

Geography 15-18 years

Student Activity Sheets



Students' Activity Sheet 1: Environmental dimensions of the refugee problem,

from UNHCR, *The State of the World's Refugees 1995: In Search of Solutions* (Oxford, OUP, 1995), pp. 162-163, 166-167, 169-171

Since the beginning of the decade, a succession of refugee influxes into some of the world's poorest countries (Bangladesh, Guinea, Nepal and Zaire, to give just four examples) has provided dramatic evidence of the environmental problems associated with mass population displacements. International interest in this neglected issue has evidently been reinforced by broader intellectual trends. During the 1950s and 1960s, when the global economy was booming, development specialists paid little attention to the notion of sustainability. In the bid for rapid economic growth, the land, the air, the seas and rivers were all regarded as if they were free and inexhaustible resources, with the capacity to recover from any damage which humanity inflicted upon them.

While such perceptions have not been entirely eradicated, public and political interest in the natural environment has increased enormously over the past two decades. Concepts such as global warming, acid rain and the greenhouse effect, once the preserve of a few scientists and activists, have now passed into the common vocabulary. Very few people can now be entirely ignorant of the fact that the earth's resources are both fragile and finite.

Wood, land and water

Experience has demonstrated that three principal types of environmental change are liable to take place in areas populated by large numbers of refugees: deforestation, land degradation, and reductions in the quantity and quality of the water supply.

Deforestation is perhaps the most obvious (and certainly the most widely recognized) environmental problem in refugee-populated areas - a consequence of the fact that for most of the world's displaced people, wood constitutes the primary source of fuel and shelter material. Prior to their recent repatriation, for example, it was estimated that the million or more Mozambican refugees in Malawi were consuming between 500,000 and 700,000 cubic metres of wood each year for cooking and heating purposes - a rate of use far in excess of the country's natural replenishment capacity.

One does not need to be an environmental specialist to witness the results of this



process. In Malawi and in other long standing asylum countries - Pakistan, Somalia and Sudan, for example - refugee settlement sites are visibly surrounded by large areas of land which have been stripped of trees and vegetation. The same phenomenon can already be seen around the refugee camps of north-western Tanzania and eastern Zaire, which were established in 1994 to accommodate roughly two million refugees from Rwanda. According to a report from the largest camp in Tanzania, within nine months of their arrival, the refugees were having to walk 12 kilometres in order to reach the nearest source of fuelwood. At the same time, much of the pasture land in the vicinity of the camps had been seriously overgrazed by the thousands of cattle, sheep and goats which the refugees had brought with them.

A third area of environmental degradation associated with refugee movements relates to the quantity and quality of water resources. Water shortages are a common phenomenon in areas where large numbers of refugees are obliged to share a limited supply of water with the local population. Drilling additional boreholes to meet the increased demand may provide a short-term answer, but may also lead to a longer-term depletion of underground reserves, a problem compounded in some coastal areas by the incursion of salt water.

The pollution of water resources represents another important problem in many refugee-hosting areas, particularly in the early stages of an emergency, before the establishment of proper sanitation systems. Large concentrations of displaced people produce a great deal of excreta and other waste materials. If they are properly treated, the soil and groundwater can quickly become contaminated.

Human consequences of environmental change

The environmental changes which are generated by mass population displacements have a number of important implications for the well-being of the refugees themselves, for their relationship with the host country, and for the development potential of the areas where they settle.

In most extreme circumstances, the depletion of natural resources in refugee-populated areas may pose an immediate threat to human life. Refugees who do not have access to wood or a substitute fuel, for example, may not be able to cook their food properly or keep themselves warm, and can thereby become vulnerable to malnutrition and other illness. Exposure to the smoke that is emitted when crop residues and dung are used for cooking can cause respiratory and eye infections, particularly amongst young children and the women who prepare their family's food. If local water sources are overused and polluted, and if alternative supplies are not made available, deaths are likely to occur as a result of dehydration and diseases such as cholera. The human consequences of this scenario were seen all too graphically in 1994, when the Zairian town of Goma was littered with the corpses of Rwandan refugees who had succumbed to such conditions.

While such tragic events may grab the attention of the international media, the environmental effects of large-scale refugee movements are not always so immediate or visible. Indeed, some of the most damaging consequences take place over long periods of time and are ultimately irreversible. Studies undertaken in the Burundian, Rwandan and Mozambican refugee settlements of Tanzania, for



example, have indicated that the fertility of the land in those areas is progressively declining and that the structure of the soil is now breaking down. As a result, weeds are invading the land and crop yields are declining. At a certain point this process will be unstoppable, and the affected areas will no longer be able to sustain the indigenous population, even if, like the Mozambicans, the refugees are able to go home.

As the latter example suggests, local communities, particularly their poorer and weaker members, may be affected as seriously as refugees by the process of environmental degradation. In addition to the more obvious problems such as soil erosion, the depletion of wood and water supplies and the introduction of new livestock diseases, refugee influxes may also threaten local hunting areas and cause damage to sites which are used to gather honey, herbs and medicinal plants. While such activities may not contribute a great deal to a country's Gross National Product, they often make an important contribution to the local economy. By endangering the livelihood of indigenous populations, such environmental impacts can also jeopardize relations between refugees and the host country. In Bangladesh, for example, competition for fuelwood in the heavily populated areas where many Myanmar refugees have settled has led to antagonism between the two communities. Similar tensions have arisen in eastern Zaire, where conflicts over natural resources have been exacerbated by the massive amounts of international assistance channelled to the refugee population. Disturbingly, a growing number of low-income countries are now citing such problems as a justification for the exclusion or repatriation of refugee populations.

