

DEVELOPMENT ANTHROPOLOGY AND NATURAL RESOURCE MANAGEMENT

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Introduction

This is an opportune time to attempt an overview of this topic, because anthropologists have, in recent years, made important contributions to development policies and projects that are concerned with natural resources. I shall be examining several domains, including agriculture, pastoralism and range management, and forestry, with passing attention to others (fisheries, water and irrigation, soil conservation and game). In all these domains, I shall cite specific examples of anthropologists who have played direct and useful roles in development, in collaboration with governmental and international agencies. These agencies are showing an increased awareness of the potential help that anthropologists can provide, thereby creating a generally open and favourable climate for these activities. There is certainly a greater sensitivity to social and environmental concerns, so that the contributions of anthropologists to all these domains are being given more prominence in development planning.

“Development anthropology” is a term that has become accepted over the last two decades, referring to the involvement of social anthropologists in planned attempts to encourage social and economic development, particularly (but not exclusively) in the Third World. The best review of the subject is that written by Allan Hoben (1982), who remarks that while development anthropology is not an academic sub-discipline, it «has become an incipient profession and a field of study». Many universities, including my own, regularly offer courses, usually at the post-graduate level. The Institute for Development Anthropology (I.D.A., a non-profit institution, of which I am a director) recent-

ly celebrated its tenth anniversary (more details on I.D.A. are given below). I should state that not all those who are engaged in development anthropology have been formally trained in anthropology: our numbers include people whose training was in political science, economics, sociology or geography, who have made intensive studies at the micro-level, and who are committed to aiding the processes of development. By that, I do not mean that we are all enthusiastic about the sorts of "development" that are taking place all over the world. I do mean that we see attempts to increase agricultural production and sustainability and generally to improve socio-economic conditions; we like to think that our interventions may influence development planners to be more concerned with people's perceptions and needs, and with sustainable livelihoods rather than simple economic measures, and to focus on equity as well as on productivity. I should also state that by no means all anthropologists share our interest in development. Indeed, at many university departments in Britain, and to a lesser extent in North America, development anthropology is regarded as a marginal and academically unrespectable activity.

All the domains of natural resource management, which I shall discuss, are characterised by some common features, which in broad terms include the following:

- a) local people usually had evolved strategies for managing their natural resources;
- b) these strategies were, for the most part, appropriate to the specific social conditions and to the bio-physical environment;
- c) while there were relatively few strategies that were explicitly designed to conserve natural resources, many did inadvertently achieve this goal;
- d) these traditional strategies have been distorted, modified or have disappeared, because of a series of impacts on the generally small-scale rural societies with which we are concerned. These impacts included colonial rule, with an increased emphasis on commercialisation of natural resources (and often an influx of strangers to exploit the resources), incorporation into the market economy, increasing population and consequent pressure on natural resources, improved technology (shot-guns, outboard motors, chain saws, etc.); migrant labour and «expropriation of land by outside interests» (Burton *et al.* 1986:262);
- e) for the most part, governmental and international agencies have not known about local management strategies, or, when these have been recorded, the agencies have ignored such know-

ledge. Official attitudes have often been clearly anti-peasant or anti-nomad, and have included simplistic and misguided notions about "the tragedy of the commons" (Hardin 1968).

I should state, explicitly, that I am not advocating a return to the "traditional" practices, as the conditions have, in most cases, changed so drastically from the time that these practices, or management strategies, were appropriate. What I am suggesting – and I shall do this in quite specific terms – is that, before any intervention in use and control of natural resources, planners need to be aware of what local people actually do, what specific sorts of knowledge they have, and what their needs are (realising that each community is divided, by rank, age, gender, caste, ethnicity or religion, and different people have different needs): then planners can use this knowledge as the basis for more effective planning for the natural resources, rather than simply adopting the worn-out "top-down" approach.

After this introductory section, I turn to a consideration of the different roles of development anthropology, followed by an analysis of the sorts of skills and training that are required, paying attention particularly to three overlapping fields: local natural resource management, indigenous knowledge systems and local participation. I then provide detailed examinations of the natural resource domains, and continue with a review of how anthropologists actually work in this field, ending with some conclusions and recommendations for specific actions.

Roles of development anthropology

(a) Anthropologists play many different roles, in whatever type of development anthropology they are working with. The most common one concerns "information", when the anthropologist's task is to gather and analyse information about local societies and their use of natural resources, and to present this information in a form that can be used by planners, administrators and project managers. To do this effectively requires skills that many mainstream anthropologists lack, for it needs an understanding both of the biological domain, and, especially, of the bureaucratic organisation. Anthropologists, while accustomed to making painstaking and detailed studies of complex small-scale societies and their social institutions, have sometimes been reluctant to spend as much effort on understanding the dynamics of the World Bank, the Kenyan Ministry of Agriculture, the financing

mechanism of the State of Gujarat or whichever bureaucracy is controlling the particular project. Project directors are usually busy people, often managing several projects that are geographically scattered, and that have varied emphases. The officials seldom have a training in social anthropology, and they probably know little about the local people, the supposed "beneficiaries" of their projects. In these circumstances, the information must be presented in a very project-specific way, showing clearly why these facts are relevant to the planned intervention, and how they can be used.

(b) A second role is that of "cultural broker" between local people and the agency that is implementing the intervention. Burton *et al.*, in a highly recommended and succinct article on "natural resource anthropology", correctly warn of the dangers of being an «advocate of the interests of the local community in its dealings with the larger society». They point out that the anthropologist might represent the interests of "one" community, whereas there are often «differential impacts on a multiplicity of small-scale communities» (Burton *et al.* 1986:261). This danger needs to be stressed, as sometimes anthropologists do become too particular, too attached to one small group. But I see no difficulty in acting as a broker for local people generally, for who else can represent them? And they are so often simply left out of any planning or decisions, treated as passive objects waiting to "be developed".

