

# ENVIRONMENT



## KEY MESSAGES

- ▶ Existing natural resources need to be managed effectively and sustainably in the camp and surrounding area. The Camp Management Agency should identify ecosystems and natural resources that might be at risk and might need to be protected throughout the life of the camp. It is often easier, cheaper and more effective to protect as much of the natural vegetation, in and around a camp as possible, than to attempt to restore it.
- ▶ Environmental issues can trigger disputes between host and camp communities as the natural environment may represent a common source of economic support. Host communities should be involved in key decision-making that relate to the environment. They should also benefit from some environmental support activities, like tree planting, awareness raising, fuel-efficient stoves and improved animal husbandry.
- ▶ A rapid environmental assessment should be carried out for each site prior to its final selection. A more detailed and thorough environmental assessment can and should be conducted at some later stage when humanitarian priorities have been addressed.
- ▶ The camp environment and surrounding landscape can be managed through a Community-based Environmental Action Plan (CEAP) that identifies critical environmental and related livelihood and social issues. The plan should also help determine what demands can be met without degrading the environment or negatively affecting the welfare of host communities. Discussions with key stakeholders will also help tailor environmental responses as much as possible to the unique needs of the camp landscape. The action plan should also serve as an important basis for monitoring.
- ▶ Attention needs to be given to ensuring that not only the visible impacts on the environment, such as revival of vegetation cover, are addressed. Examples of other issues include the overuse of groundwater resources or contamination of surface or ground water which can unduly effect the local environment.

- ▶ The Camp Management Agency should ensure that environmental guidelines are applied in each setting. Establishment of environmental committees (with representatives from the host and camp communities) is an effective way to do this. The Camp Management Agency should ensure that such committees are well-briefed on experiences which have been learned and documented in other situations in relation to displaced camp populations and the environment.

## INTRODUCTION

Environmental concerns are a feature of every camp and need to be taken into account from the moment a site is selected until after it has been responsibly closed. Soil erosion and the loss of natural vegetation cover are some of the most common and visible environmental impacts. Others such as ground water pollution and soil contamination might be less visible, but are equally important. The nature and scale of these concerns will vary according to the physical location and nature of the operation. Specific considerations will need to be made at the various stages of camp operations and will require careful analysis to modify existing tools and best practices to the particular context where the Camp Management Agency is working.

It is critical to carry out an environmental assessment as soon as a site is considered for temporary placement of a camp, and certainly before a site is finally selected. When viewing different site options, it is important to consider the size of the site that is selected. Larger camps will have concentrated damage due to site infrastructure and potential local harvesting of resources. Smaller camps will cause less intensive damage, but will disperse the damage over a larger area. The UNHCR *Handbook for Emergencies* (2007) suggests a maximum site size of 20,000 persons with one-day walk between camps – in part to reduce environmental damage.

- ▶▶ *Guidance on how to conduct a complete environmental assessment or, when time is precious, an initial rapid environmental assessment, is included on the TOOLKIT CD ROM in the FRAME Toolkit from UNHCR and CARE International, 2005.*

Although not always practical, as a guiding rule, the principle of ‘prevention before cure’ should be applied to every environmental situation in a camp. Demands placed on the physical environment during an emergency are particularly high as people may have no alternative but to cut young trees for shelter, gather grasses or leaves to use as cover, or collect wood to keep warm and cook their food. Even in such situations early recovery or environmental rehabilitation measures should be considered and planned for when conditions might allow them to begin.

## KEY ISSUES

### ROLES AND RESPONSIBILITIES

The Camp Management Agency is responsible for ensuring that environmental considerations are taken into account during all phases of camp operations. Although there may be a specifically designated agency appointed to provide guidance on environmental management, care and rehabilitation of the environment may often not be the top priority for local authorities, humanitarian stakeholders or even donors. In these circumstances, the Camp Management Agency will have a particularly strong advocacy role to play.

