

Geographical Information system,
environment and camp planning
in refugee hosting areas

Approach, methods and application
in
Uganda

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1 Introduction

1.1 The environment

We define the environment as being the result of a host of different interactions, in a given space between the whole set of human and physical factors which contribute the maintenance of this space as it is or on the contrary to its modification. So defined, analysis of the environmental situation calls on such diverse disciplines and bodies of knowledge as geology, hydrology, botany, agronomy, demography, economics and geography. The environmental question here is not therefore conceived in advance in terms of risks and harm coming from human activity on the surroundings, but rather in terms of an “overall balance” and state of functioning of a system in a given context at a given moment, in which people (and hence the local population as much as the refugees) form an integral active part. This approach moreover gives fundamental importance to the location and to the conditions of access to the geographic space considered. Whether it is a question of the State, a village community or a private company, a particular space is effectively always appropriated and a variety of agencies and bodies take part in controlling it and regulate its access. It is therefore quite natural that environmental impact studies must take this essential aspect into account.

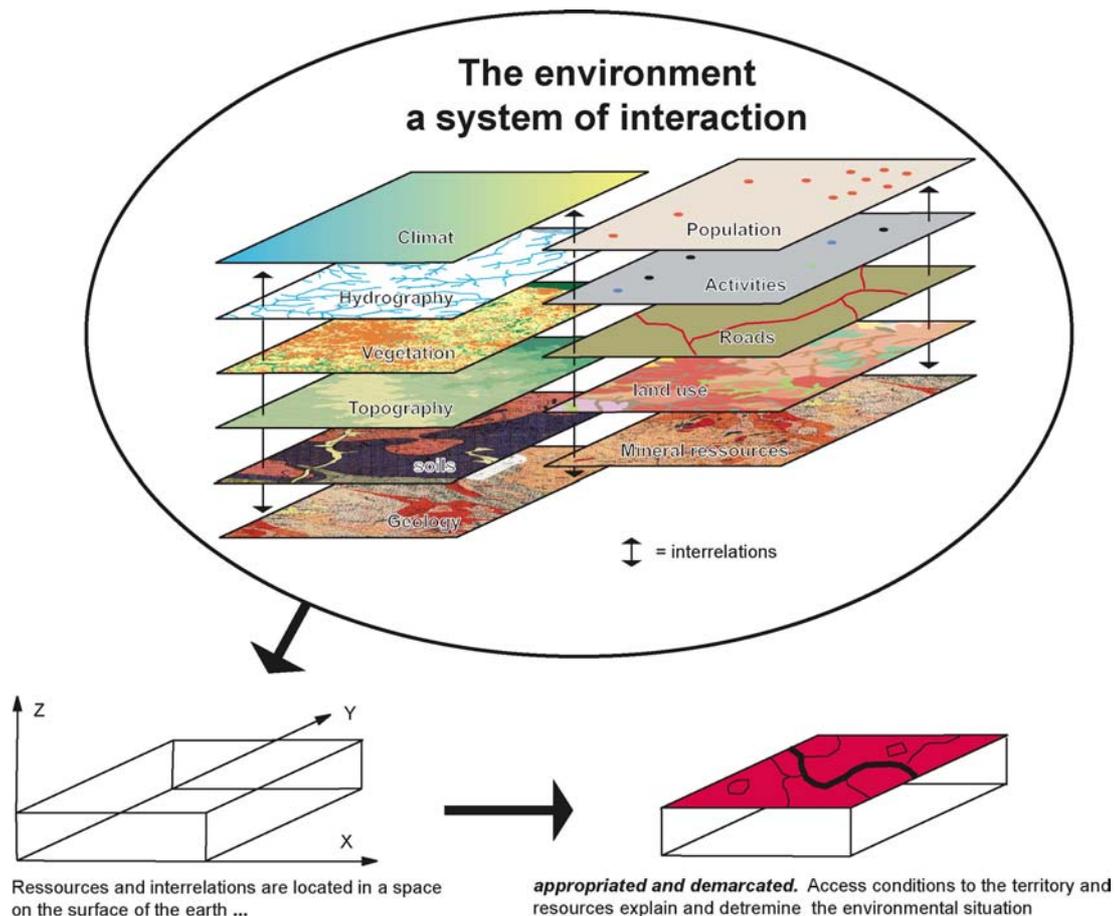


Figure 1: *The environment an interaction of natural and social components*

The environment, its protection or its degradation, constitutes a cause for concern in general when the situation brings the presence of large numbers of people into a

