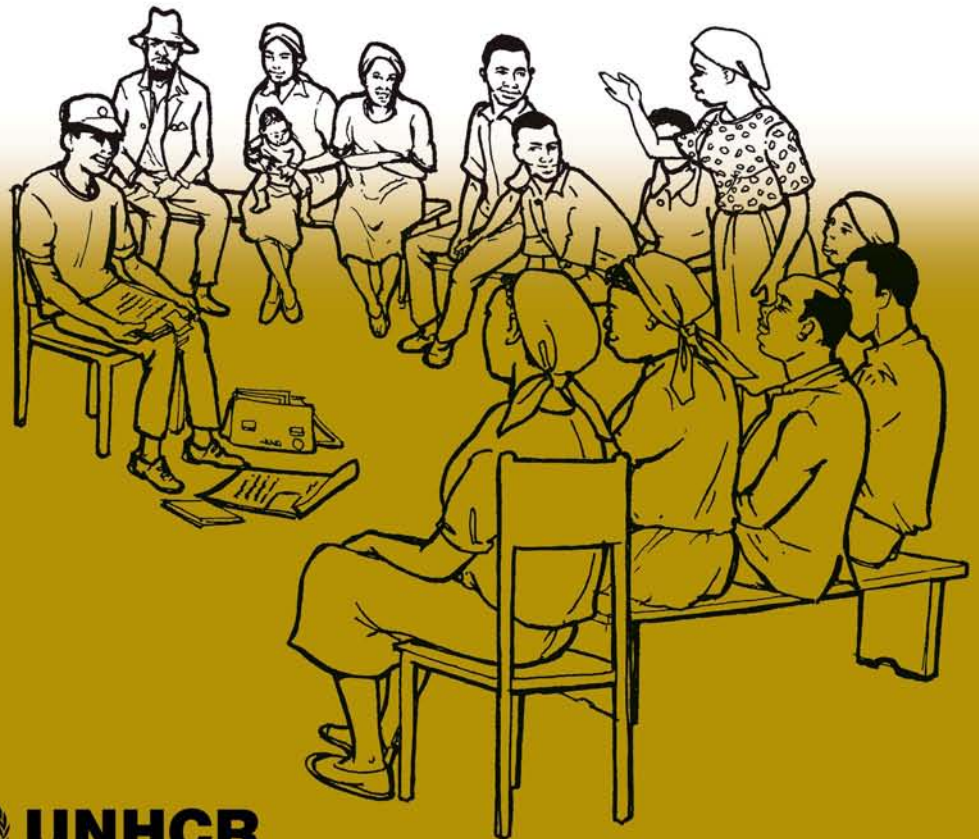


Refugee Operations and Environmental Management

A Handbook of Selected Lessons Learned from the Field



UNHCR

United Nations High Commissioner for Refugees
Haut Commissariat des Nations Unies pour les Réfugiés

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Background to the Second Edition

The first edition of this book, published in 1998, emerged from a project known as TSEMPRAA – ‘Towards Sustainable Environmental Management Practices in Refugee-Affected Areas’. With funding from the governments of Japan, the Netherlands and the USA, TSEMPRAA set out to review selected environmental programmes and activities in refugee camps and identify a series of case studies and key lessons. This was accomplished by fielding inter-agency missions to ten refugee-hosting or former refugee-hosting countries covering each chronological phase of refugee assistance. These missions identified positive and negative lessons as well as illustrative case studies that demonstrate sound environmental practices. The original ‘Lessons Learned’ publication was the result.

Four years after the TSEMPRAA project, selected practitioners from the field of refugee work and the environment were brought together to reassess the state of knowledge in field operations and update earlier policies and publications, particularly the ‘Lessons Learned’ and other TSEMPRAA outputs. This was achieved through a workshop organised by UNHCR’s Engineering and Environmental Services Section (EESS). Entitled “Practising and Promoting Sound Environmental Management in Refugee/Returnee Operations”, the workshop took place in Geneva on 22-25 October 2001.

A key output of the workshop is this revised and restructured version of the ‘Lessons Learned’ publication, incorporating new material, fresh case studies and revisions to the original text. These revisions represent, as far as possible, both the experiences gained by EESS and UNHCR’s partner agencies since 1998, and the deliberations of the 2001 workshop participants. However UNHCR and EESS wish to state that the material contained herein does not necessarily reflect official organisational policy, either of UNHCR or of other agencies and organisations involved in its development.

EESS would like to thank all those who contributed to the production of this second edition, especially the participants of the 2001 Geneva workshop.

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Glossary of Terms

Biomass – Organic material. ‘Biomass fuels’ are derived from any organic source, including wood, charcoal, agricultural residues and animal dung.

Deforestation – Loss of forest cover. Deforestation does not necessarily mean removal of all biomass in an area. Regeneration can occur if roots and stumps remain, as many species are capable of coppicing (growing from the stump after the stem or branches are cut). Deforestation may lead to a process of forest modification as new species prosper in the absence of competition.

Degradation – Lowered productivity of a natural resource (e.g. land, forests, aquifers) by reference to a selected benchmark.

Desertification – Substantial change in the local environment, often following the removal of vegetation cover in arid or semi-arid areas such that, under existing practices, the land in question is left unsuitable for its original purpose.

Empowerment – A process of giving people more say in decisions influencing their lives.

Environmental mainstreaming – Integration of environmental interests and concerns into the culture and activities of refugee operations. Environmental mainstreaming is a UNHCR stated policy.

Gender – The state of being male or female. Taking gender into account means acknowledging the respective roles of both gender groups and structuring projects accordingly; it does not necessarily mean designing projects that target only men or women.

Improved stove – A general description for any cooking device designed to reduce energy consumption. Usually intended for woodfuels as an improvement on traditional open fire systems. Typically made of metal, clay, ceramic or a combination of these methods.

Natural resources – A broad term encompassing plants, animals and all non human-made assets.

Participation – As with empowerment, a process of involving people in the decisions and actions that influence their lives.

Permaculture – A form of agriculture that concentrates on the relationships between landscape elements and deliberate spatial design. It deals with soil, plants, animals, water, buildings, etc, but is about the relationships that can be created between these elements by the specific ways in which they are placed in the landscape.

Sustainability – Widely accepted as meaning the rational management of natural resources that will not make future generations bear the cost of current (over-) use.

Woodfuel – Includes firewood and any other fuel based on wood, such as charcoal.

Acronyms

EE	Environmental Education
CBNRM	Community-based Natural Resource Management
COR	Commissioner for Refugees (Sudan)
CURE	Co-ordination Unit for the Rehabilitation of the (Refugee-Impacted) Environment (Malawi)
EES	Engineering and Environmental Services Section
ETF	Environmental Task Force (Tanzania)
EWG	Environmental Working Group (Kenya)
FAO	Food and Agriculture Organisation
FCC	Fuelwood Crisis Consortium
FNC	Forest National Corporation (Sudan)
ha	hectare
GIS	Geographical Information System
GTZ	Deutsche Gesellschaft für Technische Zusammenarbeit
GPS	Global Positioning System
IDP	Internally displaced person
km	kilometre
NGO	non-governmental organisation
PRA	Participatory Rural Appraisal
RARP	Refugee-affected Areas Rehabilitation Programme (Nepal)
RESCUE	Rational Energy Supply, Conservation, Utilisation and Education (Kenya)
REST	Relief Society of Tigray (Ethiopia)
SAFIRE	Southern Alliance for Indigenous Resources
SERP	South East Rangelands Project (Ethiopia)
SODEFOR	Société pour le Développement des Forêts (Côte d'Ivoire)
TSEMPRAA	Towards Sustainable Environmental Management Practices in Refugee-affected Areas (Project)
UNEP	United Nations Environment Programme
UNHCR	United Nations High Commissioner for Refugees
WFP	World Food Programme

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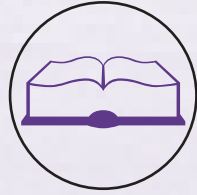
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Introduction

Refugees and the Environment

Sudden large-scale population movements can adversely affect the environment of host countries. This creates an enormous challenge for agencies working with refugees, who need to ensure the continued willingness of host governments to provide asylum, while at the same time safeguarding the welfare of the refugees themselves.

In an effort to bring greater benefits to refugees, harmonise relations with local communities and host governments and guarantee asylum, it becomes important to implement strategies which sustain the local environment and natural resources for current populations and future generations.

Refugee and relief agencies aim increasingly to prevent, mitigate and rehabilitate negative refugee-related impacts on the environment. Such a commitment requires the integration, to the greatest extent possible, of sound environmental management practices into all phases of refugee operations.

This document, now in its second edition, is intended to serve as a Sourcebook – a compilation of selected environmental practices and lessons learned from past refugee operations. It was based originally on a series of information-gathering missions to ten countries. This version has been elaborated to incorporate constructive input from readers, newly acquired knowledge, the experience of UNHCR and its partners, and specific suggestions from participants attending the October 2001 practitioners' workshop organised by UNHCR. **Though not exhaustive, it therefore represents a reasonably holistic and agreed-upon set of lessons and operational guidelines.**

The lessons outlined in this document build on a variety of successful and unsuccessful attempts in field operations to anticipate and mitigate negative environmental impacts. The more these lessons can be applied in refugee operations, the greater the likelihood of positive environmental outcomes as well as increased benefits to refugees, improved relations with local communities and host governments, and more efficient use of donor funding.

How to Use this Sourcebook

This selection of lessons learned from refugee operations is intended to serve as a reference and source of information for managers and field personnel, and assumes that such readers will not have had specialised environmental training. Reflecting on specific technical interventions as well as processes followed, and spanning all phases of refugee assistance from emergencies to voluntary repatriation and rehabilitation, the lessons contained in this Sourcebook are diverse.

The Sourcebook is not designed to be read from cover to cover. Based on past experiences, some of which may already be familiar to staff of UNHCR and its partner agencies, it is meant to be referred to for specific ideas, thoughts and advice.

The structure has been simplified from the first edition, which adopted a three-way system of organising the 'lessons learned' by chronological phase, by cross-cutting theme and by technical sector. In this edition the text is organised according to six themes, the first cross-cutting and the others of a technical nature. These themes are as follows:

- ▶ **Institutional Arrangements**, including budgets, organisational capacities, roles, co-ordination and gender issues;
- ▶ **Environmental Assessment, Planning and Monitoring**, featuring data collection, project planning and the use of environmental indicators;
- ▶ **Refugee Camp and Settlement Establishment**, which includes the siting of camps/settlements and physical planning;

- ▶ **Domestic Energy and Household Practices**, including fuels, stoves, cooking habits, income-generating opportunities, the role of financial incentives and practices that promote sustainable living;
- ▶ **Forestry and Natural Resource Management**, including planting new trees, protecting existing resources, incorporating participatory approaches and managing the environment in rehabilitation and returnee programmes; and

- ▶ **Environmental Education and Awareness-Raising**, which includes both formal and non-formal approaches.

Within these six themes a variety of lessons learned are offered, some of which are prescriptive and others merely informative.

Case studies have been interspersed throughout the Sourcebook. These detailed examples help reinforce or elaborate upon selected lessons.

Repairing environmental damage caused by the prolonged presence of refugees is an expensive and time-consuming undertaking which can be avoided if due care is taken when selecting and designing camps.



Photo: © D. Stone, CAS Images

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Institutional Arrangements

Key Points

- ✓ *For cost-effectiveness, and in the spirit of prevention before cure, emergency funding should include allocations for environmental activities.*
- ✓ *Once a refugee programme is established, multi-year, development-type funding becomes most appropriate for environmental work.*
- ✓ *Development-oriented implementing partners are best suited for environmental activities, at least in the longer term.*
- ✓ *Working forums for environmental stakeholders should be established or strengthened in refugee programmes.*
- ✓ *Seeking to influence government policies affecting the environment in a refugee situation may in some cases be more cost-effective than direct implementation of field activities.*
- ✓ *Building capacity and providing support to local government is a prerequisite for effective participation in damage-mitigation activities, and need not be costly.*
- ✓ *Women's involvement in environmental projects should go beyond ensuring that they are beneficiaries, and should secure their control over what they produce.*
- ✓ *In some societies, conflicts may arise between gender-sensitive approaches and attempts to build on tradition and customary practices.*

1.1 Funding and Budgets

- *Environmental budget requests should form an integral part of special funding appeals.*

In order to ensure efficiency and effectiveness in environmental protection, and as part of the process of mainstreaming environmental concerns in refugee operations, environmental funding allocations should be included in emergency funding appeals. Funding should be flexible so that re-allocation to different sub-activities according to needs is possible at a later stage.

- *Environmental problems occurring in the emergency phase continue into other phases of refugee assistance and typically become more costly to address.*

Action taken during the emergency phase is the key to pre-empting environmental problems and putting in place measures to avoid or reduce them. In line with UNHCR's **Environmental Guidelines** (1996), one of the principal themes of which is to encourage preventative measures, emphasis should be placed on introducing environmental considerations at the emergency response stage of any refugee operation. Problems, costs and conflicts related to environmental degradation are likely to be significantly reduced as a result of such an approach. This realisation reinforces the need for budgetary allocations at the contingency planning and emergency stage for environment protection measures.

- *Simple cost-benefit analyses at the outset of a refugee operation can help persuade donors to support environmental activities.*

A simple presentation of the relative costs of immediate versus delayed funding of environmental management activities may make it more attractive to donors to provide prompt and early support. This approach should appeal to many donors, who are under increasing pressure to incorporate cost-effectiveness in their programmes.

- *Emergency environmental funds should cover both process and practicalities.*

There are two main areas of need in the emergency phase – that can be labelled 'process' and 'practicalities' – and the environmental budget should cover both.

Process relates to co-ordination, consultation, collection of baseline data, information sharing, the establishment of environmental forums, problem analysis, environmental planning and the process of influencing policy. Practicalities cover actual implementation of emergency activities in the field such as tree marking, enforcement of cutting restrictions, public awareness-raising campaigns and sourcing of environment-friendly construction materials.

► *Emergency environmental funding needs to remain flexible.*

It is likely that initial site selection and establishment, as well as the first set of environmental interventions that go with it will, in time, prove imperfect or inadequate. Activities may need to be modified. Given pre-defined budgets and project documents this can be difficult, particularly when budgets have been subdivided in some detail according to different accounting codes. It is important that a high degree of flexibility is incorporated in emergency environmental programmes and, as such, the budgetary system should allow for re-allocation of resources at short notice as the evolving situation dictates.

► *UNHCR can play a key role in soliciting funds for environmental activities, but this is not easy to operationalise. Partners with non-relief interests should also be involved.*

UNHCR's mandate limits its activities to the support and protection of refugees. Donors with development or environment-related interests might therefore be less interested in channelling funds for environmental activities through UNHCR. Mainstreaming environmental concerns into general refugee operations and fundraising programmes is therefore a priority. Likewise, non-relief partners must solicit funds for environmental operations which embody the broader, longer term perspective of integrated development.

► *Multi-year funding commitments by donors are most desirable for environmental activities.*

Environmental projects tend to have long-term objectives and impacts. To meet expectations and realise the intended outputs, many will require funding for several years. Such projects may entail the progressive establishment and strengthening of

community-based management structures or capacity-building in local and government institutions. They may also involve the planting of trees and other vegetation with long growing cycles.

► *Development-type funding sources become increasingly appropriate as humanitarian emergencies become long-term settlement operations.*

The transition of a project from emergency to care and maintenance to (perhaps) post-repatriation is greatly facilitated by the early involvement of 'development' funding sources, alongside the initiatives of humanitarian agencies. Donors with a suitably long-term planning horizon should be sought. Given also the broad geographical spread of natural resource management activities, the joint involvement of local communities and refugees becomes vital. Development-oriented agencies and their donors are often well versed in the types of approaches suitable for long-term environment programmes, such as incorporating more participatory methodologies.

► *Applying cost-recovery concepts to refugee environmental operations makes both economic and development sense.*

Free donations should be minimised in environmental work, and any project assistance should have a pay-off equal to its cost. This may not be easy to apply, especially where the natural resources in question are of low financial value, but of high biodiversity or political importance. In such cases, the value of the resources is more difficult to determine. Nevertheless, costs of environmental project interventions should be at least matched by the environmental benefits generated. Resource economists may need to be employed to determine over what time period, and at what rate of return, environmental pay-offs should be expected.

► *Cost-benefit analyses limited to financial repercussions may not capture the degree to which empowerment of a community has contributed to the sustainability of its environmental management practices.*

Large amounts of donor funds may be spent on establishing participatory management systems that produce relatively little direct financial revenue for communities or refugees. Hence, a traditional cost-

benefit analysis may produce an unfavourable analysis. Nevertheless, the community-oriented approach remains the most appropriate. The empowerment promoted at the local level is ultimately of far greater importance to sustainable environmental management than the money yielded (although the two are certainly linked), and it would be a mistake not to support such initiatives on the basis of low financial rates of return.

- *Options for funding post-repatriation environmental rehabilitation need to be considered as early as possible, and all relevant actors brought into the planning process.*

Ideally, the involvement of UNHCR and development donors in environmental rehabilitation during the refugees' stay should ensure the sharing of responsibility and a smooth transition to post-repatriation. UNHCR is best positioned to attract funding early on for repatriation, re-integration and rehabilitation as a single package.

1.2 Institutions, Capacities and Roles

- *Development-oriented partners are best suited for implementing environmental activities, at least in the longer term.*

Establishing natural resource management systems is a long-term activity that calls for the involvement of local communities and a range of other stakeholders. As such, an environmental implementing agency should normally be development-oriented rather than relief-oriented once the emergency period is over. An agency with experience in both relief and development is, of course, ideal.

- *Where possible, and according to capacity, local organisations should be identified to implement environmental activities.*

Identifying and supporting local natural resource management institutions is essential for sustainable environmental management. The challenge is to work within existing structures, creating new structures only



Photo: © UNHCR/B. Press

Having clear policies and recommended practices for environmental management is as important as those guidelines governing overall camp or settlement management.

when existing facilities are incapable of addressing environmental concerns.

- *Support for local non-governmental organisations must include appropriate capacity-building measures.*

Local non-governmental organisations (NGOs) in a refugee situation are likely to gain access to more financial support than they have the capacity to manage. Care is needed to ensure that capacity is developed slowly and steadily as this can be a long-term benefit to the region and increase the sustainability of environmental initiatives.

- *As agencies have different mandates and goals, it is vital that project objectives and implementation arrangements are agreed upon prior to entering into collaborative working relationships.*

UNHCR's goals may differ from those of NGOs, who tend to be concerned primarily with sustainable development and capacity-building in response to specific problems identified by local communities. When NGOs are co-opted as implementing partners in a refugee situation, it is important that their respective skills, roles and responsibilities are understood from the outset, and that external interference in their own sectors of expertise is minimised.

Case Study

Supporting Local Organisations for Sustainable Reintegration: The Fethul Harawe Co-Operative, Ethiopia

It is important to build up indigenous institutional and economic capacity in returnee areas. Prolonged dependence on external organisations and financial support is neither cost-effective nor sustainable. An example from Ethiopia shows how the right support to local organisations can pay dividends.

The Somali National Regional State, or Region 5, is an extensive arid and semi-arid area in eastern Ethiopia. Pastoralism is the dominant activity of the Region's approximately two million inhabitants. Since 1991, Region 5 has seen the return from Somalia of over 500,000 former refugees who had fled during the Ogaden war. The presence of such a large population has placed considerable pressure on water and grazing resources, as well as on regional infrastructure.

Since 1992, UNHCR has worked with the South East Rangelands Project (SERP) in Region 5, an approach that seeks to ensure the sustainability of return by promoting the reintegration of returnees in their home communities. SERP aims to improve livestock productivity and food security, while ensuring sustainable management of the natural resource base by returnees and other residents. One part of SERP's work has been to support the establishment of local income-generating activities, particularly those that can diversify the economic base.