Finally, while the environmental impact of refugee movements is felt most keenly at the local and national levels, issues of a much wider ecological significance are also at stake. In situations where rare species or unique ecosystems are threatened by mass population displacements, irreversible losses in global biodiversity may occur. The Rwandan crisis, for example, has caused irreversible damage to the vegetation in Zaire's Virunga national park, a UNESCO World Heritage Site. According to one UNHCR estimate, some 800,000 kilograms of wood and grass were being collected from the park by refugees each day in December 1994, a level which evidently cannot be sustained if the unique flora and fauna found in the area are to be conserved. Here, as in many other refugee situations, the immediate need to sustain human life has come into direct conflict with the longer-term objective of environmental protection.

Understanding environmental impact

While it is relatively easy to list the different kinds of pressure which refugee movements place upon the natural environment, some words of caution are required with respect to the measurement and interpretation of their impact.

In practice it is often very difficult to differentiate between the environmental changes provoked by the presence of refugees and ecological processes which predate their arrival in an asylum country. Just because crop yields are declining in a refugee-populated area, for example, it does not necessarily mean that the refugees are responsible for that trend, or that yields were stable in the preceding period. Other variables could also be at work.



Identifying those variables is rarely easy. In many situations, refugees move into remote areas where estimates of the existing stock of resources and rates of environmental change are simply not available. While it is possible to measure environmental indicators such as water quality or vegetative cover by using sampling techniques or satellite image analysis, such measurements require substantial time and resources, and are unlikely to be a priority in a refugee emergency. Assessments of environmental impact may also be exaggerated by host countries which are seeking international compensation for the damage caused by the refugees.

In some instances, negative environmental trends such as deforestation or desertification may result not from the activities of refugees themselves, but from political, economic or social changes associated with their arrival. In parts of Pakistan, for example, land rights have been confused by the presence of so many Afghan refugees, and this confusion has been exploited by local profiteers to engage in large-scale illegal logging. Similarly, while the deforestation of certain areas in eastern Sudan has been blamed on the production of charcoal by Eritrean refugees, studies have shown that much of the output is destined for sale in Khartoum and other urban areas. The refugees' role in the process has simply been to act as a source of cheap labour for the Sudanese entrepreneurs who control the charcoal business.

Many analysts have suggested that because of their presence in a country of asylum is likely to be temporary, refugees are generally less concerned about the conservation of natural resources than the host population. Even if there is some truth in this assertion (which rarely has been tested empirically) it must be seen within a broader social and economic context. Displaced people are usually poor people. They have limited financial and material resources, and in order to survive, they normally have to make use of whatever wood, water and shelter materials are available.

Over the longer term, refugees often find that they have been obliged to settle on small and marginal areas of land, which previously supported much lower population densities. In order to maintain crop yields, they may have little alternative but to practice intensive forms of agriculture and to make use of inorganic fertilizers, rather than using fallow periods to regenerate the soil. As a result, the land which they occupy is likely to become increasingly unproductive.

In situations where the refugees have not been confronted with these constraints, they have been able to play a more positive role in the local development process. During the 1980s, for example, the large number of Ugandan refugees who fled to southern Sudan were able to contribute to a massive expansion in the area of land under cultivation. As a result, a number of refugee settlements which had initially been dependent on international assistance were soon able to provide the commodities which the World Food Programme needed for its projects in other parts of the country. More recently, the presence of Mozambican refugees in south-eastern Zambia also had many positive consequences for the local economy.

Humanitarian organizations

The environmental impact of refugees has in some senses been aggravated by the failure of humanitarian organizations to bring this issue into the mainstream of



their activities. First, such organizations do not always respect the basic principles of environmental protection themselves. During the first few months of the 1994 Rwanda emergency, for example, many relief agencies in the region cut thousands of poles from local trees as well as large quantities of bamboo and grass in order to build offices, storage facilities, clinics and feeding centres, when tents or prefabricated structures could just as easily have been used for this purpose.

Second, the refugee-centric nature of the traditional approach to population displacements has often blinded humanitarian organizations to the situation of host countries and communities. Donor states have usually been willing to provide the resources required to feed and shelter large refugee populations, particularly during highly publicized emergencies. But the needs of local people have invariably been accorded a much lower priority.

Third, to the extent that refugee organizations have addressed the environmental dimension of population displacements, they have generally not dealt with the problem in a sufficiently proactive manner. As a UNHCR consultant observed after visiting the Rwandan refugee camps in Zaire, by the time that environmental questions were fully considered, some irreversible decisions had been taken with regard to settlement sites, fuel supplies, shelter materials and water sources. 'Despite all the worldwide attention on the environment', he concluded, 'the subject of refugees and the environment has been more or less overlooked. If attention is paid to all this problem, it is usually at a late stage of refugee situations, when the only action possible is remedial rather than preventive.'

