possible. In such development initiatives, analyses will have to be undertaken to identify the underlying forces which have led to the displacement of people and address these problems either directly or through the creation of alternative livelihoods which are not affected by the problems.

The potential for return migration from areas to which displaced people have moved also needs to be considered under activities to mitigate the net displacement effect. Supporting return migration can be quite complex as it not only requires the maintenance of communications between the two areas, but also ensuring that appropriate arrangements are made on return for access to key resources, usually land. This may be quite difficult, as is the case now in some parts of northern Ethiopia where land redistributions have occurred since the people resettled by the Derg regime left.

Conclusions

Mitigation is a very wide ranging area of activity, linking closely with prevention and rehabilitation. It needs to be considered in all areas with which displaced persons are concerned. It must be based on a deep and holistic analysis which addresses the underlying causes of the problems, both the migration and the problems which are caused by the displaced persons. Mitigation is not a short-term measure, but is one which may need to be undertaken over several years. Hence it should not just be an activity of emergency organizations but should be built into development policies and plans of national governments who have to cope with displaced people.

8. Extracts from Background Paper

STRATEGIC ENVIRONMENTAL PLANNING AS A POLICY TOOL FOR MITIGATIVE ACTION

Dr. Stephan Fuller

Abstract

Strategic environmental planning can be successfully used as a tool for mitigating the effects of mass migrations. Similarly it can be used a predictive tool in assessing the likelihood of environmentally-induced population displacements. In the case of Pakistan a national level plan was adopted in 1992, then a more specific provincial level action plan was approved in 1995 and, beginning in 1996 several pilot district level plans, yet again more specific, will be developed. The impact of refugees from the

Afghan civil war is a fundamental part of these strategies in terms of mitigating past effects, analyzing present trends, and preparing contingency plans for the future. The situation is further complicated by deteriorating social and environmental conditions causing, in part, rapid rural to urban migration. Water

and electricity shortages are already acute enough to spark mass demonstrations. Mitigating these effects requires a thorough analysis of the complex cause and effect relationships. A strategic planning process and framework are useful tools to undertake such analyses and to prioritize the most immediate interventions.

Background

Strategic environmental planning is, in broad definition, a process of matching and prioritizing society's need for, and conservation of, environmental and natural resources. In its most recent form it is commonly associated with the drive to determine the sustainable development priorities of a nation or region. The planning processes are today characterized by extensive public and stakeholder involvement. The outcomes or products of the processes vary from region to region, but will normally include a package of institutional, legal and policy reforms, as well as problem-oriented action plans. Concerted efforts are normally made to ensure that such plans are implementable, and the degree of specificity is usually determined by the geographic scope and complexity of the area in question.

At the global level attempts to build effective strategic plans began in the 1970s. The World Conservation Strategy (WCS) was developed by a partnership of IUCN-The World Conservation Union, the United Nations Environment Programme, and the World Wide Fund for Nature. Arguably, it was realized later that many of the root causes of global environmental degradation were not sufficiently well understood. The WCS was then rewritten a decade later and emerged as Caring for the Earth: A Strategy for Sustainable Living. This adopts much of the logic espoused by the World Commission on Environment and Development (WCED or Brundtland Commission) in its report Our Common Future. This influential report brought the concepts of sustainable development or sustainability to the world stage and they were broadly debated at the United Nations Conference on Environment and Development (UNCED) in 1992. Among the products from UNCED were new international legal conventions, global institutional reforms, financing mechanisms, additional global conferences on priority issues, and a package of soft law commitments called Agenda 21: Earth's Action Plan. Agenda 21 is the most recent, internationally agreed global strategic plan to be developed. It deals comprehensively with social, cultural, economic and environmental components of sustainable development in an integrated package. While not a binding agreement, implementation of Agenda 21 is overseen and monitored by the new United Nations Commission on Sustainable Development (CSD).

Some of the more successful and implementable strategic plans have been, or are being, developed at the national level. These come in many different guises. In Canada and Namibia they are called Green Plans; The Netherlands have a National Environmental Policy Plan; many others have National Conservation Strategies (e.g. Pakistan, Botswana, and Nepal); yet others have completed National Environmental Action Plans, under the aegis of the World Bank; some have completed resource-specific action plans (e.g. National Forestry Action Plans NFAP) and now a new generation of National Sustainable Development Plans is in the offing. But in reality, if developed within the last decade, they all attempt to come to terms with the broad issues of sustainable development, while at the same time treating tangible environmental problems. Of course, they vary in the extent to which they have been successful, both in terms of political and public ownership of the results, and in terms of their practicality and efficacy.

Population migration in Northern Pakistan

Beginning in the late 1970s due to political instability in Afghanistan, and accelerating rapidly after the then Soviet Union's invasion of the country, approximately three million refugees crossed into Pakistan. Others traveled to Iran and there were many internal migrants as well. There are many cross border trails and there are strong ethnic ties (Pathan tribes) between northeastern Afghanistan and the North West Frontier Province (NWFP). Although there was

considerable stress placed on the institutions and resources of the province resulting in some social tension as well, the refugees were, in most cases, welcomed. Approximately one half of the refugees are believed to have returned to Afghanistan by 1995, some to camps developed in safe parts of the country. While the baseline data is poor, there is partial evidence that localized deforestation, overgrazing, soil compaction, and erosion and some water pollution occurred around the camps. It is, however, very difficult to differentiate the impact of the refugees from the pre-existing environmental degradation which had accelerated due to rapid population growth before and during the same period. This is a fundamental issue for any strategic planning process, which was mitigated in part by the completion in 1994 of a baseline Environmental Profile of NWFP. To a degree this will provide a benchmark against which future trends can be measured.

The Sarhad (NWFP) Provincial Conservation Strategy (SPCS), approved in November 1995, which mandated the Environmental Profile, also had to come to terms with the lack of information, and where major gaps are identified, additional research has been proposed. Eventually, and certainly during the pilot district strategies a form of hindsight assessment will be completed piecing together as much historical information as possible about environmental conditions, changes and trends. While not exclusively focussing on refugee communities, they will certainly be a significant focus of the work. The war is not over and, although diminished, there are continuing iterative movements of people, particularly in the tribal areas, Peshawar, Chitral and several others. In Chitral it is often mentioned that even today there are social tensions caused by virtually random movements through the passes to Afghanistan along the western and northern borders of the district. This emphasizes the need for both the provincial and district-level strategic plans to contain elements that consider various contingencies and alternative development scenarios (e.g. What do we do when and if the war ends, in a particular time period?).

The SPCS planning process, which relied heavily on public involvement (and continues to) was an innovation in its own right. It was the first time in a country and province with a long legacy of central planning, that public formulation was genuinely based on problem identification outside of the provincial capital. It also aided in the establishment of a new network of non government organizations (NGOs); better acknowledgment, in and outside government, of the range of issues needing treatment; and broader overall ownership, politically and publicly, of the SPCS products. There is emerging in Pakistan a nested set of strategic environmental plans at the national, provincial (and territorial), and district levels. By their very nature they must, variously, deal with the past impacts of war refugees, potential future effects of war refugees, and the population growth, poverty, environmental degradation cycle which is fueling much of the rural to urban migration, with its subsequent negative impacts in the cities. The National Conservation Strategy (NCS) deals with 14 priority policy environments, while the SPCS formulates action plans for those areas of relevance to the province. With even more specificity and action orientation the CDCS will work towards sustainability at the local level. Thus they all contribute in a complementary manner to the overall objective of sustainable development.

The Sarhad Provincial Conservation Strategy

In the specific instance of Pakistan's Northwest Frontier Province, the planning team held over 60 public workshops distributed among the 22 districts, in both large urban areas and small villages. During the process a network of NGOs was established and continuing consultative processes (round tables) have been initiated. Additional sectoral consultations took place with labour associations, industrial groups, academics, students, politicians, the clergy, women's organizations and others. An ongoing communications plan was developed, in part to overcome the low literacy rate, including puppet shows, street theatre, dramatic presentations, radio events and television debates. The SPCS

documentation includes the full strategy itself, plus a popular version, brochures, a video and background studies. The full strategy comes in three parts: the first four chapters set the context; nine priority areas are then described and action plans are outlined; followed by four detailed chapters outlining the implementation plan, covering processes to be established, financing and monitoring.

Conclusion: a policy tool for mitigative action?

A strong case can be made for the value of strategic environmental planning as a mitigative tool in both types of refugee situations; for understanding the environmental impacts of refugees from acute conflict; and to reduce the likelihood of environmental degradation and subsequent population migrations. In the first scenario strategic plans can include a contingency planning component in the event that a regional conflict becomes likely. This is loosely analogous to the planning which is done in those jurisdictions which include major flood plains, or active volcanoes. One may have very little control over the likelihood of a natural disaster occurring, but you can be prepared in the event that one takes place. In the case of Pakistan, all three levels of planning must deal with present and future situations of population displacement, albeit with differing degrees of detail. Strategic planning is perhaps an even more effective tool for analyzing, predicting, and mitigating potential longer term environmental changes that may cause migrations. This is, in effect, one of the principal reasons that governments and international institutions have taken up the challenge of sustainable development. In Pakistan, and NWFP in particular, it is frequently observed that government, in many ways, is actually ahead of public opinion, because it is already experiencing significant problems with environmental refugees. This is one of the key concerns motivating the preparation of the provincial strategy.

Finally, as has been emphasized above, the participatory and collaborative process which should be used to develop and then interactively redevelop the plan, also functions as a mediation tool. Multi-stakeholder processes are increasingly seen as the only effective, non-judicial tool to resolve land or resource use conflicts. In countries such as Pakistan such disputes frequently end in acute conflict, with often fatal consequences. Conflict resolution specialists in many countries are increasingly cognizant of the likelihood of environmental causes for acute conflict. This will place even greater stress on global humanitarian relief agencies and structures. While, until recently, it has been mildly heretical to suggest that environmental components should be part of relief efforts and preparations, it is now becoming more and more obvious that it will be well worth the investment.

9. Extracts from Case Study

LAKE ARAL

Dr. Alexander Shestakov

Due to both natural and man-made causes, the water level of the former Aral sea has severely dropped, as has the quality of the water in the Amu Darya and Syr Darya Rivers. This has had numerous negative impacts upon the surrounding environment as well as having affected the health and livelihood of local communities. To a certain extent, the damage to lake Aral, its coastal zones and rivers delta, could have been predicted. The changes of natural environment and ecosystems to a great extent are irreversible. Environmental deterioration caused migrations of local population which are more of internal character to more healthy and prosperous areas within Kazakhstan and Uzbekistan. It is estimated that around 460,000 people are severely affected by ecological crises and another 2 million live in threatened conditions. About 65,000 people a year are involved in migration processes. Due to specific cultural and socio-economic factors

displaced persons have been mostly absorbed into nearby communities rather than migrating further.

Among the numerous limitations for migration, one is an important tradition in the region to remain close to the graves of one's ancestors. This belief, together with other cultural peculiarities, has curtailed the incidence of out-migration. Among those who did leave the region after the ecological crises, the majority were Russian, Ukrainian and German for whom political factors including the break-up of the Soviet Union, played an important part. This process led to the absolute domination (up to 99%) of local nationality population in the region. With the changing ecological situation, a new type of temporal migration has occurred, i.e. the nomadic fishermen. These persons migrate seasonally following changes in fishing grounds.

Several attempts of organized resettlement of local people predominantly involved in rice and cotton production, and cattle breeding to another area with different ecological and social conditions had failed. Several regulations were passed during the last 8 years to relief the situation in the region. But for various political and economic reasons, they were not enforced. There are no strong state structures to deal with the economic decline and migratory trends resulting from the Aral catastrophe.

Given the present political and economic situation of the countries around Lake Aral, it will prove very difficult to develop a coordinated and coherent regional response to these problems. However, a special interstate governmental commission was organized by the representatives of all countries in the Lake Aral basin to mitigate the problem.

The assistance efforts should be focused on health care, high drinking water supply and creation of job opportunities. Many areas of social rehabilitation virtually still are ignored. In the long-term, the only economic alternative for the area is for people to diversify to other livelihoods than fishing and cotton.

10. Extracts from Case Study

ENVIRONMENTAL REHABILITATION: SOIL AND WATER CONSERVATION IN ETHIOPIA

Gebereyes Haile

Ethiopian economic history has been characterized by recurrent drought and famines. In particular during the last two decades, the country has suffered from a succession of drought which have led to shortages in food production, and a large number internally displaced persons. Although drought has been the major factor contributing to food shortages, various constraints in traditional agricultural systems, fragmented land holdings, high population pressure, massive land degradation in most parts of the country, shortage of capital and inadequate rural infrastructure have also been major obstacles to agricultural development, thus tying the country down to dependency on external food assistance. This situation was further compounded by the 17 years civil war which ended in 1991, and by effects of policies of the previous government. This combination of factors has contributed to the persistent shortfalls in food production and availability. However, Ethiopia has various resources with which it could break out of the vicious circle. Water is one, a very major one.

