

Site Selection, Planning and Shelter

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Situation

Suitable, well-selected sites and soundly planned refugee settlements with adequate shelter and integrated, appropriate infrastructure are essential from the early stages of a refugee emergency, as they are life-saving and alleviate hardship. Accommodating refugees in emergencies may take place in host families/communities, or take the form of mass accommodation in existing shelters or organized camps. Initial decisions on the location of the camp should involve the host government as well as local authorities and communities. Likewise, layout should involve the refugees. This approach is necessary to avoid long-term protection issues, such as conflict with local communities; it will also help to ensure a safe environment for the refugees and the delivery of humanitarian assistance.

Objectives

To provide suitable sites and shelter, in order to accommodate refugees in emergencies.

Principles of Response

- In addition to meeting the immediate needs, planning should take into consideration the long-term provision of services even if the situation is expected to be temporary.
- Decisions on site selection and camp planning are very difficult to reverse, therefore seek technical support.
- Avoid high population density congestion in settlements and in accommodation;
- Avoid very large settlements; refugee camps should normally be considered as the last option.
- Involve refugees in all phases of settlement layout and shelter design and construction.
- Use a bottom-up planning approach, beginning with the smallest social units, preserving traditional social arrangements and structures as far as possible.
- Develop a comprehensive master plan with a layout based on open community structures and for the provision of community services, such as water points, latrines, showers, cloth-washing facilities and garbage collection in such a way as to promote ownership and maintenance of the services.

Action

- Identify the most suitable option or combination of options for accommodating the refugees.
- In the case of planned camps, assess the suitability of the refugee site and ensure that it meets the basic criteria.
- Provide suitable shelter.
- Simultaneously, assess the most immediate needs for emergency shelter and provide the necessary materials that cannot be met from locally available resources.
- In the case of spontaneous settlement, identify the most urgently required measures to improve site planning and layout, and implement these as soon as possible.

Introduction

1. Aside from being a life-saving measure, having a place to live is a basic human right and this should be upheld by providing shelter and a friendly environment. The layout, infrastructure and shelter of a camp will have a major influence on the safety and well-being of refugees. Therefore, other vital sectors such as water (good quality, quantity and ease of access), sanitation, administration and security, food distribution, health, education, community services, and income-generating activities should be taken into consideration during the humanitarian response.
2. Most refugee operations last much longer than initially anticipated, therefore, site selection, camp planning and provision of assistance should take this into consideration, bearing in mind the exit strategy from the start.
3. The role and responsibility of the local and national authorities in site selection is of fundamental importance. Equally, the refugees themselves must be involved as early as possible. Ideally, the needs and human rights of the refugees should determine the size and layout of the site. In practice, a compromise normally has to be made when considering all of the relevant elements.
4. Good site selection, planning and shelter will:
 - i. uphold UNHCR's protection mandate;
 - ii. minimize the need for difficult, corrective measures later;
 - iii. make the provision of services easier and more cost-effective; and
 - iv. ensure most efficient use of land, resources and time.
5. Emergency refugee settlements generally fall into one of three categories:

- i. dispersed settlements/host families;
- ii. mass shelter; and
- iii. camps: (a) spontaneous and (b) planned.

Dispersed Settlements/Host Families

6. This type of arrangement is where the refugees find accommodation within the households of families who already live in the area of refuge. The refugees either share existing accommodation or set up temporary accommodation nearby, and share water, sanitation, cooking and other services of the pre-existing households.

7. Accommodation is often found with extended family members or with people of the same ethnic background. This type of arrangement may occur in rural or urban settings. The advantages of this type of settlement are:

- i. quick implementation;
- ii. limited administrative support;
- iii. low cost;
- iv. self help and independence fostered; and
- v. lesser impact on the local environment than camps.

8. The disadvantages of this type of settlement are:

- i. the host families and communities can become overburdened and impoverished;
- ii. it can be difficult to distinguish the host population from the refugees and this may pose problems where population estimation and registration are required;
- iii. protection, nutrition and health problems may not be as easy to detect as when the population is more concentrated; and
- iv. shelter and other forms of assistance are likely to be needed by the host population, as well as the refugees.

9. In order to alleviate some of these disadvantages, the host communities can be supported through Quick Impact Projects (QIPs), whereby increasing needs of the community could be met through UNHCR assistance.

Mass Shelter: Public Buildings and Community Facilities

10. This type of settlement is where refugees are accommodated in pre-existing facilities, for example, in schools, barracks, hotels, gymnasiums or warehouses. These are normally in urban areas and are often intended as temporary or transit accommodation. The advantages of this type of settlement are:

- i. they are not continuously inhabited during normal use and refugees can be accommodated immediately without disrupting accommodation in the hosting area;
- ii. services, such as water and sanitation are immediately available, though these may be inadequate if the numbers are large; and
- iii. the need to construct additional structures specifically for the refugees is avoided.

11. The disadvantages of this type of settlement are:

- i. they can quickly become overcrowded;
- ii. sanitation and other services can become overburdened;
- iii. equipment and structure can be damaged;
- iv. buildings are no longer available for their original purpose, thus disrupting public services to the hosting population (consequently, schools etc. should be evacuated as early as possible); and
- v. lack of privacy and increased protection risks.

Camps

Spontaneous Camps

12. This type of camp is formed without adequate planning, so as to meet immediate needs. In addition to creating an unfriendly environment, such camps may make the provision of services more cumbersome and costly.

Spontaneous camps should be avoided to the extent possible.