Kaj Arhem describes his experiences as an anthropologist in Tanzania, advising on the Ngorongoro Conservation Area in relation to the local residents, the Maasai. In his thoughtful "closing remarks", Arhem considers some basic questions related to anthropologists and development, and discusses the way planners see anthropologists simply as sources of information, who have no control over how their information is used. To counter this, Arhem supports a much more active role:

«... to catalyze and support this process coming from within the developing community itself ... our role is to strengthen local initiatives and endogenous processes ... to articulate the interests of local communities in relation to the wider society ... even if the [local interests] are contrary to those of society at large [it is our] task to make them publicly known ... to give voice to the voiceless, to listen and speak out where no one else does» (Arhem 1985:91-95).

Arhem stresses that it is our duty to present appropriate information to appropriate people. Arhem was examining the question of Maasai rights to grazing in the conservation area, but his remarks have a wider validity.

Hoben (1982) claims that «development anthropology can improve program planning and project design by providing a view of development ... from below, from the vantage point of its projected low income clientele». There are powerful ethical and tactical reasons for pursuing the broker role vigorously.

(c) A third role is at a quite different level, that of "policy adviser" to the implementing agency. As nearly all writers on development anthropology have emphasized, a key question here is the type of association that the anthropologist has with the agency, whether as intermittent consultant, part-time employee, or senior full-time official (I will consider the implications of each of these below). What is also important is that, ideally, the anthropologist should have a continuing association with the agency, so as to ensure that he or she is involved in all stages. Particularly important is the initial stage, when planning decisions are made, as it is often extremely difficult to alter these decisions. It is also desirable to be present, or at least to have some input, during implementation, and also during any monitoring and evaluation. Few development anthropologists enjoy the luxury of sustained involvement, although it is becoming more common. My colleague (at I.D.A.) Thayer Scudder was able, for example, to maintain close links with the Sri Lanka's Mahaweli Project for nearly ten years. Most of us, however, have had the frustrating experience of taking part in what Arhem (1985:94) calls «hit-and-run anthropology», when we have made specific recommendations for action, but have not been able to follow up to see that they were implemented.

The role of policy adviser is potentially one of the most important, and anthropologists are increasingly playing a part at the policy level. There is a long way to go, but at least one can find some examples of success in influencing policy.

(d) Another role of anthropologists is in proposing new "institutional arrangements" that can manage natural resources, often using a blend of old and new institutions. This requires, of course, a close knowledge both of the local society and of the Ministry or other implementing agency, so that "fit" with each can be assured. Examples of this role are given below.

(e) "Social soundness analysis" (to use the term adopted by

U.S.A.I.D., the United States Agency for International Development) is another major role. This involves describing and analysing the anticipated social effects of a proposed program or project, usually differentiating between men and women, rich peasants and poor, residents and strangers, landed and landless, etc. This activity should be done while the projects are still in the design stage, otherwise criticisms are likely to go unheeded, as are predictions of negative impacts. U.S.A.I.D., of all major agencies, has actively promoted this, making it a mandatory requirement for each project. Unfortunately, analyses are uneven, often being done in a perfunctory or belated manner. Hoben explains that the new requirement was not popular with A.I.D. personnel «for it added to their workload, did not seem necessary, raised complex issues that threatened project approval...there were also problems of differing expectations and mutual frustration between anthropologists and officials» (Hoben 1982:358). Despite the uneven nature of the analyses, the mandate is to be welcomed as an essential first step.

In addition to U.S.A.I.D., the World Bank now requires sociological analyses of «all projects affecting people who are culturally, economically, socially and politically marginal within their native lands» (Hoben 1982:362). The World Bank has provided guidelines for various situations and requires similar analyses in resettlement projects; both "tribal peoples" and resettlement projects usually involve one or more components of natural resource management. Again, a formal requirement does not always ensure that the guidelines are followed in practice, in all Bank projects.

(f) I turn now to an important though negative role that anthropologists sometimes play, that of "spoiler", causing a project to be cancelled because of the predictable adverse impacts on the local people. Some very big projects, including a huge proposed range, Texas-style, in Niger, have been cancelled, causing the anthropologist to be unpopular both with the agency and with national government officials.

«Partly as a result of a study made [by Allen Hoben] in 1986, the director of U.S.A.I.D. decided not to move ahead with the project [for rural development and resettlement in West Benoue, North Cameroon]» (Hoben 1986:169). Hoben recommended improving conditions in the Mandara Mountain region, rather than trying to resettle the people in the plains, on a variety of social and ecological grounds.

(g) Anthropologists have also acted as "organisers". For example, my colleague Michael Painter (of I.D.A.) recently completed a survey for U.N.D.P. (United Nations Development Programme) of "Environmental protection and eco-development in U.N.D.P. projects." The purpose of this evaluation (which was based on a review of project documents) was to assess how U.N.D.P. has addressed environmental issues in recent years, and to:

«...recommend how U.N.D.P. programming might be improved to address environmental issues more effectively in the context of achieving overall development goals. Two categories of projects were examined, those which explicitly aimed at environmental changes, and those which had a potential environmental impact» (Painter, unpublished).

Painter was able, in his analysis, to point out specific ways in which project planning could be improved, although one of the biggest constraints was the institutional structure of U.N.D.P. As in other large development agencies, changes are not easily made.

Similarly, Thayer Scudder (1981) reviewed, for U.S.A.I.D., all projects concerned with resettlement, both voluntary and involuntary, and he concluded with a series of recommendations, about settler participation in administration, encouragement of off-farm income opportunities and concentrating on the household rather than merely on the (usually male) household head.

(h) "Monitoring and evaluation", activities that should be a basic ingredient of all development projects, can benefit from the input of an anthropologist, who is able to suggest other criteria apart from the standard economic ("Internal rate of return") ones. These criteria can, for example, measure local people's perceptions of, and satisfactions with, the project, and can ensure that a representative sample of "local people", and not just the "roadside elites" (Chambers 1983) is asked. An anthropologist should also be able to suggest ways in which the people can do some self-monitoring.