The Fethul Harawe Co-operative was founded in 1990 by Sheikh Ibrahim Bakal, a returnee from Somalia. The co-operative's initial membership was 70 families, around half of whom were returnees, working together on an irrigated agriculture project. A committee of five elected members, including one woman, was established. A set of written rules were drawn up, with fines identified for contravention. Profits from produce sold were to be divided between the co-operative and its members.

An area of bush land was secured by the co-operative from the local Gadabursi sub-clan and later cleared for planting crops and fruit trees. As the area lacked a reliable water supply and the co-operative members had limited access to tools and seeds, SERP did not offer financial support, but instead provided seeds, tools (such as shovels and picks), rims for shallow wells, technical assistance (including soil tests), and food-for-work for digging wells. Investment capital and labour were provided by the members themselves. External support was therefore short-term and targeted.

Crops grown and marketed include citrus fruits, mango, guava, papaya, melon, tomato, onion, chilli pepper and a variety of green vegetables. The co-operative now has three trucks and there are plans to expand activities, subject to procurement of water pumps and pipes. SERP's support built on the group's existing skills and enthusiasm, without overburdening its limited managerial capacity or creating a situation of dependency on large cash grants. The number of families in the co-operative is progressively increasing, assuring sustainable livelihoods for more returnees.

- *If refugee- and community-oriented environmental programmes are to be run concurrently, there is a risk of a clash in approach between relief and development philosophies.*

Support to community-based environmental activities requires a developmental approach that may contrast with the emergency, relief-type interventions more typical of refugee operations. A development approach should focus more on process than outputs. Existing implementing partners accustomed to relief work may find it difficult to adapt themselves to competent development interventions. A decision must be reached on how the refugee and local programmes are to be internally structured and operated.

1.3 Co-ordination vs. Implementation

- *Responsibility for implementing refugee environmental activities should normally be assigned to a qualified lead agency.*

Clear environmental, social and political benefits can be achieved by appointing a lead agency to implement environmental initiatives across several refugee settlements or camps. Relations with host communities and the government can be significantly improved and a real impact felt in reducing the rate of environmental degradation. The relationship between NGOs and UNHCR is also likely to be more harmonious if one organisation or unit has a clear mandate to handle environmental issues and provide advice. Likewise, inter-agency rivalry and duplication are eased due to reduced competition for the same funds for similar activities. When a lead agency is not available, on-site environmental expertise should be provided to support the mainstreaming of environmental concerns in the work of camp management and community services agencies.

- *A lead environmental agency can progressively hand over a number of activities to camp management or community services agencies.*

A lead environment agency may have technical expertise in a range of sectors which, over time, can be used to strengthen the capacities of other agencies. Agencies assigned to camp management and community services would probably assume responsibility for the administration of particular

environmental activities within refugee settlements (such as stove promotion or tree planting), depending on their willingness, interest and the earlier earmarking of funds.

- *Conflicts of interest may arise if one agency seeks to co-ordinate and manage/implement projects.*

Separating the co-ordination of environmental activities from actual implementation acknowledges not only the difference in expertise required, but also the potential conflicts of interest that could arise if one agency has an all-encompassing mandate. A two-tiered system offers greater objectivity, accountability and opportunity for modification of initiatives.

- *Responsibility for co-ordinating environmental activities should be clearly assigned.*

There is a need for clear policy direction and co-ordination on environmental issues within the refugee context. The role of co-ordinator can be jointly assumed by the host government, UNHCR and, where appropriate, an agency with a development/environment mandate. Given that no clear regulations may exist governing the refugee population's use of natural resources, special guidelines should be developed in line with national environmental policies and the prevailing legal framework.

- *The function of environmental co-ordination is as much managerial as technical.*

The role of an environmental co-ordinator, whether an individual or an organisation, is to oversee implementing partners, provide guidance on policy direction, and ensure harmonious working relationships and non-contradictory implementation strategies. While familiarity with environmental issues is certainly useful, the ability to resolve conflicts, communicate ideas and develop mutually-agreeable operating guidelines tends to be equally important. This is especially so when integration is needed with other aspects of the refugee operation.

- *Conflict may arise over the need to act quickly to address environmental concerns, and attempts to ensure proper co-ordination, efficiency, technical competence and monitoring.*

The emergency phase of a refugee operation demands the fielding of appropriate environmental expertise,

leading to the development of a coherent environmental action plan based on problem analysis. Yet, at the same time, co-ordination, co-operation and integration with other activities remain essential. A balance is needed in the early stages between rapid technical response and broader and more careful integration. For this reason, the establishment of environmental forums at an early stage is considered essential.

► *Environmental co-ordination should be progressively handed over to permanent institutions.*

In many cases, environmental forums set up during a refugee influx have an initial orientation towards emergency issues. If these forums are to continue guiding the direction and scope of environmental activities through and beyond the care and maintenance phase, they must develop into more sustainable, long-term bodies, and become integrated with existing government and local structures. The chairmanship of any forums should progressively be handed over to government, perhaps in conjunction with development-oriented organisations. If arrangements for such permanent co-ordination are agreed on, then mechanisms are already in place to identify, design and implement longer term environmental projects once refugees are repatriated or relocated.

► *It may sometimes be appropriate to identify a technical support agency, as an intermediary between the co-ordinating and implementing levels.*

A third agency may be sought for technical advice, help and support to the implementing partners. In order to maintain credibility as facilitator (and avoid competition with other agencies) the technical support organisation may be forced to limit its own implementation role. This implies a possible three-way division of responsibilities, between actual implementation at field level, overall co-ordination and, under some circumstances, the intermediate provision of technical support at regional level.

► *A technical support agency can provide training and capacity-building services, which are valuable in promoting co-operation between agencies.*

An intermediate agency, normally an NGO, can act as a resource for other NGOs and for under-equipped government departments by providing a variety of support services, such as technical training or institutional capacity-building.

► *There is great value in proper dissemination of lessons learned across current and past refugee situations, so that successful strategies can be built on and repetition of mistakes avoided.*

Several refugee emergencies have occurred in countries that border each other. Environmental lessons are being learned in all of these situations and there is great value in exchange visits to observe different strategies and their impact, alongside the sharing of evaluations, appraisals and other reports.

► *Regional environmental focal points can facilitate interchange of experiences and ideas.*

Individuals within particular refugee programmes may initiate exchange visits or information sharing with organisations working in nearby refugee operations. The process is likely to be facilitated, however, by regional focal points with the mandate to promote such interchange.

1.4 Environmental Forums

► *Working forums for environmental stakeholders should be established or strengthened.*

Local participation and active involvement in environmental activities is vital for the sustainability of project activities that have direct or indirect benefits for local communities, improving refugee-host relationships, as well as working relations between governments and refugee agencies. This can take the form of environmental working groups, task forces, roundtables or similar, which have clear representation and the active participation of all stakeholders. Such forums may already exist in local government, in which case a process of identification and institutional strengthening may be needed. UNHCR should participate actively in any pre-existing forums.

► *The role and composition of environmental forums is site-specific.*

The actual function and powers of environmental forums will be site-specific, and may or may not include decision-making responsibilities. Refugee and local communities should be represented in any environmental forums. In larger or more complex refugee operations, it may be appropriate to establish several forums, with technical sub-committees, in order to provide sufficient opportunity for broad-

Participatory Systems for Mitigating Environmental Degradation in Refugee-hosting Areas, Kenya

Participatory environmental management essentially calls for concerted efforts by all parties that share an interest or have a potential impact on the ecological status of refugee camps and their environs. In Kenya, a deliberate attempt has been made to include the various stakeholders in environmental management and rehabilitation. In keeping with this, Environmental Working Groups (EWGs) were launched in 1995 and 2000 in Dadaab and Kakuma camps, respectively.

The EWGs comprise local leaders, refugees, local authorities, government ministries, community-based organisations and agencies. The EWG was first constituted to provide a forum for the expression of concerns about environmental matters. It was also charged with monitoring the use and abuse of natural resources in and around the camps. The EWG also provides guidance on ways and methods of environmental protection while at the same time creating awareness of the importance of such protection.

Over the years, the EWG has been useful in addressing natural resource use conflicts, facilitation of resource use monitoring and encouraging environmental awareness among both the refugees and host community. However, a number of constraints were identified:

- lack of motivation among the EWG members;
- lack of clarity in the system of enforcing regulations and resolutions;
- ineffective mechanism of popularising the EWG;
- resolutions and regulations were not documented in a form for easy dissemination;
- achievements of the EWG were not effectively transmitted to the District Development Committee; and
- problems with regards streamlining EWG systems with the government structure.

In appreciating the need for a co-ordinated and sustainable approach to managing the environment in refugee-hosting areas, the government through its Ministry of Environment and Natural Resources constituted the National Committee on Environmental Impacts of Refugee Settlements. The Committee, with the mandate to co-opt technical departments when the need arises, comprises several institutions, including Kenyan ministries, but also UNHCR, UNEP or GTZ. Its main functions are to:

- provide guidance and advice in setting of appropriate policies that will foster concerted efforts;
- co-ordinate activities of the various stakeholders;
- liaise with local and regional government departments, EWGs, and other institutions within the UN system but also among NGOs;
- receive and review information from the refugee-hosting areas;
- advise on the development and implementation of environmental education;
- provide support to environmental management; and
- consider and provide recommendations for action.

based input from stakeholders. In some cases it may prove politically difficult to instigate formal linkages between refugees and local people for discussing and solving environmental conflicts or other problems, but informal arrangements can usually be developed.

► *The formation of joint refugee/local management committees can be an effective mechanism for conflict resolution and enforcement.*

It is best to use existing local organisations and structures to develop and manage environmental activities in a participatory manner. However, a refugee influx brings new challenges in resource

management that cannot always be met by existing community-based institutions. Establishment of new joint management committees may be necessary, ideally combining traditional and modern refugee and local community authorities. Through these, both parties can resolve a range of conflicts that arise, develop and enforce by-laws relating to natural resource harvesting, and spread, and thus reduce, the refugee impact on the environment. Forming such joint committees would normally be the responsibility of a lead environmental agency, in conjunction with local authorities.

1.5 Community-based Approaches

- *Local participation means local people take the lead role in planning and implementing environmental rehabilitation strategies within their own communities.*

Experience has shown that sustainable environmental management practices are best achieved with the full and meaningful participation of the affected communities. Mitigation of damage and rehabilitation in refugee-impacted areas requires considerable input from the affected communities. Insufficient local participation in planning makes any subsequent hand-over process complex and time consuming. It is therefore critical to conduct participatory problem identification and needs assessment of the target area before launching any environment-related programme.

- *Enabling participation and empowerment requires commitment and patience from donors and implementing partners.*

Empowerment is an ongoing process requiring commitment to decentralised, community-based decision-making. Such a commitment can be hard to sustain when, for example, funding cycles require swift action or communities appear to be making wrong decisions. Nevertheless, without it, the sustainability of any environmental rehabilitation initiatives is likely to be compromised.

- *Communities, once well organised and with incentives, can effectively implement management of natural resources.*

The active local-level involvement of donors and external advisers, together with assured support from

① Case Study

Replicable Emergency Measures to Protect the Environment: Start-Up Programmes in Western Tanzania

From 1992 to 1997, Tanzania received over 800,000 refugees from Burundi, the Democratic Republic of Congo and Rwanda. The majority entered the country in two waves, the first to Kagera Region in mid-1994, the second to Kigoma Region in late 1996. Despite widespread local harvesting of fuelwood and building materials, environmental concerns were not at the fore in either case due to the sheer number of refugees involved and the speed with which people fled to Tanzania, demanding a rapid relief response simply to meet basic needs. Nevertheless, UNHCR and its implementing partners, particularly GTZ and CARE, were still able to implement a range of successful measures during this period which limited the scope of environmental damage around new settlements.

Establishment of co-ordinating forums was considered a priority in both refugee-hosting regions. These were chaired initially by UNHCR, but responsibility for the Environmental Task Forces (ETFs) was later transferred to the District governments. The ETFs enabled international agencies, local NGOs and government departments working on environmental issues to harmonise approaches, and for UNHCR and the government to communicate environmental guidelines and policies that were to be applied.

In Kagera, marking trees that were not to be cut with white oil paint was found effective if used in conjunction with a network of forest guards. Selected trees were not necessarily the largest trees, but those with the greatest potential for rapid growth and seed production, often the younger specimens. For greater effectiveness, forest guards persuaded refugees to spread their cutting as thinly as possible in both regions, and to prevent cutting in some areas.

Careful sourcing of construction materials was also promoted in Kagera and Kigoma; UNHCR and the ETFs established guidelines for the types of trees to be used and recommended source areas. These tools were more effective around smaller camps where harvesting could be better controlled. Meanwhile, agencies benefited from clear guidelines on where they could procure building poles for new structures.

Multilingual signs and posters as well as refugee meetings were used to communicate host government rules and local community traditions regarding access to natural resources. This helped establish an appropriate sense of environmental responsibility amongst the refugees, especially in Kigoma, immediately upon their arrival.

Implementing agencies, meanwhile, continued to monitor and actively influence decisions relating to camp siting, size, density and layout, rations provided, cooking utensils and other factors that might have environmental impacts.



Pre-soaking hard foods, cutting food into small pieces, using tenderisers and sharing the burden of cooking are among the practices commonly promoted and used to reduce the amount of fuel needed for cooking.

government institutions, creates conditions for local communities to gain sufficient confidence and expertise to implement natural resource management activities in many refugee-affected areas.

- *The ability of local people, suitably empowered, to control refugee behaviour should not be underestimated.*

The ability of local people to influence the way refugees treat the host environment should not be downplayed. Local people can exert a surprising degree of control over access to resources. If suitable, local natural resource management practices can be identified and collaborative efforts made to have refugees comply with these under agreements with the local population. It is likely that the host government will be supportive of such initiatives.

- *Local participation is better assured if environmental strategies are presented as being development programmes for the local communities.*

Since environmental problems arising from refugee-hosting are usually attributed to the refugees themselves, local communities may not always see the reason for their participation. However, if environmental rehabilitation is to be sustainable in the long-term, such participation is imperative from an early stage. It can be easier to facilitate the involvement and empowerment of local communities if strategies take the form of integrated on-farm agroforestry and soil conservation projects, for example, with the obvious goal being the long-term development of targeted communities.

- *Participation takes time.*

Participation by rural communities is time-consuming and represents a major investment on their part. To be

effective, participation must be built on a relationship of mutual trust and understanding between communities and those agencies facilitating their development. In the early stages of a programme, it is therefore important to proceed in a slow and transparent manner, and to devote resources to building trust. Regular interaction between development agents and community members, in which development agents make it clear that they are not able to provide anything for free, is the best way of achieving this.

- *Limiting the role of outsiders to that of facilitator can considerably enhance the long-term viability of projects.*

Government and non-governmental agencies involved in the promotion of participatory approaches must act in an enabling manner, without dominating the decision-making process which should be handled by the community itself. Communities must take responsibility for planning, implementing, monitoring and evaluating environmental management activities. This may lead to delays in project outputs and long periods of implementation with little to show, but will better ensure that the communities involved will be able to manage their resources sustainably once donors have withdrawn.

- *Participatory approaches allow identification of roles, responsibilities, weaknesses and strengths in a community becoming involved in natural resource management.*

Participatory approaches allow refugee and local populations to identify problems and possible solutions, with limited input from external facilitators. Communities can be helped to identify the respective roles and responsibilities of different sub-groups as they relate to natural resource utilisation, along with weaknesses and strengths that may exist. This can develop into a process of planning and implementation of community-based management strategies.

- *The use and application of participatory approaches requires properly trained facilitators.*

The use of local institutions and people already trained in participatory methodologies is crucial. Poorly trained facilitators are prone to over-manage discussions and bias community problem-identification, undermining the principles of bottom-up decision-making.

- *Participatory planning should not raise community expectations unduly.*

There is a danger that, in initiating a process of participatory planning, an agency can promote the view in the target community that identified problems can be solved with external support. This is not necessarily the case. Transparency is required from the outset to make it clear what the project may be able to offer, in order to avoid unrealistic raising of expectations and subsequent disappointment.

- *In seeking local input in planning, some consideration should be given to global concerns over issues such as biodiversity, which may be of limited immediate importance to host communities and refugees.*

Local participation and decision-making is clearly valuable in project planning and implementation. However, there may be national or global environmental issues at stake, of which local communities have little knowledge and about which they have limited concern. An example might be an endangered plant or animal species, but one that brings no economic benefits to local people. If local people are expected to protect resources of regional or global value rather than immediate local benefit, it may be appropriate to consider providing them with additional financial or other support with which to do so. They cannot, and should not, be expected to bear any such costs alone.

1.6 The Role of Local Institutions

- *Where environmental management strategies seek to involve entire communities, appropriate management institutions need to be identified and their capacities strengthened.*

Prior to the full implementation of environmental initiatives, local institutions (e.g. village natural resource committees) may need to be gradually strengthened so as to better ensure the long-term sustainability of activities. Capacity-building exercises can include training in financial management, project planning, technical aspects of plantation management and the use of local level by-laws for protection. Capacity-building should be undertaken as early as possible in the care and maintenance phase so that total management responsibility can be assumed by the local institution prior to or upon repatriation.

- *Local level resource management institutions are not always visible, and need to be carefully identified.*

Several different institutions are typically responsible for resource management at the village level. These may include politically-elected bodies, traditional leaders' councils, formal and informal groups such as savings societies and youth groups, or even individual households. It is important that time is taken to identify, village by village, the most legitimate and viable institution.

- *Supporting and strengthening local institutions sometimes requires little more than recognition of their legitimacy as resource management institutions.*

Government or agency extension staff visits to traditional village resource management institutions can spark a chain reaction of positive events. Acknowledging these visits as official recognition of

the legitimate role that traditional institutions can play in resource management, host communities may accord greater legitimacy to the decisions these institutions make. Consequently, village institutions might gain more authority and become more effective.

- *The adverse environmental impacts of hosting refugees often run far deeper than visible degradation, and can affect local institutions.*

Although the visible environmental degradation in local communities during a refugee influx and after repatriation may be serious, the lack of capacity of local institutions to manage their natural resources may emerge as the long-term threat. Implementation strategies that fail to recognise this will not contribute to sustainable environmental management. Environmental programmes in refugee-affected areas should thus seek to understand and address the effects on local institutions alongside the visible degradation of resources and infrastructure. External support,

i Case Study

Environmental Co-ordination and Implementation: Separate but Equal Roles in Malawi

Malawi, a country of only ten million people, hosted around one million Mozambican refugees between 1987 and 1995. The country was already experiencing inter-related problems of increasingly small land holdings, declining soil fertility, lack of food security and overall poverty. Severe over-exploitation of natural resources was exacerbated by the refugee influx, particularly with the harvesting of firewood and construction materials.

Poor inter-agency co-ordination on environmental issues was first highlighted in 1992. The expansion and diversification of NGO activity posed certain risks, and there were several examples of project duplication. Further studies highlighted a lack of inter-agency collaboration and weak institutional linkages with other sectors. Building on a problem analysis, the 'Co-ordination Unit for the Rehabilitation of the (Refugee-Impacted) Environment' (CURE) was established in 1994 as a unit within the Wildlife Society of Malawi.

The CURE secretariat co-ordinated inter-agency meetings and provided technical assistance to NGOs and government agencies through publications, training and personal contacts. CURE also acted as a facilitator, providing its NGO and community-based organisation clients with training and capacity-building services, for example in participatory approaches to project formulation, management and evaluation, and gender-sensitive approaches to community development and empowerment.

CURE adopted the role of facilitator, aiming to encourage best practices, discourage duplication and promote appropriate projects to fill gaps. This approach appears to have worked in part because of the relatively small number of NGOs working on environmental issues in Malawi, and hence the absence of competition. The participation of government agencies in CURE was also important. However, in order to maintain its respect as a facilitator, CURE carefully limited its implementation and management role.

Separation of the role of co-ordination from that of implementation acknowledges not only the difference in expertise required, but also the potential conflicts of interest that can arise if one agency has an all-encompassing mandate. The two-tiered system offers objectivity, accountability and opportunity for modification of project initiatives.

The collection of wood for building purposes is one of the most environmentally harmful practices seen in many refugee operations. Substituting mud bricks for wood can, in many instances, help minimise the impact of refugees on the local environment.



