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Seaweed and/or Tourists? Studying Conflicts over Natural Resource Use in East Zanzibar

By Staffan Lindberg and Per Pettersson-Löfquist

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Department of Sociology

Lund University

Box 114

221 00 Lund

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1. Introduction

In this paper we will outline our questions and methodology for a fieldwork in East Zanzibar during 2001 and 2002. The purpose of the project is to study conflicts over natural resource use between people engaged in two different and contrasting sectors of development on the east coast of Zanzibar. Increasing tourism has led to an industry, which lays exclusive claim to the use of land and water resources. It is an industry dominated by men and capital from outside the local community. In sharp contrast to this there is today a large, women managed, production of commercial algae in coastal waters, which is sold on the world market. The main conflicts are about land use and property rights to the beach and its waters, as well as to scarce fresh water sources. But this is also a conflict between very different ways of organising production and subsistence in the local community with roots in a traditional setting of coral rag agriculture and fishing, which is now partly abandoned. To a large extent this is a gendered conflict.

The specific aim is to investigate in detail how these conflicts are experienced and handled by members of the local community, the national elite and international actors involved in these sectors. The emphasis is on the local level, but the project will also study the ways in which these problems are linked to a wider context. The project will trace existing attempts at resolving these conflicts and explore new ways to ensure a socially and environmentally sustainable development. On a more theoretical level the project tries to contribute to contemporary knowledge, both of the management of common property resources and of the impact of tourism on local development in the Third World.

2. The Problem

Two major sectors have developed as a consequence of the liberalisation in 1984. Firstly, tourism to Zanzibar has increased at a fast rate and all regions of Zanzibar are today exposed to tourism, in one form or another. Secondly, open-water algae farming of commercial seaweed was introduced to the villages on the east coast of Unguja (Zanzibar). From 1988 the activity grew so that by the beginning of 1991 10.000 villagers were engaged in the farming. Both sectors' main growth occur on the east coast of Unguja, and are increasingly competing for the same natural resources, i.e. the beach, tidal-flat areas, and potable water. Tourism and open-water algae farming are induced by international commercial activities but carry different characteristics for development. The tourism sector needs to develop an advanced infrastructure of hotels and other facilities, relying on capital and manpower from outside the coastal communities, whilst algae farming develops mainly by the local women's own efforts.

The growth of the two sectors has resulted in a dynamic development of the east coast of Unguja, but it has also led to a greater exploitation of and dependence on the coastal environment. A sustainable coastal environment has objective limits to human exploitation, e.g. in terms of scarce fresh-water supplies, the use of the beach and its waters. The development of

tourism and seaweed farming, heavily influenced by outside political and corporate agents, challenge indigenous forms of meaning attributed to the coastal area in terms of their social organisation, tenure and property rights. Today there is sharp conflict between these two sectors: The tourist industry uses huge quantities of fresh water, which decreases the supply of this scarce resource to the local population and threatens the overall supply.¹ The tourist industry wants to lay exclusive claim to the beach and the tidal-flat areas, which is used by traditional fishermen, by women practising algae farming, and as a common public space by the whole local community. Moreover, the presence of tourists have lead to an increased cost of living for the local population with prices on fish and other food items soaring. This conflict is gendered in the sense that women take the lead in algae farming while men dominate the tourist industry. So far, little is known or written about this conflict.

3. Background: New Directions of Development in Zanzibar

Zanzibar has ever since the middle of the 19th century depended on its clove plantation economy for export revenues (Sheriff 1987). The price on cloves deteriorated, however, in the early 1980s due to a shrinking world market and poor management of the clove trees (Forsslöw and Renström 1990). Faced with marketing problems of the main export crop, Zanzibar, as a small-island developing state had few alternative commodities to offer the world market besides tourism. With advice from the World Bank and the UNDP/WTO, a tourism development plan was established in 1983 (Inskeep 1994: 99ff). In 1984 the government turned to a general policy of economic diversification, called the Third Phase, in order to liberalise the national economy. An 'Investment Act' (1986) was promulgated by the parliament, in which guidelines for investors and generous incentives were spelled out. But it was not until the two major buyers on the World

¹ Fresh water on the east coast comes mainly from aquifers which are recharged by rainfall. According to Gössling (2000:8-10) there are local examples of salt water intrusion and upconing in village wells due to overuse.