Additionally, the Camp Management Agency should:

- Address environmental concerns directly related to the camp site which may include site-specific interests like ensuring that any local or traditional rules governing access to certain places around the camp – such as a sacred forest or hunting of a wildlife species – are known to, and respected by, all camp residents and service providers.
- Intervene and prepare appropriate conflict resolution measures with representatives from local communities. In an environment where natural resources are limited, accessing these (wood and water for example) is often an area of dispute between camp residents and host communities. Preventing or resolving conflicts that might arise over the use of natural resources requires diplomacy.
- Train staff as well as community leaders or camp committees to be aware of the links between environment and protection of the camp population. Special attention is needed to identify groups at risk, especially women and children when collecting fuelwood or performing other household functions.

- Inform camp residents about the environmental impact of a camp. This can be done by raising awareness and planning community-wide events where environment and conservation activities can be highlighted in a meaningful, practical and educational manner.

## Other Environmental Agencies

Working with local or national environmental agencies will be different from one country operation to another. Some countries may have a distinct environmental ministry while others may have a ministry dedicated to related subjects such as agriculture, water and/or natural resources. When working with a lead agency or implementing environment programming on its own, the Camp Management Agency should:

- engage with the relevant government authorities as early as possible in the camp response
- keep in mind that many government agencies will not have had relevant prior experience dealing with refugee or IDP operations: involving them in training on environmental management will help to strengthen their capacity
- consult with authorities well in advance of planned of camp closure and rehabilitation.

▶▶ *For information on camp planning and closure and rehabilitation issues, see chapter 7.*



### Responsible Practice? Voice from the Field

‘A Camp Management Agency operating with a mobile team and monitoring up to 50 small sites, was implementing a maintenance and upgrade project for sanitation facilities. This entailed the private contracting of a ‘gully sucker’ – a truck with a pump to clear out latrines. Time was invested in ensuring that the waste from the lorry was disposed of responsibly on remote and disused land, with the farmer’s permission. As planned, some weeks later the municipal council took over operations, using government resources to clear out latrines in the sites. Their ‘gully sucker’ was seen on cliffs overlooking the nearby beach pumping the contents of the lorry over the edge and into the sea. This issue was taken up with the local authorities.’

## Environmental Staff

While it may not always be practical for the Camp Management Agency to have its own full-time environmental expert, it is important that this responsibility is delegated to at least one focal person and that s/he receives some training in environmental management. This person should be familiar with recommended environmental key policies such as UNHCR's *Environmental Guidelines* and other best practices, like those listed in the tools section of this chapter.

The environmental focal point should also:

- support formation of an environmental committee, ideally including representatives from both the camp population and host community. Environmental committees should have specific Terms of Reference (which includes reporting lines) and when operational, may even draw up specific camp- or village-based rules governing the use and management of natural resources.
- ensure that the partners and colleagues address environmental issues in relation to all other sectors. The focal point needs to be the first person proactively advocating for environmental protection and identifying appropriate measures according to the needs.

▶▶ *See an example of a Terms of Reference for environmental committees on the TOOLKIT CD.*

## Monitoring

Projects that address specific environmental activities such as tree planting, environmental awareness raising, promotion of fuel-efficient stoves and/or agricultural extension will require their own in-built monitoring processes.

Periodic attention will also need to extend to activities addressing the environmental consequences of water extraction, waste disposal or vector control. Household visits and direct observation are also important monitoring aids as these will reveal whether families are using and maintaining facilities such as stoves in the correct manner.

While monitoring the environmental impact and activities, a Camp Management Agency needs to be particularly concerned about the risk that:

- Environmental plans may contradict or be inconsistent with national policies, making the likelihood of achieving effective environmental management more difficult.

- Negative impacts on the environment, although they are severe, may not be priority interventions, and/or the response capacities amongst humanitarian and environmental organisations may not be sufficient.

**!** Mainstreaming environmental protection into sector-specific interventions in the camp requires financial and human resources and planned opportunities for participatory monitoring and evaluation.

## Community Mobilisation

The Camp Management Agency should make sure that camp residents have access to information about environmental management. Messages and guidelines on environmental issues should be simple and easy to understand. Different activities can be undertaken to raise and maintain environmental awareness within the camp. These may include:

- organising special occasions, such as celebrations for World Environment Day on June 5th
- including camp-wide community mobilisation activities when designing a camp's Environmental Management Plan
- promoting camp site clean-up or tree-planting campaigns.

Sharing special events with local communities also helps maintain good relations. Providing training and support to school environmental clubs is another means of promoting environmental awareness.