(i) Anthropologists can make useful contributions in the "technical" field, or rather in pointing out (usually rather obvious) social aspects of technical innovations. For example, when advising on forestry programmes, in both Kenya and Tanzania, I recommended that care should be taken to establish many small local tree nurseries, rather than relying on a few central nurseries; I also recommended that more use be made of schools, for grow-

ing trees and for distributing seedlings. Other examples are given below, in writing on the differing domains.

(j) One final, but very important, role for anthropologists in development concerns "training", of officials as well as of local people. At I.D.A. we have been involved in several training workshops, and I give some examples. I.D.A. organised workshops on "African pastoralism and livestock production" for U.S.A.I.D., as a result of which some policy changes were made. I.D.A. also ran a workshop in Malawi for F.A.O. (the Food and Agriculture Organisation of the United Nations) when thirty participants, from the forestry departments of eleven countries in East, Central and Southern Africa, met for a month. The objectives were «to examine approaches to farming systems research, look at incorporation of trees into farming systems, learn appropriate methods of data collection, and to make recommendations and share experience and knowledge» (F.A.O. 1985b:2).

These different roles indicate that anthropologists can, and do, contribute to the development process in many ways. One common thread that runs through all the roles is that of education: the anthropologist is informing others of the special anthropological or social science-optic that informs our discipline. This is not a one-way action, as the anthropologist is constantly learning, particularly about the bio-physical domain, and also about the organisational structure of the agencies involved. I cite one example to illustrate the educational/learning process, and that is the *sondeo* technique, pioneered by T. Hildebrand in Central America. As part of Farming Systems Research (F.S.R.), this involves three actors: anthropologist, agronomist and local farmer. Although F.S.R. has come under attack recently, I am convinced from my own experience that the *sondeo* is an excellent research and learning technique, and that it should be more widely practised (Hildebrand 1981).

Some assumptions

It seems necessary to spell out, at this stage, several assumptions that I make, as much of what follows depends on these. The three main assumptions concern the validity of: 1) local natural resource management; 2) indigenous knowledge systems, and 3) local participation in development. I spell out why I think each of these is valid, and important, because there are still many in the

development field who ignore, or treat with contempt, these three overlapping themes.

«Natural resource management systems can be examined at several organizational levels» as Burton *et al.* point out (1986:262). The first level, and the one I am concerned with here, consists of the local people who exploit the resource and whose social institutions and culture determine how they use and manage the resource. Until relatively recently, many local communities (this was especially true in sub-Saharan Africa) acted with autonomy at this level. The second level comprises governmental officials from district, regional and national agencies, such as agricultural or forestry officers. The top levels include national decision-makers and (very often) policy makers from the international agencies which are frequently significant. Anthropologists need to study the whole system, and an important part of the study is the almost universal shift of decision-making on questions of natural resource management, «from the local community to higher bureaucratic settings» (Burton *et al.* 1986:262). However, here I deal with the lowest level, emphasizing what people actually do in their food production, animal husbandry, tree-growing, management of water, or whatever. In some cases, there are distortions in the original local methods, especially those caused primarily by commercialisation of resources, and/or increased population putting pressure on the resource. An obvious example is fuelwood, formerly a free good, easily available, and now, almost everywhere, an economic object which is, in many places, in short supply. This has led people to adopt environmentally unsound practices such as cutting down valuable hardwoods to make charcoal, a common practice in Mbeere, Kenya (Riley & Brokensha, in press). In the same area, people, particularly in time of famine, cut down vegetation that had protected banks of streams, and similarly destructive practices have been reported from Nepal, Burkina Faso and other areas of fuelwood scarcity. I mention these to make it clear that I am not romanticising the local systems, nor suggesting that local groups should be given complete powers of managing their natural resources. I do suggest that an essential first step, in finding out what should be done, is to understand what local people actually do, and why. Even when local practices have negative consequences, understanding them should precede any intervention.

Second, indigenous knowledge systems have been extensively studied (both Brokensha *et al.* 1980, and Conklin 1972, have good

bibliographies; see also McNeely & Pitt 1985). The International Union of Conservation of Nature and Natural Resources (I.U.C.N.) states that the objectives of their programme, "Traditional knowledge for conservation", include promoting traditional knowledge and resource management practices of rural communities as an "effective basis" for conservation and development; involving local people as partner in applying "what is relevant" in the development of contemporary systems of living resource management; developing effective ways of recording, analysing and applying traditional knowledge (Mc Neely & Pitt 1985). I emphasize "the effective basis" and "what is relevant" because these are the key phrases. I repeat that there is no suggestion that indigenous knowledge can simply be applied to contemporary situations, as this would be unrealistic. But it can form an effective basis for appropriate planning and resource management, as I shall show below, with reference to the particular domains.

Third, I consider the complex question of local participation, which is generally accepted as desirable – though with very different definitions of what constitutes "participation" – but which has proved difficult to implement. The difficulties arise from several sources: deciding what participation is, the nature of governmental organisations, and the structure of local communities. First, concepts of participation in rural development include government informing selected "leaders" of plans for development; forming some sort of local development committee – and this poses problems because of difficulties in reaching a small enough level so that truly local people can become involved, and not merely the "Big Men" at the district-level, who have strong links with the political centre, with regional or national capital, and with the elites. In such cases, the rich capture not only the organisation, but also most of the benefits. Another stage in participation is to attempt simply to hand over to local people, with central government playing no role other than as financier. This type of occurs more often in rhetoric – "Power to the people" – than in reality. Between the extremes, some sort of genuine participation is possible, as appears to have been reached, for example, by some of Nepal's *panchayats*.

Government officials, in Third World countries as well as elsewhere, are usually jealous of their powers and privileges, and are reluctant to share power with people who, in their view, lack the necessary skills, knowledge, experience and reliability to exercise power effectively.