13. Generally, spontaneous camps have more disadvantages than advantages, for example, it may be necessary:

- i. to redesign the camp (where resources are available); and
- ii. to relocate, as early as possible, to a well-identified site; especially if there is conflict with local community.

14. High-density camps with very large populations are the worst possible option for refugee accommodation and an intolerable strain on local services; however, this may be the only option because of decisions by the host country or simply because of a lack of sufficient land.

Planned Camps

15. This type of settlement is where refugees are accommodated in purpose-built sites, where a full range of services, within possible means, are provided.

16. The advantages of this type of settlement are:

- i. services can be provided to a large population in a centralized and efficient way;
- ii. there may be economies of scale in the provision of some services, compared with more dispersed settlements;
- iii. the refugee population can be easily identified and communicated with; and
- iv. voluntary repatriation can be more easily organized.

17. The disadvantages of this type of settlement are:

- i. high population density seriously increases health risks;
- ii. high risk of environmental damage in the immediate vicinity of the camp;
- iii. high population concentrations and proximity to international borders may expose the refugees to protection problems; and
- iv. large camps may provide a hiding place and support base for persons other than refugees; it may be difficult to distinguish these people from the normal refugee population and thus they may continue to benefit from assistance.

Organization of Response

Site selection, planning and shelter have a major bearing on the provision of other assistance.

This subject must therefore be considered as essential to the needs and resource assessment and response.

Expertise and swift coordinated planning are necessary for a new site or the improvement of existing conditions.

Introduction

18. Site selection, planning and the provision of shelter have a direct bearing on the provision of other assistance. These will be important considerations in the overall needs assessment and planning of response. Decisions must be made using an integrated approach, incorporating both the advice of specialists and the views of the refugees.

Contingency Planning

19. Ideally, sites should be selected and planned prior to the arrival of the refugees; however, an unoccupied, developed site may send the wrong signal and encourage people to cross the border.

20. Frequently, the scale, nature, timing or direction of movement of the refugee flow will mean that some or all aspects of a contingency plan may need to be modified in the face of changing or unforeseen events; however, the information previously gathered in the contingency planning process will usually be useful.

Information for Site Selection and Planning

21. The contingency plan and information already available, combined with visual and technical evaluation, should assist in the selection of the most suitable site. Information that is essential for site selection and planning will often be in the form of maps, reports, surveys and other data as reflected in the table in the Annex to this Chapter: "Sites Criteria".

It should be noted that each criteria should be reviewed and commented on in relation to the minimum standards (see Appendix 1, Toolbox: Table 1 Key Emergency Indicators) rather than using a grading system which would become misleading.

22. Sources of information for site selection and planning should include local authorities and communities, government offices, educational institutions and UN agencies. UNHCR Headquarters, through the focal point on Geographical Information Systems (GIS), can also support operations with maps, aerial photographs, satellite images and a special geographic database. Furthermore, the Technical Support Section (TSS) at Headquarters, upon request, could assist in the process of site selection and planning.

Expertise and Personnel

23. Expertise may be required in the fields of hydrology, surveying, physical planning, engineering (e.g. water supply, environmental sanitation, road and bridge construction, building materials, etc.), public health, the environment and perhaps social anthropology. Familiarity with conditions in both the country of origin and of asylum is very important. Prior emergency experience and a flexible approach are particularly valuable.

24. Expertise and advice should be sought through UNHCR's Technical Support Section (TSS), which will advise on the fielding of a specialist to coordinate activities in this sector. Potential sources of the necessary expertise are government line ministries, national and international NGOs, engineering faculties, local industry and professional organizations, as well as other UN organizations.

25. Site selection and settlement planning require broad consultations with all concerned in the planning, development and use of the site. When appropriate, multi-sector planning teams, work-groups or task-forces might be formed to better structure consultations and solicit inputs. Consensus should be sought, though it is rare that the needs of all the parties will be fully satisfied.

Criteria for Site Selection

Land may be scarce in the country of asylum and no site may be available that meets all of the desired criteria. If, however, the site does not meet the basic characteristics as mentioned in the Annex "Sites Criteria" and is clearly unsuitable, every effort must be made to convince the host government regarding another location. The problems associated with an unsuitable site would be enormous in terms of protection and financial implications, which would escalate over time.

Introduction

26. The social and cultural backgrounds of the refugees are important determinants in site selection, physical planning and shelter. In many circumstances, however, options will be limited and land that meets even minimum standards may be scarce. It is therefore wise to put on record the shortcomings of the site and the rationale for its selection.

Water Supply

27. A specialist's assessment of water availability should be a prerequisite in selecting a site.

The availability of an adequate amount of water on a year-round basis has proved in practice to be the single most important criterion, and commonly the most problematic.

A site should not be selected on the assumption that water can be found merely by drilling, digging, or trucking. Drilling may not be feasible or may not provide water in an adequate quantity and quality. No site should be selected where the trucking of water will be required over a long period.

Size of Camp Sites

28. While there are recommended minimum area requirements for refugee sites, these should be applied cautiously and with flexibility. They are a rule of thumb for an initial calculation, rather than precise standards.

Ideally, the recommended minimum surface area is 45 m² per person when planning a refugee camp (including kitchen/vegetable gardening space). However, the actual surface area per person (excluding garden space) should not be less than 30 m² per person.

