

Research Report

Indigenous environmental knowledges and sustainable development in semi-arid Africa (summary)

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The UK Department for International Development (DFID) supports policies, programmes and projects to promote international development. DFID provides funds for this study as part of that objective but the views and opinions expressed are those of the authors alone.

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1. Background and objectives

The aim of this study is to identify and understand the ways in which indigenous environmental knowledges are constructed and mediated, and subsequently employed by local people living in arid environments to manage the natural resource base for local economic development in support of everyday life. A key perspective of the research is to focus on the ways in which men's and women's knowledges are constructed differently and how this might affect natural resource use and management.

The project has evolved from the recent upsurge in interest in indigenous knowledge over the last decade or so. Much of this interest has resulted from part of the 'development impasse', that is the failure of modernisation, based on the transfer of science and technology, to transform significantly the everyday lives of people in Less Developed Countries. Consequently, some voices have suggested the exploration of 'other' knowledge systems as alternative ways forward through or around this impasse, and, in particular, the use of indigenous knowledge. There seems to have developed the view that this will provide an increased sense of ownership of 'development', which, in turn, will facilitate empowerment for poorer and more marginal groups in Less Developed Countries, people whose voices are generally absent from development debates. In turn, it is expected that this will provide more appropriate, and thus more effective, forms of development. The problem, however, is how such indigenous knowledge can be conceptualised, understood and then used and incorporated in the development process. On the one hand, many of these discussions have been conducted in largely abstract, theoretical ways, for example within post-structuralist or post-colonialist discourses. The empirical base, which might underpin such discussions, is largely lacking. On the other hand, indigenous knowledge is alternatively presented in a rather different particularist and empiricist way, with no sense of how it is grounded in its economic and socio-cultural milieu. Somehow, indigenous knowledge exists 'out there', but unconnected to its surroundings. Indeed, there is sometimes almost a romantic view of indigenous knowledge, and the trick is somehow to unlock these 'truths' and we will have in our development toolbox a relevant, robust and accessible alternative knowledge capable of driving through the development impasse.

This simplistic characterisation in itself creates difficulties. Differences in environmental knowledges cannot be satisfactorily explained in terms of the above binary, such as by simple reference to 'indigenous' versus 'planners' knowledges. Although largely ignored so far, contextual factors are also significant in the positioning of individuals and, as a result, the perspectives they hold. Not only is the economic position and milieu important in shaping indigenous knowledge, but so is the socio-cultural environment in which such knowledge is held, re-worked and developed. Of particular relevance here is the role of gender relations in shaping such knowledge, especially in relation to natural environmental resources. Importantly, as the research project developed, increased attention was paid to the positioning the research within the conceptual framework of gender relations, rather than that of women *per se*; to the ways in which knowledges are transferred (or not) from one

generation to the next; to the ways in which economic, cultural and local political factors mediate the acquisition and use of knowledges; and to the tensions between local and formal knowledges. This evolution of the conceptual framework of the study, as it progressed, very much emphasised the need to 'ground' environmental knowledge within its economic and socio-cultural environments for it to have meaning which, in turn, might be used in development planning in a more meaningful way.

It is against this background, therefore, that this study has the following key research objectives:

- to identify key environmental knowledges with regard to the natural resource base, particularly vegetation types and associated uses, water availability, grazing availability and soil types associated with differing uses;
- to explore the ways in which such knowledges differ between male and female perspectives, and to identify reasons underpinning such differences;
- to identify the ways in which such knowledges inform the management of natural resources for household reproduction and development;
- to explore areas of tension and agreement between indigenous and planners' environmental knowledges in relation to natural resource use and management;

2. Methods

This study has largely adopted qualitative methods in order to tease out the contextualised and nuanced knowledges of people from within the communities involved. This has been achieved by working with local people over extended periods of time, and encouraging an atmosphere of mutual trust in which 'conversations', rather than interviews, take place. Although a checklist of topics has been developed, based on previous fieldwork in Egypt's Eastern Desert by members of the research team, this list was provisional in the sense that some topics disappeared from it, and others were added, in the light of conversations. As far as possible, the agenda is informant-driven. This does not mean that quantitative or 'objective' data have been ignored. Rather, they have been used, as appropriate, to support arguments, but not necessarily to generate the arguments themselves.