►► *For information on participation and community involvement, see chapter 3.*

**!** Competitions can be one successful way of encouraging children in the camp to take responsibility for their environment. Teams of litter monitors can compete against each other to see who can collect the most rubbish in a given time; with a prize for the winner! Care should be taken however, to ensure that competitions are not misused by those in pursuit of prizes. Monitoring may be needed to ensure that the rubbish dump isn't purposely strewn across the camp, just so it can be re-collected!

## SHELTER

Where natural resources like wooden poles, grasses and leaves are used to construct family shelters, the materials are often gathered from near the camp site. When shelters are built with local materials, the average quantity of wood required for basic shelters is typically 80m of straight poles with an average diameter of 5cm. Many such resources need to be replaced on a regular basis due to termite attacks.

Prior to a distribution of shelter materials such as plastic sheeting the Camp Management Agency should consider that their distribution may lead to the felling of timber to build support structures. Consequently, organisations may choose to distribute structural as well as covering materials. Grasses and foliage used in making roof cover often have a specific season for harvesting. Harvesting during the seeding season will reduce future harvests, while harvesting at other seasons may make them more susceptible to insect attack – reducing the material's lifetime.

Depending on the context, timber may also rot or be attacked by insects. For it to last any length of time, timber or bamboo should be cured (dry) and ideally treated.

▶▶ *See the guidelines being developed at [www.humanitarian-timber.org](http://www.humanitarian-timber.org)*

Sun-dried mud-bricks used for walls or vaulted ceilings offer a possible alternative to timber in some situations, especially where concrete or steel may be culturally unfamiliar. Brick-built houses are generally more durable and offer better living conditions. They also reduce the amount of wood typically needed for construction by around 80%. However, significant amounts of water are required to establish the correct mixture. Pits excavated for mud will fill with water and can become a breeding pond for malaria-transmitting mosquitoes if not filled.

**!** Some of the excavated water pits used in brick-making might be converted into compost pits. As open pits are a hazard to children and animals (and in some wet climates may also serve as breeding sites for disease carrying vectors such as mosquitoes), the Camp Management Agency should make sure that they are fenced off as soon as possible and that local climatic conditions are observed before converting.



If shelter materials are not provided, there may be a need to organise the cutting of selected trees from designated and controlled harvesting sites. When materials are being brought in from outside the site, they should be sourced from locations where they have been harvested or gathered in an environmentally friendly way.

▶▶ *For more on shelter-related issues, see chapter 15.*

## WATER AND SANITATION

### Water

Water should be safe for drinking, cooking and personal hygiene. In order to promote sound environmental management, it is essential to ensure that existing water sources such as springs are protected from:

- livestock
- latrines, which should ideally be placed at a 30m distance and downstream
- clothes washing and bathing areas
- burial grounds
- waste disposal sites.

**!** The Sphere Project, 2004, states that “the bottom of latrine pits should be a minimum 1.5m above the maximum water table.” This distance may need to be increased for fissured rocks or limestone, or decreased in fine soils. Drainage or spillage from defecation systems must not flow towards surface water or shallow groundwater sources.

▶▶ *For more information on standards on latrine placement and hygiene promotion see chapter 14.*

**!** Health education, environmental education and hygiene promotion activities should include information on how to avoid contamination of water sources.

## Erosion

Particularly where camp sites are established in hilly regions, the removal of vegetation and trees can lead to severe erosion and deep clefts on slopes. There are examples where, after some years of a camp's existence, members of the host community in the surrounding areas had to be moved because agriculture was no longer possible on their land.

The Camp Management Agency should actively advocate for the prevention of excessive removal of vegetation cover – both in and around a camp – in order to ensure that rainwater is rapidly absorbed into the ground. This, in turn, can lead to replenishment of underground water reservoirs and, in some instances, prevent water shortages and periodic drought.

**!** Erosion is particularly an issue in site construction. Avoid site clearance and levelling with heavy earth-moving equipment (bulldozers). Hand clearing can also provide income for camp residents and encourage participation in site set-up.