And from the viewpoint of local people, divided communities are more common than homogeneous ones. When there are divisions (whether based on caste, ethnicity, religion, landholding, income, gender, or age) it is not easy to find a small group of individuals who can effectively represent "the community". The problem exists in another form when some groups, nomadic pastoralists, for example, are constantly shifting both geographically and in their social composition.

Local participation may take many forms, including innovative action in monitoring and evaluation. Paul Richards (1980), for example, suggests that Nigerian villagers could play an important role in providing early warning systems of drought. Several scholars claim that the best indications of an impending food shortage may come from local market prices of basic foodstuffs, as a sudden increase may well predict a coming shortage of basic staples (see Garcia-Zamor 1985, and Korten & Klaus 1984, for good overviews).

Domains

I now examine different domains of natural resources, showing what contributions have been made to development by anthropologists.

(a) Because of its importance, I begin with "agriculture", or, more properly, with productive systems, which have been studied extensively in all parts of the world. I recently reviewed early proponents of "asking the fellows who cut the hay" (Brokensha, unpublished), so here I shall give contemporary examples, focusing on promising new directions.

These include what Michael Cernea (1985:16) calls "crop sociology", which focuses on the interaction of the bio-physical requirements of one specific crop, and the socio-economic institutions that emerge, to deal with these requirements. An example of this would be Stephen Brush's work on the Andean potato (Brush 1987:272) where he stresses that «Andean agriculture is complex and dynamic, and traditional practices continue not as cultural survivals, but as rational choice». Brush also stresses "verticality", the use of multiple altitude belts, and the guarantee of individual household's access to different altitude zones. This creates opportunities for diverse systems of crop and animal production, the most important component being the potato (see also Brush 1980, for a study of the ethno-taxonomy of the Andean potato). The

same crop, the potato, is studied by Angelique Haugerud, in Rwanda, where she points out the significant benefits of co-operation between agronomists and social scientists. She emphasizes the value of interdisciplinary teams which can pay attention not only to «agronomy, physiology and genetics, but also to local institutions and farmers' circumstances», as this information is also needed (Haugerud, in press).

Sustainability has been seen by many as an important goal, one which should be considered alongside the more common criteria of productivity, with Robert Chambers being the most powerful proponent of this view (Chambers 1983). This view is also supported by J. D. H. Lambert, a biologist, who states that «the central issue in sustainable agriculture is not achieving maximum yield: it is long-term stabilization». It is gratifying when a natural scientist says, quite unequivocally, that «traditional agriculture is the basic strength of the African countries and should no longer be neglected for a cash-crop economy» (Lambert 1986). A comprehensive report on these and related issues will shortly be available from the U.S. Office of Technology Assessment (in press).

Some more specific agricultural issues have been addressed by social anthropologists, including quite specific themes such as the marketing and processing of cashews in Choluteca, Honduras, where Monte Tidwell describes his work on behalf of the group "Pueblo to people", with cashew growers building mud-ovens, installing solar driers, packaging and marketing, and affiliating with national peasant organisations (Tidwell 1987:62). Another very specific involvement is reported by Patrick Fleuret, a senior anthropologist working with U.S.A.I.D., who describes an ingenious method for distributing hoes equitably and inexpensively in Uganda, at a period when these humble agricultural implements were urgently needed for food production. As in the Honduras case of cashews, Fleuret had to help set up new institutions, confirming that adequate institutional arrangements – or the lack of them – are crucial factors in any agricultural innovation (Fleuret, in press).

Another promising area for co-operation between agricultural scientists and anthropologists is in Integrated Pest Management (I.P.M.), although here many scientists are still resistant, not realising the potential advantages of such joint research. Thomas Conelly has written about insect pests and weeds (especially parasitic *Striga hermonthica*) in Western Kenya, examining indigenous

pest control methods; he looks at the difficulties of developing improved pest management techniques that are not only effective, but appropriate to the circumstances of local small-scale farmers. Conelly also discusses the potential for I.P.M. techniques, such as resistant crop varieties and improved intercropping practices (Conelly, in press).

Women farmers in Africa have attracted much attention from anthropologists, less from agriculturalists, but this is beginning to change as the major role of women in African agriculture becomes clearer: it is estimated that women do more than half, in some places up to 80 per cent, of agricultural tasks. A good recent summary is provided by Christina Gladwin *et al.* (1986), who recommended a variety of solutions to help incorporate women farmers more effectively into development projects aimed at increasing food production. They advocate having women participate in the design stage of projects, using women extension agents, identifying and training women, and generally helping women farmers to get «access to basic agricultural inputs, capital, markets, and the political arena».

One final, and important, agricultural topic is Farming Systems Research (F.S.R.), and a recent publication provides a useful summary (Fresco & Poats 1986); this includes «... an examination both of what F.S.R. will “not” solve, as well as what it does offer – setting priorities for research, extending new technology, [and] overcoming the gender biases inherent in most other agricultural development projects [in Africa]» (Fresco & Poats 1986:329-330).

Despite these, and many other examples, anthropologists cannot be complacent about their role in anthropology, as long as they are so greatly under-represented. Haugerud (in press) estimates that “all” social scientists represent 10 per cent of the senior research staff at the International Agricultural Research Centres. Robert Rhoades, in his good account of “Agricultural anthropology” claims that «out of 736 senior scientists employed in 1983 in C.G.I.A.R. (the international agricultural centres) three were anthropologists». But he does add that «many agricultural organisations are more receptive toward anthropologists than at any time since the 1930’s». This despite his assertion that «perhaps as many as a quarter million people work in agriculture for the U.S.D.A., U.S.A.I.D., international and national research centres, and F.A.O., [while] the number of full-time anthropologists employed in all of these organisations could probably be counted on two hands» (Rhoades 1984:50). The point about the receptivity of

the agricultural organisations is encouraging and important, and has parallels in the other domains, as I shall show.