Three main study groups in particular geographic locations around Egypt were selected, these being Bedouin in downstream Wadi Allaqi; 'urban' Bedouin from around the city of Aswan; and Bedouin in and around the Siwa Oasis and Qattara depression of the north-western Desert of Egypt. These three groups were chosen because of the controlled differences which they brought to the study. The Bedouin of downstream Wadi Allaqi comprise groups who have relatively recently moved into that area to take advantage of the new resource opportunities, primarily guaranteed water and associated grazing associated with the High Dam Lake (Lake Nasser). Environmental knowledges have had to develop to take account of this new natural resource base. In addition, as the area is only about 200km south of Aswan, and an asphalt road has recently been constructed to serve the area, this generates questions as to how local knowledges are further mediated by outside experiences which are now relatively commonplace, at least for the men. This, of course, raises a central issue for this research as the extent to which local knowledges possess an identifiable gender dimension. The Bedouin in this area are overwhelmingly Ababda, mainly

from three clans (Fashekab, Hamedab and Sadenab), although a Bishari man has married into one of the communities.

The 'urban' Bedouin represent a group which has chosen for various reasons to migrate out of the desert and live in an urban, or peri-urban, environment. The choice of this group was made partly to investigate the ways in which environmental knowledges developed in the desert become mediated by the urban experience and, indeed, may become lost, and partly to evaluate the place-specific nature of such knowledges and how they evolve. Of particular interest is the extent to which desert environmental knowledges have survived the urban transition and the generation gap between the older generation, who have known the desert, and the younger generation, who are essentially urban residents with little desert experience. This comparative element to the study is important as it may help to identify changes in attitudes towards (and knowledge about) natural resource management, where socio-economic development occurs along the trajectory of sedentarisation. Informants among the settled Bedouin are from both Ababda and Bishari.

The third group is located in and around the Siwa Oasis and Qattara depression of the north-western Desert of Egypt. This provides a contrasting natural environment to the Eastern Desert in that the local ecology is largely based around artesian groundwater, and thus natural resources are not subject to the same degree of temporal and spatial fluctuation as are rainfall and lake levels which underpin the ecology of the south. Two study groups in this area are drawn from among the Berber Siwan population and from the Awlad Ali Bedouin, these being communities which use and manage resources in essentially different ways.

The research team divided into two for the visits, with the female researchers having discussions with women informants and the male researchers with Bedouin men. This division was necessary for cultural reasons. Non-family males are not permitted to enter the women's area in Bedouin settlements, nor are Bedouin women generally permitted to talk with non-family males. Even though women visitors can enter the male spaces in the settlements, conversations can be relatively inhibited compared to a wholly male occupation of that space. As far as possible, the two parts of the research team talked with men and women from the same family group, although this was not always possible. Over the period from September 2001 to July 2002, regular visits were made to each of these groups, with discussions focusing around the agreed checklist of key topics. The results of these discussions and other observations made were entered on the pro-forma data form, and were subsequently entered into the electronic database NVivo for analysis.

During each visit, discussions not only visited the issues on the checklist, but informants were encouraged to raise other points and questions. The emphasis was very much on trying to generate a conversational atmosphere. Ideally, all conversations would have been taped. This, however, was not possible as the informants were only too aware of what tape-recorders were and how they could be used. Indeed, some related to us experiences several years previously of the use of tape-recorders by officials which resulted in some people's views being thrown back at them at a later date by the authorities. The tape-recording of conversations was not, therefore, an option. Writing notes during discussion similarly made the Bedouin feel uncomfortable. As an alternative, each conversation generally had a minimum of two,

and a maximum of three, researchers present. Whilst one participated actively in the discussion at any one time, the other(s) listened carefully to memorise as much of the conversation as possible. The researchers mixed up talking with listening as much as possible to make the conversation seem more natural and flowing. After the visit had ended, and the researchers had departed the settlement, information was immediately cascaded into notebooks and onto the field data forms. Whilst recognising the problems associated with this approach, it was necessary under the particular socio-cultural and political realities of the areas. As a method drawing on the immediate memories of two or three researchers, it worked successfully and efficiently, and allowed researchers to challenge each other if it was thought that one of them had misinterpreted something said. The immediacy of this checking process, however, provides an efficiency that listening to tapes at some time afterwards cannot replicate, when the experience has become distanced in time from the body language, gestures and other non-oral elements of a conversation. These are still fresh in the mind and were used, where appropriate, to provide added depth and understanding to the results of the conversations. The unfortunate consequence of this is that the Bedouin voices cannot be heard directly in the written account of this study but must be mediated through the researchers' memories and words.

Observations were also made by the fieldworkers on each visit, enumerating adults and children in the settlement, as well as livestock. Discussions took place about recent visitors or events since the last visit made by the research team, and note taken of the condition of the animals, in particular indications of poor health such as diarrhoea. As relationships grew between the informants and the researchers, so the conversations became more relaxed and trusting. Cross-checking, or triangulation, suggests that the results of discussions have become increasingly secure. There are clear advantages in this sort of longitudinal work in the sense of obtaining information which is deeper and more nuanced, but at the expense of time and resource.