The bare minimum figure of 30 m² surface area per person includes the area necessary for roads, foot paths, educational facilities, sanitation, security, firebreaks, administration, water storage, distribution, markets, relief item storage and, of course, plots for shelter. The figure of 30 m² does not include, however, any land for significant agricultural activities or livestock. Although agricultural activities are not usually a priority during emergencies, small vegetable gardens (kitchen gardening) attached to the family plot should be included in the site plan from the outset. This requires a minimum increase of 15 m² per person, hence, a minimum of 45 m² overall land allocation per person would be needed.

29. Large camps of over 20,000 people should generally be avoided. The size of a site for 20,000 people should be calculated as follows, assuming space for vegetable gardens is included:

20,000 people x 45 m² = 900,000 m² = 90 hectares (for example, a site measuring 900 m x 1000 m).

30. If possible, there should be a substantial distance between each camp. The distance depends on a number of factors: access, proximity of the local population, water supplies, environmental considerations, and land use and land rights.

31. Refugee settlements should have potential for expansion to accommodate an increase in the population due to natural increases or new arrivals. The excess of births over deaths means that the population could grow as fast as 3-4% per year.

Land Use and Land Rights

32. In most countries, land for the establishment of refugee camps is scarce. Often, sites are provided on public land by the government. Any use of private land must be based on formal legal arrangements through the government and in accordance with the laws of the country.

Note that UNHCR neither purchases nor rents land for refugee settlements.

Headquarters should be consulted immediately, if there is a problem with land use and/or land rights.

33. Once a possible site has been identified, the process of site assessment for eventual selection should always include clarification of land-ownership and land rights. Almost invariably, land rights or ownership are known, even though these may not be well documented in public records, or may not be obvious. Nomadic use of range-land, for instance, requires huge areas and may not appear used.

34. The refugees should have the exclusive use of the site through agreement with national and local (including traditional) authorities. Traditional or customary land-use rights are very sensitive issues, and even if there may be an agreement with the national government to use a site, local groups may disagree with the site being used, even temporarily. Clarification of access rights and land-use restrictions are also necessary to define the rights of the refugees to:

- i. collect fuel-wood, and timber for shelter construction, as well as fodder for animals;
- ii. graze their animals; and
- iii. engage in agriculture or other subsistence activities.

Security and Protection

35. In principle, the granting of asylum is not an unfriendly act by the host country towards the country of origin. However, to ensure the security and protection of the refugees, it is recommended that they be settled at a reasonable distance from international borders, as well as other potentially sensitive areas such as military installations.

The Organization of African Unity Refugee Convention (OAU Convention) states: "For reasons of security, countries of asylum shall, as far as possible, settle refugees at a reasonable distance from the frontier of their country of origin".¹

Exceptions should only be made to this rule, where the interests of the refugees would be better served; for example, if

¹ Article 2, para. 6, of the OAU Convention.

there are good prospects for early voluntary repatriation, and if security and protection considerations are favourable.

Topography, Drainage and Soil Conditions

36. Where water is readily available, drainage often becomes a key criterion. The whole site should be located above flood prone areas, preferably on gentle (2-4%) slopes. Sites on slopes steeper than 10% gradient are difficult to use and usually require complex and costly site preparations. Flat sites present serious problems for the drainage of waste and storm water. Avoid areas likely to become marshy or waterlogged during the rainy season.

37. Soils that allow swift surface water absorption are important for the construction and effectiveness of pit latrines. The subsoil should permit good infiltration (i.e. allowing water absorption by the soil, and the retention of solid waste in the latrine). It should be noted that very sandy soils which are good for infiltration are sometimes poor for the stability of the pit. Where drinking water supplies are drawn from ground water sources, special attention must be given to preventing contamination by pit latrines. The pit latrines must not reach into the ground water. The groundwater table should be a minimum of 3 m below the surface of the site.

38. Avoid excessively rocky or impermeable sites as they hamper both shelter and latrine construction. If possible, select a site where the land is suitable for at least vegetable gardens and/or small-scale agriculture.

Accessibility

39. The site must be accessible and close to sources of necessary supplies such as food, cooking fuel and shelter material. Proximity to national services is desirable, particularly health care services. Roads must be “all-weather” and provide year-round access. Short access roads to connect the main road with the site can be constructed as part of the camp development. There may be advantages in choosing a site near a town, subject to consideration of possible friction between local inhabitants and refugees.

Climatic Conditions, Local Health and Other Risks

40. Settlement areas should be free of major environmental health hazards such as malaria, onchocerciasis (river blindness), schistosomiasis (bilharzia) or tsetse fly. A site may have unseen and/or irregular (but often locally known) risks such as flash flooding, or serious industrial pollution. For sites in dust-prone areas, regular dust clouds can foster respiratory diseases. Emergency and temporary shelters need protection from high winds. However, a daily breeze is an advantage. Climatic conditions should be suitable year-round and careful account should be taken of seasonal variations. For example, a suitable site in the dry season may be untenable in the rainy season. Likewise, mountainous areas may be suitable in summer, while in winter the temperatures may fall significantly below freezing. Seasonal variation can have a considerable impact on the type and cost of shelter, infrastructure, heating fuel and even diet. As far as possible, refugees should not be settled in an area where the climate differs greatly from that to which they are accustomed. Furthermore, settling refugees from malaria-free high ground to a marshy area where the disease is endemic can be disastrous.