►► *For more information on camp set up and closure, see chapter 7.*

## Rainwater Harvesting

In dry or seasonal environments, efforts can be made to encourage the use of basic rainwater harvesting methods. Often a much-overlooked practice – and one with which camp residents may already be familiar – collecting and storing rain water can significantly supplement a camp population's supply during periods of heavy rain and reduce the risk of drinking contaminated water. Unless large reservoirs are built, the volume of water collected will not last to the end of a dry season. Collecting water from roofs has been most successful in regions with heavy and prolonged rains.

For best results, the following options should be considered:

- harvesting rainwater from roofs where solid surfaces like clean plastic or metal can reduce contamination from leaves and grasses, and animal droppings
- trapping water flowing on the ground, gradually directing this towards storage units such as tanks or containers
- encouraging local innovation to design appropriate systems of harvesting.

## Sanitation

Closely linked to water availability is the issue of environmental sanitation. Consideration should be given to:

- location and maintenance of latrines
- disposal of human excreta
- hygiene promotion
- removal of wastewater, including that from drains
- elimination of solid and liquid camp waste – which may range from medical waste to packaging
- dust and the control of insects, rodents, vectors and other pests.

►► *For more information on sanitation, see chapter 14.*

**!** The separation of types of garbage, into biodegradable and non-biodegradable waste, should be encouraged as should recycling schemes and the composting of waste food matter for use in gardening and agricultural initiatives.

## DOMESTIC ENERGY

In camp situations, the most visible and lasting environmental impact is often damage to the surrounding area caused by the collection of wood for cooking. Other natural resources, like animal dung and crop residues, are commonly used by displaced people for cooking, heating and as a source of light. Although circumstances will be different in each location, an average family requires between 1-2 kg, and as much as 4-5 kg, of fuelwood per day for cooking. Every effort should be made to limit the amounts of natural resources used in food preparation through:

- Promoting regular use of fuel-efficient stoves for when they are used properly they can significantly reduce the amount of fuel required. Experience has shown that for fuel-efficient stoves to work well in a camp environment there ideally needs to be a local shortage of fuelwood. This can be induced ‘artificially’ through tighter control over the free collection of wood. Users also need time to become familiar with the stove design and knowledgeable about its upkeep.

- Encouraging the practices of drying and splitting wood before burning and extinguishing fires once cooking has ended.
- Discussing with the Food Pipeline Agency the possibility of distributing split, rather than whole, pulses, and/or encouraging the camp community to soak hard foods such as beans or mill cereals.
- Promoting shared cooking among groups of households: however, in some cultures this may not be acceptable and also ruled out where food rations are the primary source of food.

Some resistance to uptake of fuel-efficient stoves is likely, part of which might be related to people's unfamiliarity with the technology. As some foods are not suitable for cooking with fuel-efficient stoves some degree of modification of the food basket might be necessary. This should be done in consultation with households or communities and the food pipeline agency.

- ▶▶ *See the World Food Programme's Fortified Blended Food Recipe Book*
- ▶▶ *For information on food and non-food item distributions, see chapter 13.*

**!** The Camp Management Agency should carry out needs and availability assessments of natural resources such as fuelwood and should monitor the situation and update findings regularly. Knowing requirements and ways to complement the supply will help determine a better-managed system.

**!** Fuelwood, the most widely used source of energy in most camps, is often collected from the surrounding environment. In certain circumstances, high demands for fuelwood can lead to competition with host communities, a situation which can result in conflict and significant land degradation.

Energy conservation should be an integral part of an Environmental Management Plan and associated awareness-raising campaigns. Special provision may need to be made for groups at risk who may not be able to collect or purchase fuel. Other options for cooking should also be considered.

►► See UNHCR's *Handbook of Experiences in Energy Conservation and Alternative Fuels*.

### **! Unintended Consequences**

The free-of-charge collection, transportation, storage and distribution of fuelwood organised by humanitarian organisations or local administrations is, in some situations, the only way of providing camp populations with their basic requirements. This may, however, encourage camp residents to additionally collect wood in the area surrounding the camp and sell it on markets or make charcoal out of it. It is necessary that the Camp Management Agency monitors the camp population's use of fire wood as well as the availability of fuelwood and charcoal on the nearby markets.