Market for commercial seaweed, FMC and Hercules, discovered Zanzibar's potential for open water algae farming, that wider segments of the population could benefit from the liberalisation. This economic growth occurs in the traditionally most backward and peripheral areas of Zanzibar, i.e. the eastern parts, consisting of mainly infertile coral rag, with the lowest population density and the lowest income per capita and with indigenous livelihood and tenure systems (Borsa 1987, Wirth et.al. 1987, Krain et.al. 1993, Department of Statistics 1991).

The algae farming activities are handled by individual proprietors, mainly women, who receive a relatively good income by selling their harvests to local offices run by Zanzibari based export companies. These companies hold concession rights, issued by the government, for farming in certain areas of the tidal flats, and sell the harvests to one or the other of the two international buyers mentioned above. Considering that there are still (1997) approx. 10,000 algae farmers, most of them women and that each of the farmers gets assistance from three to four other people, almost the whole population (50,000 incl. children) of eastern Zanzibar are committed to the activity (Eklund and Pettersson 1992, Pettersson-L 1995a).

There are a number of socio-economic changes brought about by algae farming. Most important is a growing autonomy for the women engaged in algae farming, in terms of economic independence from their husbands. This entails a new pattern of consumption, relying on a greater monetization of economic relations within the village and a greater availability of consumer goods. This development has also led to that women have entered domains that traditionally have been controlled by men. The democratic character of algae farming, i.e. the fact that all villagers have access to the tidal flat, has led to a heavier reliance on the coastal area, while farming in the infertile coral rag area of the hinterland has been almost abandoned. This is a dramatic change compared to the situation before algae farming, when more than 50 per cent of the adult population slash and burn cultivated the coral rag bush land (Eklund and Pettersson 1992). Fishing, however, continues to be an important activity.

The tourism sector has also been growing fast. The number of tourists to Zanzibar has increased more than four times in ten years: from 16,268 in 1985 to 68,597 in 1993 and approx. 70,000 in 1996 (Commission for Tourism 1997, Department of Statistics 1996). In 1994, the formal tourism sector system had created around 3,000 direct jobs, while it was estimated that for every direct job another two to three job opportunities were created in the informal tourism system (Department of Environment 1997:2). Today the informal tourism sector displays a large variety of activities from 'professional friendliness' offered by male youth hanging around tourist establishments to small-scale tour operators taking tourists to see the dolphins in Kizimkazi.

Tourism to Zanzibar consists of both formal or institutional tourism and more informal tourism of the alternative kind. The 'up-market', institutional, tourists pay 190 US\$ per night for luxury fashioned resorts like Karafu Hotel or Uroa Beach Hotel. Then there are medium expensive hotels, e.g. Matemwe Bungalows (75 US\$ per night). But most tourists are 'backpackers', and there are at least 30 guesthouses for their accommodation (data collected in 1993/97). Expatriate or foreign corporations own most of the larger hotels, most notably Italian charter operators like the Baganza Group.

All along the development of the tourism sector a planning procedure has been employed by the Commission of Environment in Zanzibar, which has involved the affected local communities on the east coast (cf. Adam 1994). However, in most cases the development of small scale ventures have ignored this procedure, and the combined pressure from tourism and seaweed farming has produced a conflict over coastal land and water as well as over diminishing fresh water resources which the Commission has not been able to contain.