Photo: © UNHCR/P. Stromberg

guidance and facilitation can help prevent such institutions from being overwhelmed by the presence of refugees. Communities can be given environmental responsibility at an early stage; information flows can be facilitated between communities and refugees; conflicts between the two groups can be openly addressed; and communities can be engaged in planning.

➤ *A lack of democratic principles within a local institution does not automatically preclude it from being the legitimate resource management institution for the community.*

Traditional village institutions are not necessarily democratic. However, they can be highly effective as resource management institutions because of their

legitimacy within the cultural context of a rural community. Care should be taken with any attempt to ‘democratise’ such institutions, as this risks undermining their authority, and thus capacity, rather than enhancing it.

➤ *Creating new local institutions may be more sustainable than bringing in external organisations to manage projects.*

When an effective local level management institution is not available, it may be more appropriate and sustainable to create new local institutions along democratic lines. Although an international organisation can assume this role, new institutions can help ensure project success as well as a sense of ownership by project participants.

1.7 The Role of Government

- *Government policy is often the key to the success of refugee participation in natural resource management.*

While the goal of local and refugee participation in environmental management strategies is a sound principle, its viability rests on the host government's willingness to allow refugees to have access to local natural resources. Such policies must be clarified from the earliest opportunity. This may imply approval of access for wood products, rights to cultivate, or permission to engage in economic activities. Where the environmental policy is well-defined, opportunities for refugee participation, decision-making and access to (with assumed control over) natural resources becomes clear, even if they turn out to be limited. If the policy is vague, however, or local policy contradicts national policy, the likelihood of achieving effective refugee participation is greatly diminished.

- *An ambiguous government policy or inconsistent application of laws relating to refugees' rights over land or resources may contribute to environmental degradation.*

While a total ban on refugee resource use would certainly protect the environment, if properly enforced, such bans are rarely workable. A situation of partial enforcement is more typical, under which local resource utilisation generally continues in a legally ambiguous context. When refugees are denied official access to local land but are not physically barred from using this resource, negligent and unsustainable exploitation occurs. Host governments must therefore develop a clear policy statement on refugee access and usage rights, and then follow this through with whatever enforcement measures may be required. Otherwise, it is preferable to avoid such policies altogether.

- *Monitoring and seeking to influence policies affecting the environment in a refugee situation may be more cost-effective for an environmental agency than direct implementation of field activities.*

The greatest impacts on the environment in refugee situations may be caused by policy decisions relating to, amongst other things, camp siting, layout and size. If agencies can influence such decisions at the policy

level, through a combination of local, national and international lobbying and advocacy, achievements can be far more significant than if they are confined to implementation of remedial programmes.

- *UNHCR and its partners may find it effective to assume a proactive role in influencing host governments to adopt approaches that have been found to be successful, even where they contradict prevailing policy.*

UNHCR and its partners have worked with refugees throughout the world and have built up considerable institutional knowledge on the most cost-effective and efficient ways to provide assistance to refugees. If UNHCR and its partners were to remain 'reactive', there would be little scope for applying lessons learned elsewhere. Effective environmental activities therefore need to encompass policy and advocacy work as well as field level technical interventions.

- *National environmental policies are unlikely to refer to refugee-affected areas, but can be supplemented with basic guidelines to create a supportive policy framework.*

Most countries have National Environmental Action Plans or similar strategies for environmental management. As few refer specifically to resource use planning in refugee-affected areas, efforts should be made to influence their content with reference to refugee influxes, drawing particular attention to the issue of site selection. This can be done through the relevant ministries or agencies responsible for the formulation of sectoral plans.

- *Assuring full government participation in environmental initiatives fosters good relations.*

When UNHCR and its partners establish links with relevant government technical departments, the approach becomes more participatory and transparent, improving relations at all levels.

- *Building capacity and providing support to local government is a prerequisite for effective participation in damage mitigation activities, and need not be costly.*

Government departments in developing countries, including those responsible for natural resource management, are typically ill-prepared and under-

resourced to handle the demands of a refugee influx and would thus benefit from UNHCR support. This need not be costly and can be provided locally in the form of transport, field allowances, training or field and office equipment. A basic needs assessment to determine the required skills and training can ensure meaningful capacity-building initiatives.

- ▶ *Implementation of environment programmes should be accompanied by measures to address the issue of refugees' usage rights of natural resources.*

It is not realistic to expect refugees, or indeed any community, to care for their local environment without addressing user rights to the area's natural resources. Meanwhile it is not always practical to expect host governments to designate land for the exclusive use of refugees, particularly in the short-term, outside the actual limits of their settlement. Nevertheless, the adverse environmental implications of limiting refugee user rights should be made clear to governments in order that they might make considered decisions relating to access and usufruct.

1.8 Gender Issues

- ▶ *Gender-related issues and concerns should be integrated at the project design and implementation phases. Staff should have the skills to deal with gender issues appropriately.*

Incorporating gender considerations into environmental activities can be challenging. It will normally require the recruitment, probably full-time, of specialist staff to carry out gender analysis and monitoring. Care should be taken to avoid making gender a stand-alone issue. All staff should receive training on how to use gender analysis in their work.

- ▶ *Incorporating gender considerations into projects means more than involving women.*

Understanding gender relations and their relevance for resource management practices is a prerequisite for any environmental intervention. All members of society have their own roles that must be understood if they are to be successfully involved in any environmental activities. In a refugee situation these roles may well differ from those in traditional society, due to the upheaval brought about by migration. Men,

as much as women, may find their customary roles altered. This may complicate the picture. The main linkages between women and the environment tend to concern domestic energy and food. Among other linkages, such as access to land and other resources, livestock, water, shelter and site planning, the role of men may prove more important to consider.

- ▶ *Participatory approaches can be particularly useful in identifying gender roles.*

Any needs assessment with refugee or local communities should be sensitive to gender. Participatory approaches, properly used, provide useful tools and methodologies to learn what gender implies for a particular community in terms of differences in roles, responsibilities, power structures, control and access to resources.

- ▶ *Simply targeting women may increase their workload and undermine the real purpose of gender initiatives.*

In attempts to involve women more in environment projects, there can be a tendency to increase their workload without actually altering their level of involvement in decision-making: by employing them, for example, as tree nursery workers. There is a need for proactive and participatory attempts to give women a meaningful role in project planning and implementation.

- ▶ *Women's involvement in projects should go beyond ensuring that they are beneficiaries, and should secure their control over what they produce.*

Environment projects often include explicit measures to include women as beneficiaries. However, a full understanding is first needed of the different roles played by men, women and children in the sector concerned. For example, if the project relates to agriculture, it is likely that men control the production of some crops, and women others.

- ▶ *Exclusion of men may be at the expense of the environment.*

While women are normally responsible for domestic activities, and are thus the natural focus for compound forestry and household energy programmes, there is also a clear need to attract the interest of men in environmental programmes. Men play a major role in

Energy-Saving Practices, Environmental Awareness and Renewable Fuel Sources: Laffa Refugee Camp, Kassala State, Eastern Sudan

Kassala state in Eastern Sudan has hosted refugees from Eritrea and Ethiopia in particular for over 30 years. Further conflict in May 2000 saw an additional influx of 30,000 refugees to the established camps of Laffa, Gulsa and Shagarab. Foraging for firewood to meet daily cooking needs and seeking shelter materials further denuded the sparse woodland surrounding the camps. To minimise the environmental impact of these newly arrived people an emergency environmental programme focusing on women-to-women transfer of energy-efficient stove technology, cooking techniques, environmental awareness and use of a renewable source of firewood was implemented by GOAL, as UNHCR's implementing partner. The programme targeted 1,200 households – over 8,000 people.

Eritrean families traditionally light three woodfires a day using three stone arrangements to meet their cooking needs. *Injera/Kisra* (bread) making normally takes 20 minutes per family, but fires to make soup/sauce and tea/coffee burn significantly longer. Introducing the communal *injera* stove – where groups of 10-15 women (households) prepare their *injera* in sequence on the same stove – resulted in a decrease in firewood consumption of 40-50 per cent.

Some 120 women's groups were formed, with the stove location being chosen by each group with a shelter built by the women to provide privacy and protection during the rainy season. Sharing of stoves also facilitated social interaction among group and provided a forum for the group leader to share the knowledge she had gained on stove technology, environment and cooking practices with other women refugees.

Women who had received training from their group leaders built approximately 1,200 improved mud stoves, incorporating a pottery cylinder with the traditional mixture of mud and animal manure. An additional 1,200 *Azza* stoves made by a national stove builder were distributed to the women on completion of their household mud stove and on planting three trees in the woodlot. Furthermore, the charcoal produced as an end product from the communal and mud stoves was in turn used in the *Azza* stove, in preparation of tea/coffee or for irons.

Local area expertise was called upon in using town builders for the communal stove construction, benefiting both the refugee community and the builders through their acquisition of new building technology. The refugee community as a whole was involved from the outset through popular committees from the 120 women's groups.

The programme worked in partnership with the Commission for Refugees (COR) and Forest National Corporation (FNC). This ensured area authority support and access to a renewable wood source for women to buy firewood from FNC-licensed traders. The FNC provided environmental training to the women leaders of each group. Topics included deforestation, forest degradation and reforestation. Saplings were bought from an FNC nursery and 3,000 trees were planted and managed by the women. The planted area was handed over to FNC for longer-term management at completion of the programme.

Programme evaluation, using a combination of PRA techniques, questionnaires and observation, highlighted women's acceptance and continued use of the stoves. The findings of the evaluation highlighted some direct and indirect benefits, including:

- the absence of heat (conserved inside the stoves), which was appreciated in a commonly crowded shelter and hot climate;
- the reduction in fire injuries where the fire is enclosed in the base of the stoves;
- lack of smoke – removed by a chimney in the communal stoves;
- ease of lighting the stoves;
- reduction in cooking time, which gave the women more time to attend to other family activities; and
- savings gained from reduced quantities of firewood were used for other family purchases.

the exploitation of natural resources, particularly for commercial purposes such as woodfuel harvesting, grazing and extraction of various tree products.

► *Proactive measures may be needed to involve men, perhaps including explicit incentives.*

The involvement of men in environmental initiatives can be promoted by providing benefits which suit the particular roles they play in the refugee setting. This may be through promoting the planting of trees which provide fodder and other marketable products, or by offering incentives which they will find attractive, such as tools, building poles or tradable commodities.

► *In some societies, conflicts may arise between gender sensitive approaches and attempts to build on tradition and customary practices.*

To promote sustainability and community participation in projects, it is advisable to build on

traditional societal structures. At the same time, however, such customary structures may be discriminatory on the basis of, for example, status, gender or age. Efforts to promote gender-sensitive approaches may confront resistance within such traditional structures. Decisions must then be made whether to work within these systems, arguably reinforcing them, or attempt to modify them. In a relief situation the former is generally the most pragmatic option. However, the issue becomes more difficult in long-term settlement or returnee operations, where empowerment may be undermined by discriminatory barriers within society. A balance must be struck between gender and cultural sensitivities.

Gender-related issues should be integrated at the project design and implementation phases. Incorporating gender considerations, however, means more than involving women.



Photo: © UNHCR/L. Taylor

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Environmental Assessment, Planning and Monitoring

Key Points

- ✓ *Comprehensive data collection is needed to effectively guide, monitor and evaluate environmental interventions.*
- ✓ *Pertinent baseline information should be presented clearly and simply, on a minimal number of key environmental features.*
- ✓ *Environmental contingency planning should form part of the overall preparation for refugee emergencies.*
- ✓ *Involvement of environmental specialists in the emergency phase is likely to lead to more sound environmental planning.*
- ✓ *Local community priorities should be incorporated into an environmental action strategy.*
- ✓ *Many environmental activities can begin immediately during the emergency phase, with a comprehensive environmental action plan to follow later.*
- ✓ *By adopting a long-term land-use strategy for each refugee settlement, it is easier to design appropriate activities in the shorter term.*
- ✓ *Environmental projects require monitoring and evaluation systems that go beyond financial accounting.*
- ✓ *Indicators for monitoring environmental activities should be kept simple, few in number and based on readily available field data.*

2.1 Data Collection and Problem Analysis

- *Comprehensive data collection is needed to effectively guide, monitor and evaluate environmental interventions.*

Prior to a refugee influx, it is important to have reliable information on issues such as local populations, prevailing land use patterns, any protected or ecologically sensitive areas, and general trends in natural resource use. Such information is useful not only for planning for refugee sites and designing environmental protection programmes, but also in modifying and re-orienting activities during a process of ongoing monitoring and review.

- *The collection of baseline environmental data prior to (and during) the emergency phase greatly facilitates subsequent impact assessment.*

Knowledge of the baseline environmental situation is essential for developing environmental action plans and monitoring refugee impacts. If the baseline environmental situation prior to a refugee influx is known, a realistic assessment can be made of the refugees' impacts on natural resources, or the impact of mitigative measures, up to the time of repatriation or settlement. Remote sensing techniques can be useful for sourcing this information.

- *Appropriate baseline information is a prerequisite for planning and implementation of rehabilitation activities towards the end of the programme.*

Accurate details on the pre-refugee situation are not only useful for monitoring and impact assessment, but also enable those responsible for developing longer-term plans for rehabilitation or integration to base their vision on knowledge of what natural assets existed at the outset.

- *Pertinent baseline information should be presented clearly and simply.*

Given that emergency planning missions tend to be rapid and often combine many disciplines, environmental information should be presented simply and succinctly to the wider audience. Time-consuming, detailed surveys that present surplus information should be avoided at this stage.

Defining the Problem: A Successful Social Response to Apparent Environmental Conflict in Nepal

Environmental conflicts can arise in a refugee-hosting area between refugees, local people, the host government and relief agencies. There may be competition for firewood or building material, for example, and local forests may come under threat. Yet the cause of these conflicts can be more complex than it may first appear. While environmental issues may be the most obvious and easily defined problem, an effective response need not necessarily be directly environmental. Local people and the host government may have other development priorities that could be addressed, easing the tensions that exist in a more constructive and targeted way. UNHCR responded to environment-based conflicts in this broad-based manner in Nepal, with successful results.

The arrival of some 90,000 Bhutanese refugees in south-eastern Nepal led to some resentment on the part of local people and the government. Pressure on forests in this, one of Nepal's most densely populated regions, was already severe; the refugee influx quickly brought environmental concerns to the fore. Although the environmental impact of the Bhutanese refugees was never quantified, or local concerns about environmental damage justified, the working situation was difficult for UNHCR and the refugees.

At the request of the government and local communities, and in consultation with concerned government technical departments, UNHCR developed a portfolio of project ideas that became known as RARP: the Refugee-affected Areas Rehabilitation Programme. The RARP objectives were to contribute to sustainable development, reduce and repair environmental damage, provide labour opportunities and improve infrastructure. Unofficially, it was hoped that this multi-sectoral programme would also improve local working relations and achieve some balance in levels of service offered to local people and refugees.

RARP developed into a set of mini-investment projects focused on infrastructure. The projects were proposed and supported through a process of consultation with local leaders and government. There was a focus on road improvement, river bank protection and the construction of sub-health posts, all development priorities of the local people. Another component directed through the District Forest Offices assisted with the development of plantations, tree nurseries, ranger posts, fencing and strengthening of operational capacity.

Overall, this programme has assisted in easing tensions between refugees and local people, and between UNHCR and the Nepalese government. This has been aided by other factors such as the compatibility with local people (ethnic, religious and social), sympathy with the refugees' democratic cause, and the physical spread of the caseload over many relatively small camps. This example makes it clear that problems that seem to stem from environmental damage need to be carefully investigated before a response is introduced. As in this case, dissatisfaction may be expressed as a concern about environmental damage, but closer investigation reveals broader ill feelings associated with disproportionate levels of service, loss of jobs to refugees, or other more general problems.

➤ *Information on a small number of key environmental features is normally sufficient for contingency planning.*

Environmental contingency planning need not be a complex and time-consuming exercise. This is particularly important as not all emergency planners have environmental expertise. Using locally available information, it is normally necessary to identify:

- gazetted areas such as national parks, forest reserves and game reserves;
- other areas that are ecologically sensitive, including non-gazetted areas identified by government and community leaders as important to protect (e.g. wetlands, catchment zones or sacred forests);
- basic land cover classifications such as the main areas of forest, agriculture and settlement; and
- key water features, including rivers, lakes and aquifers.

- *Given time limitations, it is important not to duplicate previous data collection exercises, but rather to identify secondary data sources wherever possible.*

Governmental and non-governmental institutions in prospective refugee-hosting areas can often provide information on local natural resources which is useful (and necessary) when it is not possible to gather original data. Further background material may be available at the regional or national level. Foresters, agricultural officers or natural resource protection officers often have valuable local knowledge that can be used to develop an environmental picture of the potential refugee-hosting area. Maps, statistics, survey results and inventory data should all be consulted. The UNHCR Environmental Database has an extensive store of information collected from worldwide sources and various institutions including the United Nations Environment Programme (UNEP), World Food Programme (WFP), the Food and Agricultural Organisation (FAO), the UNEP/World Conservation Monitoring Centre and universities.

- *Natural resource mapping should be included in site planning.*

Thematic or topographical maps (scales of 1:50,000 and 1:100,000) offer a relatively simple representation of natural resource issues. They do not require specialist training and can be used to screen possible settlement sites. The UNHCR Environmental Database can also be accessed to provide field-based personnel with relevant maps of a region. In addition, satellite images may be acquired during the emergency phase as they provide a detailed overview of a region and are particularly useful for future environmental monitoring. Unlike maps, however, satellite images require technical interpretation.

- *Environmental data should be made available to responsible national authorities.*

Environmental data gathered during refugee operations should be made available to responsible national authorities in order to avoid stand-alone data sets and prevent duplication of effort. Contact should also be established with potential partners at the earliest opportunity to access existing data sets. As monitoring indicators will form an integral part of future activities, this combined package should be presented to national authorities in respective countries.

- *Clear definition and analysis of environmental problems is essential for the design of a successful mitigative strategy.*

The nature of environmental problems needs to be clearly defined and understood at the camp establishment stage. For example, simplistic conclusions that deforestation is likely to be the main problem are likely to lead to equally simplistic responses. Any analysis undertaken must be rapid, but technically competent.

- *Problem analysis that is overly influenced by the known expertise of any one actor may lead to narrowly defined approaches.*

Environmental problem definition should be carried out objectively, rigorously and efficiently by a multi-disciplinary team, or a suitably skilled individual, at an early stage. Analysis, however, should not be dominated by the known expertise of proposed implementing partners at the expense of the actual problems at hand. It may in fact be preferable to identify implementing agencies after the problem analysis is complete and the skills required are clarified.

- *Environmental planning demands increasingly sophisticated environmental data and re-appraisal of the problem analysis.*

Environmental planning requires detailed information. The site selection exercise will often be a rapid assessment based on information available at short notice in the field. Development of a subsequent environmental action plan will demand more comprehensive knowledge of local and regional environmental issues. Not least, such information is needed to gauge the seriousness of any anticipated environmental impacts, and to target a response of appropriate scale and scope.

- *An energy supply and demand assessment should be carried out for each refugee operation.*

One of the most important areas for initial environmental data collection should be the supply and accessibility of wood and other forms of renewable energy, in addition to substitute fossil fuels and their practicability of use. For this, local inventories are required or available information should be obtained on the biomass growing stock, annual yield and land-use types. Reliable estimates of refugee energy consumption levels and likely energy-use habits and preferences are

also needed. These surveys can help ensure the sustainability of short- and long-term energy supply and should form the basis for an ongoing energy research and monitoring programme.

➤ *Geographical information system technology has an increasing number of appropriate applications in field-based data collection and monitoring.*

Availability of smaller and less costly geographical information system (GIS) hardware and software has opened up a variety of opportunities for improved environmental data collection and management in refugee operations. Hand-held global positioning system (GPS) units are now available relatively cheaply and can be used for mapping and recording co-ordinates of geographical features of camps and their surroundings. Such units can provide digital input for computer-based mapping programmes, many of which can be operated on standard personal computers. The ability to generate new information and produce simple maps at low cost can make a valuable contribution to monitoring and evaluation.