(b) I next consider "pastoralism and range management", which presents a very different picture, in many respects, from agriculture and, indeed, from any other domain. First, this is a well established field in social anthropology, especially in African ethnography, where major contributions to our understanding of social institutions have been made. There have been at least three generations of anthropologists interested in pastoralists: the first is represented by the late Sir Edward Evans-Pritchard, whose classic studies of the Nuer of the Southern Sudan set high standards for his successors. Doing his fieldwork in the 1930's, Evans-Pritchard expressed no interest in development, an understandable attitude for that period. The second generation of post-World War II scholars includes Paul Baxter, Gudrun Dahl, Anders Hjort, Neville and Rada Dyson-Hudson, Michael Horowitz, Alan Jacobs, and Jeremy Swift, all of whom have focused specifically on development issues at one time or another. Then there is a third generation of people doing their fieldwork in the late 1970's and 1980's, for whom development is often a major focus, representing the change in importance of this emphasis for African pastoralists: for today the millions of African pastoralists are all greatly affected, usually negatively, by development projects. This contemporary generation includes Roy Behnke, Richard Hogg, Peter Little, and Michael O'Leary. Although I shall be citing the many impressive insights of these anthropologists, it is worth pointing out that earlier anthropologists (e.g., Melville Herskovits, George Peter Murdock) helped to establish the negative stereotypes of pastoralists (see Horowitz, unpublished).

For overviews of the present state of pastoralist studies, with special reference to development, I recommend several major articles: Baxter 1987; Dyson-Hudson 1985; Horowitz 1986. These three offer further thoughts on the brief outline that I present here. They are all highly critical of "official" policies, as represented by the numerous pastoral and range management projects that have been started in Africa over the last twenty-five years, at a cost of over U.S. \$600 million (Dyson-Hudson 1985:158), and from which very few pastoralists have benefitted with the exception of some specifically veterinary interventions.

Why is this? Some projects were set up hurriedly, because of what were seen as urgent problems of the recurrent droughts and famines since the early 1970's. But the real reason for the persis-

tent failure of the projects has been because they have:

- a) been imposed from above, with no consultation of the supposed beneficiaries;
- b) been based on a series of false assumptions about pastoralists, with little account being taken of the substantial body of knowledge accumulated by anthropologists;
- c) been influenced by a pervasive "anti-nomad mentality", exhibited by both African and international agency officials;
- d) assumed that capital and technology can transform an "irrational and backward" system into a modern livestock production unit, similar to the large ranches of U.S.A. or Australia;
- e) emphasized beef production and largely ignored milk production.

As a result of these factors, many pastoralists have lost control of their means of production and have been pauperised. The projects have not resulted in any increase in income, nor in production, nor have they halted environmental degradation.

Let me look at some of the false assumptions, the main one being "the tragedy of the commons" (Hardin 1968), which states that when the common resource (grazing) belongs to no-one, then each herder will exploit it in a selfish and heedless fashion. That this is not true of African pastoralists has been as well documented as almost anything in African ethnography, but the stereotype persists among most development planners, who blame the pastoralists for environmental deterioration. As a consequence, typical interventions include group ranches and sedentarisation, both of which have failed to achieve their aims. There are other misleading assumptions about carrying capacity, productivity of herds, the baneful effects of burning grass, destocking and privatisation of land. As a result, the development projects, according to Baxter (1985:1), «have menaced pastoralists more than drought or the tse-tse fly».

To counter these stereotypes and false assumptions, anthropologists, while agreeing that rangelands are under threat, urged planners to adopt a different approach, one that would build on the strengths, knowledge and resilience of the pastoralists, qualities that have enabled them to survive – even to thrive – in the generally inhospitable terrain where they live. These include a fine-tuned capacity for good decision-making, especially on herd movements and herd balance (where scattered and multiple herds are often needed); a series of adaptive and opportunistic strategies; a keen and impressive ethno-botanical knowledge of grasslands,

pasture and fodder; symbiotic relationships with agriculturalists and traders. The studies also emphasize the important contributions to the pastoral economy that are made by pastoral women, who are largely ignored by planners. And they point out that, nowadays, few pastoral communities can be considered in isolation as they have significant links with urban areas (through labour migration and destitution), and with refugee settlements – relief efforts are now an integral part of pastoral life. These arguments have persuaded some agencies, especially N.G.O.'s (non-governmental organisations), like Oxfam, to support, with some success, modest schemes that do involve the pastoralists, and that aim to diversify the economy and provide supplements. The interventions have to take account of changed circumstances such as the quite recent (and growing) inequality among pastoralists (Hogg 1986; Little 1985), and the role of "stranger investors" in rangeland.

(c) Social forestry is a relatively new term and, unlike pastoralism, a new emphasis in social anthropology. The best single account is the F.A.O. publication, *Tree growing by rural people* (1985). Like other F.A.O. publications, this monograph had contributions from many authors, among whom were several anthropologists – and the anthropological component is quite clear. It has an extensive bibliography, which includes few items written before the late 1970's. Many of the references are in the bibliographical field known as "fugitive literature", comprising unpublished conference papers, small circulation network documents, articles in newspapers and the like. As one who is much involved in this field, I know that my best sources are the ephemeral ones rather than mainstream academic journals and presses: this holds true for most of the other domains. As an example, I cite the Overseas Development Institute (London), which issues regular newsletters in four fields: agricultural administration, pastoralism, irrigation, and social forestry. I am sure that others who have joined these networks, and who receive the newsletters, would agree with me that these are one of our most valuable sources of information: the short notices are up-to-date, highly topical, and explicitly concerned with anthropologists (and others) studying the development of natural resources and its effects on local people.