The development of tourism on the east coast of Zanzibar is uneven. Although most villages do have a guesthouse or a hotel, only a few villages host the major part of the 'alternative' tourist flow. The up-market hotels in the formal sector lie most often adjacent to local villages or in

remote areas at a distance from local settlements. These concentrations pose special environmental problems. The most important concern is the availability of potable water, which is a limited resource on the island, and especially on the east coast. A tourist consumes 200 litres of water per day, while a villager consumes 30 litres (data collected in 1997). This means that one hotel may consume as much water as a medium sized village. Already at this point, many wells have become saline due to intrusion of seawater (1997), and villagers have had to change their use of water because of this. However, little is known about the further development of this water crisis and how local people and the tourist industry have adjusted to it.

The beach and the waterfront are also an arena for conflict. From the point of view of the villagers the beach is both a meeting place and the way to reach from one part of the village to another as well as to the next village on the coast. It is also the working place for fishermen and algae farmers. From the point of view of tourists and tourist managers the beach is a place of rest and leisure activities. Pettersson-Löfquist addressed, in 1992, potential conflicts between algae farmers and hotel investors and tourists, due to the respective groups' reliance on access to the waterfront. Such conflicts have arisen in at least two cases,² but the dynamic involved here is not known. Today there are environmental concerns expressed regarding the intensification of traffic on the beach and adjacent roads with low capacity. In some areas beach erosion is a deep concern (Pettersson-L 1995b). Other environmental related concerns are connected to the tourists' consumption of locally produced commodities, such as fish and agricultural produce, since the local livelihood systems at the present state hardly can support more people than the community members. What is not known, however, is to what extent the local economies are involved in tourism, or how their livelihoods are affected.

² Uroa Beach Hotel vs. alga farmers, Mnemba Island Resort vs. fishermen

4. Theoretical Foundations

The major part of our study will be a community study and will draw on established sociological and anthropological theories and methods (see below). However, since our study deals with a conflict that is to a large extent gendered, we will put a strong emphasis on this aspect in our study. There is by now a rich experience of women's studies in development research, which we will draw upon (recent overviews are given by Young 1989 and Momsen and Kinnaird 1993). An important perspective for us is to emphasise gender relations rather than the situation of women seen in isolation from the wider context in which they interact. This is the perspective called *Gender and Development* in recent debates (Rathgeber 1990; Young 1993). Of special importance to us are studies of gender, property rights and division of labour (cf. Friedman 1986, for Third World analysis cf. Beneria and Feldman 1992), especially in an African context. A model for how such an analysis can be performed is given by Carney and Watts (1990), who deal with changing gender relation in agriculture in The Gambia.

Two theoretical fields need a further elaboration here. Export-oriented commercial exploitation of natural resources and tourism represent two very important sources of development in the Third World today. Both of these have gained increasing attention in contemporary development research: Exploitation of natural resources has led to research on its environmental problems and how they can be solved. Tourism has led to studies of its impact on people and nature across the globe. We place our study within both these research concerns.

Common pool

In the 1990s research on the interaction between people and their environment has developed new ways of looking at these problems. The old paradigm was that of the 'Tragedy of the Commons' (Hardin 1968) and the understanding that the destruction of scarce natural resources could only be prevented by either a strong central state authority or by private ownership to these

resources. A new field of research has been opened up by the concept of 'common property resources', or as it is nowadays called, common pool resources. The central work here is Elinor Ostrom's *Governing the Commons* (1990), which shows how, in many cases, natural resources have been traditionally managed in a sustainable way by local communities and how they now can be managed by local organisations in various ways, which have distinct advantages over private ownership. Based on her path-breaking work a whole new line of analysis has been developed of this aspect, a line that she herself calls institutional analysis.

A central concern in this institutional analysis is to understand under what conditions and with what kind of organisations people can co-operate to manage the environment and scarce natural resources. Ostrom has, in a series of publications (1990, 2000a, 2000b) elaborated a set of characteristics or design principles for successful local management of common pool resources, which she summarizes in the following way:

“When the users of a resource design their own rules (Design Principle 3) that are enforced by local users or accountable to them (Design Principle 4) using graduated sanctions (Design Principle 5) that define who has the rights to withdraw from the resource (Design Principle 1) and that effectively assign costs proportionate to benefits (Design Principle 2), collective action and monitoring problems are solved in a reinforcing manner.” (Ostrom 2000b: 19)