2.2 Contingency and Emergency Planning

➤ *Environmental contingency planning should form part of the overall preparation for refugee emergencies.*

In order to proactively address environmental concerns, a planning framework should be devised that treats environmental factors as an integral part of overall contingency plans for refugee emergency operations. Any delay in incorporating environmental considerations is likely to prove costly and attempts to tackle negative environmental effects later will be less effective.

➤ *Involvement of environmental specialists in the emergency phase is likely to lead to more sound environmental planning.*

Given that environmental information needs to be assimilated, processed and presented quickly and efficiently during an emergency, the presence of an environmental specialist on a planning team can be of considerable benefit. Such a specialist can contribute an environmental perspective to the diverse mix of interests at this crucial stage. When deemed impractical, guidelines should be provided that enable planners to gather the most essential environmental information.

➤ *Multi-disciplinary approaches are more likely to lead to accurate problem definition and analysis.*

The creation of a team for environmental action planning offers the best means of pulling expertise together. For example, deforestation around a refugee camp can be part of a more complex problem, the solution to which requires an understanding of the interactions between peoples' needs and behaviour and the local environment. A wide range of additional expertise may be needed for larger and more complex operations, such as hydrology, engineering, water quality and wildlife management.

➤ *Problem identification should be action-oriented.*

Environmental problem analysis should lead directly to an environmental action plan that identifies key areas of concern that need to be addressed, possible interventions and, most importantly, an indicative budget. Ideally, environmental action plans should facilitate – and not constrain – emergency management. They must be flexible, bearing in mind the rapid nature of the problem analysis on which they are likely to have been built.

➤ *Agencies with natural resource management expertise should plan environmental activities with the host government and local communities.*

While UNHCR, as the lead refugee agency, may choose to co-ordinate the creation of an environmental action plan, a selected agency (or agencies) with expertise in natural resource management should work with government representatives to put the plan into operation.

➤ *Local community priorities should be incorporated into the action strategy.*

Consultation with local communities is important during an emergency planning exercise, and becomes essential if medium- to long-term sustainability is to be assured.

➤ *Action plans should be flexible enough to allow modification of objectives and activities on the basis of new information that becomes available.*

Project planning and implementation should be dynamic, thus allowing alternative or more sophisticated strategies to be employed at a later stage. This implies flexibility in funding and activity definition within project periods.



Experience shows that when environmental considerations are taken into account from the outset of an emergency, many beneficial activities can be built into the camp design, planning and management phases, benefitting people and the environment in the longer term.

- *Many environmental activities can begin immediately during the emergency phase, with a comprehensive environmental action plan to follow later.*

It is not necessary to await a full problem analysis and environmental action plan before initiating emergency environmental activities. Certain activities can be introduced at the camp establishment stage without prejudicing subsequent strategies. These typically include tree marking (alongside enforcement of cutting restrictions), public awareness-raising of rules and regulations, sourcing of construction materials, establishment of environmental co-ordination forums, and lobbying for inclusion of environmental considerations in all aspects of camp establishment ('environmental mainstreaming'). There may also be possibilities to influence decisions on food rations and utensils, especially to ensure that all cooking pots distributed are supplied with lids and, when supplied, that as much maize meal (rather than maize grain) is provided.

2.3 Longer Term Environmental Planning

- *By adopting a long-term land-use strategy for each refugee settlement, it is easier to design appropriate activities in the shorter term.*

As a short-term emergency plan is developed, environmental strategies should, to the greatest extent possible, include attempts to develop a long-term environmental vision for each refugee site. For example, consideration should be given to the area's vegetation: is this to be returned to its original state, or is conversion of land to agriculture to be expected? Such strategies should be determined in conjunction with local people and government.

The Importance of Defining and Adhering to a Refugee Land Access Policy: Cultivation by Refugees in Tanzania

Attempts to promote sustainable resource management are far more likely to succeed where people who use land have some form of security of tenure or usufruct. This applies as much to refugees as to any rural community. Where access and usage rights to land outside refugee settlements are supported by the host government, refugees have a greater stake in its management. Where access is banned or restricted, as is often the case for political or other reasons, refugees are more likely to undertake unsustainable practices: but this can be minimised with effective enforcement. The least desirable option is for refugee access to be banned by national decree and then tolerated at the local level. Under these conditions, as witnessed in Ngara, Tanzania, refugees exploit natural resources, showing no long-term interest in conservation.

From 1994 to 1996, Ngara District hosted some 415,000 refugees from Rwanda and Burundi. Of these, 375,000 were housed in four camps within 7km of each other, creating a major imbalance between the population and the local natural resource base. The Tanzanian government (at the central level) imposed an official ban on refugee cultivation. This was later upgraded to an absolute ban on refugee movement outside a 4km radius from the camps. Neither of these bans were enforced at the District level, although it was made verbally clear to the refugees that cultivation was not, officially, acceptable.

Local people benefited from the use of cheap skilled refugee labour to produce food and cash crops and did little to support the cultivation ban. By mid-1996, the refugees had opened up 15,000ha of new farming land in the district. Ngara became a substantial exporter of refugee-grown vegetables and other produce. The ban was not enforced and was in fact opposed at the local and district level.

Refugees soon entered into short-term leasing arrangements with local people, under which they had rights to cultivate single season crops such as maize, okra, tomatoes and eggplant. Despite their considerable farming expertise, they used insufficient fertilizer, constructed no terraces or bunds on slopes, planted few perennial or slow-growing crops such as bananas (their customary staple) and generally pursued unsustainable and short-sighted measures to extract the maximum possible yield from the land in a short space of time. Over one million tree seedlings were distributed in 1996, along with 900,000 *Sesbania sesban* seeds and 200kg of *Cajanus cajan* for direct sowing on cultivated plots, but survival rates were negligible outside the camp boundaries.

It became clear in Ngara that the inconsistent application of government policy relating to the refugees' rights over local land resulted in more environmental damage than would have been the case if a clear policy had been enforced, even if that stance had allowed full access and exploitation.

➤ *The host government should be represented in environmental project design.*

The host government is often responsible for supporting and monitoring projects in refugee-hosting areas. Government representation in project development and environmental planning is therefore highly recommended.

➤ *A longer-term environmental plan should include land use planning.*

In longer-term environmental planning, it is appropriate to undertake a simple land use zoning exercise to map the extent of the areas where different activities are to be implemented. This may even include physical demarcation between different areas.

Planting exotic tree species along the boundaries of forest reserves, for example, can serve to demarcate a protected zone and deter encroachment.

➤ *Clear environmental problem definition is vital to develop cost-effective responses.*

Environmental problems need to be carefully defined in order to develop appropriate and effective responses. Deforestation, for example, might have numerous causes such as an increase in environmentally unsustainable income-generating activities or insufficiently defined regulations on access to resources. Likewise, tension between refugees and local communities can be attributed to refugees' benefiting from improved services (refugee hospitals and schools)

or rapid natural resource depletion. Clear problem definition can lead to more appropriate responses that may range from environmental activities (e.g. reforestation and promotion of energy-saving practices) to broader development-type interventions.

2.4 Environmental Monitoring and Evaluation

- *Environmental projects require monitoring and evaluation systems that go beyond financial accounting.*

Measures must be put in place which help to determine the appropriateness and effectiveness of environmental interventions beyond quantitative outputs. Specific indicators of the expected impact of each project activity should be identified and followed up.

- *Environmental indicators should be kept simple, few in number and based on readily available data.*

Given that indicators must be collected in the field as part of ongoing project implementation and monitoring, they should be carefully chosen to make the process easy to administer. A small number of relevant and measurable indicators is best, ideally depending on data that are readily available.

- *Field level indicators are most appropriate for monitoring and evaluating environmental activities.*

Environmental indicators should primarily be identified and measured at the field level, not at the level of national office or donor headquarters. Environmental impacts are best judged at the local level by those familiar with the project components: indicators should therefore be identified at the level at which implementation is taking place. Local communities and, where possible, refugees should be involved in the selection and monitoring of environmental indicators.

- *The best way to monitor environmental rehabilitation activities on the ground is to empower local communities to undertake participatory monitoring and evaluation exercises themselves.*

Community-based monitoring and evaluation may demand that local people are provided with project

monitoring and evaluation skills. Training in resource evaluation, management and the development and identification of suitable indicators through which successes or failures may be tracked are essential tools in this respect. Combined, these mechanisms enable project monitoring and evaluation without external assistance.

- *Monitoring and evaluation requires dedicated budgets.*

Money should be set aside in project budgets to allow for the establishment and operation of basic research, monitoring and evaluation systems. Otherwise, such systems are likely to be inconsistent and incomplete. Monitoring and evaluation activities can be implemented by an outside environment agency and progressively handed over to local institutions.

- *Monitoring should be carried out routinely, and for the right purpose.*

The results of all monitoring activities – whether using indicators or other sources – should be used as a regular and active part of project/programme review, management and reformulation, if the latter is found necessary. Such activities should not be undertaken for the sake of “being seen to be monitoring”, but should become a routing part of project management, with a clear understanding and appreciation of why this is being undertaken.

- *Where funds for environmental activities are not channelled through UNHCR, co-ordination, monitoring and evaluation is critical; the host government may have a strong role to play in this.*

Whether or not funds for environmental projects are channelled through UNHCR, proper co-ordination, technical evaluation, assessment of cost-effectiveness, and general appraisal of each agency's impacts is critical. In principle, the host government undertakes external ‘policing’ and may assume a leading role in controlling NGO activity. However, governments often lack the technical expertise or operating resources to monitor environmental activities. UNHCR should therefore provide the necessary support to the hosting government to carry out monitoring and evaluation of environmental activities.

- ▶ *Remotely sensed data can be valuable in environmental monitoring to supplement ground observations.*

Where possible, field observations on damage to the environment by refugees can be complemented with satellite imagery, aerial photography and aerial video. Satellite imagery is particularly useful for obtaining a detailed overview of a region and its land-use components. With technical interpretation, and if obtained at the start of the influx, satellite images can permit comparative study of the evolution of vegetation cover prior to, during and after refugee influxes. Advantage should be taken of UNHCR's Environment Database, which has an extensive store of information collected from worldwide sources and various institutions.

- ▶ *Refugees have various coping mechanisms in response to their food, energy and economic situation, which should be monitored closely to minimise any environmental repercussions.*

Changing food rations in refugee households will lead to a change in their coping mechanisms. For example, if the ration is reduced then the scope for sale or exchange of distributed food is diminished and alternative income-generating activities are likely to emerge. These may include firewood cutting, charcoal making or other potentially destructive enterprises. The socio-economic situation of refugees therefore needs to be understood and monitored, including their access to resources, level of dependency on food

aid, subsistence food production and local purchases, and economic survival strategies. Likely impacts on the environment of changes in food allowances can then be estimated. Many UNHCR partners have expertise in the area of livelihood analysis and assessment and should be drawn upon to map and monitor coping strategies. Another entry point is the joint WFP-UNHCR Food Needs Assessment where the team should include a person familiar with livelihood and environmental issues.

- ▶ *The success of reforestation programmes should be measured against a broad set of indicators, drawn up by the local community, that attempt to quantify environmental, social and economic benefits.*

Forestry activities are often at the forefront of environmental programmes. In many countries, successful reforestation is measured against the tangible, physical outputs of seedlings from nurseries and hectares of plantation established. This is misleading in that it can portray a project as highly successful when in fact its benefits have been unquantified. Very low survival rates may occur after a few seasons; this will not be recorded by traditional monitoring criteria. Local communities are the most qualified to measure positive change. Typical indicators will be useful in measuring physical outputs as well as environmental, social and economic benefits (e.g. soil protection, availability of forest products, increased income) of the reforestation programmes.

3

Refugee Camp and Settlement Establishment

Key Points

- ✓ *From an environmental perspective, settling refugees within local communities is preferred over camp situations.*
- ✓ *Adherence to simple, pre-defined physical planning specifications is an effective way to ensure that environmental problems are minimised.*
- ✓ *Siting camps at least 15km from protected areas or other areas of ecological significance can better ensure their protection.*
- ✓ *Camp populations below 20,000 tend to be most environmentally sustainable.*
- ✓ *As much vegetation as possible should be maintained during site establishment.*
- ✓ *Roads should be aligned across slopes, not up and down them, to avoid erosion.*
- ✓ *Cheap and simple methods can be used to encourage environmentally-friendly shelter construction right from the start.*
- ✓ *Where family plot sizes are at least 400m² in size there is a greater likelihood of sound environmental management taking place.*
- ✓ *'Permaculture' is a system that offers a useful framework for developing sustainable settlement designs, creating conscious linkages between elements and activities within refugee living plots to make optimal use of resources.*

3.1 Site Selection

- *From an environmental perspective, settling refugees with local communities is preferred over camp situations.*

Settling refugees within local communities can create conditions for sustainable natural resource management, even where a refugee influx leads to drastic population increase and where this influx may be close to ecologically sensitive areas. Local communities can exert greater control over the activities of refugees if the latter are more sparsely distributed. Any damaging activities are also likely to be less concentrated. Furthermore, local settlement brings with it the notion of security of access to natural resources which is likely to contribute to more favourable environmental management on the part of the refugees.

- *The likelihood of dispersed settlement by refugees, although environmentally desirable, tends to be pre-determined by institutional and social factors that are difficult to influence.*

A number of conditions favour local settlement by refugees. Given that dispersed local settlement has strong environmental advantages over camps, it is important to be aware of typical prerequisites for local settlement to occur and, once established, for these settlements to be successful. These are:

- the active support of the host government for settlement (versus camps);
 - close social and/or ethnic ties between refugee and host communities; and
 - provision of external assistance to the local population as well as to refugees.
- *Any settlement arrangement for refugees has to be made at all levels and involve all stakeholders.*

It is particularly important that refugees and local community members be directly involved in making settlement arrangements to ensure appropriate use of local resources and minimise the risk of conflict. Other stakeholders will normally include UNHCR and government authorities. Such broad consultations, not confined to discussion between the host government and the refugee agencies, can help promote mutually agreeable management systems between local people and the settling refugees.

Dispersed Refugee Settlement: Reducing Environmental Problems in Guinea

A sparsely-populated country of around seven million people, Guinea has experienced two major refugee influxes in recent times. Since late 1989, a total of 630,000 Liberians and Sierra Leoneans have settled in the south-eastern corner of the country. This influx has been unusual in that the refugees have had limited external support and have been largely integrated within local society. Many settlements had a ratio of more than 3:1 refugees to local people, and some as high as 6:1. Nevertheless, no settlement became excessively large, and local people retained control over natural resource management in the hosting areas. This provides an interesting example of how a large refugee flow does not necessarily lead to widespread environmental damage, if refugees are sufficiently dispersed and can be effectively controlled by local people.

The dispersed nature of refugee settlement along a zone of some 400 km meant that the use of local natural resources by refugees did not develop into a free-for-all. Strict rules were applied by receiving communities and, in general, the use of land and vegetation by refugees was only permitted in exchange for cash or payment in kind (such as through labour). Local people had traditional agroforestry management techniques and a long tradition of sustainable management of natural resources; refugees were obliged to adhere to the same basic framework in their exploitation of the areas where they settled.

Some problems were, however, inevitable. The massive population increase was bound to have a negative effect on fallow periods and bring greater demands for forest products such as fuelwood and building materials. Traditionally, the people of south-eastern Guinea lived under a system of shifting cultivation. By the 1980s, however, local population growth and an influx of migrants from the north placed enormous pressure on this system. Fallow periods grew shorter, inhibiting the return of nutrients to the land in between cropping cycles. The arrival of so many refugees exacerbated these problems. To relieve this pressure, UNHCR and the Guinean government developed a proposal to open up unused swampland for refugee cultivation, under arrangements with local communities. In an attempt to take pressure off upland forests and other fragile areas, 4,500ha were developed up to 1997.

While it is clear that a large influx of refugees such as that seen in Guinea is bound to lead to a range of negative environmental impacts, these impacts can be minimised and better controlled where the refugee population is dispersed. This allows local people to exert greater influence over refugee behaviour, and ensures that local customs are more closely followed with regard to exploitation of natural resources.

► *It is important to undertake environmental screening of potential refugee sites.*

Sites are selected once a variety of factors have been taken into account. While environmental impacts may at first appear relatively insignificant, they tend to feature more highly as the operation continues and damage to hosting areas becomes more severe, with associated implications for refugee health and/or the livelihoods of local communities. Each potential site should therefore be appraised from an environmental perspective before it is confirmed.

► *Involving relevant government environment departments in site selection will result in decisions which are more acceptable and environmentally sound.*

Government representatives responsible for local natural resource management can bring valuable new

perspectives, can often help assure government support for planning decisions, and should be part of all land use planning.

► *If environmental management capacity can become an established standard during an emergency, environmental issues will be less easily overlooked and more consistently considered.*

In order to cope with environmental management during an emergency, field-based environmental capacity should be strengthened. This requires institutional backing and should be included as an integral part of the emergency response. Assistance should be sought from people with a practical background in environmental management and an ability to work in an inter-disciplinary team.

- *Adherence to simple, pre-defined physical planning specifications is an effective way to ensure that environmental problems associated with refugee settlements are kept to a minimum.*

Careful camp siting and design can dramatically reduce the severity of environmental damage associated with refugee settlements. Recognising the range of constraints that host governments and UNHCR need to consider – such as the security of refugees and local populations, availability of water and access to roads – physical planners can help pre-empt problems.

- *Siting camps at least 15km from protected areas or other areas of ecological significance can better ensure the protection of important biological resources.*

Refugees exploit wilderness areas if they are readily accessible, particularly for wood and animal products. This can pose a threat to biodiversity and ecological integrity. A minimum safe distance (buffer zone) of 15km has proven effective in safeguarding protected resources, being the approximate limit of day return journeys on foot by refugees.

- *Where refugees are to depend on local natural resources, camp populations below 20,000 are most environmentally sustainable.*

Large concentrations of refugees in rural or remote areas tend to have more severe environmental implications than dispersed settlements with the same total population. Exploitation of natural resources by refugees is less easily controlled by local people, government or agencies when the number of refugees exceeds that of nearby communities. To achieve a more sustainable balance between population and resources, camp populations below 20,000 are more viable, as recommended in UNHCR's policy guidelines.

3.2 Site Establishment

- *As much vegetation as possible should be maintained during site establishment.*

Camp areas should never be clear felled. A minimum of woody vegetation should be removed during site establishment, leaving as much ground cover as possible to minimise erosion, control dust or mud,



Poor site selection and planning can result in soil and gully erosion during heavy rains. Repairing the damage caused is expensive and time consuming.

provide wood products for refugees and offer shade or serve as a windbreak. It may not always be necessary to destroy vegetation in order to meet the requirements of rigorous planning specifications or disease vector control.

➤ *'Permaculture' is one system that offers a useful framework for developing sustainable land designs.*

'Permaculture' is an approach to land design that has been tried in several refugee situations. It emphasises the conscious pre-planning of refugee living space such that elements in the landscape benefit from each other and are inter-linked as much as possible. The aim is to manage the environment sustainably but at the same time to provide useful products that can support human beings. In a refugee situation where space and resources are often limited, this may be a useful approach to optimise the use of land, water and other scarce inputs.

➤ *The conscious creation of linkages between elements and activities within refugee living plots makes optimal use of resources and enhances the sustainability of livelihoods.*

Elements and resources in a landscape should be analysed so that they can be placed most effectively in relation to each other. The outputs of one element then ideally become the inputs for another. Every element can serve many functions and every function can be served by several elements. These are principles central to permaculture, but have relevance in any refugee situation whether or not permaculture is being followed as a holistic design concept.

➤ *Roads within sites should be aligned across slopes, not up and down them, to avoid gully erosion.*

Poorly aligned roads can cause the formation of gullies which are a danger to people and livestock and can be costly to repair.