From problem to action

While much more progress remains to be made in this area, the recent emergence of a more proactive and holistic approach to the refugee problem has undoubtedly encouraged the international community to address the environmental consequences of human displacement in a more systematic manner. UNHCR, for example, has appointed an environmental coordinator to oversee the organization's efforts in this area.

In the area of deforestation, the organization is now placing much greater emphasis on the establishment of nurseries and the replanting of areas which have already been denuded of trees. At the same time, a variety of different techniques are being used to limit the amount of fuelwood consumed by refugee populations. These included the creation of protected zones in local forests, the introduction of fuel-efficient stoves; the provision of kerosene, coal and other fuels to refugee populations; and the distribution of food aid in forms that do not require extended cooking times.

At a more general level, UNHCR's primary aim is to ensure that environmental considerations are taken into at the beginning of a refugee emergency, when crucial decisions are taken with regard to the identification, establishment and management of refugee settlements. To achieve this objective, three initiatives have been taken.

The first element of this strategy has been the preparation of environmental guidelines for use by the organization's field staff and operational partners. These guidelines stress the need to settle refugee populations in areas whose ecology is best able to withstand a sudden increase in population density, and in locations



that are as far away as possible from protected areas such as national parks and game reserves. Once an appropriate site has been selected, the guidelines provide more detailed advice on the protection of trees and soils, the safe treatment of human excreta and the disposal of other waste products.

A second initiative concerns the establishment of an environmental database, which will provide further assistance in the selection of refugee settlement sites. Although it is still incomplete, the database is able to provide UNHCR's field offices with detailed information on issues such as local climatic and vegetation zones, transport networks, infrastructural resources and national parks.

The third element of the UNHCR strategy is to be seen in the new requirement for an environmental impact assessment to be carried out at a very early stage of each refugee emergency. Such assessments provide an important opportunity to identify both actual and potential environmental problems generated by mass population movements. Moreover, when linked with on-going monitoring activities, such assessments will enable the organization to track the environmental changes which are taking place in refugee-populated areas and to formulate suitable responses.

These initiatives are indicative of the extent to which environmental issues have made their way onto the refugee agenda. They do not, however, represent a quick or easy solution. Emergency relief programmes are not like development projects, which can be planned in advance and implemented (or even rejected) on the basis of feasibility studies.

When large numbers of destitute people move into environmentally fragile areas, saving human lives must be the first priority. In such circumstances, it can often be difficult to meet all of the ideal criteria for the selection and management of refugee settlement sites. Often, for example, the overriding need to locate refugees in areas close to safe and adequate supplies of water has had to take precedence over all other environmental considerations.

Other practical factors must also be taken into account. In eastern Zaire, for example, several commentators have remarked upon the need to move the Rwandan refugees away from the border, dispersing them into smaller settlements where their environmental impact will be less damaging. While this strategy has been pursued to a limited extent, it is confronted with several obstacles. Who, for example, will meet the massive costs involved in relocating the refugees within Zaire, when it has been agreed that repatriation to Rwanda is the best solution for them? Where in Zaire would the refugees be resettled, and how would the local population in the chosen locations respond to the influx? And what would happen to refugees who were unwilling to move away from the border?

As these questions suggest, it would be a mistake to believe that the environmental problem can be resolved by technical solutions. Like development itself, the environmental issue is ultimately a political one, entailing questions of ownership, resource use, the distribution of wealth and the exercise of authority. As an abstract entity, mankind may have a common interest in sustainable development and environmental conservation. In refugee situations, however, significant differences of interest are likely to be found between and within the displaced and local populations.

An effective environmental strategy must be based on a better understanding of these different interests and the ways in which they can be reconciled. In West

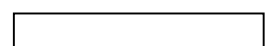


Africa, for example, where almost a million Liberian refugees have settled in and around existing village communities, refugee and local leaders have negotiated a variety of arrangements in order to regulate the exploitation of natural resources and to resolve any disputes arising from their use. Although more research is required into the nature and impact of such agreements, their very existence underlies the importance of approaching the environmental problem on a community-wide basis.

Comprehension questions

1. Which three principal types of change in the environment occur in areas populated by great numbers of refugees? Give a detailed example of each change.
2. What does "depletion of natural resources" mean? Give an example of possible natural resource depletion and its consequence upon the refugees and the indigenous people.
3. Give an example of an environmental change that occurs over a long period of time, and which if not halted and rectified in time, can become an irreversible problem.
4. Previously, the neighbours of refugee-producing countries have generously given asylum to refugees. List the reasons why a growing number of low-income countries are now calling for the exclusion or repatriation of refugee populations.
5. The presence of huge numbers of refugees is not the sole contributing factor to environmental degradation. What other factors need to be taken into consideration when making environmental assessments?
6. Give an example where refugees have played a positive role in local development. Why was this possible?
7. In what ways in the past have humanitarian organisations aggravated the environmental impact of refugees?
8. There is the old adage that "prevention is better than cure". Briefly summarise how UNHCR is applying this motto to its work to protect refugees.

Possible essay topic: "In many refugee crises, the immediate need to sustain human life has come into direct conflict with the longer-term objective of environmental protection." Discuss.