3. Findings

The main findings of the study are:

- The concept of a 'pristine' indigenous environmental knowledge is illusory. A more appropriate term, both theoretically and in practice, is 'local environmental knowledges'. This is not merely a semantic change, but one which reflects the hybridised, utilitarian, pragmatic, transitory, flexible and dynamic nature of such knowledges. There is indeed little attempt to preserve those knowledges, that are no longer used on a daily basis, for their own sake or as some relic of a 'purer' past. New knowledges are opportunistically adopted to replace those which are no longer relevant.
- Men and women's environmental knowledges differ, even within the same household. A key factor in this is spatial scale. The resources about which women have knowledge are those to which they have access on an everyday basis, that is, those located in the immediate vicinity of the household. Men's knowledges are much more spatially extensive, and include information gathered from others met at the market and elsewhere, and from experience of travelling widely in the desert. This gender differentiation of environmental knowledges reflects the different economic roles of men and women in household reproduction.

- The economic context in which environmental knowledges are developed, tested and evaluated is a key element in understanding their acquisition and deployment. Local environmental knowledges do not exist independently of their economic and socio-cultural contexts. Sedentarisation, for example, is increasingly limiting the spatial extent of both men and women's knowledges, and knowledge of desert environments is no longer being passed onto the younger generation in the Nile valley and to an extent in Siwa. However, young people in each of the areas included in this study have learnt new knowledges relevant to the resource opportunities available to them and which contribute to day to day economic activity, even though such knowledges may, or may not, be 'indigenous'. A further illustration concerns economically marginal groups who lack the resources (for example access to transport, such as camels) to exploit new resource opportunities and to develop, test and evaluate new environmental knowledges. Consequently, the marginal status of such groups is likely to increase.
- From the main research findings of the study, a number of relevant policy implications can be suggested. These include: the need to de-romanticise and re-conceptualise the term 'indigenous knowledge'; the need to recognise the plurality of environmental knowledges held within communities and, indeed, within the same households, and to abandon the notion of community knowledge; the importance of grounding local environmental knowledges in their economic and socio-cultural contexts, even though this leads to increased complexity; and the recognition of gendered environmental knowledges and a critical questioning of the assumption that households always necessarily share a common environmental knowledge repository. The call is for development practitioners to demonstrate greater sensitivity to the complexities and nuances of local environmental knowledges themselves, as well as to their contexts and dynamism.

4. Dissemination

Symposium

A symposium was arranged for the immediate dissemination of initial research findings to interested parties in Egypt. The symposium was entitled "Environmental Change and Desert Development: New Water, New Opportunities in Southern Egypt", and was held between 16 and 18 December 2002, at the Unit of Environmental Studies and Development at South Valley University, Aswan, Egypt.

This symposium presented the progress and results of the latest research on natural resource development in the eastern part of the High Dam Lake area, based mainly on work being undertaken at the Unit of Environmental Studies and Development at South Valley University in Aswan. One of the key sessions at the symposium, held on 16 December, gave the opportunity for the DFID project team to present the results of their work to an audience of over 70 participants, drawn from international aid organisations, Egyptian national ministries, regional planning authorities from Aswan Governorate and universities from Egypt and beyond.

The main organisations and end-users represented at the symposium were:

UNESCO; UNDP; IDRC (Canada) DANIDA; British Council; Egyptian Environmental Affairs Agency; Ministry of Social Affairs; Ministry of Agriculture; Aswan Regional Planning Centre; Aswan High Dam Lake Development Authority; Aswan High Dam Authority; South Valley University; Assuit University; Cairo University; Ain-Shams University (Cairo); University of Glasgow (UK); University of Bucharest (Romania).

Webpage

The report is accessible via the Aswan-Glasgow Link pages hosted by the University of Glasgow (<http://www.geog.gla.ac.uk/aswanlink/projects2.htm>). The executive summary is available as an HTML page, while a copy of the full report can be requested by email.

5. List of publications

- *Indigenous environmental knowledges and sustainable development in semi-arid Africa*, DFID Final Research Report (R7906)
- *Indigenous knowledge, local knowledges? The value of IK in development research and practice*, in preparation, to be submitted to a peer-reviewed research journal
- *The production of indigenous environmental knowledges*, in preparation, to be submitted to a peer-reviewed research journal
- *Gendered spaces, gendered knowledges*, in preparation, to be submitted to a peer-reviewed research journal