After that bibliographic diversion, I turn to look at social forestry, first presenting an overview of official forestry policies. During colonial times (and most of the nations with which we are

concerned were former colonies, especially in Africa and Asia), the emphasis of forestry departments was on commercial exploitation of forests, with more attention being paid to exotic than to indigenous species. Forests were regarded as places to grow trees, where local people had no rights, and colonial foresters were often perceived as policemen, keeping people out of forests which had frequently been under local management, and arresting any who dared to enter the forest reserves. After independence, most forestry departments continued the same policies and maintained the same image.

Then in the mid-1970's, there was a growing realisation that there was beginning to be a serious fuelwood shortage, marked by the publication of Erik Eckholm's useful booklet, *Firewood: the other energy crisis* (1975). The response of forestry departments was to organise massive tree-planting programmes, usually on a communal basis, and with an overwhelming emphasis on fuelwood (see Brokensha *et al.* 1983). These efforts were supported by millions of dollars, with U.S.A.I.D., the World Bank, F.A.O., and S.I.D.A. (Swedish Development Agency) being the main donors. But the efforts were largely not successful, for several reasons. First, communal wood lots could only work when – as in South Korea – there were clearly established communities, and an historical tradition of village co-operation. There was limited success in Gujarat, but elsewhere results were disappointing, as people were not prepared to contribute labour to plant, weed, guard, water, and eventually harvest trees when there was no clear indication of what reward they would get. This often related explicitly to the position of women, who were assumed to be ready and willing to participate in the work of growing trees, when, as often as not, they already had more than a full day's round of activities, and when it was seldom clear what benefits the women would get from participation. Another problem was that in most Third World communities, multi-purpose trees are the favoured species, ones that produce, as well as fuel, building timber, fodder, shade, perhaps fruits and edible leaves. These multi-purpose trees include *Acacia seyal* in West Africa, *Azadarachta indica* (*nim*) in India, *Prosopis cineraria* in semi-arid lands (e.g., both India and Sudan) and others.

Foresters began enlisting the help of anthropologists in finding out why people grew, and did not grow, trees; how tree-planting programmes could be successfully organised; what species would be popular. As this was a new field, those of us who

responded had to teach ourselves as we went along, and this involved acquiring some basic knowledge of the domain, as well as understanding the bureaucratic organisations. In my case I had been studying social and environmental change in Kenya with my geographer colleague Bernard Riley, and we had focused on changes in incidence and uses of woody vegetation. Local women started to complain that they had to walk further distances to collect fuelwood, making us aware of this growing problem, and initiating us into the new company of "social foresters" (Riley & Brokensha, in press). We were all aware that there was a problem of fuelwood scarcity, and were happy to be invited to work with foresters. In contrast to the official attitudes to pastoralists, in my experience foresters have been much more open and receptive, although there are inevitably some "traditionalists" who are interested in trees, not in people.

Social forestry varies from place to place, but some generalisations are possible. We emphasize indigenous technical knowledge, pointing to the great wealth of ethnobotanical knowledge of local people; we recommend that the present system of tree management be understood before interventions are made; indigenous species should be seriously considered for suitability; where practicable, limited access to forests should be granted, perhaps under regulation of the local community (as has happened in parts of Nepal); schools should play an important part in tree-planting, both in having tree nurseries, and also in educating the school children, and through them, their parents. Although I admire the ethnobotanical knowledge, I have to admit that some communities have little experience of planting and caring for trees, which have in places been perceived as an inexhaustible resource. But there have always been some strategies of tree-management, including encouraging volunteers of favoured species, pollarding, inter-cropping, agro-forestry and home-gardens.

Because tree-growing is often:

«...embedded in complex systems determined by the ways in which people organise their lives and other resources, its evolution and strengthening may require action in several areas – including changes in forest and land use policy, legislation, radical changes in forestry administration structures, research, extension and financing» (F.A.O. 1985a:114).

As this list indicates, social forestry's contributions are based

on an understanding of local communities, their physical environment and their linkages rather than on any arcane ethnographic insights. Perhaps the major contribution of anthropology in this domain has been to explain the complexity and significance of land tenure and tree tenure, to show how these reflect the local social institutions; to point out ways of including the poorer people of any community in tree growing activities; and to insist that any forestry intervention be placed within the specific context of the production systems, households, and local environments. Anthropologists have also been involved in two other activities aimed at alleviating the fuelwood shortage: the search for alternative energy resources (solar, bio-gas digesters) and the development of more fuel-efficient cooking stoves (using fuelwood or charcoal) and charcoal kilns.

In the tropical rain-forests, deforestation is increasing at alarming rates. Anthropologists have been, for nearly twenty years, concerned with the effects of logging, roads and agriculture on the lives and cultures of the surviving "tribals", in South and Central America, the Philippines, Indonesia, Malaysia and elsewhere. Groups like Cultural Survival (U.S.A.), Survival International (Britain) and the International Work Group on Indigenous Affairs (Denmark) have all been active, with anthropologists usually taking the lead. Considerable attention has been paid to one aspect of tropical forest depletion, and that is clearing forest for cattle raising, a widespread practice in Central and South America (Partridge 1984; Collins & Painter 1986). Cattle raising dramatises the importance of linkages outside the community, as most of the beef is exported to North America: in nearly all our examples, we have to consider the influence of markets, corporations, agencies and governments, as well as local factors.