Besides channeling the required food to food shortage areas, food-for-work (FFW) programmes in Ethiopia have been highly successful in their contribution towards:

- development of physical assets, mainly in the form of soil and water conservation (SWC) and afforestation

- creating seasonal employment opportunities
- assisting raising the level of awareness of communities regarding environmentally related issues

Despite the achievements registered through FFW, there has been debate on its overall performance. The major issues of concern are related to the probable nature of its disincentive on agricultural production, the creation of dependency and changing food habits of communities. However, to date in Ethiopia there is no definite evidence to describe or back up such concerns. Rather in spite of these issues and concerns, food aid has been highly successful in the rehabilitation of degraded lands and creation of assets in various parts of the country. The case of the Lutheran World Federation (LWF) for example could be an illustration of the strategy used by the few NGOs which were successful in linking emergency food aid to development in Ethiopia. Like some NGOs, making use of food aid for rehabilitation purposes, LWF's FFW projects were born out of the transition from free hand outs in dealing with short term emergencies in the context of the 1984/85 famine to addressing longer term rehabilitation of degraded lands and creation of production oriented assets in various parts of the country. The FFW programme activities that have been implemented under LWF's projects can be broadly classified into the following three categories:

Water supply

Construction of earth dams, small masonry dams, river diversions, spring development or rehabilitation of already existing structures to provide reliable water sources for domestic use, livestock and further extension of irrigation by the users.

Irrigation

Development of small scale irrigation schemes, downstream of the dams, river diversions and training farmers in proper land and water management techniques.

Soil conservation

Undertake soil conservation activities, to stabilize the soil upstream of the dam sites, and rehabilitate the degraded lands of the catchment area, which includes:

- construction of terraces and bunds
- construction of check dams, usually using gabions
- structures
- planting trees
- establishment of self sustaining tree nurseries
- creation of greater awareness of the proper utilization and conservation of natural
- resources, through training and demonstration

For the physical achievements that have been made to date see the table below. The achievements with use of FFW in terms of number of dams hectares irrigated, trees planted and terraces constructed, provide testimony of success in addressing some of the most serious problems of the assisted areas. Many of the communities have actually become economically self sufficient, and therefore, strongly motivated to maintain their new productive assets and the environmental protection measures on which these assets depend. Past relief and rehabilitation efforts and all those huge relief resources brought into the country have helped to save lives and create some tangible assets.

Activities accomplished by LWF with the help of food-for-work

<i>Project Components</i>	<i>Total</i>
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Earth dams	4
River diversions	66
Canals in km	230
Spring protection and development	5
Irrigable areas in hectares	23.265
Agricultural hand tools provided	19.736
Plow oxen provided	715
Seeds & fertilizer provided in MT	1275
Trained farmers (SWC and related development aspects)	784
Beneficiaries of tap water	33.000
Beneficiaries of SWC	225.225

Community participation	The requests come from the communities, usually to the local Ethiopian Evangelical Church Mekane Yesus Synod Offices and forwarded to LWF through the local government administrative structure
Project initiation	
Technical study	Conducted together with the community representatives, BOA, District Administration and the Synod
Channel of communication	Peasant Association along with Women Councils (WCs) and the local administrative structure
Water Committee	Established at the commencement of the project. It is involved in planning and implementation. It takes over and manages completed projects.
Labour screening	WCs in close cooperation with the respective local administration offices (PA, BOA, District Administration)
Taking over of projects	The project is handed over to the Women Councils through the local administration office. It is responsible for the management of the project after its take over.

11. Extracts from Introduction

THE PROBLEM AND THE STATE OF THE ART

Urs Bloesch

The steadily increasing world population, especially in the most poor countries of the third world leads to an ever increasing pressure on the residual natural resources. Therefore, the ecosystems will become particularly susceptible to a supplementary impact by a massive influx of refugees/internally displaced persons. Unfortunately, according to most prognostics also the number of refugees/internally displaced persons will continue to increase! Every influx of refugees/internally displaced persons has a socio-economic impact on the local population and may provoke social conflicts between the local population and may provoke social conflicts between the local communities and the refugees/internally displaced persons. The environmental impact is often long lasting. This means that understanding and solving the problems asks for thinking in longer terms.

Main damages:

- destruction of the vegetation (in particular deforestation)
- increased risk of soil erosion and thereby loss of soil fertility
- degradation and loss of grazing land
- water degradation (quantity and quality)
- reduction of regional biodiversity
- reduction of land under agricultural production
- accumulation of undesirable human waste, garbage, or harmful chemicals and
- pesticides

- air pollution

Factors influencing the degree of damage to the environment:

a) Carrying capacity of the reception area

- specificity of the ecosystems: vulnerability, regeneration capability (rates of recovery), biodiversity
- local availability of burning material (firewood or other organic material), pasture, water
- climate (in particular the intensity of rain)

b) Settlement

- type (self settlement, camp)
- location and size
- topography (in particular the steepness of the slope)
- land use pattern

c) Dimension of the migration

- number of refugees/internally displaced persons
- number and type of livestock
- duration of stay
- energy needs (defined among others by the food items, family cooking/community kitchen, type of stove, climate)

d) Preparedness (defined according to the above mentioned factors)

- environmental assessment (where humanitarian crises can be expected, maps indicating areas with fragile ecosystems should be prepared)
- preparation together with local authorities/organizations

e) Environmental approach

- including host government attitudes and policies towards the environment, development and refugees
- definition of the environmental plan (global approach) together with all participating local and international agencies, and together with the local population and the refugees/internally displaced persons; possibly existing natural resources management plans and experiences have to be considered
- clear definition of the responsibilities and the role of each participant

- rapidity to start an environmental operation and its efficiency
- coordination of the short and medium term humanitarian phase and the long term development phase; the link between the two phases has to be particularly well coordinated
- environmental education of the refugees/internally displaced persons and the local population

The vulnerability of an ecosystem should play a key role in the selection of the camp site. Irreversible environmental impacts need absolutely to be avoided. Preparedness has to be reached by an environmental assessment and a pre-planning of the settlement, together with the local authorities and organizations. Preparedness is justified when considering that its costs are insignificant compared with costs for mitigative actions/rehabilitation in case that no preventive environmental measures have been taken in the reception area. The aim of an environmental operation should be defined as follows:

To settle and to satisfy the basic needs of the refugees/internally displaced persons (short term aspect) by safeguarding the natural resources, essential base of the socio-economic development of the local communities (long term aspect)

A brief evaluation of past experiences shows the following weak points:

- early warning systems and preparedness still poorly developed
- missing environmental expert in emergency team (particularly when significant environmental impacts are to be expected)
- insufficient correlation between environmental assessments and subsequent programmes; lack of continuous impact analysis
- coordination within humanitarian organizations and between humanitarian and developing agencies (rehabilitation); no international organization assigned for the coordination of the rehabilitation/development phase
- in case of shortage of locally available burning material and particularly in vulnerable ecosystems distribution of less energy needing food items, alternative energy sources, or introduction of common kitchen (from the first day on) are rarely done
- site planning often dwelling on short term aspects, without considering global environmental aspects
- non-existence of generally accepted environmental guidelines
- few specialized organizations for environmental activities, lack of experiences in implementation of a global approach
- environmental aspects are not yet recognized to be equally important as traditional aspects, e.g. water, health (question of appropriate funding)
- difficulties to enforce procedures for implementing environmental principles
- environmental impact of urban refugees/internally displaced persons poorly analyzed

- long term impact on ecosystems (succession, regeneration capability, biodiversity) poorly analyzed
- rehabilitation often falsely set equal to reforestation (rehabilitation of land should primarily be elaborated according to the land use defined by the local population and considering the natural regeneration capacity).

12. Extracts from Background Paper

THE ENVIRONMENTAL EFFECTS OF MASS FORCED MIGRATIONS

Steven Hansch & Karen Jacobsen

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 impacts - resource degradation - surrounding established rural refugee camps. Very little has been published, in contrast, on equally important issues about 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 due to mass migrations and the factors that condition ecological recovery.

The Principal Forms of Environmental Impact

The following list of environmental impacts are presented in order of importance.

1. Deforestation.
2. Degradation and loss of grazing land/ground cover.
3. Water Degradation.
4. Reduction of regional biodiversity.
5. Reduction of land under agricultural production.
6. Accumulation of undesirable human waste, garbage, or harmful chemicals and pesticides.
7. Air pollution.

Analysis: Factors Affecting 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.

2. Settlement patterns of refugees.
3. Size and location of camps.
4. Land allocation: Host governments allocate lands as sites for camps that are already environmentally impoverished.
5. Disruption in the receiving community.
6. Land use patterns.
7. Assistance programs.
8. Host government attitudes and policies towards the environment, development and refugees.

Can Refugees Have a Positive Environmental Impact?

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 Dept. In general, increased donor support for reforestation is a direct benefit for 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.

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 resources
- * restriction on refugee mobility - enforcement of arrests when refugees are found outside the 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;
- * 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 arboreal zones where the refugees are given some responsibility for maintaining a restored habitat;
- * development of land banking schemes with the refugees.

13. Extracts from Introduction

EMERGENCY SETTLEMENT: UNSUSTAINABLE DEVELOPMENT

Dr. Krisno Nimpuno

Emergency settlement: relief that hurts?

The successes of many relief programs deserve recognition. Humanitarian relief in health, nutrition, education and water supply is provided professionally by the relief agencies, with effective logistics and good management. Family tracing and reunification mitigate much suffering. Health posts and hospitals provide basic services, food stuffs are distributed, schools operate well and safe water is supplied in adequate quantities. Usually local social services complement those relief provisions well and refugees are kept fed and healthy with only moderate sacrifices from the local populations. Altogether the social support programs have responded admirably to the forced migrations that follow civil strife explosions. In settlement planning and shelter management however, few appropriate strategies are applied in spite of expansions of these programs. Physical planning responses have failed to stand up to the challenges of massive displacement and the failures have brought considerable hardships on the host countries. The new emergency settlements (initially set up as camps) for hundreds of thousands of refugees are still planned with old norms, developed for small influxes of a few thousand refugees. Plots are dimensioned for farming around the houses, creating enormous settlements that are not dense enough to afford basic

infrastructure. Local urban planning norms are entirely ignored.

It is unlikely that anything seen before. For example, the second largest city of Tanzania and Zaire sprung up overnight, as puzzling settlements, that are neither towns nor villages. Hundreds of thousands dwellers live in oven-like plastic shelters in settlements without urban infrastructure. The huge camps lack roads, drainage and garbage disposal systems, extract devastating quantities of wood and water from the environment, drying out and harming the land that hosts them. The urban skeleton that would ensure sustainable co-existence with the surrounding countryside is missing here, the settlements do not produce, but only consume. Infrastructure is not only lacking, but the sprawling lay out makes infrastructure development unaffordable. The camps are stagnant, do not develop, do not produce, but consume land and forest relentlessly. Vegetation disappears, soil erodes away, land is poisoned and water resources accumulated over centuries deplete swiftly.

The myth of early repatriation

It seems that managers and politicians cling to the myth that repatriation is just around the corner, that the emergency will suddenly end and that the refugees will simply disappear. It is also falsely argued that good shelter should not be available as it might be an incentive to stay. But most refugees want to go back as soon as it is safe. They did not come because housing conditions in the camps seemed attractive but because of violence in the home area.

Consequences of a loss of memory

Clearly, the myth of early repatriation means that the settlement consequences of massive displacement have not been considered well. Equally, the **collective memory of emergency settlement** has been lost. The agencies managing physical development do not use mechanisms to evaluate and learn, to control quality and sustain, do not account for their interventions. They do not make use of the knowledge of development agencies that pursue sustainable development and a safe human habitat. Emergency settlement has come to mean sustained destruction because of its violation of the basic principles of settlement development.

Settlement and environment

Given that refugees usually shelter during years rather than months, emergency settlements should be designed with the option of serving as temporary camps or of developing into durable urban settlements that can serve the host nation after departure of the refugees. There is no contradiction between the two: **site and service schemes** can be planned as permanent housing areas, but the actual implementation can be stretched out over many years. It is argued that camps should allow for *upgrading as a progressive element in the development process* and should have *an inbuilt capacity to become (durable) settlements*. This means professional plans that can be upgraded gradually. Present camp design is based on rural planning norms to allow agriculture, but is applied for such large populations that dedicated infrastructure is an environmental necessity. Yet, plot sizes then exceed the dwellers' capacity to control and manage the land and environmental degradation is inevitable. At the same time grid plans prevent a satisfactory settlement upgrading that can lead to a sustainable urban environment. pPFurther, it has to be remembered that urban planning is much more than land use civil engineering; while the present model of using a **site planning service package** by civil engineers as the sole planning basis for major settlements destroys the prospects of sustainable development.