Student Activity Sheet 2: Energy Consumption in the Refugee-Hosting Areas of Kagera Region, Tanzania

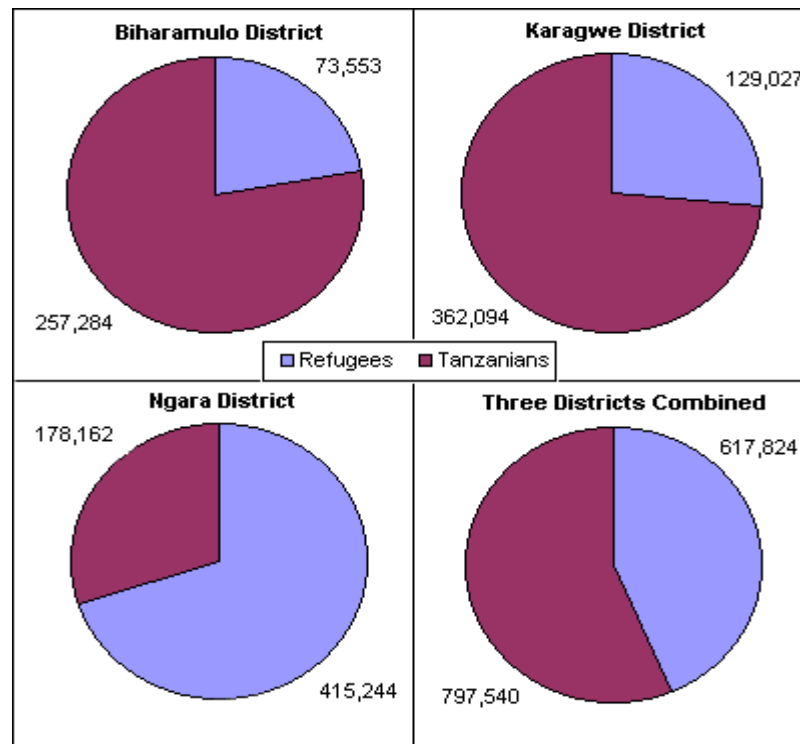
The information which follows was extracted from a report written by two environmental experts working for UNHCR, in December 1996, just a couple of weeks before the masses of Rwandan refugees, who had been living in Kagera region of Tanzania, returned to Rwanda.

Introduction

This research was carried out under a joint UNHCR-EU project to develop a sustainable energy strategy for refugee-hosting areas of Kagera Region (see map), which currently hosts over 600,000 refugees. The report draws on October 1996 fieldwork and earlier CARE surveys.

As at November 1996, Kagera Region hosts 617,000 refugees from Rwanda and Burundi. These refugees are located in 11 main camps in the three neighbouring Districts of Ngara, Karagwe and Biharamulo, where they make up 45% of the overall population. In fact as Figure 1 shows, they outnumber the local population by a ratio of 7:3 in Ngara District while approximately the reverse is the case in the other two Districts.

Figure 1: Local and Refugee Populations in the Refugee-Hosting Districts (October 1996)



Question 1

Given the population ratios revealed in Figure 1, what kinds of problems are likely to have arisen between refugees and the local Tanzanian population?

Survey Findings

Fuel Choice

For both refugees and Tanzanian communities the dominant source of domestic energy is firewood. The only significant exception are the approximately 2% of refugees who are wealthy enough to use charcoal for cooking.

Fuel Collection

Since their arrival in mid-1994 the refugees have been largely left to fend for themselves as far as energy supply is concerned. Although there was an IFAD-supported fuelwood provision project implemented by CARE in Ngara until January 1996, this supplied less than 12% of total consumption and was suspended on grounds of cost and its possible counter-productive effect on energy usage.

The work of firewood collection in Tanzanian communities is carried out only by women and children. In the camps, however, 32% of wood collectors are men, 35% women and 33% children. Men carry heavier loads, averaging 28 kg (21 kg for women and 14 kg for children).

Question 2

Suggest some reasons why might there be such a difference between the refugees and the local Tanzanians on the role of men in firewood collection.

Activity

To gain an idea of the experience of refugees, you might like to try walking a few hundred meters carrying a 28kg load (or 21kg, or even 14kg - but remember, in Africa, at your age, you count as an adult!). Refugee children in Kagera region had to carry this much wood over distances ranging from 5-15 kilometres, typically three times a week.

Question 3

How would such activities affect a refugee child's access to education?

Cutting Practices

There is a progression visible in the way wood is collected which is a reflection both of its sheer availability and the effectiveness of enforcement measures which make personal selection more likely or less likely to be possible. At first it may be possible to gather dead and fallen wood but as degradation progresses then more cutting becomes necessary (23% of all the wood collected is now live). This trend is summarised in Table 4 below.

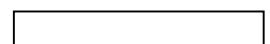


Table 4: The Relationship Between Wood Scarcity and Tree Cutting Practices

Degree of Wood Scarcity	Cutting Practice
None	Gathering dead and fallen wood from preferred species
Mild	Gathering dead and fallen wood from any species
	Cutting branches from preferred species
Moderate	Cutting shrubs, bushes and branches from any species
	Cutting trunks of preferred species
	Cutting trunks of any species
Severe	Removing tree rootstocks and gathering twigs, grasses and other loose biomass

Note: Cutting categories are not mutually exclusive, and different practices can be seen at different distances from camps.

Source: Field survey.

Question 4

What is likely to be the impact upon the local environment as the fuelwood scarcity becomes more severe?