I now turn to some case studies that both illustrate specific details of social forestry, and also provide more general examples of common features of anthropology and natural resource management. My first example is from Haiti, where Gerald Murray (1984) worked on a U.S. \$8 million planting project funded by U.S.A.I.D., that has apparently been successful. Faced with severe deforestation and soil erosion in rural Haiti, the typical forestry approach had been to encourage trees «as a sacred, untouchable legacy for future generations». Instead, Murray promoted «planting of fast-growing wood as a privately owned cash-crop on (peasants') own land». What was unusual about the Haiti agroforestry project was its institutional arrangements, as it was im-

plemented entirely by non-governmental organisations (N.G.O.'s), with neither the Haitian Forestry Department nor U.S.A.I.D. being directly involved in administrative arrangements. Also important was the choice of quick growing species including *Leucaena leucocephala* (*ipil ipil*), *Cassia siamea*, *Azadirachta indica* (*nim*), and *Casuarina* spp. and *Eucalyptus* spp., the particular combination of trees varying according to particular environmental factors. By the early 1980's six million trees had been planted, with Murray attributing the success to the fact that peasants could get a quick and clear reward – cash and wood – for their efforts. He underlines the «freedom from interference by government» and concludes that «it requires no degree in anthropology to know that “if it ain't broke, you don't try to fix it”» (Murray 1984:142, 147, 149, 159). What worked so well in Haiti is not necessarily replicable elsewhere: in this field, the social and environmental specifics must always be considered. But it does illustrate the crucial importance of the institutional arrangements, and also – as in Murray's concluding comment – shows that good local management of natural resources often depends as much on common-sense as on any esoteric form of anthropology.

A study of people and forests in East Kalimantan, Borneo, «stresses the role of human flexibility, creativity and responsiveness», pointing out that development planners recognize the destructive aspect of human behaviour, but they underestimate the creativity.

«The decision-making capabilities, the capacity for situational adjustment and the rationality (of the people), combined with their knowledge of their diverse environments, represent an important, neglected resource, that, if used, could substantially improve the results obtained in development projects and resource management» (Vayda *et al.* 1985).

This conclusion is reached by all who intensively study one domain of local natural resource management, and has a general applicability.

I have examined three domains – agriculture, pastoralism and forestry – in some detail. The same sort of picture emerges from other domains (e.g., water management, fisheries, game) where local societies had some sort of management systems of varying degrees of complexity, which were generally satisfactory until they were so distorted by commercialisation, population pressure,

external interventions and new technologies. (I need to stress again that there were many situations which are "not" environmentally satisfactory, but I am dealing in general terms). The many studies of these other domains suggest specific modes of participation, propose ingenious new types of organisation (Cerne 1985) and show that interventions done with the co-operation of local people are more likely to be effective than are others.

How anthropologists work

Anthropologists study local management of natural resources in many ways. Some will do this as an academic research project, with results published in regular academic sources. But probably most are engaged by national, or international agencies, or (less frequently) by N.G.O.'s. Although most of these anthropologists are European or North American, there is a growing number of "indigenous anthropologists", some of whom collaborate with expatriates, while others have established their own professional consulting firms.

There are groups, both non-profit (Institute for Development Anthropology; Cultural Survival) and profit (Development Alternatives Inc.) which promote these activities, as well as N.G.O.'s like CARE, Save the Children Fund, Catholic Relief Services, Oxfam, and others, which are also interested.

Less important than sponsorship is the timing, for the most effective contribution can be made only when the anthropologist has been present at the design stage, and preferably, when he or she has been able to have contact with the project during implementation, monitoring and evaluation.

Conclusions

Allen Hoben asks three highly relevant questions in a recent chapter: «(1) Do development agencies ever follow the advice of anthropologists? (2) Can anthropologists conduct a useful study in a few weeks or a few months? (3) Can applications of anthropology to development be intellectually challenging? My answer to each is an emphatic but qualified yes» (Hoben 1986:169). Hoben's answers (1986:190-194) are detailed and illuminating, and emphasize exactly what the anthropologist needs to learn about the agency (its functions, policy, decision makers, key offi-

cial, etc.) in order to be effective. These few pages should be required reading for anyone interested in the practice of anthropology of development.

Drawing in part from Pillsbury (1986) and Scudder (1987), I set out some concluding thoughts.

1. Development, much of which will directly or indirectly affect natural resources, will go on, with or without the participation of anthropologists.

2. As anthropologists, we have a good opportunity to influence development so that it is more appropriate to local social and environmental factors, and also so that equity and sustainability will be considered, as well as productivity.

3. We can help to strengthen the capacity of local people, and of their production systems, to deal with the inevitable changes, and we can encourage local people to make their own decisions.

4. There needs to be new and innovative organisational means of managing resources; these involve giving local people some real powers, including power over finances.

5. Revenue-sharing is possible, and desirable, so that the poor and marginal people also share, e.g., in revenue from tourists who visit game parks.

6. The major decisions of resource allocation are taken not at the local but at the national level, hence my stress throughout on anthropologists studying and interpreting the decision-making process, in its broad organisational context.

7. These sorts of development anthropology also have theoretical significance: as Patrick Fleuret (in press) says, «anthropological theory and application are inter-dependent, neither can be advanced without the other», and there is a need for a two-way flow of ideas between the fields of practice and theory.

8. Finally, Scudder (1987) describes his strategy when he is engaged in natural resource anthropology, related to development. He emphasizes four approaches:

- a) requiring supervision, monitoring and evaluation of key components;
- b) training appropriate officials and sensitizing them to the importance of seeing that local people do get some of the benefits;
- c) establish close co-operation with officials (and others) who can act as informants when implementation is faulty;

d) form a constituency that can bring pressure to see that any agreements are followed through.

Scudder admits that these steps, especially the last, are difficult and risky, but that it is still possible to "work within the system": «It is worth trying to make projects more relevant to local populations and to improve their long-term environmental soundness» (in press).

I fully agree, and I hope that more anthropologists will become involved in "Development anthropology and natural resource management". This is an important field, in human, economic, political and environmental terms, it is intellectually challenging and rewarding, and the opportunities are there.

Sommario

Il contributo degli antropologi alla progettazione di piani volti ad incoraggiare lo sviluppo sociale ed economico del Terzo Mondo, costituisce oggi uno specifico campo di studio definito Antropologia dello sviluppo. Con questo saggio Brokensha intende mostrare l'importanza della partecipazione degli antropologi in programmi di sviluppo riguardanti le risorse naturali in particolari settori quali l'agricoltura, il pastoralismo e la forestazione.