Emergency settlement and environmental planning

Although there is now ample understanding of the damaging effects of emergency settlement, much information has a sectoral perspective and does not sufficiently

link the different contributing factors into a cohesive picture. The inter-active process between settlement and environment use, coupled with respect for the development regulations that normal development entails, is here disregarded. Further claiming immunity from development regulations, as most relief operations routinely do, creates disastrous vulnerabilities. Several recent emergency settlement studies emphasize basic planning principles that should be observed. The fact that the present site plans merely consist of crude land use schemes put together by engineers without adequate scenarios for the development of housing and environment, must be confronted. Site plans only prescribe the location of individual facilities, but neither address the managerial aspects of settlement operations nor the growth and development of the community as a normal urban master plan does. This static approach to emergency settlement emerges as the principle cause of the adverse environmental impact, because it keeps dwellers suspended in most temporary housing provisions, that prevent a sustainable relation to the environment. Prevention of environmental damage caused by refugee camps lies primarily in the preparation of sustainable settlement plans, based on the actual physical conditions of the area, and providing a scenario for phased development. Such plans relate settlement size to the carrying capacity of the hinterland and facilitate the development of productive activities that, in due time, will make normal urban supplies of fuel, water and food possible. Prevention of environmental damage in sudden migration influxes is closely related to the pre emergency identification of settlement sites and preparation of sustainable settlement development plans. Bloesch recommends that *where humanitarian crises can be expected, maps indicating areas with fragile ecosystems should be prepared*.

To complement this, there are affordable methods for environmental monitoring and site selection. Remote sensing has advances tremendously in recent years and detailed monitoring of environmental impacts should become a standard element in emergency settlement management. For detailed settlement planning remote sensing can be combined with Small Format Aerial Photography, SFAP, to facilitate sufficient detailed urban master plans before any work on the ground has to be done. The cost of preparedness is insignificant compared with the mitigation measures that are needed when influxes enter into areas without such plans. The environmental protection of emergency settlement areas lies thus in a combination of environmental assessment and professional urban planning. To these must be added some additional preparedness. Early warning and emergency prediction are still poorly developed but vulnerabilities to emergencies are known in advance. The instability in some countries is abundantly clear and civil strife usually announces itself for some time before erupting into violence and displacement. Nobody can sleep next to a spasmodic elephant without feeling some vulnerability and apprehension. But for many countries this is an unfamiliar form of protection. Preparedness support through environmental assessment and settlement pre-planning, deserves a high priority in international cooperation to be extended to those developing countries which are vulnerable to involuntary migration.

In international cooperation there has in recent years been a noticeable shift from structural development support to relief and the results have not been good for development. In this situation sustainable development principles are of critical importance. The **Continuum from Relief to Development** addresses this critical issue and we have to hope that relief agencies and governments will start to apply sustainable development principles in emergency settlement.

Some guidelines for sustainable settlement in large displacements

- Select settlement sites before emergencies erupt
- Use local planning capacities and the collective memory
- Identify, build and mobilize local capacities as stand by resources
- Use Rapid Assessment Protocols
- Relate carrying capacity of the land to settlement size
- Integrate food and fuel supply

- Assess site vulnerabilities
- Durable settlement planning
- Apply basic urban planning norms
- Include land for production zones
- Plan vegetation belts to reduce run off and erosion
- Establish community based settlement management
- Develop infrastructure suitable for urban densities
- Use small plot frontages
- Improve security through shelter clustering
- Use Site and Service planning principles
- Promote incremental self help housing
- Disseminate housing knowledge rather than building material
- Use on-site material and choose sustainable technologies

14. Extracts from Background Paper

THE USE OF REMOTE SENSING AND GIS TECHNOLOGY IN EARLY ASSESSMENT AND MONITORING OF ENVIRONMENTAL STRESS IN REFUGEE-HOSTING AREAS

Dr. Fernando R. Echavarría

Introduction

This paper focuses on how geographic information analysis (GIA) techniques, mainly remote sensing and geographic information systems (GIS) can be used to monitor and quantify the environmental changes in the wake of large human displacements. The synoptic, current, data generated by satellite images, once it is collected, processed and interpreted on a regular basis can generate critical information for decision makers involved in the resettlement of refugee populations. This information can be used to draw general strategies for refugee resettlement that minimize the environmental impact on the natural environment. In order to illustrate the kind of environmental baselines these techniques can generate, an example analysis completed for Afghan refugee camps in Pakistan's Northwestern Frontier Province is discussed. The paper concludes with a discussion of how remote sensing and geographic information systems (GIS) can be used to quickly generate baseline data of environmental integrity. These can be incorporated into management strategies to monitor, model, and predict the environmental impact of large refugee populations in a wide variety of scenarios and landscapes including Asia, Africa or Latin America.

Definition of remote sensing and GIS

Remote sensing is the collection of data about an object or phenomenon without direct contact between the target and the observer (or sensor). Specifically, it involves recording and analyzing electromagnetic energy-visible light, infrared radiation, or any other kind of wave-transmitted energy in the form of airborne (and space-borne) photographs and images. Aerial photographs, multispectral and radar images continue to be used in a multitude of ways by numerous disciplines and fields for environmental monitoring. From satellite data, it is possible to derive, accurate, repeatable, verifiable information about forests or other natural resources over extensive areas at a multitude of scales. This information can then be used to quantify environmental processes (such as rates of deforestation) and can be incorporated into geographic information systems (GIS) for modeling.

GIS is a computerized system for the efficient capture, storage, update, manipulation, analysis, model and display of all forms of geographically referenced information, including satellite data. GIS is more than just a computerized mapping software. It relates different landscape attributes, matches and combines different data sets over the same geographic region (in the form of overlays), and most important, allows for the modeling of different spatial

processes at various scales. Practitioners, sometimes regard the total GIS to include operating personnel and the data that go into the system. There are numerous GIS software packages that range broadly in their price, capability and sophistication. Remote sensing and GIS make it possible to ask hypothetical questions and make intelligent predictions about environmental changes, including those induced by refugees. For example, if current deforestation rates continue in the vicinity of a refugee camp, when will the remaining forests resources of the region disappear? What are the resources and areas that will be most affected by the resettlement of a certain refugee population in a specific site? If a refugee population must be relocated, can different resettlement sites be compared to one another for their environmental vulnerability? Can sites be prioritized accordingly?

The case study of Pakistan, presented in the Background paper, is a good example of the expanding range of different applications of multi temporal remote sensing data for environmental monitoring. Despite the restricted availability of maps and air photo coverage at large spatial scales for most areas in the developing world, the analysis of remote sensing data remains an effective tool for monitoring human induced environmental changes. To date, few studies have quantified the environmental impact of the growing number of internal and external refugee flows created by political, economic or environmental crises using these techniques. As the case study over Pakistan demonstrates, remotely sensed data and GIS is a quick, accurate, and cost effective way to monitor the environmental impacts of refugees. This study provides policy makers with a prototype methodology to assess the environmental impact of large refugee movements in a variety of environments.

Future applications

Access to satellite imagery will undoubtedly improve. Increased competition among providers of satellite data means a lowering of prices. As new consortiums are formed between different countries, mixing both private companies, government and intra-government agencies, this price trend will be accompanied by an improvement in the technical capability of the satellite systems. Numerous intragovernmental efforts are underway to gather, process, store, and disseminate digital data set about environmental processes to study global environmental trends. This data will inevitably allow humanitarian agencies to include remote sensing and GIS data in their day to day design and implementation of strategies to mitigate environmental impact induced by refugees. The Global Resource Information Database (or GRID) was established in 1985 by the United Nations Environmental Programme (UNEP). This is an international co-operative effort involving UN Specialized agencies, intergovernmental organizations and national governments, coordinated by an arm of UNEP. The goal of the organization is to maintain an environmental data management service within the United Nations system which maintains a distributed global archive of environmental information in digital form for use by environmental analysts, planners and decision makers at national, regional and global levels. Agencies working with refugees (like UNHCR) should be able to have easy access to data produced by other UN organizations (like UNEP and GRID).

One existing project which could serve as a model for a future design of an international surveillance system of refugee-induced environmental changes by organizations like the United Nations High Commission for Refugees (UNHCR), or the International Organization for Migration (IOM) is the Famine Early Warning System (FEWS) set up by the U.S. Agency for International Development (USAID). This was set up in the early 1990s, under contract with the Tulane/Pragma group.

Time series of satellite images over a study site, will provide quick and accurate assessments of the environmental changes that has occurred in the vicinity of a particular refugee site. This can be used to develop an initial environmental profile of the location. Once the data is incorporated into a GIS, assumptions can be made about future conditions at the site (i.e. continuation of

current forest clearing rates). It is then possible to make quantitative, spatial and temporal predictions about the environmental degradation expected at that location. The qualified predictions derived from this modeling, can be incorporated into planning as organizations make decisions and set priorities in their relief efforts. They can also be part of Environmental Impact Assessments (EIA). These assessments can identify the potential impacts both positive and negative before and during implementation.

The data generated by modern geographic information analysis techniques, as demonstrated by the case study in Pakistan's Northwestern Frontier Province, can be extremely useful for organizations and governments encharged of refugee relief. Incorporating the GIS and remote sensing techniques discussed in this paper will not only allow for a more reliable monitoring of these population flows, but it will also allow for the mitigation of the environmental impact during and after refugee resettlement.

15. Extracts from Case Study

STRENGTHENING GOVERNMENT CAPACITY FOR SOUND MANAGEMENT OF MAJOR REFUGEE INFLUXES: THE CASE OF UGANDA

Gerald Duda

Aims of the presentation:

- 1) to emphasize the need and significance of strengthening host governments in their capacity to organize and manage the response to refugee crisis, and even before refugee influxes occur, to introduce and establish measures for mitigation and preparedness to such crisis
- 2) to present possible approaches and strategies to address the issue as presented in the case of Uganda

Uganda is hosting some 300 000 refugees
90% of the refugees are living in the northern part of
Uganda
in some areas (districts) refugees outnumber the local
population
impacts:

- deforestation with subsequent effects on
soil and fertility erosion
- over-exploitation of land leading to land
degradation and fertility depletion
- uncontrolled tapping of ground water
resources
- degradation and destruction of roads
- strain on the social infrastructure

Background to the case of Uganda

Request from Ugandan government to the German government to assist
in setting-up a plan of action rehabilitating damages due to the
presence of refugees

GTZ send a mission of experts to assist the government of Uganda in
assessing and analyzing the situation

Over and above the results of technical assessment of damages to
roads and environment it was found that the system of response to
refugee crisis particularly regarding the role of the Ugandan

government revealed some weaknesses and missing links which at least partially contribute to some of the observed damages, especially in the field of environment.

Weaknesses of the system of response

Lack of measures and mechanisms for preparedness <

Lack of baseline data and information for planning

Lack of integration of refugee-related investments into regional and national development planning

Lack of (environmental) impact assessment and monitoring

Lack of coordination between government institutions and other actors

Approach to strengthen the system of response

Based on experiences and observations in other refugee hosting countries it may be concluded that these observations do not only hold true for Uganda but probably indicate a more general problem of refugee hosting countries

Therefore it is recommendable for donor and implementing agencies to advocate a strategy which aims at strengthening host governments to:

1. integrate the refugee issue into national disaster management plans
2. create and strengthen linkages to government institutions, projects and research facilities to provide baseline data for planning of refugee settlement
3. introduce an impact monitoring system to allow the authorities concerned to evaluate the effects of refugee influxes
4. take action to integrate the potential of refugee assistance programs in the framework of national and regional development plans

In addition to the action taken to assist host countries in coping with the immediate effects of the refugee crisis such an approach may contribute to help those countries in saving natural, material and financial resources and even making use of refugee assistance for regional and national development.

16. Extracts from Introduction

MITIGATING THE ENVIRONMENTAL IMPACT OF REFUGEES AN INTRODUCTION BY HIGHLIGHTS

Thomas Hoerz

Systematic strategies and approaches to address the unsustainable use of natural resources by the population groups in refugee hosting areas are still missing. There are no doubt promising examples of innovative projects to deal with the environmental impact of refugees, but the international aid regime is far from addressing such problems with a generally agreed framework, standards or even

obligations to do anything at all. To date there exists not a single camp or refugee situation worldwide where it can be claimed that the environmental destruction is reasonably contained or even considerably reduced. Where such considerable reductions have been achieved for a short while and with heavy financial input (e.g. Kibumba Camp, Coma/Zaire), the projects ran soon out of steam. The list of topics of deficiency given below is by no means exhaustive. Each topic, in addition, must be weighed and prioritized for each specific forced migration pattern, location, country and stage of settlement.