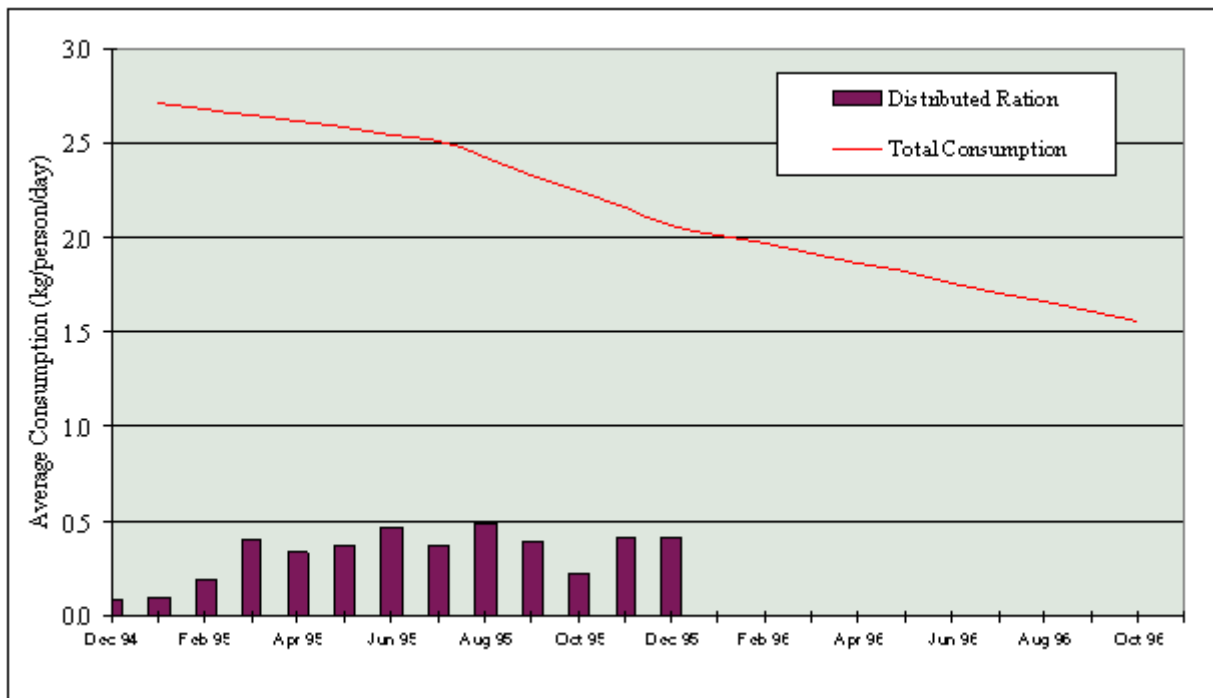
The type of progression in cutting styles outlined above can be retarded by the presence of some sort of enforcement mechanism. If there is a meaningful deterrent to cutting and genuine fear of disciplinary action being taken, then instead of moving directly to cutting branches and trunks refugees will first walk further to find dead and fallen wood. This can be seen, for example, to the east of Lumasi camp where there are many standing trees but still a tendency for refugees to walk up to 10 km in search of alternative firewood sources.

Forest patrol systems have been established around most camps by CARE (292 "Environmental Liaison Officers") and in Kagenyi and Rubwera by Swiss Disaster Relief (about 25 per camp). In some locations enforcement activities are also carried out by Game Rangers, village militias (*sungu sungu*) and others, though not necessarily with tree protection in mind. These enforcement systems are valuable but no means sufficient. There is inadequate demarcation of camps and of gazetted areas, and there is need for greater government support with wider powers of arrest.

Fuel Consumption and Trends for Refugees

Since the refugees' arrival in Tanzania, per capita consumption of firewood has dropped significantly. Figure 3 illustrates this overall trend (for those camps where past consumption data were available).