restricted space. The notion of a population-resources balance, even that of a carrying capacity, is the crux of environmental considerations. Conversely, this question tends to pose less of a problem the more abundant the resources. In other words, at a stage before the question of environmental degradation is considered, two issues must be envisaged: the availability and abundance of resources and the availability of the space in which these resources are distributed. This is why prime importance is placed on the notion of access (to natural resources, land, etc.). (figure)

Approaching the environment in terms of prevention, protection (of the fauna, animal species, etc.) or of rehabilitation leads inevitably to the banning of certain activities (hunting, gathering, access to particular areas, land clearance, making charcoal, and so on). Such restrictions link back to the fundamental question of refugees' rights of access to a territory and its resources. In this sense, environmental protection is above all subordinate to the political and geographical (or geopolitical) question: where do we decide to receive the refugees? What geographical space is given over to them? And what freedom of action have they in this space?

The IRD project consisted in applying and proposing a method and suitable tools for establishing a diagnosis of the environmental situation, to measure the true nature of possible damage to this environment, determine the extent and identify the causes. In this perspective, the IRD has adopted a global, integrated approach to the environment with the use of spatial analysis of information.

1.2 Planning of refugee settlements and environmental resource and limitation assessment : two operations that must be coordinated.

The HCR has no strongly rooted tradition concerning the study of resources and environmental constraints. These problems have been displayed as visible issues for ten or so years, but they are rarely tackled effectively. One of the reasons for this block stems from the way the question is brought up (refugees destroy the environment, the sites have to be rehabilitated) and from insufficient coordination and cooperation between the services associated with planning and the environmental sector. The use of rigorous mapping methods is essential for either of these two activities. The mapping operation could consequently be the ideal stage for such collaboration to take place, with the clear realisation that the environmental question is first and foremost a land planning problem.

In Uganda, like elsewhere, once the reception site has been chosen following negotiation with the host country, aid to refugees runs according to principles and approaches strictly defined by the HCR: food, accommodation, water supply, health, education, and so on. It is rare that these programmes are implemented by a sole (NGO) partner, which hinders proper circulation of information. These actions are called on to change according to finance obtained and the declared degree of emergency (urgency, care and maintenance, repatriation and rehabilitation). The planning and logistics phases are conducted in line with this system of references.

Outside these closely targeted sectors, it is very difficult, if not impossible, to obtain from the HCR and the NGOs reliable detailed information on the physical environmental conditions (climate, rainfall, soils, and so on.), the socio-demographic characteristics of the population and its localisation (locality of origin and locality where present as a refugee), the economic activity of the region, its administrative, its

infrastructures and so on. The almost complete absence of information on this type of question – which notwithstanding represents the environmental and social context in which the refugees have to live – does not appear particularly to worry the humanitarian organisations the most directly involved in the concrete immediate action or those involved in studies and analysis.

1.3 Mapping, an essential planning tool (regional and local)

The handling and management of refugee populations, as for any social group, requires that the lands on which they are to be accommodated be appropriately planned, prepared and managed. Information on distances, surface areas, population densities, the criteria of proximity, remoteness, of facilities or of restriction of access are therefore necessary. Only detailed mapping of the places and spaces occupied can provide a response to this demand. And often only mapping can answer the legitimate questions asked by host countries when disputes appear between the two parties (hinging on the extent of deforestation, the size of the area occupied, and so on.). Curiously, the HCR has no cartography department adequate for the extent of the need. Again strangely, the HCR does not appear to incorporate this activity in its terms of reference for NGOs with which the agency is led to work. This is so whether it is a question of environmental activities or planning operations. It is thus extremely rare to be able to find an accurate detailed map of a camp or a rural settlement ; the amount of deforestation is asserted without being measured, and so on.