Set-up

Environmental mitigation projects so far try to deal as good as possible with a given set-up of refugee camps or settlements. The set-up or layout of camps and settlements has not yet been determined or influenced by considerations of sustainable resource use. The international aid regime has failed to make transparent comparative costs, both social and developmental as well as ecological, to host governments regarding location, size and layout of camps and settlements. There is further a need of convincing arguments and data which support an active and conscious planning process that leads in the end to the optimum set-up to settle refugees and avoids a marginalization of the host population.

Timing

Until a resource protection and environmental rehabilitation programme is established in a refugee hosting area, years can pass. The rather quick reaction in the case of Goma was an exception to the rule, triggered by the magnitude of influx and the ecological value of the threatened Virunga Park. Under the motto of life-saving measures first valuable time is lost during which the relatively cheaper *prevention* could be started. Instead, environmental programmes have to embark on *mitigation* or even the most expensive option of *rehabilitation*, the success of which is increasingly unlikely from prevention to mitigation to rehabilitation. Environmental mitigation does not disturb life-saving activities but support them, as three examples can illustrate:

- providing milling facilities immediately with the onset of a refugee influx and as a standard equipment does not only reduce the firewood consumption considerably, but can also lead to higher intake of calories, mineral and vitamins (in particular of children and aged people) and thus prevent malnutrition among refugees
- environmental health mass campaigns during the emergency phase can prevent the pollution of water sources and reduce the occurrence of water borne diseases such as cholera
- timely and sufficient supplies of fuel can reduce morbidity and mortality through appropriate meal preparation and prevent the deaths of infants caused by hypothermia. The ecological benefits are obvious.

Time Horizons

The environmentally unsustainable practices of refugees are often (partly) attributed to their narrow time horizons, giving them little incentive for longer term planning. Hardly ever is the short term planning of agencies mentioned as a major problem in environmental mitigation. All too often agencies work on a secured funding for only several months, a period during which only relief-style interventions are possible and developmental and participatory approaches cannot even be tried. A tremendous progress could be achieved in the quality and cost-effectiveness of environmental mitigation programmes if it would be acknowledged that such programmes need an initial five year planning horizon, no matter how short the stay of refugees is expected to be.

Handout Mentality

As the time horizons above, the handout mentality is a notion commonly referred to for refugees whereas refugee aid agencies are similarly trapped in that mind-set. The supply of fuel, improved stoves and agricultural inputs must not follow the pattern of food supplies but need to be linked to refugees own efforts in environmental mitigation.

Relief/Development

The fact that there is a continuum between relief and development is widely accepted. Yet in programming, both situations are still treated as separate entities. In practical terms this means, for example, that there is a direct link between substantial fuel supplies to refugees (relief) and the marketing of tree products by the local population and later also by refugees (development); erecting soil erosion preventing structures inside and around a refugee camp rewarded by the supply of fuel (relief) can lead to district-wide soil erosion programme (development). Three structural innovations could facilitate to put in practice the common demand for a relief-development continuum:

Cooperation Structures: Environmental projects for refugees and development projects for the host areas are as a rule separated by planning procedures, approaches and management setups. Combining the two types of projects not only under an informal umbrella of information exchange (like the Environmental Task Forces in Ngara and Karagwe) but under one management structure could facilitate the adequate prioritization of resources greatly. Cooperation agreements between relief agencies (short term) and development agencies (long term) could be an important step to combine the specific capabilities of both types of agencies: speed and efficiency on one side and long term developmental approaches on the other side.

Funding Structures: Similar to combining capabilities of different agencies, funding structures for relief and development projects can complement each other in an ideal way. The rather quick disbursement for short term relief interventions and longer commitments of bilateral or multilateral donors would ensure a timely, sufficient and reliable supply of funds.

Dynamic Adaptation: Refugee situations are dynamic and unpredictable. Priorities can shift within short periods depending on repatriation, new influxes, conflicts or even climatic changes. Priorities of environmental programmes in refugee hosting areas need to correspond to that.

Communication, Representation, Participation

As opposed to approaches in conventional development work, for example in Regional Rural Development, too little attention has been paid in environmental mitigation for refugee affected areas to the system of actors including refugees, local population, host government and aid agencies. It is important, not only in the long term, that participatory systems are encouraged which allow the full representation of all actors and adequate communication among those. Refugees and the local population are treated all too often as separate target groups, thus overlooking the fact that they share the same livelihood environment and often very similar resource-related problems. Refugee agencies, development agencies and the host government share a responsibility which is not adequately reflected in present cooperation and communication structures.

17. Extracts from Background Paper

ENERGY ECONOMY THROUGH ENERGY SHORTAGE: REDUCING THE ENVIRONMENTAL DAMAGE OF MASS MIGRATION

Matthew Owen

Energy consumption as an environmental problem

Physical deterioration of the environment is an almost inevitable consequence of refugee influx, and in turn generates negative impacts for both the refugees and local populations. These impacts are especially great where refugees are forced to live in marginal and vulnerable environments and are reliant on limited natural resources for basic subsistence.

In meeting their demands for energy, displaced populations tend to cause more significant environmental problems than existing local communities. Whereas these communities may have developed energy supply systems to some extent sustainable given existing requirements and resources, refugees tend to bring with them urban energy demand structures which depend on rural supply infrastructure. With limited knowledge of local supplies and sustainable yields, they are more likely to cause environmental damage in their search for fuel - particularly when that fuel is firewood.

Strategies to reduce energy consumption

In an effort to reduce the scale of environmental damage associated with mass migrations it is natural to attempt to reduce energy consumption. The simplest and probably the most cost-effective way to achieve reduction in energy consumption is to get refugees to implement economy measures for themselves. That is, to encourage them to take steps which will reduce their own energy demands. (This relates mainly to cooking, the demands for lighting and heating being generally less significant and less environmentally damaging.) Such self-introduced reductions in energy consumption are clearly possible, given the great variation in energy usage between adjacent refugee communities.

This range is principally a reflection of the refugees own implementation or otherwise of energy-saving practices, particularly in cooking. **These energy-saving practices include the following:**

Firewood Preparation

Cutting and Splitting Firewood.
Drying Fuel

Fire Management

Fire Shielding/Protection
Controlling Air Supply
Simmering Food Gently
Putting Out Fires Promptly

Food Preparation

Pre-soaking hard foods
Cutting Food Small
Using Tenderisers
Having all ingredients ready in advance

Cooking Management

Sharing Cooking

Using appropriate pots for each food type

Use of Lids

"Pre-heating food in an upper pot"

Adding Water During Cooking

Keeping pots blackened but not encrusted

Encouraging energy-saving practices

Greater uptake of energy-saving practices such as those listed tends to come about as a result of shortage of energy in one form or another. In other words, there is a natural process of adaptation on the part of the users to actual physical conditions. This relationship between supply and demand is well known in household energy research, and is equally applicable in refugee situations. The greater the deterrents to over-use of fuel, the more conservation measures will be employed spontaneously by the population

Introducing an energy shortage

Energy shortages can take several forms. These can be sub-divided into those which are imposed and those which are incidental. In other words, those which are deliberately introduced as part of an environmental management strategy, and those which come about through unplanned resources exploitation and local conflict. The latter include the risk of arrest or physical attack while procuring fuel. It is not politically or morally acceptable for relief agencies to openly support policies which may result in physical harm befalling refugees. Thus most of the means to achieve incidental shortages cannot be sanctioned. There is nevertheless potential for promoting certain imposed methods to achieve shortage:

Camp siting

Restrictions on movement

Presence of guards

Refugee participation in management plans (the most acceptable and sustainable means to achieve restrictions)

Commoditisation of fuel

Fuel distribution away from camps

Introducing an energy surplus

While deterrents to the over-use of fuel can have positive environmental effects, the converse is also true. It can be argued that free access to fuel does more than inhibit energy conservation, it actually encourages considerable wastefulness. This relates particularly to fuel distribution programmes when mounted in the absence of control of access to resources. Any distribution of fuel is likely to promote over-use on the part of refugees if not carefully planned as part of a broader environmental management strategy.

Harvesting of biomass under agency control is almost certainly less damaging than refugees own systems of procurement, which are based largely on minimisation of effort. The Zairean example (see Background paper) also shows that harvesting and supply programmes can assist in reducing energy demand (and thus environmental degradation) if introduced in conjunction with an introduced or incidental fuel shortage. Fuel distribution can therefore be supported, but only under certain conditions:

- (a) Close to 100% of fuel demands should be met.

- (b) There is an effective system of management of refugee movements outside the camps.
- (c) Fuel extraction forms part of an overall environmental management strategy which identifies source areas for fuel and areas which will be left alone, and which determines precise rates of extraction from which environmental recovery is possible.
- (d) Refugees are, if possible, harvesting the wood themselves under the control of a forest management team.
- (e) There is a system in place to restrict sale of distributed wood within outside the camps; e.g. the wood is marked in some way.
- (f) Agencies are aware of the financial and logistical implications of fuel distribution and are committed over the long term.

Summary

The energy demands of displaced populations can have significant environmental implications for their host areas. Their energy consumption can be dramatically reduced in the face of fuel shortage, thereby curbing environmental degradation. Shortage can come about incidentally as a result of threats to physical security or simple lack of available fuel, and can also be induced directly by agency and government intervention. Some of these interventions may offer cost-effective means by which to encourage refugees to act for themselves to reduce the environmental damage associated with meeting energy demand. Fuel distribution programmes can result in higher energy demands and greater overall environmental degradation, if not run in conjunction with effective restrictions on access to energy from other sources.

18. Extracts from Case Study

MITIGATIVE ACTION: THE FUEL WOOD CRISIS CONSORTIUM IN ZIMBABWE

Gus Le Breton

Background

- * The refugee programme in Zimbabwe lasted 10 years, from 1984 to 1994.
- * There were 150,000 refugees in five fully enclosed refugee camps. Another 100,000 plus Mozambicans, not with refugee status, were spontaneously settled in communal and commercial farming areas along the country's eastern border with Mozambique.
- * The environmental impact of these refugee camps was severe, if localized, and manifested itself primarily in the form of deforestation. In a study conducted at the programme's conclusion, based on a combination of aerial photo-interpretation, random soil and vegetation sampling and rapid rural appraisal exercises with host communities, it was estimated that 12,000 hectares of forest were completely cleared around the camps during this period, and a further 12,000 hectares saw their tree density reduced from approximately 4,000 trees per hectare to less than 1,000.
- * Based on a six month period of participatory research and field trials, the Consortium undertook a two and a half year programme that had the following components:

- i) distribution of fuel-saving stoves
- ii) afforestation and controlled regeneration of remaining woodlands in and around the refugee camps
- iii) environmental training and awareness-raising amongst refugees and local population

LESSONS LEARNED

Woodland management outside the camp

Work with local population

Refugees have almost no incentive to become involved in any form of afforestation/woodland management activities outside the camps. It was opted to work exclusively with local Zimbabwean communities, and although there were still problems, in that the local population was reluctant to undertake management activities whilst the refugees were still *in situ*, it was generally an effective approach.

Adopt a developmental approach

This was initially not the case, and the situation improved dramatically when such an approach was adopted. It enabled to draw extensively on the lessons from social forestry and community-based natural resource management activities in the region. The result was a programme that:

- ? began with village level participatory appraisal and planning exercises, from which village level woodland management strategies were drawn up
- ? directed more attention to process and less to outputs
- ? paid particular attention to institutional strengthening and capacity-building
- ? built on existing indigenous technical knowledge

Regeneration is quicker than planting

Indigenous woodland can be made to regenerate very quickly under an appropriate management regime. This primarily involves controlling harvesting techniques (i.e. coppicing, pollarding, pruning) so that the regenerative capacity of a tree is not harmed, and patterns, so that excessively stressed woodland is given time to recuperate. The strategy adopted by most of the local communities was to create some areas in which harvesting was permanently forbidden (e.g. sacred areas) - these had the incidental effect of acting as a genetic seed bank for further, especially post-repatriation, regeneration, some areas in which limited harvesting was allowed and some that were essentially open-access to the refugees. This of course worsened the pressure on those areas that were open access, but at the same time, by limiting the refugee access and strengthening the control of the local population over harvesting, refugee consumption did appear to both decline and be less destructive.

The importance of economic incentives to communities

Community-based natural resource management programmes throughout the region have repeatedly shown that the incentives for sustainable woodland management lie in tangible economic benefits and clear access to such benefits by local communities (i.e. through entrenched tenurial rights). Therefore the focus was put on providing technical and financial (through facilitating access to loan finance)

support to individual or community enterprise based on sustainable woodland use (bee-keeping, crafts, plant-oils, indigenous fruits, medicinal plants, alcohol extraction etc.). However, before such support must be given, a detailed environmental impact assessment must be undertaken to ensure that, if such enterprises were successfully replicated on a large scale, they would be environmentally sustainable.