Figure 3: Firewood Consumption in Ngara Camps, 1994-96

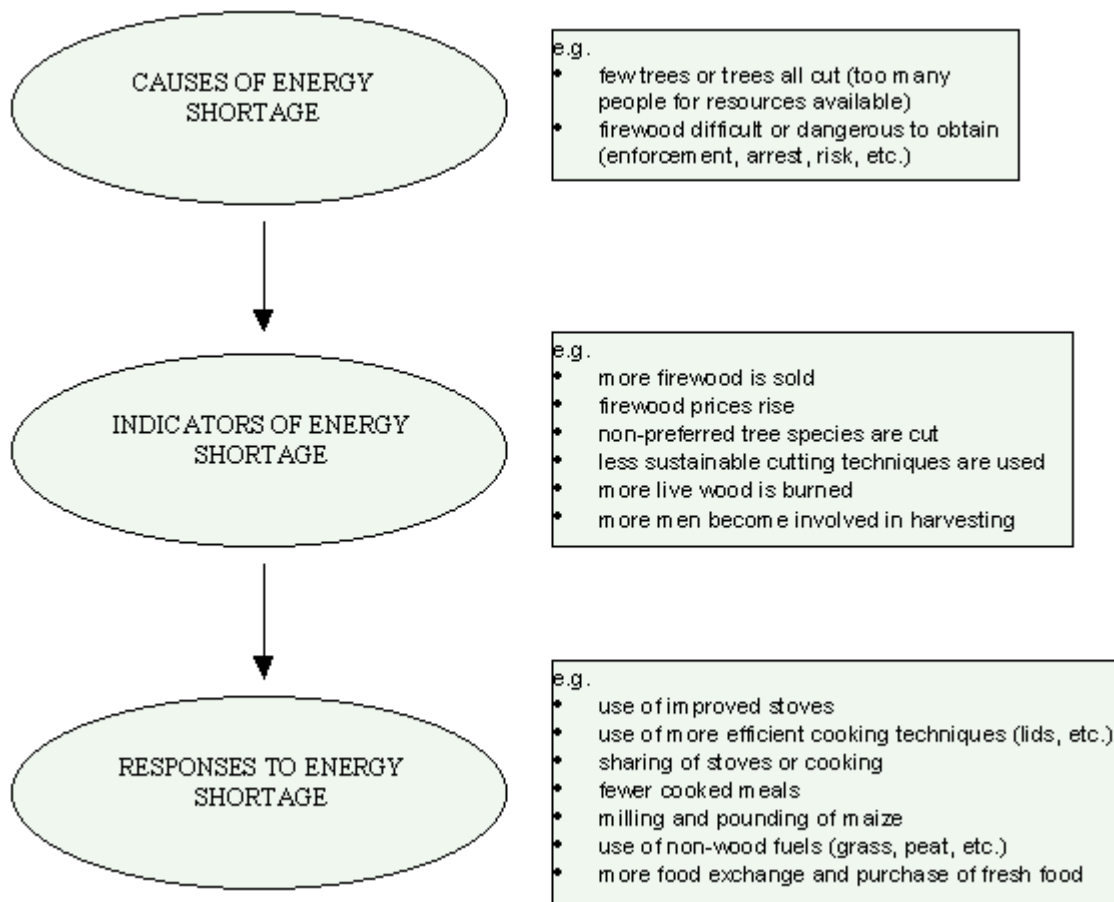


Question 5

Suggest two possible reasons for the decline observed in fuelwood consumption over the period December 1994 - October 1996.

The shortage has in turn led to the progressive adoption of a range of energy-saving practices on the part of the refugees. This sequence of causes, indicators and responses is illustrated diagrammatically in Figure 4.

Figure 4: Causes, Indicators and Responses to Energy Shortage in the Refugee-Hosting Areas



Question 6

For each of the seven responses to energy shortage listed, write a sentence suggesting why refugees may adopt that method in particular.

Increasing Commoditisation of Fuel

Some of the key indicators of energy shortage (as illustrated in Figure 4) concern the increasing commoditisation of firewood. In all camps wood has been taking on greater monetary value as it becomes scarcer and the risks involved in procuring it increase. As a result it is used more sparingly by the refugees. The characteristics of the wood markets in the different camps, especially the prevailing unit price, can therefore help to explain the degree of energy conservation apparent from camp to camp.

When the refugees arrived wood was entirely free. During 1995 camp markets were established and these have now increased in number to 23. Prices vary considerably between camps depending on the degree of fuel shortage and the severity of controls on cutting and sale of wood.

Table 8 illustrates some of the patterns in wood marketing.

Table 8: Camp Firewood Markets and Prices

Camp	No. of Wood Markets	Daily Sales (T)	Price per kg (Sh) ¹	Total Value (Sh) ²	Daily Turnover ³	Wood Sold as % of all Consumed ⁴	Comments
Ngara							
Benaco	4	27.6	11.8	325,244	70%	14%	High price, high % sold; severe shortage
Mshura	2	5.3	10.4	55,411	78%	3%	High price, high turnover; severe shortage
Lumasi	4	11.6	7.6	88,060	81%	7%	Mid-price; high turnover; mid % sold; moderate shortage
Lukole	1	2.2	6	13,142	70%	4%	Low price; low % sold; little energy shortage
Kitali Hill ⁵	1	no survey	4.4	?	?	?	Low price; little energy shortage
Keza	1	2.0	2.7	5,290	64%	1%	Low price; low turnover; low % sold; energy abundance
Karagwe							
Kyabalisa 1	4	2.6	11.9	33,196	65%	3%	Mid-price, moderate turnover; moderate shortage
Kyabalisa 2	2	0.6	7.3	4,345	49%	1%	Low price, low turnover, low % sold; little energy shortage
Kagenyi	2	0.7	48.1	33,961	94%	14%	Very high price, high turnover, high % sold; severe shortage
Rubw	1	1.4	19.2	25,926	78%	6%	High price, high turnover, mid % sold; fairly severe shortage

era							
Om uka riro	1	0.2	8.5	1,50 3	48 %	1%	Low price, low turnover, low % sold; energy abundance
	23		Ave: 12.5			Ave: 5%	

Notes: ¹ - Average wood price is weighted for quantity of each type sold (logs, bundles and small, split pieces);

² - Total value is obtained by recording price of each type of wood and weighting by respective quantity sold;

³ - Daily turnover represents the % of wood entering the markets in the morning sold by evening;

⁴ - % of wood sold is based on total camp consumption (average of wood intake and household survey data);

⁵ - No survey was done for Kitale; latest price figure is from CARE Sep. 96 survey.