“The operation of these principles is then bolstered by the sixth principle that points to the importance of access to rapid, low-cost, local arenas to resolve conflict among users or between users and officials.” (2000b: 20)

“The capability of local users to develop an ever more effective regime over time is affected by whether they have at least minimal recognition of the right to organize by a national or local government (Design Principle 9).” (2000b:20)

“When common-pool resources are somewhat larger, and eight design principle tends to characterize successful systems – the presence of governance activities organized in multiple layers of nested enterprises.” (2000b:21)

A key point in this framework is the interplay between local level management bodies and regional and national governments and administrations, which is discussed in design principles 8 and 9. 'A polycentric government structure that "distributes circumscribed but independent rule-making and rule-enforcement authority in numerous jurisdictions" is considered to be the best solution.' (Ahmad 2000: 4, quoting Ostrom, Schroeder and Wynne 1993)

Platteau who, through a series of studies, has pointed to what he calls community failures in the management of local resources in a sustainable way has stressed the importance of strong state intervention in order to develop efficient local organisations. Traditional organisations worked in a context of abundance of natural resources and subsistence production, but often tend to fail when it comes to managing the same resources under conditions of land scarcity and rapid commercialisation. Moral norms of redistribution and the presence of hierarchical leadership may prevent the development of entrepreneurship among young and educated members of the community, and also the development of local participatory bodies, which could seek new solutions to sustainable resource management under market conditions (Platteau 2000, Ch. 5; and Abraham and Platteau 2001). What is required, according to Platteau, is strong central state intervention to bring about institutional reform at the local level, so that traditional organisations are replaced by modern democratic ones, which can break the power of the elite and of social norms of redistribution.

We intend to work with this theoretical framework in mind and with the questions it generates in our study. But there is a difference: In most studies of common pool management, it is the local community, which exploits a local resource, sometimes with the help of government aid to develop the exploitation in a sustainable manner. In our case, however, there are very clear linkages between on the one hand local resource use in tourism and algae farming and, on the other, national (state and business elite) and international commercial actors, that is, different globally connected economic activities (algae farming and tourism) confront each other in the

local environment. This context enters both as an extended institutional aspect and as a more general process structuring what takes place on the local level.³ The question is what this involvement of global actors, or actors representing the global community (travellers, etc.) implies for the management of the natural resources that we are interested in. These actors cannot easily be controlled by the national Government as they confront each other on the beach and in the waters in the form of algae farmers, tourist workers and tourists. What does this mean to the political process locally as well as on the national level? What does it mean to the theory of community managed common pool resources?

Tourism

The impact of tourism on the local environment has only recently emerged as a central research concern (Cater 1994). Tourism is now the fastest growing sector in the global economy and it has already profoundly affected the development in the Third World. For many small developing countries, not least island states, which lack natural resources to be exploited commercially and a large internal market, tourism today offers the fastest road to economic development. But as is easily realised, this road is fraught with many problems. How then to conceptualise tourism from the point of view of local communities, their culture, livelihood and natural resource use in the Third World?

Unlike other 'goods' produced in the Third World and exported to consumers in the North, tourism entails the marketing of so called 'positional goods', that is, they are in a fundamental sense not possible to move or reallocate. In other words the tourism consumers have to travel to the product in order to consume it, and not the other way round (Urry 1990: 41ff). Thus, tourism implies that nature and culture are transformed into tourist products. In other words, they become

³ This level of analysis is important in order to avoid what Redclift (1994:133-34) has labelled as 'environmental management', which according to him often avoids to address the larger context in which environmental problems are developing.

industrialised, or, in the terms of MacCannell (1992), nature and culture become separated from the local meaning structure and become reified as abstract commoditized models of authenticity.