➤ *Where family plot sizes are large – 400m² or larger – there is a greater likelihood of sound environmental management taking place within a refugee settlement.*

It is well known that refugees, like any community, will take greater care of resources that fall under their direct control. Therefore the larger the living plot, the greater the area for which a refugee family is able to take

management responsibility. A minimum area of 20x20m per household has been shown to allow reasonable protection of biomass, particularly trees and bush, by refugees over an extended settlement period.

➤ *Clustered housing arrangements are a desirable energy-saving option.*

One of the most effective energy-saving measures employed by refugees is the pooling of household cooking resources. Significant economies of scale can be achieved if the size of cooking groups is increased to six to eight people. Clustered housing arrangements, where groups of refugee shelters face each other across a small central area, are more likely to promote shared cooking between two or three households than are lines of shelters facing the same way. Socio-cultural factors should always be considered as these may support or hinder plans for clustered living arrangements.

➤ *Cheap and simple methods can be used to encourage environmentally-friendly shelter construction right from the start.*

If refugees are allowed to construct their houses in an unmanaged way, they are likely to have a great impact on the local environment as they cut building poles and remove tree bark for binding. This kind of damage can be prevented if alternatives are provided early enough. Suitable interventions may include: the supply of moulds for making mud bricks, which can substitute for wooden posts; the provision of fast-growing bamboo or poles from managed plantations to reduce the cutting of slow-growing indigenous trees; and the supply of string to eliminate the need to de-bark trees for binding material.

➤ *Addressing the supply of firewood and construction materials should be a priority in the site establishment phase.*

During an emergency, refugees often harvest fuelwood and construction materials. This can have an immediate and significant impact on the local environment. As harvesting methods, building styles, cooking systems, source areas for wood and the overall supply systems become quickly established, and are later difficult to modify, consideration should be given at the outset as to how fuelwood and construction materials are to be procured and used by refugees.

Sustainable Land Designs: Permaculture In Refugee Settlements

Permaculture – “permanent agriculture” – is the conscious design and maintenance of agriculturally productive ecosystems which have the diversity, stability, and resilience of natural ecosystems. It is the harmonious integration of landscape and people providing their food, energy, shelter and other material and non-material needs in a sustainable way. Permaculture design is a system of assembling conceptual, material and strategic components in a pattern which functions to benefit life in all its forms. The philosophy behind permaculture is one of working with, rather than against, nature.

Refugees and local farmers in Zimbabwe have understood permaculture as a way of looking at resources (refugee camp, schools, in the surrounding communities or outside of that) and ‘designing’ better environments. Designing means joining the different resources and elements (water, soil, plants and animals) of the environment together like a puzzle so that they can work better for us and produce a food rich environment. It is not about water, or a chicken or the tree. It is how the water, the chicken and the tree are connected. As soon as you have the connection, you can feed the chicken from the tree, the tree from the chicken or water, etc. According to some farmers, permaculture is both about turning problems into solutions, and, common sense.

Through this approach, in Zimbabwe, UNHCR and the Southern Alliance for Indigenous Resources (SAFIRE) are seeking a durable solution for sustainable environmental management which will offer the practitioners food and livelihood security in the longer term. A quick look at some of the features of permaculture suggests a high level of suitability to a refugee situation. Results of pilot projects on permaculture in refugee and internally displaced persons (IDP) settings emphasises:

- Small-scale and intensive production system: land allocated to households in many refugee settlements is generally only a few square metres. Polyculture and stacking are emphasised in permaculture projects;
- Low input: refugees generally do not have access to the resources or the capital to invest in high-input agricultural production systems. Zero to minimum tillage, natural fertilizers and natural pest management are the key project focus. Organic cotton growing is also currently being practised;
- Energy-efficiency: limited energy sources have consistently proved to be a major constraint to sustainable environmental management in refugee situations. Here, the focus is on a range of energy saving techniques and practices;
- Diversity: increasing the diversity of plant and animal species for a productive, interactive system. Monocultural systems have no place in farming systems in a refugee settlement;
- Multi-purpose uses: maximising on the potential use of each species or component within the system. A tree, animal or water is consciously used to serve more than one function. Connections are made so that the systems support each other in a resilient ecosystem;
- Efficient recycling on-site: using the limited resources that characterise almost any refugee situation to their full, especially concerning water and sanitation. Water is harvested from roofs, disposed in gardens (all grey water) and Blair latrines are designed to support plants and small animals; and
- Relative location: placing the various elements of the system such as the home-dwelling, the gardens and the water point in close proximity to one another so that interactive exchange between them occurs easily. Kitchen gardens are placed right next to the kitchen and beds such as spiral, horse shoe, mandala, and key hole shapes are designed to serve both water and soil as well as minimise energy use by women.

Permaculture prioritises small-scale, intensive systems, as this promotes the most efficient, thorough and controlled use of the available land, and allows large areas to be retained in their state of natural complexity and diversity. Experience in Zimbabwe has shown that this feature alone commends it for use in refugee settings. In addition, many permaculture practices derive from, and build on, the existing knowledge and experiences of rural subsistence farmers. A significant majority of refugees worldwide, and particularly in Africa, come from such a background. Above all, permaculture promotes self-sufficiency, a primary concern for many refugee programmes.

► *There are numerous opportunities at the household level for the harvesting and storage of rainwater.*

With relatively little financial investment, buildings can be designed to capture and store rainwater that can be used for kitchen gardening, especially in dry areas. Permanent buildings can be equipped with guttering and water storage tanks, while more temporary structures can be designed to direct rainwater into micro-catchments.

► *Potential use of facilities after the refugees' departure should be taken into account during the early stages of site design.*

Advanced planning for the future use of camp facilities and infrastructure can be important for the post-repatriation phase. Many refugee facilities, including clinics, schools, boreholes and administrative buildings, are potentially useful for local communities, but are often left idle if they are not located in areas where they can be used effectively, or if specific plans for their future use have not been agreed upon. Community involvement is important in such decisions.

Important considerations relating to the location, design and management of camps or settlements include the likely need for, and availability of, fuelwood, as well as water and land for possible agricultural activities.



Photo: © UNHCR/S. Errington

4

Domestic Energy and Household Practices

Key Points

- ✓ *Energy supply tends to be the most serious environment-related issue associated with refugee camps.*
- ✓ *The promotion of energy-efficient cooking systems is a useful component of environmental programmes, but their potential should not be over-estimated.*
- ✓ *The right cooking practices can save as much energy as the right stoves.*
- ✓ *Under specific social and economic conditions, organised fuel supply to refugees may be appropriate. However, as well as being costly and logistically challenging, it may reduce the value placed upon wood and does not necessarily reduce environmental damage.*
- ✓ *Fuel supply programmes should include reciprocal measures to ensure that the supply will be environmentally sustainable.*
- ✓ *The make-up of the refugee food basket affects the amount of energy needed for cooking, and hence has a direct influence upon the environment.*
- ✓ *There are various ways to process and prepare food that can speed up cooking and hence reduce the amount of energy required.*
- ✓ *A refugee influx can stimulate new opportunities for income-generating activities, which may have environmental impacts.*
- ✓ *Refugees' residential plots are a potentially valuable source of fresh food, fruit and small stock, if properly managed, which can simultaneously meet environmental, nutritional and income-generating needs.*

4.1 Fuels and Stoves

- *Energy supply tends to be the most serious environment-related issue associated with refugee camps.*

While the use of timber and poles for construction of refugee huts can have significant short-term impacts, harvesting of firewood by refugees is generally the most environmentally damaging activity in refugee situations in the medium- to long-run.

- *The promotion of energy-efficient cooking systems is a useful component of environmental programmes, but their potential should not be over-estimated.*

It is desirable and cost-effective to promote energy-efficient cooking devices for refugees as one of the first steps of an environmental programme. Tree planting, tree protection and managed regeneration of biomass should be simultaneously addressed. Under the right conditions, and if properly used, improved wood stoves offer the potential to save 20-30 per cent of the energy used in cooking with traditional open fire systems.

- *Energy strategies should examine alternative energy sources.*

The possibility of using alternative fuels should be considered, based on a comparative assessment of their availability, cost, familiarity, ease of use and environmental implications. The most suitable energy source should be determined after a thorough examination of relative suitability and environmental and economic costs, as well as refugee preferences and current practice. In many places, wood is the obvious energy choice.

- *Promotion of familiar fuels and stoves should take priority over the unfamiliar.*

Stoves should be designed around the fuels and cooking styles that are most widely used and understood by the refugees. Cooking devices that can be built and maintained on-site by the refugees themselves are preferred. Devices that use familiar and convenient fuels (such as firewood) are generally cheaper and more likely to be adopted and used in an energy-efficient manner. Only following a multi-criteria assessment that highlights specific reasons to change should efforts be made to promote less familiar energy sources and technologies (for example solar

energy, grass and residues, peat, biogas). Any such alternatives should be integrated into broader energy and environment programmes, and not implemented as stand-alone experimental projects.

➤ *Household technologies must be tested and developed with refugees before being introduced.*

Cooking devices are an integral part of kitchen operations and household management, and it is generally refugee women who are in charge of cooking and domestic affairs. Given this central role of cooking systems and of many women in the home, it is essential that women are not excluded from the design and selection of cooking devices to be promoted in the refugee setting. At the same time, projects of this nature should not exclude or alienate men; their acceptance of new technologies is also important as they are often involved in building and/or procurement. In some cases refugees may already be

aware of suitable appliances, while in others, a range of locally-available alternatives may need to be offered for testing.

➤ *Central cooking is an effective way to limit consumption of fuelwood.*

Although institutional stoves can achieve up to 80 per cent savings in daily per capita wood consumption, they can have particularly negative social consequences by disrupting family cooking units. Centralised cooking may nevertheless be appropriate in situations such as transit camps, or camp centres like hospitals and schools.

➤ *Economies of scale may be achieved by avoiding very small cooking groups.*

Instead of introducing institutional cooking, it is generally more appropriate to encourage modest pooling of cooking resources between adjacent

Case Study

Cooking Techniques and Cooking Technologies:

Realising the Full Benefits of Improved Cooking Systems in Goma, Democratic Republic of Congo

From July to October 1994, some 730,000 Rwandan refugees arrived in Goma and were settled in three large camps, later expanded to five. The Virunga National Park, a World Heritage Site, was placed under particular threat by refugees seeking firewood and building materials. An emergency environmental programme was started by GTZ and focused initially on Kahindo camp which bordered the park. IFRC later expanded the initiative to include Kibumba camp. GTZ provided a local NGO with technical and financial support to implement similar activities in Lac Vert camp in 1995. Together these camps housed 365,000 refugees.

Firewood was the main cooking fuel among the refugees, based on the traditional open three-stone fire. GTZ prioritised the introduction of more efficient systems, and concentrated particularly on promoting wind shields made from the abundant basalt rocks. Other agencies, such as the American Refugee Committee in Mugunga, promoted more complex fuel-saving technologies made from metal or fired clay.

Recognising that improved technologies would not automatically lead to fuel-saving, GTZ also emphasised energy-saving cooking techniques. These included better firewood preparation (cutting, splitting, drying and storing), efficient food preparation (cutting hard foods in small pieces, pre-soaking maize and beans, preparing all ingredients before cooking), and careful cooking (gentle simmering as well as use of lids, weights on top of lids and less water).

Energy-saving practices were promoted through an extensive awareness raising programme carried out by refugee trainers. This reached more than 70 per cent of the refugees. In addition to practical aspects of fire preparation and protection, training also covered kitchen hygiene, nutrition and the economic benefits of energy-saving practices. Modified cooking habits resulted in more significant energy savings than improved stoves. Initial energy-saving estimates of up to 40 per cent with improved stoves were later reduced to a maximum of 20 per cent.

The GTZ experience in Goma highlighted an important aspect of improved stove programmes with refugees. The promotion of better cooking techniques was found to be much more than a useful supplement to a stove promotion programme, ultimately proving fundamental in achieving the desired energy savings and environmental benefits.

households. Given that per capita energy consumption rises exponentially as the size of the cooking group decreases, a particularly effective measure is to eliminate cooking by couples or individuals. Consolidating cooking groups above seven or eight people per pot, however, can be less socially acceptable and has progressively smaller environmental benefits.

➤ *Clustered living arrangements or the distribution of larger pots can encourage shared cooking.*

Clustering refugee shelters around small communal areas is more likely to lead to the adoption of shared cooking rather than straight lines of shelters with doors facing the same way. Likewise, when larger cooking pots are provided, families can bulk cook some of their food, or share cooking with others. Providing families with energy-saving possibilities such as these, rather than obliging them to share on a larger scale, is a more acceptable means of facilitating energy conservation.

➤ *Sharing a stove can be as effective in saving energy as actual sharing of cooking.*

Facilitating the sharing of cooking of certain foods in the same pot is an energy-saving measure. It is also highly energy efficient, and perhaps more socially acceptable, to share a communal stove for the preparation of certain foods by successive families or groups of families. The stove retains heat from one batch of cooking to the next and overall fuel demands are reduced. This technique has been used successfully for cooking certain staples such as unleavened bread.

➤ *The way a cooking system is used is as important as the technology itself.*

An improperly used woodstove may be no more efficient than a well-managed open fire, whereas a family practising proper firewood preparation and cooking techniques can multiply the benefits they achieve through the use of such improved devices. The existence of a limited fuel supply can promote the use of technologies intended to lead to fuel-efficiency.

➤ *The right cooking techniques can save as much energy as the right technologies.*

Refugee families can implement a wide variety of energy-saving practices when cooking, which save quantities of fuel far in excess of what an improved stove alone can offer. These include the cutting and

drying of firewood, careful control of the fire and its air supply, gentle simmering, prompt extinguishing of the fire, pre-soaking of hard foods, and the use of lids. A narrow focus on technological solutions is therefore to be avoided and the breadth of possible adaptations to cooking systems must be appreciated.

➤ *Energy-saving devices should be earned, not given.*

Any 'environmental' item intended to benefit refugees (such as improved stoves, tree seedlings or firewood) should, in principle, be earned rather than given. This encourages sustainability in dissemination, brings value to environmentally-sound behaviour and highlights which products are in demand. In many relief situations, subsidised or free distribution of energy-saving devices will not prove efficient.

➤ *Where possible, stoves should be constructed by the refugees themselves.*

An approach under which extension agents build stoves for refugees, or provide them free of charge, may result in rapid and widespread dissemination of the technology, but often leads to their abandonment within a short period. An approach that promotes user-built stoves (mud-stoves, in many cases) is more sustainable.

➤ *Pre-fabricated stoves should normally be manufactured on-site.*

If pre-fabricated stoves are to be considered, such as those made of metal or fired clay, an on-site production facility is a sensible manufacturing strategy. It reduces transport costs, minimises breakage, and can eventually enable refugees to take over production as a skills development and income-generating activity.

➤ *The principles of a fuel-saving stove are more important to introduce than a particular design.*

Poorly trained extension agents might promote a particular stove design that has rigid dimensions, leaving refugee families with little incentive to take their own initiative. This reduces understanding and ideas of ownership or commitment. It is preferable to encourage initiative, imagination and diversification, based on an understanding of the basic principles involved: those of controlling the air flow and containing the fire. As long as these principles are taken into account, stoves can take on almost any form, according to the builder's imagination.

Promoting fuel-efficient stoves, as well as a host of best practices, is a common undertaking in refugee-related operations. The innovativeness of refugees, however, should not be overlooked as many will adapt stoves or cooking systems to their own advantage, if given the chance.



Photo: © D. Stone, CAS Images

- *Fuel-saving stoves may lessen energy consumption, but do not guarantee reduced deforestation.*

Wood products have multiple uses for refugees. Therefore, lower household energy consumption will not necessarily result in reduced deforestation. In cases where domestic wood consumption declines, commercial usage of firewood (e.g. brewing, brick-making, or sale) may increase. Expectations from household energy programmes should be realistic.

4.2 Organised Fuel Supply

- *Under specific social and economic conditions, organised fuel supply to refugees may be appropriate.*

There may be a particular local issue that makes fuel supply a necessity, such as the protection of fuel gatherers from assault outside the camp or settlement, the conservation of an ecologically sensitive area, or the total absence of accessible biomass. But organised fuel supply will be effective only if the fuel has low

value locally (so that it will not be sold) and if it has the long-term commitment of a donor. An evaluation of energy supply and demand from an environmental, social, technical and financial point of view should be carried out first.

- *Supplying free firewood to refugees is costly and logistically challenging. It may reduce the value placed upon wood and does not necessarily reduce environmental damage.*

It cannot be assumed that fuelwood consumption by refugees can be replaced by a centrally-supplied ration, and that this will reduce tree cutting. Reasons include:

- refugee consumption will tend to go up once energy is supplied and the ration is only a proportion of what is actually consumed;
- refugees will continue to gather wood from local sources;

Organised Fuel Supply to Refugees: A Site-Specific Appropriate Response to Environmental Concerns in Nepal

Experiences with organised energy supply have been mixed. Costs can be high and the impacts not always as expected. An example from Nepal shows how, under the right conditions, energy supply can achieve positive environmental and social results.

Some 100,000 Bhutanese asylum-seekers fled to Nepal between 1990 and 1993: 90,000 remain in seven camps in the south-east. This is a productive agricultural area and also one of Nepal's most densely populated regions. Since the 1960s, there has been significant in-migration from the north. Pressure on remaining forest areas is severe, and with the refugee influx and associated demand for firewood, environmental concerns came quickly to the fore. Although environmental impacts were not quantified, refugees were said to be damaging natural forests and commercial plantations of sissau (*Dalbergia sissoo*). This led to resentment from local communities, who had to compete with refugees for limited energy supplies, as well as complaints from the Nepalese government and its forestry department.

A decision was taken to supply the refugees with kerosene and suitable cooking stoves, in the hope that this would reduce firewood consumption and thereby address the environmental concerns and conflicts that had arisen. From 1992 onwards, following a pilot period of stove testing and appraisal with refugee women's groups, a programme of fuel supply began. Refugees were allocated one litre of kerosene per week for families of up to three persons, and 0.5 litres extra for each additional family member (acknowledging the economies of scale achieved in larger cooking groups). They also received a new stove every two years. Fuel was purchased through the Nepal Oil Corporation, delivered to underground tanks in each camp by the Nepal Red Cross Society and distributed at camp level by the refugees. Losses were less than 1 per cent under this arrangement, although they had been as high as 10 per cent when agencies were managing the distribution. Up to 3.5 million litres were supplied annually, at a total cost for the programme of about US\$600,000.

The fuel met the majority of the refugees' energy demands and resulted in a dramatic reduction in firewood harvesting. Likewise, tensions between refugees and local people, as well as between relief agencies and the host government were reduced.

Organised fuel supply should not be the response to all energy-related environmental problems. Although this approach had positive results for a range of stakeholders in Nepal, the specifics of the local situation were important. Kerosene, although a high quality fuel, had a low re-sale value due to state subsidies. This prevented black market behaviour and the continuation of firewood harvesting. Refugees, local communities and the government strongly supported the programme which received long-term UNHCR commitment. Likewise, refugees themselves were responsible for kerosene distribution, thus reducing outside intervention.

- supply costs can be considerable, particularly compared with the economic value of the protected resource; and
- free supply undermines the value of firewood as a natural resource and can thereby contradict efforts to protect forests and encourage tree planting.

➤ *Organised fuel supply requires a multi-year funding commitment.*

Fuel supply can be expensive and, once initiated, hard to suspend. While maintaining a constant fuel supply may be possible, any reduction is unlikely to be acceptable once the programme is initiated. Donor agencies and UNHCR must make a clear long-term funding commitment to any such activity.

Considering these factors, organised fuel supply should be initiated only when absolutely necessary.

- ▶ *Free supply of a high quality fuel (such as kerosene) may prove effective in cases where its local re-sale value is low.*

Refugees are likely to convert to a high quality fuel if it is offered to them, and thus discontinue the use of firewood and charcoal. The local re-sale value of any such high quality fuel, normally kerosene, should be low, otherwise refugees might be inclined to sell or exchange the fuel with nearby communities. When host governments subsidise alternative fuels, incentives for refugees to sell fuel locally are minimised.