## **ENVIRONMENTAL MANAGEMENT PLAN**

In both long- and short-term camp operations, the environment will be affected in many ways. There may be additional impacts passed on to the host community, given the increased demand or competition for specific or scarce natural resources. Some of these demands may be constant, so it is important that the Camp Management Agency:

- monitors their impacts on natural resources and aligns its programmes to deal with these
- proactively advocates for the implementation of additional programmes for environmental protection
- introduces alternative technologies and practices such as more efficient use of fuel and improved cooking practices.

One such tool to monitor environmental issues is a Community-based Environmental Action Plan (CEAP). Intended as a means for camp as well as host communities, local authorities, the Camp Management Agency, and other service providers to discuss common concerns and agree on a way to address them, a CEAP needs to identify environmental impacts in all camp sectors and include a priority list of interventions – such as rehabilitation of eroded areas and re-forestation). Some of the benefits of having such a plan are to:

▶▶ See an example from UNHCR and CARE International in the Tools section of this chapter.


- prepare community members to take care and preserve the environment while living in the camp
- illustrate the main problems to all stakeholders
- allow people to become engaged in the process as well as in practical actions
- highlight how the main problems might be addressed
- specify who and/or what actions are required in order to address the key issues and needs identified.

As long as the community feels ownership for the plan – through developing and implementing it themselves – it should also be able to adapt the plan to changing circumstances over time.

## Environmental Rehabilitation

Environmental rehabilitation does not necessarily mean returning the site to its former status. This could be costly and time-consuming, if indeed it could actually be achieved. What may be more appropriate is to determine what the host community would like to see happen to the site once the camp has been closed and the site made safe. They may not wish to see it returned to its past status. By pointing out different options that could perhaps be realistically achieved and more useful to them, the Camp Management Agency can ensure that environmental considerations are taken into account. Some options to suggest are:

- income-generating activities spanning a range of short-term benefits from market gardening to longer term investments such as hardwood production
- turning an empty former camp site entirely into a community plant nursery and tree plantation where the population has access to the many goods and services these can provide, according to their agreed regulations.

 In situations where camps are located on private land, the rehabilitation of the camp site should take place in close communication with the land owner and in accordance with prior agreements.

## Planting Trees

Tree-planting schemes often meet with mixed success in camp situations. While planting trees can serve as a useful indicator to visibly demonstrate that action is being taken to protect or restore the environment, some simple lessons should be heeded:

- Plants grown in camp- and village-based nurseries should reflect the required needs of people living in the area: this necessitates prior consultation with the different stakeholders.
- Displaced people may not always see the benefit of planting or caring for trees as their hope is most often to be able to return home, as soon as possible. Planting or caring for trees is also not part of certain cultures. In many instances, however, people appreciate that they can easily grow a few fruit or shade-giving trees around their shelter and that this will provide some positive return.
- The number of seedlings grown in a nursery is often a poor indicator of success, but one that is widely used for monitoring. The number of trees surviving after two years following planting is much more useful.
- Establishing a woodlot for fast-growing, and ideally indigenous, species can help address shortages of fuelwood and/or construction materials. As with all plantations, however, the issue of ‘who owns the trees’ needs to be determined in advance.
- It is always preferable to support the planting of native over introduced exotic tree species. A balance may need to be struck in some situations depending on local needs.

**!** Tree planting is a long term project! Projects must be funded for many years and/or adopted by local communities. Otherwise, they are sure to fail.

## AGRICULTURE

Many camp residents establish small-scale agriculture projects while displaced. Local rules, previous experience and the amount of available space, will dictate the range of farming activities. Using household waste water to irrigate fruit trees or vegetable gardens can be a good conservation technique, especially in places where gardens are located within a family compound or in circumstances where water is in short supply.

To make sure that forests and ground vegetation are not negatively impacted, the Camp Management Agency needs to monitor agricultural cooperation between local land owners and camp residents whose contributions or labour are usually paid by incentives or a shared portion of the harvest. Clear guidance must be given to people as to which land might be used for agriculture and which areas must remain untouched. Local rules governing land clearance and access must be established. Consideration should also be given to:

- protecting and maintaining as much vegetation cover as possible, within and around the camp, to conserve both soil structure and nutrient content
- encouraging organic farming practices, including composting and crop rotation: the use of chemicals and/or pesticides should be avoided. If people are unfamiliar with more environmentally-friendly options of farming, practical demonstration plots are a powerful means of showing what can be achieved with limited land and few resources
- preventing soil erosion by building terraces or contour bunds (rocks or ridges of compressed soil) that break up the flow of water and channel water away from certain parts of a camp or towards zones where water may usefully be collected. The correct alignment of roads and the location of infrastructure is also important in terms of preventing soil erosion
- offering technical services, where larger scale agriculture is practiced.