In tourism, nature is not just a factor of production, it is very often *the* factor of production (Urry 1995). Nature, 'unspoiled nature' and 'natural nature' is the driving force behind most of the major tourist flows to the Third World. Hence, one finds in Africa, tourism centred in areas of major natural attractions such as the great plains of East Africa, the Victoria Falls in Zimbabwe, or the Okavango Delta in Botswana, but to mention a few. The paradox however, is that the industrialisation of tourism threatens to devastate the 'natural nature' on which it relies (Harrison and Price 1996, Cater 1994:77ff).

Tourism is a multifaceted phenomenon. Its effects, especially at the level of community, are numerous, subtle and diffuse. However, many studies on the consequences of tourism in local communities in developing countries are addressed to the tourism system's global components and not contextualized within processes of change in the communities under scrutiny.⁴ Wood (1993) argues that tourism studies in general, up to the 1990s, have been normatively orientated. With historical lags of guilt pertaining to colonialism, tourism studies have judged the consequences of tourism in developing countries as 'good' or 'bad'. Hence, internal processes of population increase, political instability or disintegration, indigenous socio-economic or cultural inequality, gender differences, unsustainable uses of natural resources, or strained subsistence economies, have seldom been explicitly incorporated in analyses of tourism impact on local communities (Harrison 1992). Wilson's study of the early effects of tourism in the Seychelles (1979) is an example of this lack of an internal perspective, while in a later assessment (1994) he confers to the impact of tourism a much more varied significance. Another self-critical reassessment is made by Pi-Sunyer (1989), who deemed the local culture of a Catalan tourism community 'dead' in the 1970s, due to the pressure from mass tourism. Fifteen years later, and

⁴ Examples are, for example, studies of acculturation processes (cf. Nunez 1977/1989), deprivation of local control over cultural expressions (Greenwood 1977/1989) or 'neo-cannibalistic' imperialism (MacCannell 1992).

with 400,000 tourists per year, this former fishing community was a prosperous economy. Pi-Sunyer's 'modernist' view of mass tourism development beyond local control, did not hold true.

Thus, following the insights presented by Wood and others, we have to study internal processes of change in order to grasp the development factor of tourism, without neglecting the global dimensions of the tourism system. Opperman (1993), writing on development theory and tourism impact, identifies the spatial integration of the tourism system in the Third World. He works with the concepts of *alternative tourism* and *institutional tourism* and their relation to informal and formal sectors of the local economies. The formal sector with institutional tourism involves considerable capital-intensive investments in infrastructure and has close linkages with the upper levels of the government. It has also close linkages to the tourist markets of the west. Expatriates or international corporations may control large parts of the sector. The typical development of the formal tourism sectors in the Third World occurs in close proximity to the main transport networks, which means that it is mostly principal urban areas that develop a high standard tourism sector, with close association to the formal economy. Outside the urban areas, the formal tourism sector develops as enclaves within basically rural areas. If these *enclaves* are situated in remote or barren areas, 'tourism will have hardly any backward linkages. All agricultural products have to be imported' (Opperman 1993: 539). On the other hand, the 'alternative tourism' type produces close inter-linkages with the local economic structure, built on informal sector characteristics and develops more like an open *resort* structure. That is, limited capital intensity, small-scale family run establishments, untrained labour, and non-institutional credit, etc. The informal tourism sector, Opperman (1993:544) contends, 'is symbolised by its open structure instead of the enclave structure of the formal tourism sector.' Hence, as Cohen (1984) observes, the alternative tourists, relying on indigenous economic and social structures, moving from one community to another, may be more economically beneficial to the local communities, than institutional tourism.

According to Opperman, we need more empirical investigations on this issue, because it is not quite clear what relations there are between the informal and formal sectors' of the tourism system. Another issue is to what degree alternative tourism's association with the informal sector leads to an 'open resort structure' rather than to an enclave development. Studies made by Tsartas (1992), on two islands in the Greek archipelago, illustrate how different the development can be depending on whether it is the resort or the enclave model, which is prevalent. However, it is not self-evident that a resort structure is more beneficial to the local community. Smith (1992) writing about the Boracay island in the Philippines, shows that alternative tourists turned the island into a total resort, leading to a total up-rooting of indigenous livelihoods, and that more or less permanent expatriate settlements incurred on the local life-space in a way that led to severe environmental problems. The islands of southern Thailand, Ko Samui, Phuket, etc. display other examples of total transformations in the same vein (Cohen 1982, 1983).