Vegetation

41. The site should have sufficient ground cover (grass, bushes, trees). Vegetation cover provides shade while reducing erosion and dust. During site preparation, care should be taken to do as little damage as possible to vegetation and topsoil. If heavy equipment is used, indiscriminate bulldozing or removal of topsoil has to be avoided at all costs. If wood must be used as domestic cooking fuel or for the construction of shelter, the refugees should be encouraged not to take these requirements from the immediate vicinity of the camp. Rather, a more dispersed pattern of wood collection should be implemented in coordination with local forestry authorities (see section on site planning and management of natural resources below). A quick survey of available vegetation and biomass for these purposes should be performed. The site should not be located near areas which are ecologically or environmentally protected or fragile.

Site Selection Methodology

42. In order to have a concise review of a site, which has been pre-identified, the following general steps are recommended:

- i. Have the recommended checklist (see Annex “Sites Criteria”) at hand and share it with the team for their information and comments.
- ii. Ensure the team includes local authorities and those who are knowledgeable of the site and its surroundings (including seasonal implications).
- iii. Obtain suitable maps and other information showing topography, road networks, and water sources, as well as issues related to land use and land rights.
- iv. Determine site characteristics through site visits while using the checklist to record your observations; highlight the pros and cons of the site and its surrounding area.
- v. Make simple estimates of the surface area of each potential site(s), through use of Global Positioning System (GPS); if unavailable, use the vehicle trip-meter to estimate distances.

- vi. Assess the implications of characteristics that have been recorded in coordination with team members, while avoiding weighted average methods that could become misleading.
- vii. Final decisions should be made on implications for each criterion as recorded by the team and in consultation with UNHCR Offices.

Site Planning: General Considerations/Recommendations

The overall physical layout of a site should reflect a decentralized community-based approach, focusing on family, community or other social groups.

Site planning should use the “bottom-up” approach starting from the characteristics and needs of the individual families, and reflect the wishes of the community as much as possible through participatory assessment.

Each community should be planned to include its own immediate services, such as latrines, showers, water-points, garbage collection and cloth washing facilities. This is to promote ownership, which will lead to better maintenance of facilities by the community.

Ensure that communities are not of a closed form, e.g. square-shaped, but resembling more of an H-shape, where both sides are open for better interaction with other communities.

Introduction

43. The physical organization of the settlement will markedly affect the protection, health and well-being of a community. Good site planning will also facilitate an equitable and efficient delivery of goods and services.

It is imperative that all of the related standards be taken into consideration during the physical organization of the camp.

Master Plan

44. A “master plan” or overall site plan should show the overall configuration of the site, its surroundings and characteristics, and its proximity to natural and existing features including settlements. The plan should take into account the social organization of the refugees and principles of module planning, and should cover the following physical features.

45. Natural and existing features:

- i. contours (i.e. lines joining points of identical elevation are called contour lines);
- ii. rivers, forests, hills, flood plains, and swamps;
- iii. rocky patches and sandy soils;
- iv. existing buildings, roads and bridges; and
- v. farm land, electrical power grids and water pipelines.

46. Planned features:

- i. shelter areas and potential expansion areas;
- ii. roads and footpaths;
- iii. drainage system and terracing;
- iv. environmental sanitation plan;
- v. water distribution plan;
- vi. utilities, camp lighting, etc.;
- vii. administration areas;
- viii. educational and health facilities;
- ix. warehousing facilities;
- x. distribution centres;
- xi. feeding centres;
- xii. community centre;
- xiii. playground/sports centre;
- xiv. area for religious activities;
- xv. markets and recreation areas;
- xvi. fire prevention breaks; and

xvii. agricultural plots.

An early and clear demarcation of plots, including areas reserved for services, is advisable.

47. A topographical and planimetric survey is crucial as the basis for site planning. A topographical survey describes the physical features of a landscape (e.g. rivers, valleys, mountains). A planimetric survey describes locations within an area (e.g. the camp site). The plan or map should have a metric scale between 1:1,000 and 1:5,000, and in case of large camps a scale of at least 1:10,000.

Services and Infrastructure

48. The following are standards for services and infrastructure and should be referred to when preparing the master plan:

| | | |
|-----------------------|-----|------------------------------|
| 1 water tap | per | 1 community (80-100 persons) |
| 1 latrine | per | 1 family (6-10 persons) |
| 1 health centre | per | 1 site (20,000 persons) |
| 1 referral hospital | per | 10 sites (200,000 persons) |
| 1 school block | per | 1 sector (5,000 persons) |
| 4 distribution points | per | 1 site (20,000 persons) |
| 1 market | per | 1 site (20,000 persons) |
| 1 feeding centre | per | 1 site (20,000 persons) |
| 2 refuse drums | per | 1 community (80-100 persons) |

49. There are two situations for which site planning is required:

- i. reorganizing existing, spontaneously-developed sites; and
- ii. new sites.

The design standards to be applied should be the same in each case, although methods, approach and timing may differ substantially.

50. Where refugees have spontaneously settled, they may be understandably reluctant to relocate. In such cases, involvement of refugee representatives and refugees themselves, through participatory assessment and age and gender mainstreaming in planning, will facilitate a better understanding and acceptance by the refugees.

Comprehensive but swift planning is essential for a new site.

Modular Planning

51. Planning should start from the perspective of the individual refugee household. Begin by considering the needs of the individual family, such as distance to water and latrines; the relationship to other members of the community (other relatives, clan, or ethnic groups); traditional housing and living arrangements. Developing the community layout (U-shaped rather than square-shaped), and then considering the larger issues of overall site layout, is likely to yield markedly better results than beginning with a preconception of the complete site layout and breaking it down

into smaller entities.