Question 7

Suggest a reason why the price of firewood at Kagenyi camp might be 8 times higher than the price at Lukole camp.

Per capita consumption in each camp is strongly correlated (negatively) with the following indicators:

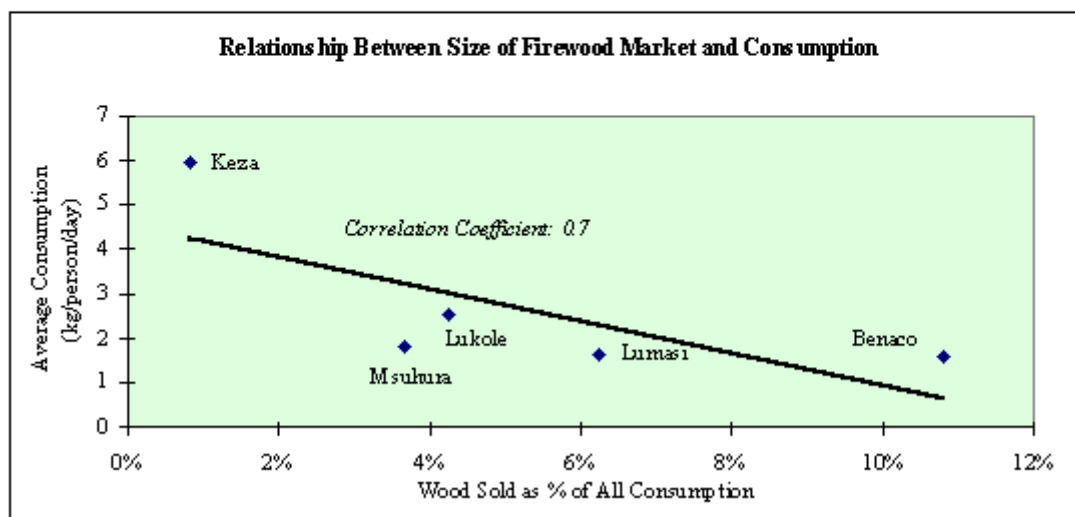
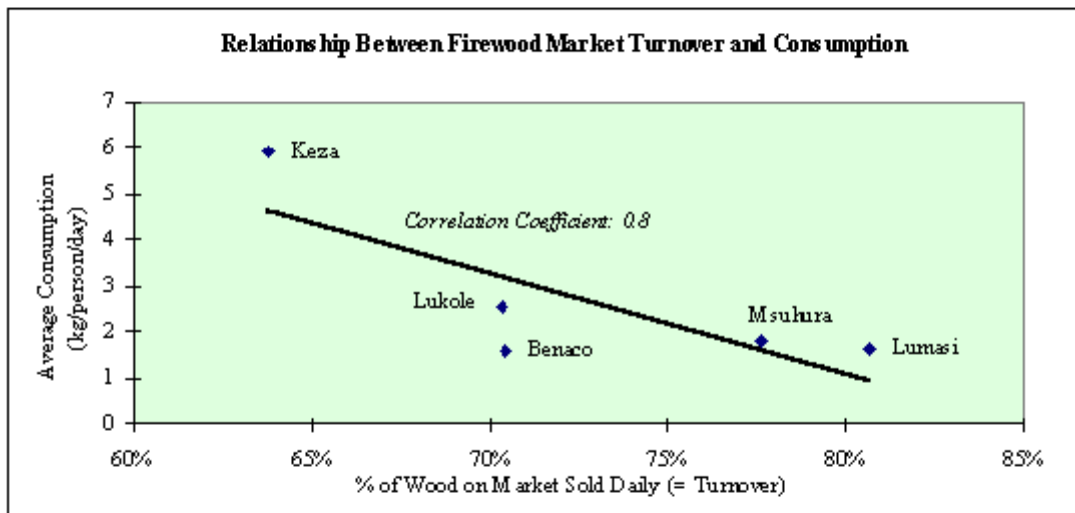
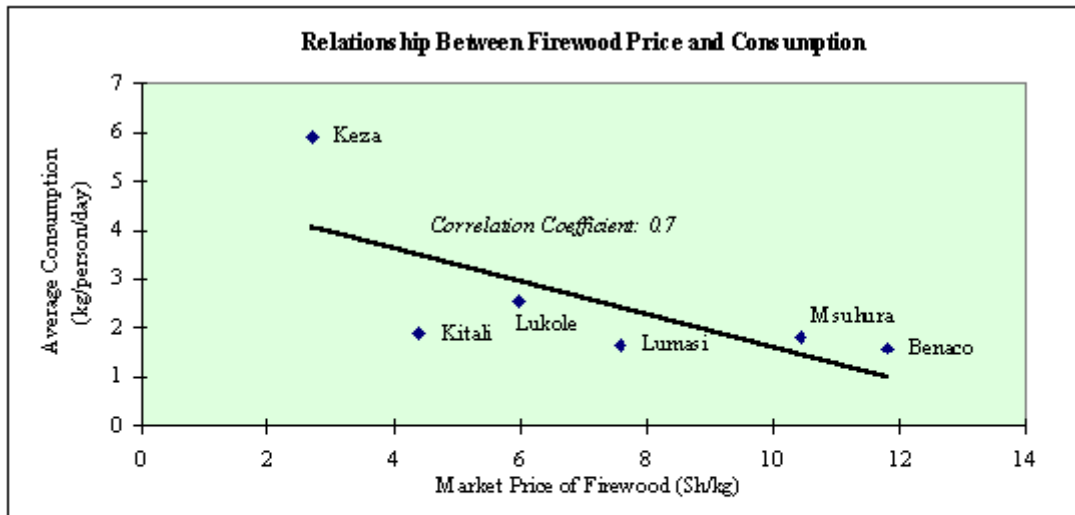
- **market price of firewood** - as price goes up then consumption falls;
- **speed of market turnover** - the more vibrant the market in a particular camp, the lower per capita firewood consumption;
- **proportion of wood sold** - in camps where a greater proportion of wood is sold, consumption is lower.