- ▶ *Losses will be reduced and conflicts internalised when refugees manage fuel distribution themselves.*

If refugees are responsible for the distribution of fuel within camps, chances for efficiency, fairness and transparency are increased. This set-up is also considerably cheaper, although it requires a well-developed and participatory management system. UNHCR and the government must be willing to assign a significant share of camp management to refugees.

- ▶ *Firewood supply programmes should include reciprocal measures to ensure that the supply will be environmentally sustainable.*

There is a risk that organised supply of firewood might in the long run degrade the environment of the host country if not properly managed, exacerbating conflicts and undermining the energy resource upon which the refugees depend. Any organised wood supply programme should therefore be complemented by appropriate actions to maintain the supply of wood at source. This could entail tree planting (in plantations, on farms, in refugee compounds and elsewhere) and the promotion of selective cutting to allow for natural regeneration. It is in any case always appropriate to educate refugees and the agencies that support them in the importance of making sure that where resources are being depleted there are reciprocal measures in place to conserve or replace them.

- ▶ *Conflicts over natural resources can be addressed if assistance is offered that meets local priorities.*

When refugee hosting communities and governments contribute goods and services (including fuelwood) to support the refugee population, they may seek payment in return. Responding to such requests by initiating projects with the straightforward aim of replacing the damaged resources is not always

appropriate. In-kind support or investment in local infrastructure, according to locally identified needs, might be suitable and accepted compensation.

4.3 Foods and Utensils

- ▶ *Large cooking pots with lids are more energy-efficient than small pots without lids.*

Lids should be considered an integral part of kitchen sets. The use of lids saves 10–20 per cent of the energy used in cooking. Larger pots, of approximately 10 litres, facilitate shared or bulk cooking. There is an energy saving of up to 45 per cent associated with four people cooking together instead of two; such economies may not be possible if only small pots are offered. Bulk cooking also reduces overall water requirements.

- ▶ *The make-up of the refugee food basket affects the amount of energy needed for cooking, and hence has a direct influence upon the environment.*

The type of foods that refugees cook is one determinant of their energy consumption, influencing firewood demands and hence the scale of environmental impact. Certain foods, particularly unmilled cereals, beans and some lentils, require particularly longer cooking times.

- ▶ *There are various ways to process and prepare food that can speed up cooking and hence reduce the amount of energy required.*

It is possible to partially process foods before or after they are distributed. This can include pre-soaking of beans, pounding or milling of cereals, pre-cooking of legumes and parboiling of rice. In the case of maize it may prove cheaper to mill all or part of the supply prior to transporting it to the camps due to reductions in bulk and thus lower transport costs. In all cases, it is important to consider the potential for loss of micronutrients during processing.

- ▶ *Targeted food-for-work programmes can be useful in environmental protection or rehabilitation where short-term labour inputs are required, but should be seen as a means rather than an end.*

Targeting of food aid can be linked to short-term labour inputs for protecting and rehabilitating the environment, for example, erecting flood control

structures, preparing micro-catchments for trees or gathering live fencing material for regeneration areas. However, food-for-work is not sustainable and may even undermine local participation in community activities. The use of food to achieve pre-determined goals can be visualised in much the same manner as cash; in both cases, labour is used to carry out certain definable tasks against remuneration.

4.4 Income Generation and Financial Incentives

- *A refugee influx can stimulate new opportunities for income-generating activities, which may have environmental impacts.*

Refugee settlements provide new skills, labour and markets. A variety of new or expanded income-generating activities are likely to develop. Some of these, for example the sale of firewood, expansion of

agriculture, stone crushing, lime burning or charcoal making, may have environmental implications as they depend directly upon local natural resources.

- *Income-generating activities can encompass the sustainable use of natural resources.*

Income-generating activities need not be environmentally destructive. Activities such as honey collection, tapping of gums and incense, or the collection and sale of animal fodder add value to natural resources, which can help in their protection.

- *Commercialisation of wood and other natural resources promotes greater efficiency in their consumption.*

When natural resources take on a – usually monetary – value they tend to be used more carefully by refugees and others. Commercial opportunities can be sought by adding value to natural vegetation (e.g. honey, gums, medicines and animal feed), or by introducing



The manufacture and sale of fuel-efficient stoves as well as growing fruit and hardwood seedlings are among the income generating activities enjoyed by refugees and local people, with tangible longer-term environmental benefits.

taxes, levies and licence fees for those trading in natural products. An environmental commodity – tree seedlings, stoves or firewood – should not be provided without some commitment in return from refugees.

► *Commercialisation of natural resources can be environmentally damaging if not properly regulated.*

The commercialisation of natural resources can assist in their protection, most notably in cases where right of use is assured and community-based protection is therefore more viable. But the possibility of gaining income from resources can lead to their over-exploitation. This is especially the case where the refugee population is high in relation to the availability of natural resources needed to support them. Under these conditions, alternative income-

generating opportunities need to be explored, simultaneously reaching local agreement on how to reduce over-harvesting. The right mixture of incentives is needed to persuade resource users to forego voluntarily access to natural resources on which their livelihood depends.

► *Commercialisation of natural resources may be to the disadvantage of vulnerable groups.*

Under the right conditions, monetisation of natural resources can help in their protection and reduce consumption. However, monetisation might create a difficult financial burden for some members of the refugee population. Nutritional status, for example, can be adversely affected if firewood procurement becomes more difficult. Monitoring of household

Case Study

**The Use of Incentives to Double Environmental Benefits:
GTZ-RESCUE and the Somali Refugee Programme in Kenya**

The three camps of Dadaab in Kenya's North Eastern Province are home to 120,000 mainly Somali refugees. While the refugees are accustomed to the climate, the terrain and the pastoralist lifestyle in Dadaab, they were unfamiliar with the concentration of people within a fixed area. The majority may traditionally have been used to coping with water shortages, but had little prior exposure to competition for wood products and the associated need to conserve energy and protect and plant trees. The result was rapid depletion of firewood, construction materials and live fencing from around the camps, and over-exploitation of grazing areas.

In response to this depletion of natural resources, the Rational Energy Supply, Conservation, Utilisation and Education (RESCUE) Programme was started by GTZ in Dadaab in 1994. Its goal was to reduce negative environmental impacts by working with refugees and local people in energy conservation, tree planting and educational initiatives.

Recognising the refugees' limited knowledge and experience in sustainable natural resource management, the RESCUE programme set out to use incentives to encourage tree planting around refugee households. Seedlings raised in camp nurseries were distributed to refugees for compound planting, and incentives offered to ensure their survival. The incentives, known as exchange commodities, comprised different types of wood-burning stoves. The more trees surviving, the better the type of stove provided to the family. As the project developed, stoves were also offered to refugees in return for contributions to other environmental tasks, such as erecting live fencing around protected regeneration areas or digging micro-catchments for water around trees planted within these areas. Further exchange commodities were also tried, including solar cookers, haybasket cookers and, at the request of refugee women, vacuum flasks to keep drinks warm.

The exchange commodity programme has resulted in the planting of 650,000 trees, with a 70 per cent survival rate, mainly in private compounds where they can be harvested by the refugees who planted them for firewood, fodder, fruit and building materials. Over 30 hectares of land have been enclosed with live fencing for natural regeneration. In return, some 29,000 improved ceramic stoves of various designs have been given to refugees, with a possible average energy saving of 20 per cent for each family.

Exchange commodity projects such as this can double environmental benefits, both through the activities undertaken by the refugees and the types of commodities awarded to them. Such projects do, however, depend on external donor support throughout to supply the commodities that refugees earn. Incentive-based projects are especially suitable for refugee communities whose prior experience with sound environmental management is limited.

coping strategies is therefore an important component of any commercialisation strategy in order to detect particular cases where refugee well-being may be adversely affected.

- *While cash incentives for participation in environmental activities can change behaviour, they are not sustainable.*

While cash is often the strongest incentive for participation in environmental activities, such as tree planting, it tends to be unsustainable, promotes disproportionate involvement of men, and can be unpopular with local people and host governments who see refugees profiting from damage that they may have caused. At the same time, paid labour does not always fully address the underlying causes of degradation. Its use should therefore be temporary and form part of a planned progression to more sustainable alternatives.

- *Income-generating activities should have broad objectives and include more than paid labour.*

Refugees are often employed on a short-term basis to carry out environmental tasks, for example as nursery attendants, forest guards or extension workers. Other initiatives should be put in place that promote longer-term and more sustainable income-generating opportunities.

- *Incentives can take many forms, as long as they are seen as desirable by refugees.*

Non-monetary economic incentives can include a range of environmentally-friendly commodities which bring financial benefits to the recipients. These might include fuel-saving stoves (where energy is monetised), firewood and various essential household items that would otherwise have to be purchased. Issues of sustainability and ownership are important, and it is preferable to confine such incentive-based work to clearly specified limits and to camps and their immediate area.

- *Incentives should, as far as practical, be based on cost-recovery concepts if interventions are to be sustainable.*

Cost-effectiveness is an important concept to apply in refugee environment programmes. A balance must be found between the cost of interventions and the estimated value of natural resources conserved, regenerated or established. Funds to protect low value

resources might be more wisely invested in projects which have been chosen by the local community and host government. Exceptions should be made to cost-recovery principles for vulnerable groups.

- *Local procurement of goods for environmental projects can be both cost-effective and more sustainable.*

Environmental projects demand a variety of inputs, some of which can easily be procured or made in the vicinity of refugee settlements. Examples include tree seeds, live fencing for areas set aside for regeneration, ceramic stoves or signs. Although donor funding may make it possible to continue using high quality materials imported to the refugee-hosting area, if efforts can be made to identify local sources then sustainability will be greatly enhanced and money may be saved. Local people and refugees will also gain greater economic benefit from such local procurement. It should be borne in mind, however, that some goods are best procured externally throughout the life of a refugee operation for the sake of the local environment. Such goods include prefabricated shelters, without which the local extraction of construction materials might prove highly damaging.

4.5 Sustainable Living

- *Refugees' residential plots are a potentially valuable source of fresh food, fruit and small stock, if properly managed. Such productivity goes hand-in-hand with sound environmental management.*

Refugee agencies generally meet the basic needs of refugees by providing food, shelter and medical care. But the land upon which refugees are settled can also contribute greatly to their well being by acting as a source of supplementary fresh food, cash crops and other produce from right around their homes. With appropriate pre-planning this can be done in a way that protects the local environment and provides a means of supporting refugee livelihoods in a sustainable way.

- *Small-scale cultivation of vegetables and fruits helps to simultaneously meet environmental, nutritional and income-generating needs.*

Encouraging the establishment of kitchen gardens can yield multiple benefits. Cultivation of fresh vegetables,

Conserving Resources by Guaranteeing Economic Benefits: Wildlife Management by Returnees in Mozambique

Adding economic value to natural resources can improve the chances of local people managing them sustainably. An example from a war-damaged returnee area in western Mozambique shows how wildlife is being protected by local communities who now derive economic benefits from conservation.

Following the end to civil war in 1993, a number of returnees arrived in M/go' District, north-west Tete Province, from Zimbabwe and Zambia. Prior to the war, M/go' District was renowned for its wildlife. Widespread poaching during and after the war, as well as the presence of a commercial game-hunting operation, had considerable impacts on the region's wildlife.

As a result of increasing conflicts between the hunting operator and local communities: the latter receiving few benefits from the hunting operation: the operator sought to control poaching by taking the law into his own hands. Meanwhile the local administration was found to be heavily involved in illegal hunting of wildlife for meat and ivory, such that it had little credibility as a resource manager.

In an effort to address these growing problems, wildlife officers proposed the formal inclusion of local communities in the management and benefits of the wildlife resources, as had been tried elsewhere in southern Africa—notably in Zimbabwe's CAMPFIRE programme. The response in 1994 was the initiation of a programme called Tchuma Tchato ('Our Wealth'), a community-based wildlife management programme aimed at empowering the local community to manage wildlife resources profitably and sustainably. Covering five villages, the project was implemented by the National Directorate of Forestry and Wildlife, and directly funded by donor agencies.

Having gained the trust of local people by listening to their concerns and the problems they faced with the hunting operator, the project focused on institutional capacity-building at the local level. Local Natural Resources Councils were formed, including representatives from the main political parties, village authorities, and the traditional (ancestor spirit worship) and modern (church) religious systems.

One of the main objectives of the project was to secure financial benefits from the commercial hunting operation for the communities of Tchuma Tchato, in the hope that this would provide them with a direct financial incentive to sustainably manage wildlife. With government support, the operator's trophy fees would be split between the central finance ministry, the provincial administration and the community. In 1996, the villages were able to share the first cash dividend from hunting: US\$12,000 was distributed in person by the Mozambican Prime Minister, part of the proceeds being used to purchase a grinding mill.

Since the introduction of the project, poaching has declined significantly, wildlife has increased, and community enthusiasm for wildlife management has grown. The hunting operator, though initially reluctant to enter into agreements with the community, now accepts that the arrangement has benefited both parties, his benefit being a reduced level of poaching. The programme has also supported the establishment of village level councils, a new departure within Mozambique in terms of allowing communities to articulate their needs, devise management objectives for their development, and manage development in a manner that is both participatory and inclusive of all community members.

The Tchuma Tchato programme has shown that returnee communities, once organised and provided with incentives, can effectively manage natural resources in their local areas. These incentives are based largely on direct benefits to participating individuals. Replication of such systems would appear viable to protect a variety of natural resources.

fruits, and legumes for household consumption can help increase the intake of Vitamin A and C and other essential proteins. These foods also require much less energy to cook than dry rations, which has environmental benefits. Legumes fix nitrogen and improve soil quality in kitchen gardens. The sale of vegetables and fruits can also supply an income-stream to refugee households, contributing to an increase in livelihood security.

➤ *Animal and vegetable wastes make excellent fertilizer and enhance soil structure.*

Wastes that might be available to refugees include dung from chickens, goats, sheep, pigs and cattle, composted vegetable material and mulched vegetable and animal matter such as grass, leaves, eggshells, crushed bones and ash. Such materials can be used in home gardens and micro-catchments to improve productivity. Wood ash also acts as a natural insecticide. These materials

should ideally be applied in conjunction with appropriate water and soil management practices. Through the use of these organic inputs, not only will the quality and quantity of food be enhanced, but also the skills of the refugees will be developed.

➤ *Waste water can be re-used in kitchen gardens.*

Water is often a scarce resource in refugee situations and should be used carefully. Water that has been used in the household for bathing, washing and other household chores need not be simply discarded. Instead it can serve a dual purpose by irrigating kitchen gardens. The use of waste water can thereby increase the availability of fresh foods for both family consumption and for sale. Likewise any water that is spilled around tap-stands can be recovered and put to good use for the establishment of tap-stand gardens where fruit, vegetables and multi-purpose trees are grown.



Photo: © D. Stone, CAS Images

Small-scale cultivation of vegetables and fruit helps meet environmental and nutritional needs, while offering the possibility of additional income generation.

5

Forestry and Natural Resource Management

Key Points

- ✓ *Sustainable forestry practices take many forms, and include homestead planting, integrating trees into arable and grazing lands, plantations and managing for natural regeneration.*
- ✓ *Tree planting activities should, in the first instance, be concentrated within camp boundaries.*
- ✓ *The most cost-effective way to address deforestation outside refugee settlements, and on land not under private ownership, is often to promote regeneration and managed harvesting, rather than new planting.*
- ✓ *Community-based natural resource management is the most sustainable environmental protection strategy in the long term.*
- ✓ *Environmental rehabilitation should begin while refugees are still present.*
- ✓ *Environmental interventions with returnees need to focus on the issue of livelihoods, rather than narrowly defined environmental problems.*
- ✓ *Restocking is a viable intervention for pastoralist and agro-pastoralist returnees, as part of a broader and multifaceted re-integration programme.*

5.1 Forestry Overview

- *Sustainable forestry takes many forms, and includes homestead planting, integrating trees into arable and grazing lands, plantations and managing for natural regeneration.*

Appropriate forestry practices can be promoted only with a clear understanding of the cultural, social, economic, institutional and environmental objectives towards which they work. In the refugee context, in view of the relatively resource-poor nature of most refugees and their host communities, it is important that these practices yield the quickest results for the lowest investment.

- *Deforestation can sometimes lead to positive environmental change.*

Depending on the value of the affected resource, deforestation is not necessarily negative in cases where new and more productive vegetation types are released within an area (e.g. pasture for grazing).

- *A broad-based approach to environmental management, focusing on the economic role of indigenous resources, may be more sustainable than a narrow focus on a single resource.*

Local communities are more likely to consider the net economic benefits of different land-use alternatives, rather than maximise any single output. Although planting woodlots of fast-growing tree species can increase energy supply, rural communities may have little interest in devoting arable land to planting something they would normally obtain from their own plots or from natural regeneration in grazing areas. Communities will only become interested in reforestation activities by realising an economic benefit from woodland products. On-farm nurseries, if combined with vegetable gardens, are also likely to be more appealing.

- *The environment should not be accorded a higher value than human subsistence.*

In the short-term, there are obvious trade-offs between the well-being of resource users and that of the local environment. For example, land set aside for regeneration may constitute a loss to local livestock owners. Similarly, the imposition of restrictions on access to wood or other resources may affect refugee

Getting to the Root of the Problem: A Targeted Response to Deforestation in Zimbabwe

With the right experience, local knowledge and common sense, it is possible to undertake a problem definition and data collection exercise which can be applied in a short time frame.

From 1984 to 1993, some 250,000 Mozambican refugees fled to Zimbabwe. Five camps were established in communal areas in the eastern districts to accommodate 150,000 people. The camps were deliberately placed in remote areas, most of which had reasonable amounts of woodland. The presence of refugees soon began to have a negative impact on these woodlands and, by 1991, the immediate surroundings of all camps had been largely cleared of vegetation. Women were reported to be travelling up to 20 km in search of firewood.

The Fuelwood Crisis Consortium (FCC) was established in 1991 to address issues of worsening deforestation around the camps. Comprising several refugee assistance agencies, as well as government and non-governmental bodies involved in environmental management elsewhere in Zimbabwe, FCC sought to identify the underlying cause of deforestation. FCC felt that large-scale surveys and inventories were unnecessary. Deforestation was clearly a huge problem; quantifying the extent of that problem would be a costly, time-consuming and ultimately pointless exercise.

Before any studies were undertaken, it was assumed that fuelwood collection was the largest contributing factor to deforestation around the camps. Clearing land for agriculture was, in this case, not an issue. Refugees were forbidden to cultivate land outside the clearly demarcated camps and this was strictly enforced by local communities.

The amount of wood consumed for cooking, heating, lighting, beer brewing and others activities was measured through a series of targeted studies. Fuelwood consumption was measured for 50 sample households in each camp over a five-day period; a questionnaire survey was also administered in an attempt to qualify the information. Further research was done in the camps to complete the picture of energy consumption patterns.

The studies revealed that fuelwood consumption in the camps was high (averaging 14kg per household per day); 70 per cent of this consumption was accounted for by cooking. Although refugees were already employing basic fuel-saving techniques (such as putting out fires after cooking and building wind-breaks), there was a need for improved fuel-saving technology. In response, FCC initiated an integrated programme of stove dissemination, tree planting, and environmental awareness-raising designed to link these two efforts and develop a broader understanding among refugees of their capacity for improved environmental management.

well-being by reducing the number of meals a family can cook, or adding to the labour burden of firewood collection. A socially acceptable balance has to be struck between environmental protection and refugee welfare.

5.2 Planting New Trees

- *Tree planting activities should, in the first instance, be concentrated within camp boundaries.*

Tree planting around refugee homesteads has often proven the most successful of all reforestation initiatives, because of the clearly defined rights of ownership and access to the benefits derived from the trees. In anticipation of such benefits, refugees take greater care of seedlings, resulting in higher survival rates. Tree planting should be supported within

settlements, but it should not be the only focus due to the risk of tree felling at repatriation. Fast-growing multi-purpose species and fruit trees are often popular choices for planting around homesteads.