52. Thus, planning and physical organization of the site should start from the smallest module, the family, and then build up larger units as follows:

| Module | Consisting of | Aprox. No. of persons |
|---------------|----------------|-----------------------|
| Family | 1 family | 4-6 persons |
| 1 community | 16 families | 80 persons |
| 1 block | 16 communities | 1,250 persons |
| 1 sector | 4 blocks | 5,000 persons |
| 1 camp module | 4 sectors | 20,000 persons |

These figures are indicative and should be adjusted according to actual conditions.

53. Modular planning does not necessarily mean using a grid layout for the site. The linear, or grid layout, with square or rectangular areas separated by parallel streets, has often been used for its simplicity of design and speed of implementation. However, every effort should be made to avoid a rigid grid design which does not account for community structure and interaction, and presents difficulties in identifying proper community-based locations for services such as latrines, water points, showers etc. Grid design does not promote ownership of services, which is crucial for proper usage, cleaning and maintenance. Furthermore, it does not take into account protection concerns, such as the long distances that refugees have to walk for services and susceptibility to violent attacks. Whatever design is used, it should take into account the natural features of the site and the identity of the refugee community.

54. The social organization, cultural background and family structure are some of the main factors that influence the physical layout of a site and should be part of the initial needs and resource assessment. This information should be gathered through review of existing documents, observations and discussions with the refugees, and others knowledgeable about this society. A full socio-economic survey of the refugee population should be conducted when/if resources allow, and will be important in subsequent planning, particularly for self-reliance activities and durable solutions.

Environmental Considerations

55. Environmental considerations should be integrated into physical planning and shelter design from the very start of an emergency. Location and layout of refugee camps, provisions made for emergency shelter, and the use of local resources for construction and fuel can have a major negative environmental impact. It is in the earlier stages of an emergency, where the greatest environmental damage can occur and habits are formed. Environmental damage has health, social and economic consequences for the refugees and local population, and can have political repercussions.

Rehabilitation effectively starts in the emergency phase, and the costs of environmental damage can be substantially reduced by implementing an environmental protocol early in an emergency.

56. In order to safeguard the welfare of refugees and local population by protecting their environment, the following steps can be taken:

- i. Site selection: avoid sites close to environmentally protected areas. A site should be located at least a day's walk from protected areas or reserves.
- ii. Site preparation: discriminately preserve existing vegetation and topsoil.
- iii. Camp size and density: generally, the smaller the settlements the better; allocate 30-45m² of area per person.

- iv. Camp layout: the layout (particularly roads) should follow contour lines. This will reduce erosion, preserve topsoil, and avoid the creation of dangerous gullies. A site layout that encourages community living arrangements (which can also promote security), safeguards the environment within that community.
- v. Shelter design (energy-saving through insulation): in cold climates, with extended winter seasons where continuous heating is needed, passive energy saving measures, e.g. sufficient insulation of roof, walls, and floors can save significant fuel and prove cost-effective over time.
- vi. Shelter and fuel: materials for these often come from the immediate surroundings of the camp. It is crucial at the outset to initiate a system to manage and control the use of local natural resources, including wood for construction and fuel. Meeting the initial need for shelter materials from local resources can be particularly damaging to the environment, so collection of such materials should be carefully managed, and/or provided from an alternate source.

57. A simple natural resources management plan should be drawn up as soon as possible. A key feature of a basic plan will be controlled harvesting and collection of fuel-wood and timber. This should be discussed with government bodies, such as forestry departments. Controlled fuel-wood and timber harvesting in the vicinity of the camp can include: defining certain areas and trees (by marking) which should not be harvested, allowing only dead wood to be collected; establishing an environmental awareness programme to define clear rules from the outset regarding harvesting wood and to encourage respect for the local resources; assigning responsibility for managing and harvesting certain areas to certain groups.

58. The decision on supplying fuel-wood from outside the vicinity of the camp (e.g. trucking in wood), how to supply it and the quantity which is necessary must be made according to the specifics of the situation. The organized supply of fuel-wood or other fuel, such as kerosene, can have complex repercussions and should be instituted with care. Organized supply of free fuel on a regular basis is only appropriate in certain circumstances, e.g. where there are severe restrictions on fuel from other sources. Where fuel-wood is also readily available locally, its distribution free of charge from outside the vicinity may actually lead to increased consumption. In addition, refugees rely on local natural resources for income, therefore if free fuel-wood is provided for cooking purposes, collection of wood will continue for income generating purposes (e.g. the sale of fuel-wood or timber, charcoal making, etc.). Therefore, to retain its value, fuel-wood should generally be supplied in return for work.

59. The source and impact of wood supplied to the refugees also needs to be considered:

- i. Is it being harvested in a sustainable way?
- ii. Are the environmental problems merely being moved elsewhere?

Care should be taken to prevent the emergence of local monopolistic suppliers. Finally, it should be remembered that, if it is necessary to introduce free fuel supply in the initial stages of an emergency, it will be difficult to later modify such arrangements.

60. A more comprehensive natural resource management plan for the site and its immediate surroundings should be drawn up as soon as possible (with specialist advice if necessary). Such a plan should be based on a baseline environmental survey.

A comprehensive natural resource management plan would cover (in addition to controlled harvesting of timber for construction and fuel-wood, as mentioned earlier) the following: promotion of fuel-saving stoves and fuel efficient cooking techniques, and supply of key energy saving devices (e.g. lids with cooking pots, provision of mills or milled grain). In addition to awareness raising programmes, identify the scope for better use of existing natural resources (e.g. using waste water, common areas, and areas around shelters), kitchen gardens, tree planting, and reforestation where necessary.