## **LIVELIHOODS**

Many natural resources lend themselves to immediate personal use or potential gain through sale. Wild fruits, herbs, plants and even wild animals may be caught and consumed or sold. Camp residents often collect fuelwood, or transform it into charcoal to gain quick cash. To avoid such direct environmental exploitation and to ensure the security and welfare of the camp population, the Camp Management Agency should:

- clearly articulate which types of activities are allowed, or are strictly prohibited, and get written agreements with camp authorities as well as, the host community
- develop awareness of income-generating activities that are linked with the use of natural resources. Small-scale craft making such as baskets, mats and screens from grasses, and small furniture items from bamboo or wood may increase livelihoods, but the scale of these initiatives needs to be balanced with environmental interests.



▶▶ *For more information on livelihoods, see chapter 18.*

## **LIVESTOCK**

Keeping livestock may not be possible in every camp situation, but where it does take place, special provisions need to be made in order to:

- have separate watering points – distant from people’s living shelters and not contaminating ground or surface water bodies
- ensure adequate sanitation around all animal pens and watering points
- prevent transmission of disease and parasites by encouraging good animal husbandry practices and vaccination campaigns in collaboration with veterinary services
- provide continuous sources of fodder – this may require adequate grazing land for free-ranging animals or a supply of cut food for penned livestock. Arrangements may be needed with local communities for grazing rights for herds of larger animals.

▶▶ *See [Livestock Emergency Guidelines and Standards \(LEGS\)](http://www.livestock-emergency.net) at [www.livestock-emergency.net](http://www.livestock-emergency.net)*

## CHECKLIST FOR A CAMP MANAGEMENT AGENCY

### ROLES AND RESPONSIBILITIES

- An initial rapid environmental assessment (REA) is conducted prior to site selection.
- Further surveys or plans for a more thorough environmental assessment (EA) are considered and planned.
- The person or team of people to carry out the assessments are selected.
- Environmentally sensitive or protected areas around the camp are known and mapped.
- Main environmental management issues and priorities are identified in and around the camp.
- Local authorities and lead agencies are consulted to verify that the camp site and environmental priorities are those approved/endorsed by their department/agency.
- Environmental requirements and resources to be protected are verified with the neighbouring or host community.
- Information is communicated to all key stakeholders.
- Relocation plans are prepared for persons that need to be moved in order to protect critical natural resources.
- The camp layout considers land contours to minimise erosion.
- The camp layout considers maintaining as much existing vegetation cover as possible to reduce risks of erosion.
- A CEAP is developed and implemented.

- ❑ Standards and Indicators for environmental monitoring are discussed and established.
- ❑ All relevant programmes initiated in the camp contain an environmental awareness-raising component.
- ❑ The camp staff, host community, community leaders and committees are trained in, or otherwise informed of, matters related to environmental protection and the negative effects of poor environmental planning.
- ❑ Environmental committees are formed.

## **SHELTER**

- ❑ Shelter materials (especially timber), including those brought from other areas, are from sustainable sources.
- ❑ The collection of materials required for construction of shelter is managed to ensure sustainable use of the local resources.
- ❑ The implications of mass production of shelter materials are considered (i.e. water requirements for mud brick/concrete).
- ❑ Natural materials are harvested at the right time of the year to ensure sustainability of future harvests.

## **WATER AND SANITATION**

- ❑ Existing water sources and ground water are protected from contamination from livestock, latrines, clothes washing and bathing areas, rubbish pits and burial grounds.
- ❑ The “four R” guidelines (“Reduce water consumption! Rainwater harvesting! Recycling water! Restore the natural water cycle!”) are used and practised.
- ❑ Groundwater sources are used appropriately/sustainably to prevent long-term damage (i.e. salination or reduction) of the aquifer.
- ❑ Latrines are appropriately sited and constructed to ensure that they do not pollute groundwater or the surrounding area.