5. Previous research on Zanzibar relevant to our study

There is a general lack of field research in Zanzibar. From the Revolution in 1964 up to the beginning of the 1980s hardly any research was carried out. The best sources regarding traditional livelihood patterns and tenure and property rights systems are still Middleton's studies from the end of the 1950s (Middleton 1961, Middleton and Campbell 1965). After the revolution in 1964 the government nationalised all farming land and initiated a land reform, adding complexity to traditional tenure systems and Islamic systems of inheritance and ownership, referred to as *Waqf* systems. There are some relevant overviews on this topic, by Myers (1995, 1996) and Jones (1996), regarding current conflicts between different tenure and property rights systems. Our focus on the coral rag area addresses these conflicts in the light of prevailing indigenous tenure systems based on usufruct rights and the competition posed to these systems by the tourist establishments' use of long-term leaseholds of land. There are a few assessments

compiled by the Commission for Lands and Environment (1990, 1995) of value to our perspective. In addition Tobisson's current research on livelihoods and identity in Eastern Unguja will be of value and complementary to our project (Tobisson et al 1998). The distribution, practice and socio-economic consequences of seaweed farming have been described by Pettersson-Löfquist (Eklund and Pettersson 1992; Pettersson-Löfquist 1995a, 1995b). There have been few assessments on the socio-economic and cultural effects of tourism. Juma (1995) describes the interaction between tourists and local populations in Matemwe and Pwani Mchangani, and on going Norwegian anthropological research in Nungwi assess cultural and intergenerational effects caused by tourism. To date there is no research available on the interaction between the two sectors of seaweed farming and tourism in relation to social processes within the local setting.

6. Elaboration of the research focus and the questions we will study

1. The growth of tourism is linked to a process of privatisation and the development of individual rights to the coastal area, which runs counter to the practice in seaweed farming. Our study aims at studying these aspects by interviewing tourist operators and managers, tourists, algae farmers, and people still engaged in traditional activities such as fishing and coral rag agriculture about land use and property rights and conflicts over them. Are there local organisations or institutions, traditional or new, which address these issues? What is, for example, the role of the village council (*Baraza la Sheha*), council of elders, political parties, women's groups, religious bodies, etc.? What is the local arena for acting out disputes? Do regional and national authorities intervene in local disputes? Which authorities and how? Do international business actors intervene locally, and in that case how?

2. A major dimension in our study is the distinction between formal and informal tourism. The main question is: Is there any difference between these two systems of tourism in relation to

algae farming and other natural resource use in the host communities? How do tourists and tourist operators in the two systems relate to the local communities and their resource use? We study this by doing fieldwork in two different settings, one enclave setting where one or more big hotels operate with charter tourism, and one more akin to an open resort setting, where individual tourists come to live in guesthouses and rooms let out by villagers.

3. Seaweed farming has become organised as a principally female activity with women as proprietors and managers of seaweed farms. This organisation is an apparent change along gender lines, manifesting a process of genderisation of productive activities at the village level. Seaweed farming favour a female occupational structure and subsequent changes in gender, family and intergenerational relations, strengthening social, political and economic positions of women. The development of tourism establishments along the coast seems to favour a social organisation explicitly directed to external linkages to administrative and corporate levels, a male dominated sphere of productive activities and formal employment systems. These are contrasting empirical manifestations of men and women's possibilities to appropriate and access resources of productive value, as well as gender dependent strategies to organise and establish efficient management of natural resources. Our main questions in this respect refer to how the two systems relate to each other: Given the conflict over land, water and local food items, how is this acted out on the household level? What does it mean that an activity dominated by women stands against an activity dominated by men? Do households relying mainly on tourism stand against women dominated algae farming households? Or is there another relationship between women, men and these sectors?⁵ For example, what is the degree of straddling and pluri-activity of individuals in the same household that may create crosscutting allegiances due to the fact that members of a household may work in more than one of the sectors?