Gender Considerations

61. In emergencies, there may be a loss of normal community structure, and the changes in demographic proportions may have altered refugees' daily routines. This could also have a negative effect on traditional mechanisms for the protection and assistance of persons with specific needs. As a result of a conflict, the change of social composition in refugee communities may also include:

- i. increased numbers of female-headed households;
- ii. large numbers of unaccompanied children;
- iii. reduced number of able-bodied men; and
- iv. disruption of the extended family, with its role as social caretaker.

All the above requires attention when planning to accommodate such refugees.

62. It is important that the specific needs of persons are taken into account in site planning. It may be difficult to reach these people if they do not traditionally form part of the leadership structure of the community. In such cases, the needs and resource assessment should obtain views of all concerned through age, gender and diversity mainstreaming.

63. Specific actions should be taken to ensure that refugee communities are organized to assist groups with specific needs with their shelter construction. Specific attention should be given to refugees unable to complete their own shelter construction.

Site Planning: Specific Infrastructure

Underestimation of surface area required for social infrastructure and communal services, including a playground for children, will adversely affect the creation of a humane environment for refugees, and should be avoided.

64. At the start of an emergency, it may be difficult to construct all the administrative and communal services anticipated. Free areas should therefore be allocated for inclusion or future expansion of these services.

Sanitation

65. While water requirement is a major factor in site selection, sanitation requirements dictate site layout. High population density coupled with poor sanitation is a severe threat to the health and safety of refugees. This is often the case in spontaneous camps. Some organization of basic sanitation should be planned before reorganizing the site, or transferring the refugees (and thus, the problem) to a new site. This should include prohibiting uncontrolled defecation and the establishment of public latrines. Sufficient space must be left for alternate latrines. If communal latrines are unavoidable, there should be a plan for their maintenance and they should be accessible by road for facilitation.

66. For all sites, new or reorganized, the goal should be one latrine per family. Only if the latrine remains under the control and maintenance of a family group is safety and hygiene assured in the long run. The ideal location of the family latrine is on the family plot, as far as possible from the shelter. If this is not possible, the next best option would be latrines for identified groups of families, not exceeding twenty persons per latrine facility.

67. A system of cleaning and maintaining latrines by the community should be discussed prior to construction.

Water Supply

68. Where possible, the maximum distance between any shelter and a water distribution point should be not more than 100m, no more than a few minutes walk. The layout of the site should contain the water distribution grid as an integral part of the service plan and the pipes should be underground. Water pipes should be kept at a depth that traffic or other surface activities do not cause damage (40-60 cm). In countries with very low temperatures, the pipes must be positioned at frost free depth (60-90 cm). Experience shows that water distribution to small, socially cohesive groups of 80-100 persons considerably reduces water wastage and destruction of taps, standposts and concrete aprons.

69. To aid hygiene, effluent and used water from water supply points should be well-drained and eventually absorbed in soakage pits or used to irrigate gardens.

Roads

70. A site should have access and internal roads and pathways connecting the various areas and facilities. Access roads should be all-weather roads above flood levels and have adequate drainage. If there has to be a significant amount of vehicle traffic on the site, it should be separated from pedestrian traffic. All structures, including family plot fences, should be set back approximately 5-7 m from roads to provide adequate visibility for pedestrians and vehicles.

Fire Prevention

71. In general, a firebreak (area with no buildings) 30 m wide is recommended for approximately every 300 m of built-up area. In modular camps, firebreaks should be situated between blocks. This area would be ideal for growing vegetables or recreation. If space allows, the distance between individual buildings should be adequate to prevent collapsing, burning buildings from touching adjacent buildings. The distance between structures should therefore be a minimum of twice the overall height of any structure. If building materials are highly inflammable (straw, thatch, etc.) the distance should be increased to 3-4 times the overall height. The direction of any prevailing wind will also be an important consideration.

Administrative and Communal Services

72. Buildings for administrative and communal services should be traditional structures, and if possible, of a multi-purpose design to facilitate alternative uses. For example, buildings for initial emergency services could later be used as schools or other community facilities. The list below includes administrative and communal services most often needed. The division is indicative only – the importance of maximum decentralization has already been stressed. Whether centralized or decentralized, administrative and other facilities should be located and designed so that they are accessible to all.

73. Services and facilities likely to be centralized (depending on the size of the camp) include:

- i. site administrative office;
- ii. service coordination offices for health care, feeding programmes, water supply, education, etc.;

- iii. warehousing and storage;
- iv. initial registration/health screening area;
- v. tracing service;
- vi. therapeutic feeding centre (if required);
- vii. marketplace; and
- viii. community centre.

74. Services and facilities likely to be decentralized include:

- i. water points;
- ii. latrines;
- iii. bathing and washing areas;
- iv. garbage collection;
- v. supplementary feeding centres (if required);
- vi. education facilities; and
- vii. commodity distribution centres.

75. The location of the centralized services will depend on the specific situation and, in particular, on the space available. With sufficient space, there may be clear advantages in having the centralized services in the centre of the camp. Where space is scarce, it may be better to have the centralized services located near the entrance of the camp. In particular, this will avoid supply trucks having to drive through a densely populated site, with the attendant problems of dust, noise and danger to pedestrians. If some form of closed camp is unavoidable, at least the centralized administrative services will probably have to be located near the entrance. The warehouses should always be near the administrative office for security reasons.