- Mechanisms are in place to empty latrines and dispose waste appropriately away from the site.
- Latrine and waste facilities are safely decommissioned once full.
- A solid waste management system and strategy are in place which includes recycling and composting.
- Composting is promoted as a means to improve fertility of garden/agricultural plots.
- Solid waste (including medical waste) is disposed of properly both on-site and off-site if removed from the area.
- Solid waste pits are appropriately sited and constructed to ensure that they do not pollute groundwater or the surrounding area.
- Clearly demarcated burial sites are sited to ensure that they do not pollute groundwater or the surrounding area.
- Appropriate drainage/bunds are constructed to reduce surface water runoff and erosion.
- 'Non-chemical' but physical methods of vector control are considered.

## **LIVELIHOODS**

- If livestock are present, there is sufficient grazing and fodder available to feed them locally.
- Surrounding areas are accessible and appropriate for grazing.
- Grazing rights are arranged with the host community.
- Separate watering points are established for livestock.
- Organic farming practices are encouraged for cultivation in and around the camp.

- Locally appropriate crop species are encouraged.
- Composting and crop rotation are encouraged to maintain soil fertility.

### **FIREWOOD/FUEL**

- Periodic assessments are conducted of the amount of fuelwood (or other energy sources) needed and being harvested.
- Alternative sources of domestic energy are identified and promoted.
- Protection concerns related to fuelwood collection are identified and dealt with.
- Alternative strategies are developed to ensure both protection of camp residents and natural resource conservation.
- Plans are established for programmes to reduce environmental impacts – i.e. tree nurseries for future provision of fuelwood.
- Fuel-efficient cooking methods are promoted.

### **ENVIRONMENTAL REHABILITATION**

- Projects are put in place to rehabilitate the camp once people return home.
- Implementing agencies and local authorities have funds available for the clearing/decommissioning of the camp.
- Plans are drawn up and agreed in advance regarding any intended future use of the camp site and existing infrastructure.
- Reputable organisations and institutions are identified to rehabilitate the site and remove potential contaminants and physical dangers.
- The host community is consulted about rehabilitation of the camp area and site.
- Tree planting schemes are appropriately funded for an adequate time period. Emphasis is placed on using native tree species.

## TOOLS

**!** Almost all the tools, publications and other documents referred to are available on the Toolkit CD attached to every hardcopy binder. Weblinks are provided for downloadable online resources.

- RedR Latrine Decommissioning Training Notes from South East Asia
- Best Practice Guidelines for the on-site Decommissioning of Emergency and Semi-Permanent Raised Level Latrines from Sri Lanka

## READING AND REFERENCES

**Maarten K. van Aalst. *The Impacts of Climate Change on the Risk of Natural Disasters*.** [www.blackwell-synergy.com/doi/pdf/10.1111/j.1467-9523.2006.00303.x](http://www.blackwell-synergy.com/doi/pdf/10.1111/j.1467-9523.2006.00303.x)

**Benfield Hazard Research Centre (BHRC), University College London (UCL), CARE, 2005. *Guidelines for Rapid Environmental Impact Assessment in Disasters*.** [www.benfieldhrc.org/disaster\\_studies/rea/rea\\_guidelines.v4.4.pdf](http://www.benfieldhrc.org/disaster_studies/rea/rea_guidelines.v4.4.pdf)

**Rustem Ertegun, 2002. *Balancing Upon a Fine Line – Humanitarian Action and Environmental Sustainability*.** [http://findarticles.com/p/articles/mi\\_m1309/is\\_4\\_39/ai\\_96951843](http://findarticles.com/p/articles/mi_m1309/is_4_39/ai_96951843)

**Inter-Agency Standing Committee, Task Force on Safe Access to Firewood and Alternative Energy in Humanitarian Settings (website).** [www.humanitarianinfo.org/iasc/content/subsidi/tf\\_SAFE/Default.asp?bodyID=67&publish=0&publish=0](http://www.humanitarianinfo.org/iasc/content/subsidi/tf_SAFE/Default.asp?bodyID=67&publish=0&publish=0)