The importance of working through existing governmental/NGO extension services

To be sustainable, any technical support for woodland management activities in local communities must work through existing extension agencies. This may require work to reorient extensionists to recognize the value of indigenous technical knowledge, supporting existing examples of good practice, strengthen traditional tenurial rights to woodland and woodland products, and to appreciate the range of opportunities for supporting woodland regeneration.

Conflict resolution

Conflicts between refugees and local people over scarce natural resources are an obvious cause of increased levels of degradation. Initially, this was seen as a symptom rather than a contributory factor to deforestation. Once this error recognized, the organization was able to establish joint management committees of refugees and local population, ostensibly formed to oversee all joint environmental management activities, but really aimed at providing a forum for areas of conflict to be discussed and resolved. The committees comprised elders and, from the local communities at least, traditional leaders. What helped greatly was the fact that, in some camps, the refugees and the local population were from the same ethnic group. This meant that, through these joint committees, the refugees recognized the legitimacy of the local chief as the land manager for the area, and thereafter submitted to his authority on all matters relating to resource use. The chief was then able to control harvesting patterns, and to fine any abusers. Conflict resolution, in the form of bringing local population and refugees together to discuss areas of mutual concern, is an essential prerequisite for any mitigative programmes.

Incentives

Incentives for refugees to participate in environmental rehabilitation activities is a real problem. In Zimbabwe, it was hampered by a thoroughly counter-productive incentives policy that saw all refugees involved in training schemes being rewarded by the provision of incentives. This needs to be established at the outset of a refugee programme. Where refugees are employed as labourers, they should be waged; where refugees are participating in a training programme, they should not be waged. This would allow for refugees to be employed as nursery attendants, tree guards and forestry extension workers without interfering in training activities. Whilst refugees do not have obvious incentives for working outside the enclosed camps, there are certainly many inside, where trees planted around a homestead are the clear property of that homestead. Benefits include nutritional supplements, shade, live fencing to mark out plots, and soil stabilization to keep down dust. That the refugees realized these benefits in Zimbabwe was made clear by the fact that many second generation refugees arrived with live cuttings of trees to plant around the homestead. This is where central nurseries, supported by limited technical extension (not much is needed) to individual homesteads can make big differences. It is obviously important to focus on quick-growing species e.g. papaya.

Environmental awareness raising

This is an area where a fairly fundamental mistake has been made, from which partners could learn. It was assumed that the problem was education, which led into a range of inappropriate educational activities, with groups of women refugees, with schoolchildren, and when that failed, with schoolteachers.

Refugees are generally rural people; they know how to manage their environment, and the reasons that they are not doing so sustainably have nothing to do with a lack of knowledge. The issue is awareness: awareness of the likely length of their stay in the camps (this might contradict current refugee policy), awareness of options for environmental protection measures within camps (e.g. simple things like planting in run-off sites, something they may not have needed to do before), and in the case where technological solutions are offered, awareness of the possible benefits such technology could bring. We found the most effective means of awareness raising, particularly where literacy levels are low, involved traditional communication media, e.g. dance-drama, role play, story telling. There is much to be learned in this field from health promoters, who have been using these methods for many years.

Reducing fuel wood consumption

Although it was too late to reverse a process that had been going on for many years, the most effective way to limit consumption of fuel wood for cooking is undoubtedly to have all cooking undertaken centrally on fuel-efficient high mass stoves. This is cheap, and figures show clearly that daily consumption is reduced by at least 80% under this regime. There are, of course, significant implications for basic human rights of refugees in terms of using stoves, but it would also be possible, if such a system were introduced from the outset, to serve at least some meals centrally. This also has the advantage of ensuring that refugees do not sell all their food for luxury items, and get at least one square meal a day.

However, there was also evidence to indicate that, when refugees are using less of the wood that they have collected for cooking, they become more profligate in terms of other uses (heating, lighting). Therefore, centralized cooking (assuming this caters for all meals a day) should be accompanied by:

- fuel wood supply to central kitchen

- provision of an additional supply to households for heating/lighting - say 1/2 kg per person per day

- enforce a complete ban on all fuel wood collection

- finally, of course, supply of fast cooking foodstuffs

There is a lot of institutional knowledge, particularly amongst local NGOs, on appropriate strategies for promoting sustainable natural resource management. Policy-makers and implementors within the refugee field should be actively seeking to forge partnerships and linkages with these institutions. Similarly, there is a growing body of knowledge within the NGO sector on refugee-related environmental management, despite the fact that few have had long-term and continued involvement, especially after the end of a refugee situation. Continue to involve them, use them, and build on their knowledge. That is how the wheels get improved, and not reinvented.

19. Extracts from Case Study

BRIDGING RELIEF AND DEVELOPMENT CONCEPTS IN REFUGEE AND MIGRATION SITUATIONS: HOUSEHOLD ENERGY PROGRAMMES

Muiruri J. Kimani

The challenge in household energy programmes and environmental mitigation in general, is to ensure that the impact of the refugees on the local environment is minimal, the interventions undertaken are a preparation to cope with imminent environmental problems the community face upon repatriation and that they do not compromise the security and well being of the communities. To do this, agencies

need to abandon their traditional concept of refugees as passive recipients of free aid without responsibilities to their host environment, their lack of capacities to solve problems and eminent dependency. Refugees should be considered like any other rural (poor) population, albeit with more limited resources, holding key responsibility in mitigation activities.

Guiding principles

The following guiding principles need to be taken into account when devising household energy programmes:

1. recognize the emergency nature of the situations but appreciate the fact that the emergency phase *per se* will shortly be over but the refugees will remain;
2. interventions should embrace a developmental concept where the refugee and local community participate in the development, adaptation and control and sharing of benefits resulting from the interventions. The groups who are most affected by the problem should have more say in the interventions;
3. interventions should aim to offer wider and longer term solutions e.g. contribute to incomes, improve personal security, reduce workloads etc;
4. interventions should be fairly simple and adaptable by the refugee and local community where external inputs, if any, should be minimal and ideally readily available locally;
5. interventions need be flexible and easily replicable taking advantage of existing skills and the frequent refugee (inter-camp) movements; they need to be exportable and useable back home and;
6. interventions should not be construed as free hand-outs similar to the food and nonfood items freely issued to the community. Hence, apart from showing initiative, the communities need to contribute a portion of the required inputs.

Interventions

Ideally, the benchmark for household energy programmes should be a package approach covering the demand and supply aspects, thus, fuel acquisition, supply, utilization, reforestation and general environmental protection. Different aspects of the programme components should be used to influence and strengthen each other. For example, it is possible to accelerate the rate of stove adoption when it is tied to the supply of firewood whereby a household is supplied with firewood only if it has constructed and is using an improved stove.

Technological solutions should be arrived at through a consultative process with the community bearing the following:

- + *familiarity*: technologies should not require radical changes by the community but should be based on what they have and are used to;
- + *simplicity*: they should not add extra burdens to the community in terms of time, labour or education and should take into account the prevailing gender considerations;
- + *affordability*: the basic models should not necessarily require cash investments;

- + *durability*: they should not age , e.g. be destroyed by rain and should be built and repaired with minimal external training inputs;
- + *sustainability*: they should be built, maintained and reproduced without depending on agencies to provide (external) inputs like clay, metal etc.;
- + *flexibility*: they should be dismantled, built up again and modified without the services of extension workers;
- + *adaptability*: they should encourage users to further improve them e.g. with mud/clay lining, additional wind breaks, lower pot rests, platforms to place pots, drying racks and shelters etc.

Furthermore, technological interventions should encourage and support the community to look at their lives as dynamic and progressive and contribute to (self)confidence building.

Local community participation

The local community should be actively involved in the planning, implementation and evaluation of household energy programmes. This is because the community has a higher long term stake than either the refugees, regional or central government in the well being of their immediate environment. Lack of participation results in hostilities between the local and refugee communities. The degree of each actor's participation should be determined by the entire group.

Commercialization and income generation

Experience in conventional development has demonstrated that stove programmes aimed at sustainability need to be commercialized. Initial subsidies and grants are necessary in the research, development and awareness creation phases but have to be carefully and judiciously applied and phased out sooner than later. This principle of Commercialization may not be wholly applicable to all refugee situations, especially during emergencies. However, it is clear that whatever the refugee phase, the approaches employed have long term effects in all future programme interventions.

Fuel wood distribution and substitution

It is imperative that fuel be provided to refugee and forced migration situations. Indeed, the argument is why provision of fuel is not considered as a basic item alongside health, food, water, shelter etc. which it should. After the minimum fuel requirements is met, continued provision of sufficient fuel should be considered and evaluated as an option along with the rest of other household energy interventions. The questions to answer being the type, cost, short and long term impacts, utility, supply logistics, health etc. aspects of the fuel. So far, fuel wood remains the most feasible fuel in many refugee situations especially in sub-Saharan Africa.

Fuelwood provision

Fuelwood supply

Organized supply

Trucking of fuel wood is a very expensive intervention especially where communication infrastructures are not well developed.

Ideally, the fuel should be bought from private, government plantations or individual farmers. The purchase of fuel wood especially from individual farmers, need not be looked at as contributing to further deforestation but should be

seen as a stimulant for additional afforestation through replacement of harvested trees and as a needed income for the community. It is therefore important that the fuel purchase be accompanied by afforestation measures providing material and technical support to the farmers.

Fuelwood collection support

It is unlikely that 100% of the required fuel is provided through organized supply; the balance is met through self-fetching. The communities need to be supported to enable them to fetch fuel from distant places in order to preserve their immediate environment. Agencies can provide transport to designated fuel collection points. The people could be asked to walk back with their fuel. On the way back the truck could transport small quantities of fuel for the vulnerable households. If need be security can also be deployed in the designated fuel collection area.

Fuelwood distribution

Where there are different agencies involved in supply and distribution of fuel, there are usually disputes regarding the delivery and distribution points. The vulnerable households may not have easy access to the distributed fuel, either because the distribution sites are far away, they are not informed where the distribution takes place, or they are physically disabled to the extent that they cannot reach the distribution sites. The agencies together with the communities need to develop comprehensive and equitable fuel distribution strategies. They should also agree on penalties for non-compliance to the agreed strategies.

Fuel substitution

Fuel substitution should be continuously done to determine the more affordable and sustainable options.

Fuel substitutes

There are many fuel substitutes including solar, peat, briquettes, paraffin, tireless cookers etc. Each of these substitutes should be carefully evaluated on their technical feasibility, logistic requirements, health and safety aspects, adaptability, and cost implications. It is necessary to start with fuels that are familiar or close to those already in use. In addition, the introduction of the fuels should be given preference in fuel substitution programmes.

Food baskets

The type of food basket available should be considered in household energy programmes. For example, it is better to supply milled rather than whole grains because the former requires less energy to cook. Socio-cultural, nutrition, viability etc. issues must be considered before options like milling are adopted.

Institutional linkages

Household energy programmes are fraught with rivalries. Unfortunately these rivalries are deeply entrenched and instead of resulting in better projects on the ground, they are resource and time wasteful.

Intra-agency collaboration

The advantage of a single agency adopting a package approach (for example comprising of firewood purchase and supply, re-afforestation, and energy conservation training) are many. However, close collaboration between people working in the different components is crucial. Professional divergence must not be allowed to exist.

Inter-agency collaboration

It is the norm to find agencies adopting different household energy approaches even in homogeneous situations. Diversity may be necessary but in most cases it is not out of need but simply for corporate identity. It is necessary to harmonize adopted approaches in order to encourage:

- * sharing of costs for transport, supervision, and expertise;
- * cross-fertilization from the experiences and know-how of different camps;
- * less disparities in exploiting the saving potential in the various camps (the first 20% are cheaper than the next 10%);
- * undertaking complementary activities and faster gathering of feedback through systematic and standardized monitoring and evaluation; and,
- * allowing for more flexibility with the available budgets to react to population and programme needs, e.g. new camps, could benefit from programme experiences and resources from other camps, by minimizing the start-up periods.

The lead agency, UNHCR environment office or household energy (environment) working groups should ensure that there is active collaboration and networking between different implementing agencies. Professional rivalry must not be allowed to exist.

Inter-project collaboration

Inter-project collaboration is necessary to eliminate or minimize re-inventing the wheel in different programmes. Most household energy approaches have been tried and refined in one situation or other. It would be cheaper to borrow and adapt experiences from such projects in new situations. Although funding is usually cited as the key setback to inter-project collaboration, there is also a clear lack of interest, knowledge and initiative on the part of the implementing agencies.