The following chart (Figure 6) illustrates these relationships between per capita consumption and these three selected "market indicators".

The indicators are essentially a measure of the degree of wood commoditisation. As already explained, this in turn is a reflection mainly of physical shortage, but also of the risk involved in fuel collection and perhaps of refugee purchasing power. The strength of the relationships illustrated gives some idea of the powerful nature of commoditisation as a control on energy consumption.

Wood commoditisation is often a response to shortage, but can equally well be employed as a means by which to promote conservation. Any measures which can increase the value of energy are highly desirable. Wood must take on a greater value, more closely approximating the true cost of its production.

Figure 6: The Relationship between Fuel Consumption and Market Indicators (Ngara Camps)



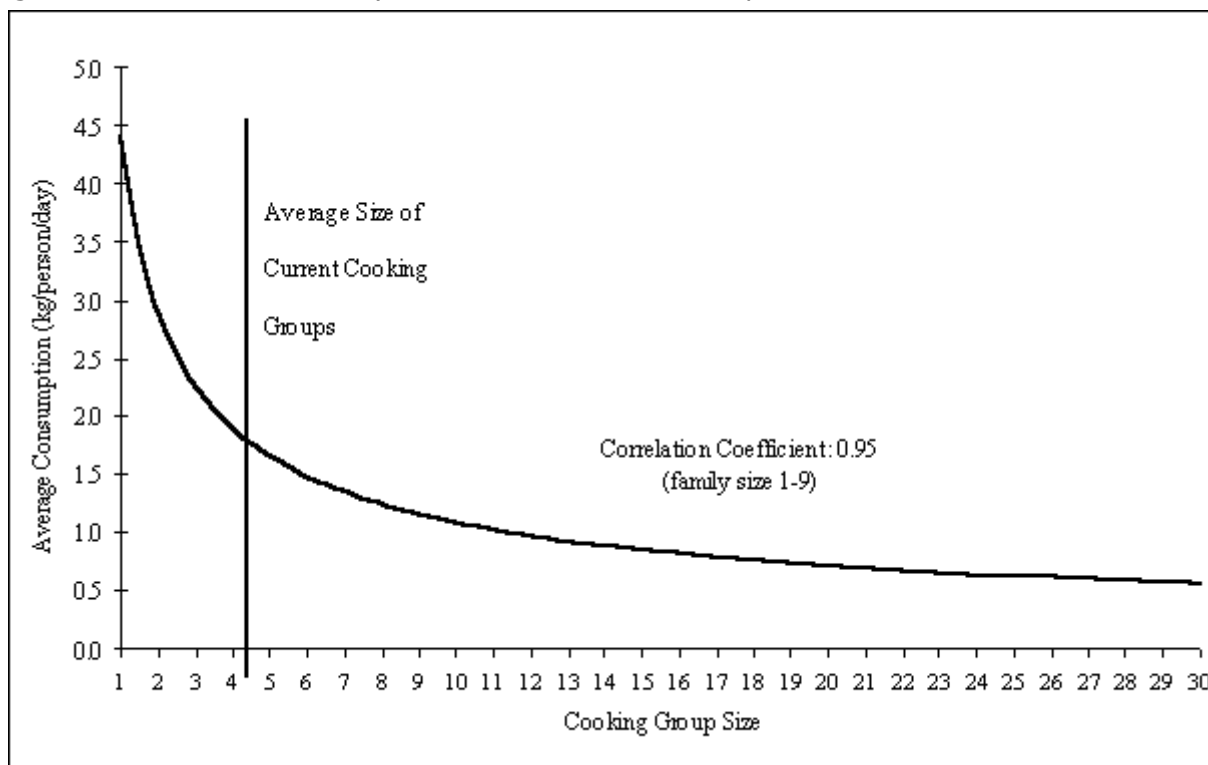
Question 8

Why should refugee camps with the highest daily market turnover of firewood be those with the lowest fuelwood consumption?

Question 9

Why should consumption be lower in camps with the highest proportion of wood sold as a % of wood consumed?

Figure 8: The Effect of Family Size on Firewood Consumption



Note: Combined data for all 6 Ngara camps.

Question 10

Why is it more economical to cook for a big group of people, than for a small group?

Question 11

The population of the Ngara refugee camps at the time of the survey was around 415,000. Average cooking group size in the Ngara camps was around 4.4 persons. How much firewood could have been saved in the Ngara District daily if refugees had been prepared to double the size of their cooking groups?

Question 12

Why might refugees be inclined to resist the idea of shared cooking, despite its obvious economic advantages?