La maggior parte delle agenzie governative ed internazionali promotrici dei progetti di sviluppo hanno per molto tempo ignorato il notevole corpo di conoscenze accumulate dagli antropologi, non curandosi delle strategie tradizionali di uso e gestione delle risorse naturali, dell'organizzazione socio-economica e dei reali bisogni delle popolazioni future beneficiarie dei progetti. Oggi i risultati di una tale ignoranza si constatano amaramente.

Brokensha denuncia per esempio l'inadeguatezza e l'insuccesso di molti progetti avviati in aiuto alle popolazioni pastorali in Africa negli ultimi venticinque anni, con un costo di centinaia di milioni di dollari e che nessun beneficio hanno recato ai pastori se non qualche utile intervento veterinario. La causa dell'insuccesso è proprio la disinformazione che ha creato false idee sul pastoralismo, formando una mentalità anti-nomade nei funzionari delle agenzie africane e internazionali. Si è così mirato ad incrementare forme di produzione diverse da quelle tradizionali (es. la carne al posto del latte) ed a instaurare moderne strutture con tecnologie avanzate, tipo i grandi *ranches* americani e australiani, che si basano su criteri diversi se non opposti ai sistemi tradizionali di gestione

del territorio da pascolo e del bestiame e all'organizzazione socio-economica dei pastori africani. Come conseguenza di una tale politica di sviluppo, molti pastori hanno perso il controllo dei loro mezzi di produzione e si sono impoveriti; non si è ottenuto alcun aumento di reddito, né di produzione né si è frenato il degrado ambientale.

Il contributo dell'antropologo in questo settore consiste nel mettere a disposizione dei pianificatori le sue conoscenze, "informarli" e stimolarli affinché adottino criteri diversi nella stesura dei progetti, tenendo cioè conto, oltre del sistema economico e sociale, anche delle strategie di sopravvivenza adottate dai pastori in ambienti a volte poco ospitali.

La necessità della partecipazione degli antropologi alla progettazione dei piani di sviluppo si fa impellente anche per gli altri due settori proposti da Brokensha: l'agricoltura e la forestazione. Riguardo al primo settore, l'autore riporta alcuni esempi di quella che M. Cernea (1985) definisce "sociologia del raccolto" cioè un campo di ricerca che punta ad evidenziare la interrelazione tra requisiti bio-fisici di un particolare prodotto e le istituzioni socio-economiche, e che può realizzarsi più concretamente attraverso la cooperazione tra antropologi ed agronomi. L'"Integrated Pest Management" rappresenta un'altra promettente area di ricerca e di cooperazione tra agronomi e antropologi, sebbene esistano ancora delle diffidenze sui vantaggi di una ricerca congiunta. Thomas Connelly si è interessato alla peste da insetti e alle malerbe nella parte occidentale del Kenya, esaminando i metodi indigeni di controllo della peste ed evidenziando le difficoltà nello sviluppo di tecniche innovative che non siano appropriate alle reali condizioni degli agricoltori su piccola scala.

Sebbene oggi alcuni centri per lo sviluppo dell'agricoltura si dimostrino più sensibili verso problemi e suggerimenti proposti dagli antropologi, questi sono ancora poco rappresentati. Per esempio solo il 10% dello staff di ricerca degli "International Agricultural Centres" è costituito da antropologi e pochissimi lavorano in questo settore per l'U.S.D.A., l'U.S.A.I.D. e la F.A.O.

Riguardo alla forestazione, settore verso cui si è rivolta una sempre maggiore attenzione da parte dell'opinione pubblica e degli ambienti scientifici a causa del fenomeno della deforestazione, allarmante per il suo continuo dilagarsi e per le prevedibili catastrofiche conseguenze, l'antropologia ha sviluppato un nuovo campo di interesse definito "Forestazione sociale". Esso è nato negli anni '70 quando i dipartimenti forestali, di fronte all'insuc-

cesso di progetti miranti all'impianto massiccio di alberi, specie per legno da combustione, hanno ritenuto necessario ricorrere all'aiuto degli antropologi. Ancora una volta causa degli insuccessi era stata la disinformazione, in questo caso circa i sistemi di utilizzazione e i criteri di valutazione degli alberi da parte degli indigeni e circa la relazione fra organizzazione socio-economica e possesso ed uso della terra e della vegetazione arborea. Disinteresse e mancata cooperazione alla realizzazione dei progetti fu l'inevitabile risposta dei locali a iniziative a loro estranee e non rispondenti alle loro reali esigenze e necessità. Ed ancora una volta il contributo dell'antropologo è ritenuto utile potendo influenzare uno sviluppo appropriato ai fattori sociali e ambientali che offra concreti benefici alla popolazione.

Pertanto fra i principali ruoli che secondo Brokensha l'antropologo può svolgere nei programmi di sviluppo il più evidente è quello di "informatore". Inoltre può essere anche "mediatore culturale" tra la gente locale e le agenzie che effettuano gli interventi, diventando il portavoce degli indigeni, affinché non rimangano soggetti passivi, ma partecipino attivamente alle decisioni sul loro "sviluppo". Infine per impedire che si presenti la necessità di svolgere un altro ruolo importante ma assai impopolare, e cioè quello di "censore" che sopprime i progetti a causa dei prevedibili impatti negativi sulla popolazione, l'antropologo deve avere un rapporto continuativo con le agenzie, partecipando a tutti gli stadi della progettazione, sin dalla fase iniziale per prevedere gli effetti sociali del progetto ancora allo stato di disegno, e fino alle fasi di controllo e valutazione finale.

L'azione educativa dell'antropologo, che si esplica nel far esaminare i problemi dello sviluppo attraverso un'ottica antropologica, non è però a senso unico. Egli deve anche imparare. Non solo dovrà informarsi su altri campi scientifici, come quello bio-fisico, ma anche studiare la struttura delle agenzie di sviluppo per interpretare i loro processi di *decision-making* nel loro vasto e complesso contesto organizzativo, e quindi intervenire adeguatamente.