Conclusion

Refugee and forced migration situations are not temporary phenomena and expecting repatriation within two years after an influx often proves to be ambitious. Evidently, planning for household energy and environmental programmes in general should be long-term - minimum four years. In order to allocate and use resources more efficiently, it is recommended that agencies, from the start, plan on a mid-to long-term basis. Experience has also shown clearly that conventional development approaches can be successfully adapted and applied to refugee and forced migration situations. The approaches need to be dynamic, and adapt to changing situations, i.e. emergency relief, intermediate development, and even look further to repatriation, rehabilitation and re-integration phases. It is important that qualified and experienced staff be entrusted with the implementation of these approaches. Sound and objective decisions on and from the ground are necessary, not only to ensure overall programme success but also to influence thinking at higher levels.

20. Extracts from Presentation and Demonstration of PEKO PE

PEKO PE , THE MULTI-FUEL COMBUSTION SYSTEM: ENERGY FOR EVERYONE

Paal Wendelbo

Abstract

Based on the same simple principles as the MFC-stove, the grass-stove, Peko Pe was developed in East Moyo Refugee Camps. Adjumani Uganda in 1995. The name Peko Pe was given by a group of refugee women who saw it demonstrated and Peko Pe in local language means: it will solve our problem. The Peko Pe is tested technically at the University of Denmark, Technical High School and was used 3 times per day for one year by the cook in the Adjumani camp for all types of cooking with grass *Hyperhemia Rufa* as fuel without any problem. Due to high efficiency and clean flame it is highly appreciated by the cook. One kg of grass can replace 5 kg of wood on the 3-stone fireplace.

there is no doubt that the Peko Pe is working

there is no doubt that the system can replace both firewood and charcoal if other combustible biomass is available

there is no doubt that fuel, trees and environment can be saved with this simple device

The system

One single standard unit will give the basic energy for all types of cooking. By multiplying the units, energy enough for all size of saucepans can be obtained and when water or food is boiling only one is needed to keep on boiling. Each unit will last for a certain period of time and that is how fuel will be saved. The Peko Pe has to be ignited on top of the fuel. Preheated air will be drawn in from the cover and the heat going downwards will force out **combustible gasses** from the fuel, meeting the hot air and ignite under the saucepan. All hot gasses will be concentrated upwards where it is needed. Cold air taken in at the bottom will slow down the process.

The use

The MFC system differs in one way from traditional cooking. It will give very high temperature at the first flame stage the very minute is ignited and that will last for 20-30 minutes, bringing water fast to a boil. Then gradually the fuel will be carbonized and the glowing mass will continue giving enough heat to have the water boiling another 20-30 minutes.

Variations

One unit will cover the basic need of energy for cooking. With two units you can boil beans and with three or more, arranged the way the burned out units can be replaced, all size of saucepans can be covered with energy needed.

The fuel

Almost all types of dry combustible biomass will burn more or less with the same result, it is more how the fuel is organized in the device. There are two possibilities in the same stove; the main with periphery draught for loose fuel and the other with central draught. The last one fits to compressed fuel, which needs more air such as sawdust, wood-shaving, weeds and fine types of grass. The hole is obtained by using a bottle or a stick put in the middle. *Hyperhemia Rufa* is definitely the best fuel. Elephant-grass and some types of reeds are excellent fuel as well as all types of stalks and cobs, matoke peels, woodchips, shells and husks.

21. Extracts from Case Study

ENVIRONMENTAL REHABILITATION IN REFUGEE AREAS CASE OF AFGHAN REFUGEES IN EASTERN IRAN

Salah Rouchiche

Introduction

Following extensive damage caused to rangelands in part by the massive presence of Afghan refugees, particularly in the neighbouring province of Khorasan, the South Khorasan Rangeland Rehabilitation and Refugee Income-Generating project has been initiated in 1989 by UNHCR and the Iranian government, with the technical assistance of IFAD.

Of the 140,000 ha of the total project area, 68,500 ha required immediate curative action. The target group comprised 42,500 persons of whom 35,000 were Afghan refugees.

The project which was to serve an important testing and pilot function, addressed the issue of the rehabilitation of a highly deteriorated environment and of providing financially self-sustaining activities targeting a high percentage of refugee labour.

The following observations are derived from the comprehensive joint UNHCR/IFAD final evaluation of the project, carried out in May-June 1995.

Results achieved by the project

The project has provided 445,000 man/days of jobs. It implemented environmental protection, conservation and rehabilitation activities over 36,000 ha, of which 12,000 ha of sand dune stabilization, 4,000 ha of agro-forestry and 20,000 of range rehabilitation. The achievements regarding soil and water conservation have been modest.

Impact of project activities

The following careful interpretations are derived from the rapid appraisal of the environmental impact of rehabilitations activities.

wind and water erosion have been contained and brought to a standstill, though not yet entirely overcome

the rather large number of species observed on rehabilitated rangeland and dunes, seems to be a clear indication of a dynamic recovery, in terms of biodiversity

the carrying capacity of rehabilitated as well as non rehabilitated rangelands is very variable, indicating that the present levels of biomass production may be more closely related to the initial state of degradation and the present degree of soil fertility, than to any other factor. The positive impacts on range recovery and, to some extent on the carrying capacity, seem to be more imputable to the protection effect provided, following withdrawal of livestock than to the supposed protective action generally attributed by local technicians to the Haloxylon and Atriplex shrub plantations. This gives an indication of the degree of resilience of natural resources, which should always be considered when dealing with rehabilitation.

Findings and conclusions

Notwithstanding the difficulties encountered during the course of the project, the experimental approach attempted by UNHCR must be globally seen as a positive test.

- The project has achieved appreciable results in terms of protection and rehabilitation activities.
- The project represents an original strategy to a new concept of interventions, under which the international community, represented by UNHCR, expresses its solidary action by sharing the host country's burden in addressing critical refugee induced social and environmental issues. The project's overall approach is correct, as it attempts to make responsible use of an otherwise idle and assisted refugee population, and to preserve the environment through a formative and comprehensive set of rehabilitation activities.
- The sustainability of the project's achievements will be largely dependent upon its ability to integrate the national administration network. So far, the conditions for sustainability have not been gathered, as the present protective measures are not sufficient to certify a durable sound utilisation of rehabilitated areas.
- Many questions concerning the most appropriate approaches to range rehabilitation and utilisation, agro-forestry, soil and water conservation, are still left unanswered. They require time and must be supported by monitoring and experimentation in order to provide the correct responses.

Recommendations

The conventional implementation routine should give way to a more sophisticated approach to project continuation. Curative actions must be completed by proper maintenance, utilisation and management schemes, the burden of which ought to be shared by the beneficiaries, in partnership with government institutions.

The vision of the project's future should be broadened and emphasis put on its potential pilot role at national as well as regional level.

Sustainability of actions should be targeted by undertaking the following:

- launching a real time observation and monitoring system, making full use of the GIS available at the Forest and Range Organization (FRO)
- designing and testing management schemes for the sustainable utilisation of rangeland and sand dune biomass
- introducing and/or improving agro-forestry practices, soil and water conservation techniques, sustainable water management practices elements
- introducing field experimentation for the development of tools aiming at optimum rehabilitation and utilisation practices
- emphasizing the role of extension in raising awareness among farmers and livestock owners and training them in the utilisation of sustainable land-use practices
- setting-up a well coordinated network system involving research institutes, universities, various ministerial departments, NGOs and International Organizations involved in natural resources development

- decentralizing project management and administration

Regarding project design, the following observations and recommendations were made:

- when facing extensive and urgent environmental needs, the common tendency and/or understanding may be to design large scale and short-term curative environmental projects. However, taking into consideration the fact that:

- * environmental degradations are generally induced by social problems
- * rehabilitation requires well tested and adapted social, technical and scientific solutions and approaches which are not always readily available
- * withdrawal of natural resources from utilisation for rehabilitation purposes should be gradual and negotiated between the locals, the refugees and the project
- * beneficiaries require proper training to assume their future responsibilities

Given all of the above, the only sure way to achieve durable rehabilitation and management, is to design projects for the long-term, with extension phases of reasonable magnitude.

- future projects should not be based on segregation between locals and refugees as was the case in this project which defined better the needs of the refugee community, not stressing sufficiently the fact that the ultimate beneficiaries are the local communities. Therefore, development efforts should concern and include all users and beneficiaries, locals and refugees alike, facilitating refugee integration
- risks should be better assessed when dealing with refugee population as they are often mobile communities which may be repatriated during the project's life. Alternative solutions should be considered in advance to complete project implementation with the local population.

22. Extracts from Introduction

POLICY GUIDELINES

Vincent Coultan and Dean Girdis

Policy guidelines

The establishment of environmental policy guidelines for mass migrations of refugees ensures the successful management of natural resources by:

- ? establishing a framework for preparing and managing a refugee crisis;
- ? identifying needs to ensure timely response; providing a common ground for actors in which to focus their energies; and
- ? increasing the overall effectiveness of crisis management.

As many organizations (actors) are involved, multiple and conflicting priorities may often result. Care must be taken to work collectively to identify common policy guidelines to avoid duplication of efforts. Recognizing the importance each actor plays and ensuring that their needs are addressed inevitably increases the effectiveness of environmental management efforts. Use of environmental policy guidelines means integrating environmental management procedures, or an environmental management strategy, into relief management operations. In order to increase effectiveness they should be inseparable - ignoring environmental management not only limits efforts to protect the environment but further complicates effective camp management. At the onset of a crisis, an environmental management strategy should be developed in order to prepare for influx of refugees and the ensuing effect on the environment.

Role of different actors

In the case of the environment, disperse, uncoordinated efforts to provide for refugee needs while protecting natural resources can be improved, and effectiveness increased, with some prior planning. Each actor needs to recognize its role in a crisis and to work effectively to fulfill their respective goals. UNHCR plays the most important role by providing overall guidance and direction at the onset. Their role to lead and coordinate other actors will provide a sound framework from which to launch environmental management activities. The initiation of an environmental management strategy, and the use of environmental screening and environmental impact assessments, are important areas where UNHCR should focus its efforts. Relief agencies should focus on their strengths of on-site management, expanding their roles to include environmental management actions. They probably play the most integral role in implementing and ensuring the success of environmental measures due to their on the ground knowledge of the situation and role of working closely with many of the actors in the field. They can promote the use and development of environmental management plans, including preventive actions and mitigation plans. As many relief agencies have considerable development experience in the natural resource area, in fields such as forestry and agriculture, their expertise cannot be ignored and should be applied accordingly. Development agencies and bilateral donors can focus on providing technical and financial assistance for environmental management by utilizing the depth of their experience and access to funds. Their efforts are particularly useful for rehabilitation programs that require a long-term commitment and are not crisis oriented. Local NGOs are a rich and inexhaustible source of information as they provide local expertise for the identification of problems and for the development of environmental management strategies. They will work with other actors, particularly the relief agencies, to implement the environmental management strategy and they play the essential role in protecting the right of local residents. Local and national governments should be integrated early in the process. They need to play an active role and to be consulted with at all stages of the environmental management process. This ensures that the environmental management strategy is in accordance with all local and national environmental laws and that it does not conflict with environmental or refugee related policies.

The way ahead

Providing for successful management of the natural resources and protecting the environment during refugee crises can be accomplished relatively easily if the following approaches are taken. They include:

- ? recognizing that there are many different functions and roles which all actors need to play a part;
- ? integrating all actors into developing and effective and comprehensive environmental management strategy as the solution is not limited to only one actor;

? creating a team spirit as it facilitates solving problems collectively by using each others strengths and by avoiding duplication of effort;

? developing a comprehensive environmental management strategy at the onset which will incorporate preventive, mitigative and rehabilitative actions;

? promoting early use of preventive actions to reduce and/or eliminate negative impacts

? developing appropriate mitigation strategies that are easily applicable and take into consideration environmental, technical, financial and logistical limitations; and

? initiating and supporting the rehabilitation plan as environmental problems still persist after refugees have returned and should not be ignored in favor of higher profile relief action elsewhere.

23. Extracts from Background Paper

ENVIRONMENTAL ACCOUNTING AS A POLICY TOOL TO ADDRESS ENVIRONMENTAL IMPACTS RESULTING FROM MASS MIGRATIONS

Ivan Ruzicka

For the donor community, the environmental cost of mass refugee movements has brought home the circularity of some of its programmes: The donors provide relief, initially sidelining environmental concerns. The concerns come back later and it is typically the same donors that are called upon to provide assistance for environmental rehabilitation. If assistance to refugees could be structured to address potential environmental impacts right from the beginning, the overall cost to the donor community over the medium run could well turn out to be less than a seemingly cheaper course of action that makes no provisions to actively discourage or mitigate environmental harm. This is another way of saying that the level of investments in mitigating the negative environmental consequences (or, exceptionally, realizing the potential for achieving positive environmental impacts) tends to be smaller than it should be. In addition, where they have been taken, (e.g. in the provision of fuelwood to refugees), environmental interventions financed by the donor community have often been ad hoc and not necessarily efficient technically, or the least costly. The latter is a perception that finds ready acceptance in the donor community where an engineering approach to problem solving (e.g. introduction of improved cooking stoves) is more common than an economic approach to problem mitigation (e.g. creating incentives for people to utilize fuelwood more efficiently). Outside the world of Chinese proverbs, and inside the world of refugee assistance, the idea that what is more expensive can be more efficient and that which is cheaper can be inefficient is not as easily accepted. This acceptance, as well as in altering the policy environment away from its present command-and-control mode, is where a major scope for increased efficiency in the use of scarce refugee assistance resources lies.