Shelter

Refugee shelter must provide protection from the elements, space to live and store belongings, privacy and emotional security.

Blankets, mats, and tarpaulin must be provided.

Refugee shelter should be culturally and socially appropriate and familiar. Suitable local materials are best, if available.

Shelter must be suitable for seasonal variations.

Except for tents in certain circumstances, prefabricated or special emergency shelter has not proved to be a practical option on either cost or cultural grounds.

Wherever possible, refugees should build their own shelter, with the necessary organizational and material support.

Introduction

76. Shelter is likely to be one of the most important determinants of general living conditions and is often one of the significant items of non-recurring expenditure. While the basic need for shelter is similar in most emergencies, such considerations as the kind of housing needed, what materials and design to be used, who constructs the housing and how long it must last will differ significantly in each situation.

77. Particularly in cold climates or where there are daily extremes of temperature, lack of adequate shelter and clothing can have a major adverse effect on the protection and well-being of refugees, including health and nutritional status.

In addition to shelter, provision of sufficient blankets, mattresses, additional plastic sheeting and provision of heaters will be a high priority.

78. Fire prevention measures should be established when providing heaters and it is thus necessary to deal with the procurement, storage, and/or distribution of fuel.

79. Adequacy of emergency shelter needs to be assessed from time to time, including arrangements already made by refugees.

The key to an adequate shelter is the provision of roofing material in line with climatic conditions and living habits of the refugees.

If materials for a complete shelter cannot be located, provision of adequate roofing material will be the priority, as walls can usually be made of earth or other materials found on site or available locally.

80. Wherever possible, refugees should build or assist in building their own shelter, with the necessary technical, organizational and material support. This will help to ensure that the shelter will meet their particular needs, promote a sense of ownership and self-reliance, and reduces costs and construction time considerably.

Type of Shelter

81. Individual family shelter should always be preferred to communal accommodation, as it provides the necessary privacy, psychological comfort, and emotional safety. It also provides safety and security for people and possessions and helps to preserve or rebuild family unity.

82. Emergency shelter needs are best met by using the same materials or shelter as would be normally used by the refugees or the local population. Only if adequate quantities cannot be quickly obtained locally, should emergency shelter material be brought into the country. The simplest structures, and labour-intensive building methods, are preferable. Materials should be environmentally friendly and obtained in a sustainable manner.

Standards

83. At the beginning of an emergency, the aim should be to provide sufficient material to the refugees to allow them to construct their own shelter, while meeting at least the minimum standards for floor space as follows:

- i. minimum of 3.5 m² per person in tropical, warm climates, excluding cooking facilities or kitchen (it is assumed that cooking will take place outside); and
- ii. 4.5 m²-5.5 m² per person in cold climates or urban situations, including the kitchen and bathing facilities.

84. The design of shelter should, if possible, provide for modification by its occupants to suit their individual needs. In cold climates, for example, it is very likely that persons with specific needs will remain inside their shelter throughout the day, thus more space will be required.

Plastic Sheeting

85. Plastic sheeting has become the most important shelter component in many relief operations. In urban areas, roofs can be repaired with UV-resistant heavy duty plastic sheeting.

86. Collecting wood for shelter support frames or stick skeletons can considerably harm the environment, if collected from surrounding forests. It is therefore important to always supply frame material which is sufficient to support plastic. The frame material should come from sustainable, renewable supply sources. Bamboo is ideal, if available. Standard specifications for plastic sheeting can be found in Annex 1 to Chapter 21 on Supplies and Transport.

Tents: Light Weight Emergency Tents (LWET)

87. Family tents may be useful and appropriate, for example, when local materials are either not available at all, or are only seasonally available, or for refugees of nomadic background. The life-span of an erected canvas tent depends on the manufacturing, length of storage before deployment, as well as the climate and the care given by its occupants. Where tents are used for long durations, provisions for repair materials should be considered. Larger or communal tents may serve as transit accommodation, while more appropriate shelter is constructed.

88. UNHCR has developed a lightweight emergency tent with a long shelf life which will save on transportation costs due to its light weight. Standard specifications for tents can be found in Annex 1 to Chapter 21 on Supplies and Transport.

89. In general, tents are difficult to heat as walls and roof do not provide sufficient insulation. Therefore, tents are not suitable as cold climate shelters, but if there is no choice, they can save lives and bridge the time until more suitable shelters are established.

90. If required, additional blankets and plastic sheeting can be provided to increase heat retention. It is also possible to heat some tents, if enough heat is produced in a tent stove. This stove needs fuel (e.g. wood or kerosene) around the clock to maintain a comfortable temperature. When using wood, environmental aspects should be considered; when using kerosene, its procurement, storage and distribution could pose additional challenges for the operation.

Prefabricated Shelters

91. Neither prefabricated building systems nor specially developed emergency shelter units, even winterized shelter units, have proved effective in accommodating refugees. Main reasons include:

- i. high unit cost;
- ii. long shipping time;
- iii. long production time;
- iv. transport problems, including cost;
- v. assembling the shelter unit;
- vi. does not allow for cultural and social norms; and
- vii. cooling problems in hot climates.

Typically, emergency shelter provision should have been made before these systems are used.

Shelter for Cold Conditions

92. Climates where cold weather, with rain and snow over extended periods (3-5 months), demand that people live primarily inside a house. In particular, persons with specific needs will require heated, enclosed spaces.