⁵ There is some recent information that women algae farmers are increasingly dissatisfied with the income they get from selling seaweed.

4. Seaweed farming and tourism are dependent on linkages to national business and politics and to international markets and organisations and the project embraces these linkages to identify agents and structures of importance for local development. The future viability of seaweed farming and tourism seems to rely to a large extent on how they are linked to and sanctioned and supported by the political and business elite in Zanzibar. The political system in Zanzibar is fragile. After the introduction of multi-party democracy in 1995, different political interests, often linked to business interests, compete for power. It is a system based on unstable alliances and considerable corruption. There is, however, today an important political opposition party, CUF (Civid United Front), which has taken up tourism on its agenda, demanding a more limited and sustainable high quality 'green tourism'.⁶ To what extent is this political view anchored in the local communities on the coast and what does it mean to the political process?

Beyond this, we need to ask how the international business actors in tourism and algae farming relate to each other and deal with the national and local political and economic actors in Zanzibar. Are they setting the decisive framework, and if so, are there important mediating factors in the process?

7. Fieldwork - methods

The project is partly based on field research on algae farming conducted by Pettersson-Löfquist in this area of Zanzibar during 1991-1993. In a shorter fieldwork in 1997 he also interviewed tourists and tourist managers.

Two local communities will be selected for comparative case studies: one community that has tourism of the 'alternative' type only and one community in close proximity to up-market tourism schemes. Villages to be considered are Kizimkazi, Nungwi (alt. Jambiani) and Bwejuu (alt. Pwani Mchangani) (see Map in Appendix IV). On an average these villages have a

⁶ This was elaborated by prof. Nguyuru H-I. Lipumba in a seminar at the Centre Development Studies in Copenhagen on 16 August 2001. Prof. Lipumba is the national chairman of CUF. In the seminar he expressed a

population of about 250 households. We will combine quantitative and qualitative methods. We first make a combined census in which we also include some short questions on natural resource use and conflicts about this. We will also make a special survey of the tourist establishments and their resource use. A ratio will be established as to what extent local resources fill the needs of the tourists and the tourist establishments, in relation to the degree of the tourism system's dependence on import of foreign products. The impact of tourism will be modelled in the context of tourism development in the coastal areas of Zanzibar, in which seasonal variations are taken into account (WTO 1996). We will try to apply an integrated sociological and science methodology, which will enable us to link social activities related to the environment with the carrying capacity of these resources.

Based on this we will then make a number of household case studies. This is the main methodological approach that will be used. What is important in our study is how change in the local communities, regarding livelihood and environment, is perceived, and guide action strategies pertaining to the local presence of tourists and the tourism system. Behind social and economic data about the household we will here use semi-structured focused interviews and participant observations to understand these issues. All relevant categories of households will be covered in these case studies.

We will also interview members of the political elite and businesses involved in tourism, algae farming, and local development. This will be done on the three relevant levels: 1) the *baraza la sheha* (village political council) and the council of elders (traditional political body); 2) the district level; and finally 3) the national level. Finally, we will try to document more precisely how the international tourist industry and multinational companies are involved in the local development of tourism and algae farming on the east coast. Relevant public and business documents will be gathered and analysed.

8. Development Relevance of Project and Research Co-operation

We will work in co-operation with the staff at the Institute of Marine Sciences (IMS), University of Dar es Salaam (cf. Moffat et al 1998; Shah et al 1997). The project results are expected to be of value for coastal zone planning in Zanzibar. Besides being an urgent development problem in east Zanzibar, it also has important implications for the theoretical development of natural resource management as well as the management of a sustainable tourist industry in the Third World. While it is typical in most cases of development that one commercial activity threatens local resource management, here is a case in which a globally initiated commercial production of seaweed is facing another globally derived industry, i.e. tourism, which threatens both this women managed seaweed farming and the traditional community livelihood system.

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