Special considerations in valuing the costs and benefits in refugee-assistance projects

Valuation is necessary in order to convert disparate indicators of costs and benefits to the same denominator of money. Only when both costs and benefits are monetized, and monetized without distortions, is it possible to rank different environmentally sensitive options in terms of economic efficiency. Even if it is assumed that costs are already expressed in money terms and that the requirement therefore applies only to the more esoteric among the benefits, experience

indicates otherwise. Many cost categories (and refugee situations are replete with examples) exist as physical indicators, and need to be converted into money to bring them within the ambit of cost-benefit analysis. The cost of collecting fuelwood is the most familiar example. Measured in terms of time spent on the activity it is still short of this requirement and needs to be supplemented by an estimate of the how much this time is worth. The search for true cost often starts at this desegregated level before it can be translated into the true -in an economic sense- cost of strategies or policies.

Central to any economic assessment and a key to the cost-benefit analysis is the proposition that all resources affected by an activity must be valued at their opportunity cost, i.e. the worth of these resource in the next best use. Applied to fuelwood collection, the opportunity cost of women s time (for it is almost invariably women that collect firewood) may be measured in terms of, say, the net income from vegetable production they forego. However, the repercussions of fuelwood -gathering activity are many and complex, from the effect that a wife s temporary absence from home may have on the nutrition status and health of family members (including her own) to the ability to provide and receive social support. The quality of the estimate of the opportunity cost of firewood collector s time will depend on the ability to capture this complex reality. It is not surprising then to find substantial variability in the values of this (and many more) important cost parameters.

The opportunity cost of fuelwood gatherers time is an example of the cost not being observable directly (by reference to market valuation). It has to be derived indirectly by reference to the value of alternative use of time. There will be other cases where cost can be measured directly (say, cost of trucking fuelwood, based on contractor rates) but the prices will not be accurate measures of the resource in question. If, in the example given, fuel were to be heavily subsidized, its opportunity cost (and, through it, the opportunity cost of trucking itself) would be underestimated and the true cost of organized fuelwood supply relying on mechanized transport would be underestimated in relation to the true cost of a non-mechanized alternative or the cost of other mitigating measures. The valuation of benefits is not radically different from that of costs in the sense that here, too, certain categories of benefits will be directly measurable in money terms (and may or may not require subsequent adjustments) while other categories of benefits can be valued only indirectly. Environmental benefits are special only in the sense of containing a very large proportion of those that have to be valued indirectly as no markets exist (yet?) for such things as permits to degrade land or rights to malaria-free housing . A very extensive literature and body of experience dealing with benefit valuation practices exists, mostly with multilateral development banks, some bi-lateral donors and academe.

Could the use of cost-benefit analysis unwittingly detract from the importance of policy reform?

Economists agree that underpricing of resources (and fuelwood is only one of them - water or electricity also come to mind) has been one of the main reasons for these resources inefficient use and the environmental problems typically associated with such wasteful use. Yet the policies governing the donor community s assistance to refugees seem to have overlooked this. Fuelwood supplied to most refugees by a number of fine NGOs or UNHCR, partly in the name of environmental protection, is supplied at zero price. It is not surprising to find that in many refugee locations the average fuelwood use is higher than in the country of origin and higher than the average fuelwood consumption of the host population. Having been supplied with essential amount of fuelwood at zero price by refugee administrators, the unemployed refugees in many cases spend their time gathering more fuelwood. The initial environmental purpose of the fuelwood intervention is lost because of inappropriate policy. Refugee settlements are islands of command economy and the refugees are isolated from the scarcity signals that force the local population to adapt to changing resource

situation. A different form of assistance to refugees, for instance introduction of a fuelwood cash allowance rather than provision of free fuelwood, would reduce fuelwood consumption to local levels and would lead to a faster adoption of fuelwood -saving devices than achieved by concerted campaigns in this direction. Similarly, granting of some degree of tenure to refugees in suitable circumstances might have a far-reaching effect on the efficiency (and cost) of fuelwood growing by refugees and alter the nature of the least-cost configuration more powerfully than introduction of purely technical options.

What conclusions?

Many, perhaps most, decisions affecting the pattern of refugee assistance will continue to be guided by political considerations and may therefore appear not to tend themselves to technical (economic, environmental) analysis. Yet the dialogue the refugee assistance administrators are engaged in with the host- (and later on, origin) country can benefit considerably from quantified evidence regarding the scale of possible environmental impacts and the cost to all parties concerned of alternative courses of action (or inaction). The same need to quantify will be felt even more in the refugee assistance agencies' discussions with donors and potential co-financiers. The cost-benefit approach advocated for wider adoption by refugee administration agencies is not to be seen only as an investment tool but also as a planning tool: the adoption of the approach will be indispensable in, for example, selecting potential refugee locations in an effort to reduce the overall cost of refugee assistance.

Even if the present system with its heavy reliance on command and control is to remain the basis for environmental interventions in most refugee situations, it will be important to ensure that refugee assistance administrators and their policies do not unnecessarily dilute the potential improvements in resource allocation made possible by a fuller environmental accounting of different courses of action. The refugee assistance community should make greater use of economic incentives in bringing about desirable environmental outcomes. Refugee asylum countries play a crucial -and ambiguous- role in shaping the financial burden placed on itself and the global community. Some of the asylum country policies (e.g. resisting the idea of cash allowances for the refugees, restricting many forms of integration of refugees into local economy) will carry with them unnecessary economic cost which is being traded for local political or distribution preferences. However, it would be a mistake to think that such a trade-off takes place only with respect to refugees. Many domestic policies unconnected with refugees (e.g. subsidized energy prices) also carry with them an unnecessary economic cost. Refugee assistance may well be hobbled by inconsistent or short-term policies of the asylum country, but so is development assistance. In both cases, the total funding requirements will depend on the proverbial quality of the policy dialogue, i.e. the extent to which the domestic government is prepared to subordinate its political preferences to the requirement of economic efficiency.

24. Extracts from Background Paper

THE RELATIONSHIP BETWEEN ENVIRONMENTALLY-INDUCED POPULATION DISPLACEMENTS AND ENVIRONMENTAL IMPACTS AS A RESULT OF MASS MIGRATION

Eugène Binama

Points of reflexion

The analysis of migratory movements in relation to natural disasters in Burkina Faso (see Background Paper) have depicted the following characteristics:

- From 1960 onwards, drought was at the origin of population movements from the Mossi Plateau towards other more fertile regions:

example of the regions in the south and east of Burkina.

- At the host sites, environmental degradation occurs because of high human concentration and the absence of good hygienic conditions: example of the Kompienga lake;

- The activities undertaken to protect the environment are of two kinds: the traditional method adopted by the populations themselves which is practised in the department of Matiacoali and the modern techniques adopted on the state-controlled sites and which are practised around the Kompienga lake. It should be noted that the rehabilitation of the territory does not take into account the regions where there are no water points or significant national zones and this might render vain the activities as regards environmental protection.

- Finally, it would be appropriate that the political and or development institutions focus their efforts also on the regions where migrants start off not only to make them attractive, but equally to support the population which does not migrate, for in most cases the migrants are above all the men.

Regulatory mechanisms

If the social environment can be preserved by peace, a global approach to conflicts that provoke massive population movements should be opted for. In general, and drawing the example from the cases studied, population pressure constitutes the major cause of migrations. Migrations should be channelled, that is to say checked by the host countries and aid organizations. The different cases of migration show that it is imperative to avoid big concentrations as is the case of the Rwandans in Zaire. The calamities need to be avoided by the setting up of mediation structures comprising of the civil society actors in the different countries (including NGOs) as was applied successfully in Mali. Transfrontier people need to be guaranteed the freedom to go and return to their territories set aside for economic activity in all the countries involved through the reorganization of communal life based on mutual acceptance and recognition and reciprocal solidarity contracts. Regional integration can also contribute to stabilize the situation of migrants.

A stricter control of international aid is needed to avoid it to assist the wrong people because of the interveners perception of the social environment. The central problem of the relation between migration/environment will still be left unsolved, even where solutions seemed to have been found (Mali, Niger), if a conflict-solving policy is not elaborated taking into account land tenure issues. Not an opportunist policy of power conquest, but a true participatory observation is needed of the evolution of the social structures within the same zone in order to act on time to correct growing inequalities. Therefore, possibilities of population planning and control should be envisaged. In order to avoid the return of people to ancestral land to become another form of social frictions, it is imperative that a reflexion be carried out on the basis of reconciliation/repair adapted to each situation.

The regional dimension of problems

The solutions and internal (national) perspectives are only viable and lasting when they take into account the regional dimension as well as the political and socio-economic context. It is why the return and integration of refugees to their respective countries and regions of origin can only meet permanent solutions in a harmonious context where the free movement of goods and persons in the region is possible. This supposes not only the existence of a security structure which satisfies the interior of national boundaries but also the existence of common security mechanisms for the whole region.

But why the regional dimension and the mechanisms of common security? There are people who do not belong to one state only. The Banyarwanda and the Touareg for example as ethnic groups live in home areas covering several countries. The neglect of their regional/national interests can bring about conflicts which can spread throughout a whole region. Rapid population growth also constitutes a non-negligible source of conflict in countries such as Rwanda, Burundi and generally the whole Great Lakes region. Local populations will probably continue to emigrate, at least temporarily, towards the less populated neighbouring regions or countries. There is a need to regulate and confer a legal aspect to these natural movements .

The much hoped for integration will only be possible if exchanges of goods and services take place freely among the people. A region can be stabilized and secured through the promotion of peace discussions. This can in turn lead to the emergence of sustainable democratic societies . It is high time to set up preventive and conflict-solving mechanisms, and - more precisely - the creation of conflict observatories which can help to identify tension zones within societies and communities. These tensions may have its roots in problems related to land tenure, conflicts between sexes, ethnic groups or generations, or the problem of town/countryside. The nature and amplitude of current conflicts need to be analyzed in order to prevent, solve or manage them. The observatories will therefore have to focus on preventive strategies, and the solution and management of conflicts.

One of the important aspects of conflicts management concerns the humanitarian initiatives, i.e. relief activities taken to help the suffering populations hit by natural calamities or man-induced disasters. These activities are often undertaken by foreign organizations who, even though they dispose of substantial organisational capacities, still have some clear shortcomings:

- ignorance about the causes of local conflict
- inability to recognize target population
- but above all, the absence of reinforcement strategies of the local abilities to solve problems.

It is for these reasons local humanitarian units should be set up in view of reinforcing the internal abilities through:

- a) the training of local NGOs in the domain of reconciliation of humanitarian emergencies
- b) the sharing of experiences in this domain between NGOs
- c) the analysis of cultural contexts and socio-economic causes leading to emergencies
- d) the assistance to local NGOs in order to help them respond to humanitarian needs not yet taken care of by the international organizations
- e) the promotion of NGOs activities and solidarity efforts of the local populations
- f) the mobilization of resources on the international and local level.

25. Extracts from Closing Speech

Nicholas Morris

Director, Division of Programmes and Operational Support, UNHCR

This Symposium has brought together a number of experts for the timely discussion of environmentally-induced population displacements and the environmental impacts resulting from mass migration. As was pointed out early in the Symposium, the number of people forced to leave their homes, jobs, communities and countries because of environmental degradation and destruction is very large and growing rapidly, perhaps reaching tens of millions in the next century. The impacts, in turn, caused by these movements on both the natural environment and on local or receiving populations are increasingly recognized by scholars, governments, relief and donor agencies, international organizations and local NGOs as contributing to political and social strife, conflict over natural resources, and regional and international tension. As this Symposium has made abundantly clear, environmental degradation - whether the cause for the mass migration of people or the result of such movements - can no longer be seen as local, containable phenomenon. The organizers recognized that either one of the two topics could have warranted its own symposium. Combining the two in one symposium was an especially ambitious undertaking.

There is a need to share the information gathered when we return to our organizations, institutions, and communities, to take what we have learned and disseminate it among others concerned, as well as to educate those who are not yet aware of the severity of these problems. The collaboration of the 3 co-organizing agencies and the seven sponsoring governments and organizations of this Symposium exemplifies two important conclusions. First, the problems are of such a scope and complexity that working toward solving them requires a multiplicity of actors, including those from the academic, non-governmental, and inter-governmental sectors, and of course those most affected. And second, we must work together in a more effective and efficient manner.