- *Tree planting around refugee homes contributes directly to sustainable livelihoods as well as sound environmental management.*

A wide range of household requirements in terms of forests products, both timber and non-timber, can be met by planting multi-purpose tree species within residential plots. Trees provide refugee households with fruit, fodder, medicines, pesticides, fuelwood and building poles. They protect agricultural crops from the elements and may also enhance the soil and control erosion. The more functions that a particular species can serve, the better. Trees can also contribute to the

Bee-keeping is one of many forest-related activities that can be undertaken by refugees and local people, using simple techniques and local materials. Offering the possibility of local use or retail, honey is an important part of peoples' diets.



Photo: © UNHCR

household economy by providing products that may be marketable outside the refugee camp or settlement, such as honey, oils, gums or raw materials for medicines.

- ▶ *On government forest land, systems such as 'taungya' can be a useful practice to combine plantation establishment with refugee labour and food self-sufficiency.*

The taungya system in parts of West Africa allows people to grow food crops between young trees. For the land-owner, – often the government forestry department – this ensures that the trees are properly weeded and cared for during the first growing seasons. For the farmer, or refugee, temporary access is provided to agricultural land and there is an opportunity to grow crops for subsistence or sale. Provided clear contracts are in place at the outset to ensure that settlers do not exceed their allotted time of occupancy, the taungya system can cost-effectively establish or rehabilitate plantation areas.

- ▶ *Where the presence of refugees is potentially damaging to protected areas, emphasis should be placed on demarcation, protection and enforcement, ideally with community backing.*

If refugee settlements have been placed close to a protected area such as a national park or forest reserve, it is important that the boundaries of that area are demarcated, to minimise trespass for cultivation or to collect forest products for domestic use or sale. This may require nothing more than cutting a fire break or placing concrete beacons around its perimeter. Planting non-invasive exotic trees along the boundaries of such areas can also be an effective means of demarcation. Support should then be given to the relevant management authorities to enforce regulations on access and extraction of tree and animal products. While outside agencies may be reluctant to get directly involved in such enforcement, they should be able to provide assistance to overburdened management institutions that are formally tasked with this role.

Possible ways in which to intervene include the provision of transport or communication equipment, and the construction of houses or ranger posts.

➤ *People should not be paid to plant trees if this undermines the sense of ownership and sustainability.*

Forestry activities need not, and should not, be confined to nurseries, plantation establishment and fencing using salaried labour. Such activities are limited to the period for which funds are available and tend to lead to low plant survival rates, uncertainty about harvesting rights and lack of interest in voluntary participation in environmental activities. More sustainable and effective reforestation opportunities focus on managing natural regeneration, promoting sustainable tree-cutting practices, and encouraging the planting and joint management of a variety of multi-purpose trees and crops within and adjacent to the camps. Refugees and local people should be involved in prioritising interventions and managing such activities.

➤ *When land cannot be found for plantations near refugee settlements, reforestation should aim to integrate trees into agricultural fields and around homesteads.*

It is often difficult to find land for tree plantations, especially in areas where the need for agricultural land, both of refugees and locals, is perceived as greater than the need for forest plantations. Land used for plantations effectively removes land from agricultural production, potentially undermining the ability of refugees and locals to derive a sustainable livelihood. Without a detailed cost-benefit analysis of the financial viability of plantations, it should be assumed that land is best used under a system of community-based management of existing natural resources (indigenous trees, grazing, etc.).

➤ *Forestry plantations established by external organisations, using paid labour, will not be protected by local people and management responsibility cannot easily be handed over to them at a later date.*

Where reforestation programmes established by the government, NGOs or other external organisations use hired labour to plant and manage trees, it is difficult to ensure that they are sustainably managed at

the end of a refugee programme. Locals, by virtue of the fact that the trees under such systems are seen as the property of the state or the project, feel that they have little stake in the trees as a resource and thus little incentive for nurturing their survival. Even if the trees are handed over to locals, it will be difficult to convince people that the trees are now their property. In view of this, plantations established using paid labour are best maintained under government control throughout.

➤ *If plantations are to provide environmental benefits they must be created in such a way that they can be harvested over a number of years, rather than all at once.*

In refugee situations, plantations are commonly established in a single planting. Single planting, however, means that all of the trees are harvested at the same time. Such clear felling creates a serious risk of soil erosion, and threatens streams and rivers with siltation. A single harvest will also provide the plantation owners with one large cash injection, as opposed to smaller but more regular incomes if harvesting is staggered over time. In view of these factors, it is more appropriate to create plantations in a number of annual plantings.

➤ *The environmental benefits of plantations are often much lower than those of other forms of forestry activity.*

Plantation forestry is essentially an economic activity rather than a sustainable environmental management practice. Stands of a single species inhibit understorey growth which, in turn, adds to the risk of soil erosion. There are many other forestry practices that have more environmental benefits or which yield a variety of valuable products (nuts or medicinal plants, for example) and can therefore be more appropriate for the purposes of sustainable environmental management. These include, for instance, the management of individual trees in fields, maintaining areas of indigenous woodland, planting for soil stabilisation, and management of water catchment areas. Plantations pose a greater fire risk than individual trees in fields or around homesteads.

- ▶ *Fire is a recurrent problem in forestry plantations, particularly those based on monocultures of exotic species.*

Fire management is a labour-intensive and costly exercise, justified only where the plantation is likely to provide substantial economic profits on harvesting. Planting of individual or small groups of trees in refugees' and locals' fields and homesteads does not pose the same risk of fire.

- ▶ *Successful and sustainable reforestation depends to a large extent on understanding and working within the prevailing systems of tree and land tenure in local communities.*

Investment in a resource is heavily influenced by an individual's rights, access to and control over that resource. Whenever trees are planted or protected as part of an environmental mitigation or rehabilitation strategy, it is imperative that the ownership rights of the trees' eventual users are clearly established at the outset. Understanding the complexities of tree tenurial systems outside government-declared reserves can be daunting. However, local government authorities and non-governmental and research agencies often have knowledge and experience in this field. Their advice should be sought at an early stage in the planning of environmental rehabilitation strategies.

5.3 Species Selection and Seedling Production

- ▶ *Tree species for reforestation must be selected according to the needs of the end users.*

For reforestation programmes to be sustainable and meet the needs of intended beneficiaries, the most appropriate species for planting must be identified with input from the local community. Multi-purpose tree species, suitable for the local environment, should be given priority. In cases of land shortage, tree species that can be integrated within agricultural systems should be favoured.

- ▶ *Appropriate forms of seedling production should be ensured for each situation.*

Seedlings can be produced in a number of ways. Large, high profile, centralised tree nurseries using hired labour are often unsustainable, fail to promote

ownership of, or responsibility for, seedlings, and generally lead to poor survival rates following planting. Sub-contracted production (such as through local NGOs) is more suitable as it can give equally high outputs while providing opportunities for local entrepreneurs. However, the groups involved must have sufficient capacity to handle the demands of production, financial accountability and reporting that the activity is likely to demand, particularly at the early stages of an operation when expectations are high.

- ▶ *Production of seedlings should be decentralised to local community groups and refugees as early as possible.*

Decentralisation of seedling production should be encouraged among individuals and small community-based organisations within the refugee and local community at the earliest opportunity. This can help achieve a satisfactory balance between meeting output targets cost-effectively and promoting better survival rates by adding value to raising and protecting trees. Furthermore, promotion of small-scale, private tree nurseries under refugee and local management leads to the development of skills that can de-mystify the process of growing trees.

5.4 Promoting Natural Regeneration

- ▶ *The most cost-effective way to address deforestation outside refugee settlements, and on land not under private ownership, is to promote regeneration and managed harvesting rather than new planting.*

If site-planning decisions have led to a situation where deforestation appears inevitable, the most viable and cost-effective means by which to achieve some balance between the rate of cutting and the rate of biomass production is to manage the way in which refugees harvest wood products. This is likely to make a much more significant contribution than tree planting, even on a massive scale, except within camp boundaries. Thus the environmental priority should not be on raising and planting seedlings, although this has its place, but on management and enforcement strategies. These include harvesting rules, zoning different areas on a rotational basis and the strategic designation of 'no cutting' or 'no entry' zones to be used as genetic banks for eventual regeneration. It may also include

tree marking, signboards, public awareness-raising and the use of forest guards. Local communities must be involved throughout in planning and implementing such strategies.

➤ *Area closures are effective for regeneration of depleted natural resources.*

Natural vegetation can recover fairly quickly under a proper system of management and protection. Area closures are therefore cost-effective tools to promote natural regeneration. They require no major investments apart from wages for guards and fencing materials, if used. In cases of severe degradation, closures may need to be supplemented with enrichment planting to initiate re-growth.

➤ *Reasons for area closures must be explained to, and have the support of, local communities.*

The decision to close certain areas may deprive livestock herders of grazing lands, or people of plants

or tree products. Area closures must be arranged through close consultation with, and with the support of, affected communities. Acceptance of this concept is vital for success.

➤ *Forest guards are an essential component of a natural resource protection strategy, alongside tree marking and zoning.*

The most viable strategy in protecting forest resources under pressure from refugees is not to prohibit cutting, but to manage, direct and control cutting in order to spread its effects as thinly as possible. This provides the greatest opportunity for regeneration. The first stage in this process is an evaluation of the status of existing resources, and the identification of different zones for different management regimes. This is followed by tree selection and marking. Forest guards, ideally drawn from refugee and local communities, become the crucial intermediaries between the policy and the actual harvesting.

i Case Study

Area Closures for Natural Regeneration, Tigray, Ethiopia

Land is a scarce commodity in Tigray, northern Ethiopia. Since 1991, several hundred thousand refugees have returned from Sudan. Population pressure has intensified, compounding problems of over-cultivation, overgrazing and unsustainable exploitation of vegetation for fuel, fodder and building materials. Mountainous areas are most severely affected, with over-exploitation often leading to soil erosion on steep slopes.

Regional government surveys in 1993 recommended that priority be given to rehabilitating degraded areas to return them to productive use. This was to be done through collaboration between the Regional Agricultural Bureau, local communities and the Relief Society of Tigray (REST). Through negotiation with local community members, a total of 45,000ha has been designated for protection. Human interference is limited in those areas to allow natural vegetation to regenerate. Two control options are practised: either access is forbidden, or livestock grazing and grass cutting are permitted. Most of the 'closed' areas are not actually fenced, but their boundaries are known and agreed by local communities.

Community members have shown strong compliance with restrictions on access to closed areas. Trespass, grazing or extraction of wood products are considered punishable acts. Anyone who commits such an act or fails to report offenders is often viewed as a saboteur of a national cause. They are not only subject to stigma, but can also be charged through the legal system.

In situations where land is particularly degraded, enrichment planting of trees is carried out to encourage re-growth. REST operates over 150 central and community nurseries with an annual production capacity of 12 million seedlings: 25 per cent of these are used in the rehabilitation of closed communal lands to complement natural regeneration.

The primary cost for area closures are wages for guards (paid by REST through a food-for-work scheme) and, sometimes, fencing materials. Closures can deprive livestock herders of pasture, or local people of forest products. The use of natural resources for short-term economic gain is not sustainable. Consultation with the affected communities has contributed to the success of these efforts and an understanding of their limitations.

- ▶ *Tree marking should focus on those trees with the greatest potential for stimulating natural regeneration, not necessarily the largest trees.*

Tree marking is intended to preserve a reservoir of trees from which the natural vegetation cover may regenerate following the closure of a refugee camp. Selection should concentrate on trees that have the greatest potential for rapid growth and seed production, not necessarily the largest specimens. A variety of representative species should be selected, with assistance being sought from experts to ensure that a suitable balance of male and female trees are protected.

- ▶ *The role of forest guards should not be confused with that of extension workers.*

Forest guards are employed to enforce rules on natural resource management. Their effectiveness comes from their ability to resort to legal enforcement, through co-operation with government authorities. It may not be possible for the same people to take on advisory, support or information-sharing roles. Separate staff structures should normally be established for this purpose.

5.5 Incorporating Community-Based Approaches

- ▶ *Community-based natural resource management (CBNRM) is the most sustainable environmental protection strategy in the long-term.*

Most environmental management strategies in refugee situations are dependent on continued donor support. For long-term refugee operations, empowerment of refugees and local communities to manage natural resources becomes the most sustainable possibility.

- ▶ *CBNRM is inherently participatory, but efforts should be made to ensure fair representation.*

CBNRM is a participatory process, offering an important tool for community empowerment. Nevertheless, communities are not homogenous and the opinions of powerful groups can dominate those of weaker members. At the same time, the more marginalised are most likely to be negatively affected by the presence of refugees. CBNRM therefore demands consensus in the face of multiple agendas, and this may be difficult to achieve.

- ▶ *CBNRM is not always appropriate; communities may not want it, and it may not work.*

Communities may not want to take on natural resource management and conservation. They may also lack the capacity to do so, particularly where a refugee influx is large. It is therefore important to be realistic about what CBNRM can achieve.

- ▶ *Employment of community-based extension agents within CBNRM programmes can prove divisive and may not provide an efficient mechanism for empowering that community to regulate natural resource use.*

The identification, training and especially the payment of extension agents carries the risk of dividing communities, rather than encouraging them to take control of natural resource management. In many cases, encouraging community-based extension agents to go beyond simple messages on tree planting and promote community participation can prove challenging. Working directly through NGO field officers, external to the communities and with a significantly higher level of education may be more effective. These officers act essentially as facilitators, but are also capable of providing technical support and training, depending on the local situation as well as existing local experience and capacity.

- ▶ *Any attempt at community management of forest resources should be fully delegated, without subsequent interference.*

Community ownership of a resource gives people the right to harvest and use resources as they see fit. Although efforts should be made, through education and training, to ensure that communities manage their resources in a sustainable manner, regulations that prevent them from harvesting selected resources should be avoided. This effectively alienates them from the resource, taking it out of their control and eliminating the incentive for sustainable management.

- ▶ *A participatory approach places extra emphasis on the need for co-ordination at the level of local administration.*

As many development activities focus on participatory approaches, local co-ordination of agency activities should occur as some villages may suffer from a flood of teams carrying out participatory rural appraisals

Integrated Environmental Management Through Community Participation – An Environmental Demonstration Project In Eastern Sudan

A pilot project to demonstrate sound environmental management approaches through community participation was initiated by UNHCR's Environment Unit in 1997. The project initially focused on selected households in Hawata refugee camp and the adjoining Khalifa village in eastern Sudan. The overall project goal was to improve the living conditions and welfare of refugees and local people. It consisted of four main components: community participation, public awareness raising, energy saving and forestry-related activities.

The main mechanisms by which the objectives of this project were to have been reached were through involving refugees and villagers in decisions relating to the management and use of natural resources; through increasing the level of environmental awareness among local people as well as concerned authorities and decision makers; by demonstrating practical, relevant skills to refugees and villagers; and by supporting each group through regular support and monitoring the progress.

An evaluation of the project in 1999 and again in 2001 brought to light many important lessons, of which the following are a selection:

- delayed implementation can undermine the impact of a time-bound project;
- the purpose and intended management framework of the project must be clearly explained;
- project implementation should not be rushed (confidence building is essential between the project team and target audiences);
- for lasting benefits, the mode of project implementation is possibly more important than the level of funds or time invested;
- techniques being transmitted to refugees and villagers must be well grounded;
- simple management techniques should not be overlooked;
- environmental support should include as broad a range of the population as possible, and should be shared across refugee camps and local villages;
- where staff changes occur, it is essential that new staff are fully briefed on the project components as early as possible;
- Project Extension Officers should not only focus on their own areas of expertise;
- a report and monitoring format should be elaborated between partner organisations at the outset of the project;
- more attention should be given to training suitable trainers, and to follow-up activities and the supervision of trainers; and
- UNHCR must be able to provide back-up support to environmental projects, through Environmental Focal Points, UN Volunteers or similar.

The successful introduction and support of this initiative led to its replication in four other settings within a 12-month period, and to the application of many of the lessons and approaches learned here, to other environmental activities, including the environmental restoration of refugee-affected areas. Many of the lessons have also been applied to other countries.

(PRAs), and be overburdened by management committees.

➤ *In the long term, community participation in environmental management is dependent on sustainable incentives for individuals.*

Effective and sustainable environmental management activities require a detailed understanding of the incentives and motivations for refugees or local communities to become involved. Such incentives

revolve primarily around long-term rights of access to natural resources, and any benefits accrued from them, in addition to the perceived magnitude of these benefits. Environmental activities should seek therefore to maximise the benefits to the individual without compromising environmental sustainability.

5.6 Livestock

- ▶ *An environmental study should be undertaken before any livestock project is considered.*

Any intervention in the livestock sub-sector, whether restocking, the provision of water points or support to livestock health, will have environmental implications. There may, for example, be negative impacts on grazing areas or excessive demand on water supplies. Preliminary assessments of the likely impacts of any interventions, particularly re-stocking, are required.

5.7 Environmental Rehabilitation

- ▶ *Environmental rehabilitation should begin while refugees are still present.*

Environmental rehabilitation should not be seen as a distinct operational phase, but merely as a continuation

of environmental management and protection activities that are initiated while the refugees are still in the host country. If rehabilitation begins early, not only can it tap into the refugee-focused interest of donors and implementing agencies, but it can also be more cost-effective and have greater impacts.

- ▶ *The aim of rehabilitation should not necessarily be to return the land to its original state.*

Rehabilitation schemes tend to focus on restoring levels of biomass used by refugees. However, if previously uncultivated land has been opened up by refugees there is a chance that cultivation will continue after the refugees have left, particularly where the supply of land is limited. Reforestation projects and tree plantations, as a form of compensation, might therefore impinge on land used for agriculture. Local consensus should be sought before rehabilitation is carried out.



Photo: © UNHCR/M. Fasilhaber

- *Rehabilitation measures should help restore an environment's ability to sustainably deliver the ecological functions and values it has for human society.*

Rehabilitation should aim to restore the local community's capacity to derive a sustainable livelihood from the natural resource base. Integrated agroforestry practices, for example, are much more likely to contribute to long-term ecological sustainability and livelihood security than plantations. Since trees are planted between and within agricultural fields, they do not consume additional land resources, and can provide a range of useful forest products and environmental services such as soil conservation. Species need to be carefully selected to avoid

unnecessary competition with crops, nutrient depletion and excessive water consumption.

- *Because they seek to restore the productive capacity of land, environmental rehabilitation strategies should address ecological and human health as a single, integrated unit.*

Compensatory afforestation as a form of environmental rehabilitation can be one-sided and overlook important components of a healthy ecosystem. In densely populated and intensively cultivated areas, for example, soil erosion may be a major concern. Agroforestry would therefore be an appropriate rehabilitation measure as it can alleviate soil erosion while maintaining (and enhancing) crop production.

i Case Study

Combining Environmental Rehabilitation with Food Production: The Taungya System in Côte d'Ivoire

From 1990 to 1994, 325,000 Liberian refugees fled to Côte d'Ivoire, settling spontaneously in a 25km wide strip along the country's western border. Several forest reserves and a national park were threatened by encroachment from the new arrivals. On the western border of the Haute-Dodo Forest Reserve, for example, the population density increased from 26 people/km² to 68 people/km² during this period. Incursions for wood products and raffia palm became commonplace and unauthorised refugee cultivation started within several gazetted areas.

The Ivorian forestry department, SODEFOR (Société pour le Développement des Forêts), is responsible for managing the country's forest reserves. Prior to the arrival of the refugees, SODEFOR already had plans to rehabilitate some 17,000ha in the Haute-Dodo Reserve: implementation of the programme became all the more pressing when damage began to occur on account of the people's needs. SODEFOR decided to turn the refugees' presence to its advantage by inviting them to cultivate in areas designated for rehabilitation under the *taungya* system. This agroforestry system permits farming between rows of newly planted trees. The advantage for the forester is soil and water conservation and minimal weeding. The farmer, meanwhile, gains access to productive land for a period of time until root competition and shade from the growing trees becomes too great for continued crop production, typically two to four years in Côte d'Ivoire.