**OCHA, UNEP. *Humanitarian Action and the Environment*** [http://postconflict.unep.ch/publications/IASC\\_leaflet.pdf](http://postconflict.unep.ch/publications/IASC_leaflet.pdf)

**The Sphere Project, 2004. *Humanitarian Charter and Minimum Standards in Disaster Response*.** [www.sphereproject.org/component/option,com\\_docman/task,catalog\\_view/gid,17/Itemid,203/lang,English/](http://www.sphereproject.org/component/option,com_docman/task,catalog_view/gid,17/Itemid,203/lang,English/)

**UN Environment Programme, 2006. *Environmental Considerations of Human Displacement in Liberia: A guide for decision-makers and practitioners.***

[http://postconflict.unep.ch/publications/liberia\\_idp.pdf](http://postconflict.unep.ch/publications/liberia_idp.pdf)

**UNHCR, 1998. *Refugee Operations and Environmental Management: Key Principles for Decision-making.*** [www.unhcr.org/cgi-bin/texis/vtx/protect/opendoc.pdf?tbl=PROTECTION&id=3b03b24d4](http://www.unhcr.org/cgi-bin/texis/vtx/protect/opendoc.pdf?tbl=PROTECTION&id=3b03b24d4)

**UNHCR, 2002. *Cooking Options in Refugee Situations. A Handbook of Experiences in Energy Conservation and Alternative Fuels.*** [www.unhcr.org/protect/PROTECTION/406c368f2.pdf](http://www.unhcr.org/protect/PROTECTION/406c368f2.pdf)

**UNHCR, 2002. *Refugee Operations and Environmental Management. Selected Lessons Learned.*** [www.sheltercentre.org/shelterlibrary/items/pdf/refugees\\_operations\\_environmental\\_management\\_hanbook.pdf](http://www.sheltercentre.org/shelterlibrary/items/pdf/refugees_operations_environmental_management_hanbook.pdf)

**UNHCR and CARE International, 2002. *Livelihood Options in Refugee Situations, A Handbook for Promoting Sound Agricultural Practices.*** [www.sheltercentre.org/shelterlibrary/items/pdf/Livelihood\\_options\\_refugees\\_situations.pdf](http://www.sheltercentre.org/shelterlibrary/items/pdf/Livelihood_options_refugees_situations.pdf)

**UNHCR, 2005. *Environmental Guidelines.*** [www.unhcr.org/cgi-bin/texis/vtx/protect/opendoc.pdf?tbl=PROTECTION&id=3b03b2a04](http://www.unhcr.org/cgi-bin/texis/vtx/protect/opendoc.pdf?tbl=PROTECTION&id=3b03b2a04)

**UNHCR and IUCN, 2005. *Forest Management in Refugee and Returnee Situations. A Handbook of Sound Practices.*** [www.unhcr.org/protect/PROTECTION/438724c42.pdf](http://www.unhcr.org/protect/PROTECTION/438724c42.pdf)

**UNHCR and IUCN, 2005. *Livestock Keeping and Animal Husbandry in Refugee and Returnee Situations. A Practical Handbook for Improved Management.*** [www.unhcr.org/protect/PROTECTION/4385e3432.pdf](http://www.unhcr.org/protect/PROTECTION/4385e3432.pdf)

**UNHCR, CARE, 2005. *Framework for Assessing, Monitoring and Evaluating the Environment in Refugee-related Operations.*** [http://postconflict.unep.ch/liberia/displacement/documents/UNHCR\\_CARE\\_FRAME\\_Toolkit.pdf](http://postconflict.unep.ch/liberia/displacement/documents/UNHCR_CARE_FRAME_Toolkit.pdf)

**UNHCR, 2007. *Handbook for Emergencies***  
[www.reliefweb.int/rw/lib.nsf/db900SID/AMMF-75TFLQ?OpenDocument](http://www.reliefweb.int/rw/lib.nsf/db900SID/AMMF-75TFLQ?OpenDocument)

**Women's Commission for Refugee Women and Children, 2006. *Beyond Firewood: Fuel Alternatives and Protection Strategies for Displaced Women and Girls.***  
[www.womenscommission.org/pdf/fuel.pdf](http://www.womenscommission.org/pdf/fuel.pdf)