Documents Made Available at the Symposium

Refugees and Host Environments

a review of current and related literature
For Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ)
Thomas Hoerz, visiting Study Fellow, Refugee Studies Programme,
University of
Oxford
August 1995

American Diplomacy and the Global Environmental Challenges of the 21st Century

Address by Secretary of State Warren Christopher
US Department of State, Office of the Spokesman
Stanford University
April 9, 1996

Draft Programme of Action

Regional Conference to Address the Problems of Refugees, Displaced
Persons,
Other Forms of Involuntary Displacement and Returnees in the
Countries of the
Commonwealth of Independent States and Relevant Neighboring States
April 3, 1996

The Hour of Departure

Forces that Create Refugees and Migrants
Hal Kane
Worldwatch Institute, Washington, USA

US Foreign Policy and the United Nations System

Chapter 6: Refugees, Displaced Person and the United Nations System
The American Assembly, Columbia University
Charles William Maynes and Richard S. Williamson - editors
W.W. Norton & Company

Inter-agency Task Force on Internally Displaced Persons

Terms of Reference
Department of Humanitarian Affairs
May, 1995

*Statement of UN Humanitarian Organizations on the Multi-donor Evaluation of
Emergency Assistance to Rwanda*

March 1996

The Almeria Statement on Desertification and Migration

Interim Secretariat of the Convention to Combat Desertification

The Bellagio Statement on Humanitarian Action in the Post Cold War Era

Bellagio, Italy
RPG, Washington, USA
May 1992

Challenges of Demobilization and Reintegration

Background Paper and Conference Summary
RPG, DHA
New York, June 1994

Migration and the Environment

IOM, RPG
June 1992

*Development of a GIS System in UNHCR for Environmental, Emergency, Logistic and
Planning Purposes*

Jean-Yves Bouchardy
Office of the Senior Coordinator on Environmental Affairs, Programme
Policy Unit,
UNHCR
Geneva, 1995

Final Report of the Working Group on Environment

Office of the Senior Coordinator on Environmental Affairs, Programme
Policy Unit,
UNHCR
Geneva, 1995

Central Africa s Forests

The Second Greatest Forest System on Earth
Kirk Talbott
Centre for International Development and Environment
A report from World Resources Institute
January 1993

*L Aide des Donneurs en Faveur du D veloppement des Capacit s dans le Domaine de
l Environnement/Donor Assistance to Capacity Development in Environment*

Development Co-operation Guidelines Series/Lignes directrices sur la
coop ration pour le d veloppement
OCDE, CAD (Comit  d Aide au D veloppement/Development Assistance
Committee)
1995

Aerial Photographs as a Communication Tool in Participatory Land Use Planning

International Institute for Aerospace Surveys and Earth Sciences
(ITC)
Dr Susanne M.E. Groten
Enschede, the Netherlands

*UNGA Declaration on the Occasion of the Fiftieth Anniversary of the United
Nations*

Scientific and Technical Committee (STC)
IDNDR (International Decade for Natural Disaster Reduction)
Moscow, 11-14 March 1996

The Map Maker Project - Demystifying GIS

IUCN Programme on Strategies for Sustainability
Gland, Switzerland, September 1995

Ecological Housing

Aluronda Convertible and Ronda - The Forest Saver
Interplan Norway A.S.
Oslo, Norway, 1995

*From the Ground Up: Sustainable Development in the Face of Disaster/Repartir sur
des bases solide: Poursuivre le D veloppement m me a la suite d une Catastrophe*

The Reconstruction and Rehabilitation Fund
Canadian Council for International Cooperation

*Cap sur Terre - Une introduction   la Convention sur la lutte contre la
d sertification - sa raison d' tre et ce qu elle apporte de nouveau.*

Centre pour notre Avenir   Tous en collaboration avec le Secr tariat
de la
Convention sur la lutte contre la d sertification
Geneva, Switzerland, July 1995

Meeting Energy Requirements in Refugee Situations

A case study in household and institutional energy interventions in
Goma, Zaire and
Dadaab, Kenya
The challenge of linking relief - Interventions to development
concepts
Muiruri J. Kimani
GTZ, North-Kivu, Goma, Zaire
1995

Disaster Prevention for Sustainable Development

Economic and Policy Issues
Edited by Mohan Munasinghe and Caroline Clarke
IDNDR and The World Bank
Washington, USA, 1995

Farming Systems, Resource Management and Household Coping Strategies in Northern Ethiopia

Report of a social and agro-ecological baseline study in Central Tigray
Prepared by the Relief Society of Tigray (REST) in collaboration with NORAGRIC at the Agricultural University of Norway
1995

Informal Settlements, Environmental Degradation, and Disaster Vulnerability

The Turkey Case Study
Edited by Ronald Parker, Alcira Kreimer and Mohan Munasinghe
The World Bank and The International Decade for Natural Disaster Reduction (IDNDR)
Washington, 1995

Participatory Systems to Mitigate Environmental Degradation in Refugee Hosting Areas of East Africa

A report prepared by Thomas Hoerz, Muiruri J. Kimani and Dr Wanjira Muthoni for the United Nations Environment Programme
Nairobi, January 1996

Mauritania - 1994 Annual Report

Lutheran World Federation/Department for World Service
Geneva, Switzerland, 1995

Emergency Settlement: Unsustainable Development

Krisno Nimpuno
Disaster and Emergency Reference Center
Delft, the Netherlands, 1995

First African Sub-Regional Workshop on Natural Disaster Reduction

Conducted by the UN Department of Humanitarian Affairs
Gaborone, Botswana
28 November to 2 December 1994
IDNDR
Geneva, Switzerland, 1996

Yokohama Strategy and Plan of Action for a Safer World

Guidelines for Natural Disaster Prevention, Preparedness and Mitigation
World Conference on Natural Disaster Reduction
Yokohama, Japan, 23-27 May 1994
IDNDR
Geneva, Switzerland, 1995

Conozcamos los Desastres Naturales

Juegos proyectos para tus amigos para ti
Una publicación de Stop Disasters para el Decenio Internacional para la reducción de los Desastres Naturales

DIRDN
Geneva, Switzerland, 1995

NAPS Product Guide - Solar Energy Systems for Rural and Emergency Applications

NESTE, Advanced Power Systems
NAPS International
Espoo, Finland
Tel 358 04501

Using Remote Sensing Data to Monitor Land Cover Changes near Afghan Refugee Camps in Northern Pakistan

Mahtab A. Lodhi, Fernando Echavarria, Chris Keithly
A manuscript submitted to GEOCARTO International for Review

Linkages between Dryland Degradation and Migration

Extracted from a draft report prepared for the United Nations
Environment
Programme (UNEP) and the United Nations Research Institute for Social
Development (UNRISD) by Daniel Stiles -1995
Edited by Elizabeth Migongo-Bake
UNEP
Nairobi, Kenya

Refugee Environmental Education - A Concept Paper

Prepared by Christopher Talbot
Office of the Senior Coordinator on Environmental Affairs
UNHCR
Geneva, Switzerland, July 1995

Developing Environmental Capacity. A Framework for Donor Involvement. OECD
Documents Series, OECD, 1995

Migration and Development: New Partnerships for Co-Operation, OECD, Paris, 1994
*Guidelines for Aid Agencies on Involuntary Displacement and Resettlement in
Development Projects, Guidelines on Aid and Environment No 3*, OECD/DAC 1992

*Guidelines for Aid Agencies on Disaster Mitigation, Guidelines on Aid and
Environment No. 7*, OECD/DAC 1994

Symposium Agenda

SUNDAY, 21 APRIL 1996

p.m. **Arrival of participants and registration**

19h00 **Presentation of participants**

19h30 **Welcome drink**

20h30 **Dinner**

MONDAY, 22 APRIL 1996

09h00 **Opening speeches**

James N. Purcell, Director General-IOM

Dennis Gallagher, Executive Director - RPG

09h20 *Chair Robert G. Paiva, Director, Department of Planning, Research, and Evaluation - IOM*
Facilitator Hermen Ketel, Symposium Consultant
Introduction of Draft Statement of Principles: Theme 1
Environmentally-Induced Population Displacements
Reinhard Lohrmann, Chief, Division of Research and Forum Activities - IOM

09h30 **The Problem**
Introduction (Dr Michelle Schwartz)
Background Paper (Dr Norman Myers: *Environmentally-Induced Population Displacements: the State of the Art*);
presented by Ambassador Richard Benedick
Discussion

10.30 **Coffee break**

10.45 **Preventive Action**
Introduction (Prof. Edwin Gyasi)
Background Paper (Dr Susanne Groten: *Satellite Monitoring and Aerial Photo Analysis for Early Warning of Migration Risks*)
Case Study (Gebremedhin Tesfay: *Tigray*)
Discussion

12h15 **Lunch**

MONDAY, 22 APRIL 1996

13h45 *Chair: Reinhard Lohrmann, Chief, Division of Research and Forum Activities - IOM*
Mitigative Action
Introduction (Dr Adrian Wood)
Background Paper (IUCN-Pakistan, Dr. Stephen Fuller: *Strategic Environmental Planning as a Policy Tool for Mitigative Action*)
Case Study (Alexander Shestakov: *Lake Aral*)
Discussion

15h15 **Rehabilitation**
Introduction
Case Study (Gebereyes Haile: *Soil and Water Conservation in Ethiopia*)
Discussion

16h15 **Coffee break**

16h30 **Statement of Principles and rounding up discussions on Theme 1**
Introduction (Sanjoy Hazarika)
Case Study (Jean-Pierre Perier: *Senegal*)

Discussion

19h00 **Departure for Outdoor Dinner**

TUESDAY, 23 APRIL 1996

09h00 *Chair: Karen AbuZayd, Deputy Director, Division of Programmes and Operational Support (DPOS) - UNHCR*
Facilitator: Christopher Talbot, Education Officer, UNHCR

Introduction of Draft Statement of Principles: Theme 2
Environmental Impacts Resulting From Mass Migrations

Hideyuki Mori, Senior Coordinator on Environmental
Affairs, DPOS - UNHCR

09h15 The Problem

Introduction (Urs Bloesch)

Background Paper (Steven Hansch and Karen Jacobsen: *The Environmental Effects of Mass Forced Migrations*)

Discussion

10h30 Coffee break

10h45 Preventive Action

Introduction (Dr Krisno Nimpuno)

Background Paper (Fernando Echavarria: *The Use of Remote Sensing and GIS Technology in Early Assessment and Monitoring of Environmental Stress in Refugee-Hosting Areas*)

Case Study (Gerald Duda: *Strengthening Governmental Capacity for Sound Environmental Planning of Major Refugee Influxes*)

Discussion

12h30 Lunch

14h00 Chair: Reinier Thiadens, Senior Agricultural Planning Officer,
Programme and Technical Support Section - UNHCR

Mitigative Action

Introduction (Thomas Hoerz)

Background Paper (Matthew Owen: *Energy Economy Through Energy Shortage: Reducing the Environmental Damage of Mass Migrations*)

Case Studies (Gus Le Breton: *Zimbabwe*;

Muiruri Kimani: *Household Energy Programmes*)

Discussion

15h30 Coffee break

15h45 Rehabilitation

Introduction (The World Bank: Gordon Appleby)

Case Study (S. Rouchiche: *Environmental Rehabilitation in Refugee Areas*)

Discussion

17h00 Statement of Principles and rounding up discussions on Theme 2

Introduction (CARE-UK)

Background Paper (Ivan Ruzicka: *Environmental Accounting as a Policy Tool to Address Environmental Impacts Resulting from Mass Migrations*)

Case Study (Steven Hansch: *Lessons from the Rwanda Refugee Situation*)

Discussion

19h30 Dinner

21h00 Video on environmental impacts of mass refugee situations: The Case of Rwandese Refugees in Tanzania

(*Salon Galaxie - Hôtel Chavannes-de-Bogis*)

21h30 Introduction and demonstration of the Peco Pe , a multi-fuel combustion

system, which could considerably reduce fuelwood consumption (Paal Wendelbo)

WEDNESDAY, 24 APRIL 1996

09h00 *Chair: Dennis Gallagher, Executive Director - RPG*
Facilitator: Hermen Ketel, Symposium Consultant
Draft Statement of Principles: Theme 3 *The Relation between Environmentally-Induced Population Displacements and Environmental Impacts Resulting from Mass Migrations*
Jacques Cuønod, Senior Advisor - RPG
Introduction (Dr Zeremariam Fre)
Background Paper (EugŁne Binama: *The Relationship Between Environmentally-Induced Population Movements and Impacts on the Environment as a Result of Mass Migrations*)
Discussion

10h45 **Coffee break**

11h00 **Revised version of the Statement of Principles and Symposium Follow up**
Discussion

12h45 **Symposium closure**
Nicholas Morris, Director DPOS - UNHCR

13h00 **Lunch**

p.m. **Departure of participants**

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