In a pilot scheme with UNHCR, SODEFOR identified 50ha for *taungya* trials in 1996. This was planted with 'framir', a local commercial species used in construction. Refugees were then allowed to plant rice and maize between the newly planted trees. There is now a 10-year plan to put a further 150ha under the *taungya* system through a series of 25 ha contracts with refugee groups.

Provided clear contracts are established at the outset to ensure that contracted refugees do not exceed their allotted time of occupancy, the *taungya* system can be a cost-effective way to establish or rehabilitate forest plantations, while at the same time improving food security and creating a sense of self-determination and independence among refugees. While refugees are given no long-term rights over the forest land, the possibility of cultivating crops provides them access to fresh food and a source of income from the sale of surplus crops. They also gain basic technical expertise in forestry. Meanwhile, UNHCR and SODEFOR have a productive working relationship which combines humanitarian assistance and environmental rehabilitation. The *taungya* system can work elsewhere provided host-refugee relations are good and that the government allows refugees to cultivate the land.

Understanding the Livelihood Environment: SAFIRE Responding to Local Rehabilitation Concerns in Zimbabwe

Zimbabwe's Mozambican refugees repatriated in 1994. The five camps that had previously housed 150,000 of these refugees were quickly vacated, and the task of environmental rehabilitation began. Since 1992, the Fuelwood Crisis Consortium (FCC) had undertaken environmental activities in the camps, concentrating on the provision of improved stoves, environmental awareness-raising and tree planting. FCC's objective was to alleviate the effects of deforestation. Once the refugees had left, an opportunity existed for full environmental rehabilitation of the affected areas.

FCC conducted an environmental impact assessment to study the extent of degradation around the former camps. The study concluded that the overall change in forest land was from 78 per cent of the total area during 1981-1982 to 33 per cent during 1994, with much of the 12,000ha of forested land lost being converted to bush scrub savannah and scrub savannah.

At the completion of its mandate in 1994, the FCC was transformed into a new organisation, the Southern Alliance for Indigenous Resources (SAFIRE), the initial goal of which was environmental rehabilitation of Zimbabwe's refugee-affected areas. Unlike FCC, SAFIRE was conceived as a long-term initiative, concerned with ongoing community-based natural resource management. SAFIRE sought the input of local communities in determining priorities for environmental rehabilitation. It also developed natural resource management projects on the principle that a broad-based approach to environmental management focused on the economic role of indigenous resources would be more sustainable than a narrow focus on trees: this was borne out by the issues and constraints articulated by refugee-affected communities.

One of the early project ideas – planting trees for firewood to 'replace lost firewood resources,' – was seen as unsustainable as a project goal because the target communities had little interest in devoting arable land to planting something they would normally obtain from grazing lands. The same applied to tree nursery planting, unless there was going to be a ready market for seedlings. Only by realising an economic benefit from woodland products would communities become interested in reforestation.

While locals were interested in tree planting for commercial gain (especially in woodlots and fruit orchards), SAFIRE's initial concern had been for environmental rehabilitation: two quite different goals. It became necessary to reconcile the differing requirements of environmental rehabilitation and income-generation, such that the needs of the local community would be met without compromising the long-term objectives of rehabilitation. SAFIRE progressively altered its aims to coincide with those of local people, eventually abandoning the notion of environmental rehabilitation for its own sake. SAFIRE's stated goal became 'the economic development of rural communities based on sustainable management of natural resources.' This implied that post-repatriation environmental rehabilitation activities would only be warranted where environmental degradation had inhibited the capacity of local communities to derive a sustainable livelihood from their natural resources. Thus SAFIRE focused on tree planting and other resource management activities with the specific objective of contributing to local income.

This experience shows that local people are often less concerned with replacing trees destroyed by refugees than they are with ensuring the sustenance of a natural resource base that best meets their long-term economic needs. This demands an appreciation of the 'livelihood environment', rather than the sole concern of lost trees.

- *Local people often take the initiative for rehabilitation following refugee damage. There may be a contradiction between tree planting for commercial and rehabilitation purposes.*

Local people are often more interested in tree planting for commercial gain, for example through woodlots and fruit orchards, than straightforward environmental rehabilitation. The differing

requirements of income-generation and environmental rehabilitation should be reconciled as early as possible, such that the needs of the local community are met without compromising the long-term objectives of rehabilitation. One way of achieving this might be to incorporate multi-purpose trees into arable and grazing lands, as part of an integrated agroforestry system.

- *Where refugee-hosting sites are likely to experience minimal population pressure after refugees have left, natural regeneration may be the most cost-effective environmental rehabilitation strategy.*

Many former refugee-hosting areas experience healthy and vigorous natural regeneration if they are left untouched after the refugees have left. As a rehabilitation strategy, this is extremely simple and effective if the land has not been too heavily degraded and if it can be protected from livestock and human pressure for at least 3-5 years after the return of refugees. Such regeneration may lead to a different mix of trees and plants from that which previously existed, which may or may not be desirable. Some intervention may be required in order to ensure that the zone does not become dominated by invasive weeds which might preclude successful re-colonisation by native species.

- *Rehabilitation of protected areas is particularly costly. Emphasis should therefore be on prevention rather than cure.*

Where wildlife reserves, national parks or forest reserves are impacted by refugees, loss of habitat, deforestation and poaching can have severe ecological and economic implications. The cost of rehabilitating protected areas, perhaps by transporting wildlife for restocking or establishing protective buffer zones to allow vegetative regeneration, can be enormous. Appropriate site selection, together with a small investment in the early stages of a refugee programme through community extension and improved policing, can do much to avert this type of problem.

- *Upon repatriation, refugees should be encouraged to leave any trees they might have planted.*

Refugees have been known to cut down trees they have planted when the time comes for repatriation. This is often driven by the feeling that others should not benefit from the fruits of their labour. Several approaches should be tried to overcome this. One is to focus tree-planting activities within local communities or forest reserves, rather than only in the refugee settlements. Another, and more difficult, is to conduct awareness-raising exercises with refugees on the importance of leaving these trees as a gift to their host communities. Provision of financial or other incentives to leave trees standing at the time of repatriation is also an option.

5.8 Returnee Environment Programmes

- *Environmental interventions with returnees need to focus on the issue of livelihoods. Projects which seek to solve narrowly-defined environmental problems may not be successful.*

Communal mechanisms exist in most societies for natural resource management. There are usually several, and often complex, reasons why these systems might break down and natural resources become over-exploited. Large-scale return may be one such cause. Any intervention that seeks to control environmental degradation or to rehabilitate the environment must first seek to understand the cause of environmental change in the target area. Sustainable livelihoods should be the central issue of concern. If people have the means to support themselves in a sustainable manner then the environment is less likely to be degraded, and traditional community mechanisms for natural resource management are more likely to be revived and respected.

- *Interventions facilitating re-integration should be aimed both at returnees and the local population in the area of return.*

Local residents and returnees should be involved together in the design and implementation of projects in returnee areas. In the case of large-scale voluntary repatriation, the local population and returnees are often equally in need of assistance. Distinctions between local residents and returnees may, however, be artificial. It is inappropriate (and may in fact hamper integration efforts) to restrict interventions to returnees; assistance projects should be directed to areas of return, rather than to specific sectors of the population.

- *Local organisations should be supported to facilitate re-integration.*

Building or strengthening indigenous institutional capacity is important in returnee areas, but this can be expensive in terms of time and resources. UNHCR will most probably not assume total responsibility for capacity-building but can nevertheless play a role in generating donor interest. Supporting local organisations enhances their capacity, while laying the groundwork for long-term development.

► *Access to land is of fundamental importance in areas of refugee return.*

The government of the country of origin plays a key role in ensuring a supportive policy framework to allocate land and resources to returnees. This is part of the process of building sustainable livelihoods based on the fundamentals of security of residence and tenure.

► *Environmental forums are desirable in countries of return.*

Environmental groups should be established (or strengthened) in returnee areas in countries of return, bringing together the local population, government representatives and returnees to handle environmental issues as they develop. These forums are required at an early stage to ensure subsequent commitment to any returnee project, its co-ordination and timely implementation.

► *Restocking is a viable intervention for pastoralist and agro-pastoralist returnees.*

Restocking will often be necessary for returnees whose traditional livelihoods are based on livestock. However, there is no blueprint for such projects: each must be adapted to the particular circumstances of the society and environment within which it is to be implemented. The number of animals to be given to each household, for example, must be considered carefully and will depend on whether families plan to return to nomadic pastoralism or combine livestock keeping with farming. For families entirely dependent on pastoralism, 20-40 small ruminants are required, probably in addition to a supply of food, household goods and a beast of burden for transport. It may be enough to provide half this amount to those returning to agro-pastoralism.

► *Restocking should be an integral part of a broader and multifaceted re-integration programme.*

Restocking is not, in itself, a solution to the problems facing returnees, even if those returnees are

predominantly pastoralists. Not all returnees can be expected to benefit from restocking, due to the limits of grazing land and water. Successful re-integration requires a revival of diverse economic activities alongside restocking, such as:

- promotion of off-farm income-generating opportunities through training and credit schemes;
- provision of modern inputs to encourage intensification of agricultural production and increase productivity of cultivated land; and
- provision of food aid to those households that are food-insecure.

► *Livestock programmes for returnees should be based on traditional cattle varieties from the area.*

There are a number of benefits from confining cattle restocking programmes to local species. Indigenous livestock are more likely to adapt to the local environment and are less susceptible to disease. Purchasing livestock from local markets means that overall herd size is not increased and livestock are simply redistributed. Local purchase can also avoid introduction of diseases from elsewhere.

► *Restocking should be accompanied by improved, sustainable animal health-care services.*

Owners of newly-distributed cattle will require various services to increase productivity and to reduce morbidity and mortality; such services may not be immediately available or adequate in the returnee area. Start-up support should be given to establish livestock health-care services, with the intention that they will become self-supporting. There will always be a few vulnerable families who are unable to afford such services, and they may require special provision.

6

Environmental Education and Awareness-Raising

Key Points

- ✓ *Environmental education should build upon existing ecological knowledge and skills.*
- ✓ *Early, targeted environmental awareness campaigns are valuable in setting the parameters for sound environmental behaviour.*
- ✓ *Formal environmental education should be relevant to the needs of refugees and local communities.*
- ✓ *Formal and non-formal approaches should be harmonised for better results.*
- ✓ *Environmental education activities should minimise reliance on materials not locally available.*
- ✓ *Signs and posters communicating rules, regulations and sound environmental practices must be supported by, and linked with, other activities.*
- ✓ *Environmental awareness-raising and training must include measures to empower communities and their management institutions.*
- ✓ *New teaching methods may require improvements in teachers' competencies.*

6.1 General

- *Education has long-term impacts and should be supplemented with short-term regulatory measures and public information messages on environmental protection.*

Environmental education should be seen as a continuous and multi-sectoral process, as well as a tool for stimulating reflection, discussion and decisions on environmental issues and problems. As it focuses on changes in perceptions and attitudes, environmental education does not generate rapid impacts. It should be supplemented with shorter-term regulatory measures and public information campaigns to limit immediate damage to natural resources.

- *Environmental education should build upon existing ecological knowledge and skills.*

Refugees and host communities have considerable environmental practices to share with one another. Effective environmental education should target community groups, including women's groups and youth associations, which have the capacity and will to promote sound environmental management.

- *Formal and non-formal approaches should be harmonised for better results.*

Non-formal approaches will be more effective if a 'whole school approach' to environmental education is adopted. Schools must not be treated as isolated islands of knowledge; they must be seen as part of the community. Likewise, the community must be brought into the schools, for example, through camp/settlement environmental working groups. Topics should be related to day-to-day life.

- *Environmental education and awareness-raising should be closely tied to broader environmental programmes.*

Environmental education should be fully integrated with ongoing efforts to promote environmentally-sensitive behaviour. Linking environmental educational programmes to particular aspects of refugee life is not always easy, particularly when curricula are nationally standardised and exam-oriented. Building such linkages can broaden the refugee and local community's interest in environmental concerns.

**Environmental Education in Refugee Schools:
Lessons Learned from Refugee Camps in The Horn and East Africa**

There are a number of alternatives to introducing environmental education (EE) in formal education, some of the most appropriate of which are:

- interdisciplinary approach, through which students may be taught by a number of teachers (i.e. subject-specific teaching) using "carrier subjects" like geography, history and science to support the teaching of EE;
- modular approach, which is a method of introducing EE into formal education systems by the development of a specific EE module for all grades (i.e. introduce an additional subject in the curricula);
- training of specialised EE refugee teachers, which involves the use of teachers specialised in teaching EE. This requires training for a limited number of EE specialists who would then undertake to provide teaching to all classes; and
- extra-curricular approach, which refers to an activity that is undertaken outside the regular school time-table and, as such, is typically attended by students on a voluntary basis.

Some of the advantages and disadvantages of these approaches are outlined below on the basis of experience from field operations in East Africa and the Horn of Africa:

<i>Approach</i>	<i>Advantages</i>	<i>Disadvantages</i>
Interdisciplinary	Simplifies the teaching of EE. Used to teach specific EE themes.	Requires considerable level of skill and planning on behalf of all teachers.
Modular	Requires lower level of teacher skill and experience to implement. Can ensure that all desired aspects of EE are taught. Simplifies monitoring. Greater flexibility in terms of content and approach. Simplifies teacher training.	Creates additional pressure on curricula. What happens when double-shift teaching is used? What are the implications if all thematic education is introduced in this way? It relies on the good will of teachers to give extra lessons. Teachers are under pressure for their students to pass examinations.
Specialised EE Refugee Teachers	Relieves pressure on all teachers to teach an additional lesson per week. Teaching is not jeopardised by forthcoming examinations. Project monitoring is further simplified. Facilitates more in-depth training of the specialised teachers. Facilitates greater flexibility/modification of content to EE.	Need to provide incentives for specialised teachers. Provision of transportation to schools.
Extra-curricular	The framework of the project can be used in any country. Cost of materials is generally much lower than traditional formal EE projects. A broader range of activities may be used. Learning must be fun for the learner, since their attendance is voluntary.	

To date, much effort and attention has been given to the multidisciplinary approach to introducing EE in refugee schools. However, it is time to consider alternative approaches. The Refugee and Returnee Environmental Education Programme – a joint initiative by UNHCR and UNESCO, is currently piloting some of the alternatives presented above. An objective analysis of the findings will lead to a more appropriate range of EE approaches and materials for refugee and local schools in the coming years.

6.2 Non-Formal Environmental Awareness-Raising

- *Early, targeted environmental awareness campaigns are valuable in setting the parameters for sound environmental behaviour.*

Awareness programmes should be introduced before refugees have established environmentally-damaging systems of behaviour that are difficult to change: for example, in the styles of shelter they build, the areas in which they cut trees, or the cooking systems they use. Messages to be communicated typically relate to local and/or national laws, for example, on which practices are permitted and which are discouraged or prohibited.

- *When new settlements are established, refugees must be informed of regulations regarding natural resource use.*

Rules concerning natural resource use should be made clear from the outset. These may relate to tree cutting, charcoal making or management of wood-harvesting areas. One strategy is to record each tree above a certain diameter on every refugee plot, and assign responsibility for their protection to respective families. This approach requires the timely presence of an environmental agency, working in collaboration with the camp management agency, and subsequent introduction of incentives and disincentives. Ideally, the refugees themselves should record all relevant information.

- *Environmental awareness-raising can promote participation in environmental problem-solving.*

Environmental activities which involve target communities in problem identification and analysis, planning, implementation and evaluation are more likely to have the desired positive impact.

- *Multiple entry points are available for environmental awareness-raising.*

Non-formal environmental education can be channelled through health programmes, adult literacy classes, video sessions, religious services, notice boards, drama and poetry festivals, competitions, etc. Networks of community service and health workers can be particularly effective in passing on appropriate environmental messages, given adequate training.

- *Signs and posters communicating rules, regulations and sound environmental practices must be supported by, and linked with, other activities.*

Public awareness of the regulations governing the way in which refugees are permitted to harvest natural resources can be communicated through a number of channels. Signboards, for example, can be posted at a variety of locations in the camps and surrounding areas. They should be designed by the refugees wherever possible, should be multilingual and must convey the intended message in an appropriate and unambiguous manner.

- *Environmental awareness-raising and training must include measures to empower communities and their management institutions.*

Training and educational initiatives undertaken with local communities will have limited impacts if these communities are unable to put the lessons into practice. Land access rights, institutional capacity and appropriate incentives can better ensure participation in sustainable management activities.

6.3 Formal Environmental Education

- *Environmental concepts can be integrated into formal education programmes.*

Possible approaches to formal environmental education include supplementing the existing curriculum with additional environmental materials, or developing a separate package of awareness-raising materials. Decisions on whether to introduce environmental education as a separate theme should be made as early as possible. Perhaps surprisingly, evidence from past efforts suggests that infusing environmental concepts into an already overloaded curriculum may be less appropriate than introducing an entirely new subject.

- *Environmental education should be relevant to the needs of refugees and local communities.*

Refugee situations occasionally call for the development of new educational materials to address the teaching and content needs of refugee and returnee audiences and situations. In developing such materials, it is important to work closely with refugee teachers, implementing partners and often local actors, as this promotes a sense of ownership.

- *Environmental education activities should minimise reliance on materials not locally available.*

Acknowledging that educational facilities and teaching resources in refugee situations are often limited, the incorporation of locally-available materials for environmental education and reference to local situations and problems can promote greater uptake, applicability and sustainability. Environmental education activities should be made simple and locally appropriate in order to minimise the likelihood of dependence on external support for their continuation.

- *New teaching methods may require improvements in teachers' competencies.*

In some cases, it may be appropriate to adopt new teaching approaches (e.g. activity-based and problem-solving approaches) to environmental education. These approaches may demand new skills and competencies from teachers and trainers, with a likely shift away from didactic to teacher-centred methods. Capacity-building may be required to develop teaching methods and resources.

① Case Study

Environmental Education in Practise, Ethiopia

An environmental education (EE) programme started in Ethiopia in 1997 was geared primarily towards sensitising pupils and adults on local and global issues relating to natural resource management. This was accompanied with a range of activities designed to integrate these issues within various subjects being taught in selected primary schools – for refugees and nationals.

The programme recognises the three major components to EE: formal, informal and non-formal. Through the formal approach, activities were delivered through the school curricula as a separate subject or integrated into various school subjects. In the case of Ethiopia, many people have accepted that the best formula for this approach is through subjects such as biology, agriculture, geography, home economics and languages. Informal EE is delivered through mass media (radio, newspapers, magazines, TV and the like), while non-formal activities are delivered to targeted social groups, through a community-based approach.

In the formal sector, UNHCR, UNESCO PEER and related Ethiopian implementing partners (Centre for Human Environment, ARRA and the Ministry of Education) have been involved in an EE project for refugee primary schools since 1999. Under this, 46,000 pupils' booklets and accompanying teachers' guides have been developed and printed. Following the printing of the EE materials, a three-day trainer's workshop was held. A total of 95 teachers were trained in the use of the materials. They, in turn, have trained 477 refugee teachers who work within the education system.

In the non-formal sector, a set of environmental measures were identified through the active participation of refugees and local communities which attempted to address environmental problems as well as corresponding social implications. Awareness raising is one of the main activities and was made practical through various community meetings such as sessions, seminars and workshops where different community members (refugee elders, women, men, youth and religious leaders) participated. In such endeavours, diversified environmental issues were discussed. It was attempted to consolidate the theoretical education with practical exercises where different environmental friendly activities were promoted with broad participation from among the beneficiaries. Among the main activities were mud block production, compost making tree planting and soil conservation measures.

As a result of the awareness raising, refugees have showed genuine commitment in environmental protection and development. This was revealed in an increased frequency of camp cleaning, protection of 'mother trees' by setting rules and regulations, and establishing environmental committees. Environmental school clubs were also established and demonstration and application of environmentally friendly technology has taken place. Finally, environmental resource centres have been constructed and equipped with booklets.



UNHCR's environmental activities are designed to prevent, mitigate and, when necessary, rehabilitate the negative effects of refugee settlements on the environment so as to secure the welfare of refugees and local populations, and foster good relations with host governments who provide asylum to refugees.

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