1.4 The importance of the agro-ecological and human context (rural settlements and camps)

The ways in which assistance is provided for refugees vary enormously from one country to another. There are a multitude of reasons for this diversity and they cannot be examined here. The relevant point is that they vary according to the decisions of the host government (camps or rural settlements) and the diversity of agro-ecological and socio-demographic situations. Reception of Tuareg refugees in camps in the Mauritanian desert does not raise the same problems as those of Rwandan refugees on the Nyragongo lava flows North of Goma. A rural settlement where Rwandan farmers are emplaced in a wet tropical area of Uganda cannot be managed in the same way as a camp of Somalian refugees in a semi-arid pastoral zone.

Certain questions are therefore inevitably raised, others not, depending on the place and the environmental and social context. This objective reality brings up the fundamental question of what means have to be employed in order to achieve the aim sought: the production of an environmental diagnosis in a reasonable length of time and at moderate cost.

Two possible procedure options could therefore be envisaged:

- either a search for and application of a “universal” method which would be applicable anywhere, whatever the environmental and social context,
- or the implementation of a process adapted to the local situation that is nevertheless reproducible elsewhere.

Even if both approaches could be justified, with their advantages and their faults, our choice falls clearly for the second one.

In order to cover all situations that one would like to compare and that in theory it would be possible to encounter in the different corners of the Earth, it is easy to see that there is no other way than to seek an exhaustive approach. Now if we apply such a method to the indicator approach (social, environmental, and so on), it is clear that the agents given the task of conducting this diagnosis will be faced with an infinite list of questions and recorded data inapplicable to the particular local situation. Furthermore, there is an even more restricting factor: there is no guarantee that this indicator method would allow a true comparison between two (or several) diametrically different places.

The second approach, recommended here, calls on specialists, professionals of this type of assessment. Because of this, the approach described in the second part of this report concerning Uganda is primarily intended for non-specialists of the HCR and the NGOs in order to demonstrate that the set of tools and procedures employed for these specific cases cannot be taken up directly by personnel who have not received the appropriate training. Just one example: even if use of GPS (which can very quickly be taught) does not require any particular skills, the deployment of a GIS, satellite image interpretation, or population load capacity analyses, are not subjects that can easily be mastered by untrained staff.

1.5 The importance of a multi-scale approach geared to needs and users

From the most remote refugee camp to the HCR's Geneva headquarters, all personnel involved in humanitarian action – whether belonging to the HCR or to an NGO – need, in their sphere of responsibility, reliable, detailed and relevant information. Yet the information required is not exactly the same depending on the job responsibilities, the place in the field and the position in the organisation's hierarchy. A doctor working in a refugee camp needs specific information on children under five living there. He does not need such information on the whole of the refugee population living in the particular country. Yet this data is essential for the organisation responsible for vaccine procurement. Another example is that in Geneva it is evidently necessary to know the number of refugees per country and, perhaps, the number and location of the camps where they are staying. In the field, such information must be much more detailed. Workers need to know the population distribution in each camp in order to organize effectively (water distribution, provision of latrines, and so on.).

The information hence must be hierarchised and more or less amalgamated and summarized according to the level of intervention. The GISs allow the hierarchisation of this information. It is therefore possible to produce as much a camp map for the entire country to meet the needs of the High Commissioner's representative in the capital, as a detailed map of a single settlement on which an agronomist is to work.

In concrete terms, this requirement for hierarchised information points to the recommendation of three spatial levels: country, region, and the settlement or camp itself. The corresponding information will be different in nature and in degree of detail for each of these three levels.