93. Shelters which are sufficient to withstand cold conditions have to be of a high standard and are complex and expensive to build. The following should be considered:

- i. structural stability (to withstand snow- and wind-loads);
- ii. wind protection of walls, roofs, doors and windows;
- iii. protected and heated kitchens and sanitary facilities; and
- iv. provision for heating and chimneys.

94. To help people survive the impact of cold weather in an emergency, a strategy should focus on the following:

i. **Individual survival.** It is extremely important to protect the human body from heat loss. Particularly during sleep, it is important to be able to keep warm by retaining body heat with blankets, sleeping bags, clothing and shoes. Heat can be generated by providing food with high calorific value.

ii. **Living space.** It is very important to concentrate on a limited living space and to ensure that cold air can be kept out of this space. This can be done by sealing the room with plastic sheeting and sealing tapes. Windows and doors should be covered with translucent plastic sheeting and stapled on window and door frames. Walls, ceilings and floors of the living space should be designed to insulate from cold air and to retain warm air as efficiently as possible.

iii. **Heating.** Keeping the inside of a shelter at a comfortable temperature (15-19° C) depends to a large extent on the outside temperature, the type of construction, the quality of the insulation, the orientation of the building, and on the type and capacity of the stove. Depending on conditions, a stove with 5-7 kW performance should have the capacity to heat a space with a floor area of 40-70 m² in most cold areas. When the stove for heating is used for cooking as well, particular attention should be given to its stability.

Reception and Transit Camps

95. Reception and transit camps are used when it is necessary to provide temporary accommodation for refugees. These camps might be necessary at the beginning of a refugee emergency as a temporary accommodation, pending transfer to a suitable, safe, longer-term camp, or at the end of an operation, prior to repatriation, as a staging point for return.

96. Whether the transit camp is used in an emergency or as part of a repatriation operation, the camp should be designed for short stays of 2-5 days in addition to a high turnover rate in a communal setting.

97. The required capacity of a transit camp will depend primarily on how many people will be channelled through the camp and their expected duration. This will depend on the absorption or reintegration capacity at the receiving end, as well as the total time foreseen to carry through the operation.

98. The primary criteria for site selection for a transit camp are:

- i. good access (road, port, airport);
- ii. availability of water;
- iii. good drainage (minimum 2% slope);
- iv. adequate conditions for sanitation; and
- v. strategically located to serve the purpose of the operation.

99. The transit camp must be strictly functional and equipped according to considerably higher construction standards than regular refugee camps. Operational maintenance must be fully supplied through the camp management. In particular, cleaning and disinfection of accommodation and sanitation areas need to be carried out on a regular and ongoing basis. Prepared food should be provided and individual food preparation should be avoided. The transit

camp will therefore need kitchen facilities, wet food distribution and a dining space, if possible. In view of the expected short-term stay, a minimum of 3.0 m² per person is needed.

100. Standards for the construction of transit facilities are:

- i. accommodation: in barracks, communal tents (subdivided for families of 5 persons for privacy reasons) should be heated in cold climates; for example, a tent of 85 m² can accommodate approximately 14-25 persons;
- ii. sanitation: 20 persons per latrine, 50 persons per shower, plus regular and intensive maintenance is required;
- iii. water supply: absolute minimum provision of 7 litres/person/day, plus water required for kitchens, cleaning and sanitation;
- iv. food preparation: approximately 100 m² per 500 persons;
- v. storage: 150-200 m³ per 1,000 persons;
- vi. a public address system;
- vii. lighting;
- viii. arrival and departure zones which are separated from accommodation zones;
- ix. arrival zones should include registration and medical clearance facilities;
- x. administrative offices and staff accommodation;
- xi. one health post and separate accommodation for quarantine;
- xii. security fencing (depending on circumstances);
- xiii. the design of the transit centre should include a concept of visibility and ease of movement.

Notes on Design of Transit Centre

--The proposed size is 27m x 12m sufficient for 90 persons.

--Length can be altered at 3.0 metre increments to suit need and situation.

--Width can be reduced by only 1.0 metre to bring total width of the hallway to 1.5 metres in place of 2.0 metres.

--The better quality plastic sheeting or plastic roll should be used. It should be noted that usage of the green plastic rolls should be limited to enclosed spaces.

--Drawings not to scale; intended only for general use.

Public Buildings and Communal Facilities

- Public buildings should be used only as short-term accommodation to gain time to provide more suitable shelter.
- From the outset, intensive maintenance of infrastructure and utilities should be provided.
- The UNHCR shelter standards should be applied.

101. Public buildings such as schools are sometimes used initially as shelter. This is particularly the case in cold conditions which demand very rapid shelter response.

102. Where possible, such accommodation in public buildings should be a temporary solution. The supporting infrastructure of the building (water, electricity, sanitation) will deteriorate quickly from concentrated use, to the extent that living conditions can become dangerously unhealthy. The buildings decay rapidly, primarily because they are unsuited to such large numbers and lack the necessary infrastructure and utilities. In addition, the very low sense of responsibility by its inhabitants for these buildings contributes to the deterioration.

103. Furthermore, since the normal use of the building has to be suspended with various social and economic consequences, both local and national governments are reluctant to transform public buildings into humanitarian shelter. If such use is permitted, the need for quick evacuation of the building should be borne in mind as this may be requested by the government.

104. In order to ensure a healthy environment, it is particularly important to ensure regular operational and preventive maintenance in public buildings. Neglecting to maintain a building from the outset can have serious health consequences for the refugees and economic consequences for the host government.

Annex: Sites Criteria