Socio-Economics of Forest Use in the Tropics and Subtropics

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Potential of ecotourism development in the Lake Bosumtwi Basin

A case study of Ankaase in the Amansie East District, Ghana

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POTENTIAL OF ECOTOURISM DEVELOPMENT IN THE LAKE BOSUMTWI BASIN

A case study of Ankaase in the Amansie East District, Ghana

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ABBREVIATIONS

AC	Area Council
AEA	Agricultural Extension Agent
AIDS	Acquired Immuno Deficiency Syndrome
AYAS	Ankaase Youth Association
BAK District	Bosumtwi Atwima Kwanwoma
DA	District Assembly
DFID	British Department for International Development
DPSIR	**D**riving Forces, **P**ressures, **S**tate of the resource, **I**mpacts and **R**esponses/Actions
DDT	Dichloro-Diphenyl-Trichloroethane
EPA	Environmental Protection Agency
FAO	Food and Agricultural Organization of the United Nations
FOE	Friends of the Earth
FORIG	Forest Research Institute of Ghana
GHA	Ghana Highway Authority
GTB	Ghana Tourist Board
HIV	Human Immuno Virus
HPI	Heifer Project International
IIED	International Institute of Environment and Development
IRNR	Institute of Renewable Natural Resources
ITMC	International Tourism and Management Consultancy
JSS	Junior Secondary School
KVIP	Kumasi Ventilated Improved Pits
KNUST	Kwame Nkrumah University of Science and Technology
MoFA	Ministry of Food and Agriculture
N	Nitrogen
NCRC	Nature Conservation Research Centre
NGO	Non-Governmental Organization
NHIL	National Health Insurance Levy
NHTV	Breda University of Professional Education
NPP	New Patriotic Party
P	Phosphorus
PRA	Participatory Rural Appraisal
PTA	Parent Teachers Association
RCC	Regional Coordinating Council
RRA	Rapid Rural Appraisal
SLA	Sustainable Livelihoods Approach
SLF	Sustainable Livelihoods Framework
SSS	Senior Secondary School
TA	Traditional Authority
TBA	Traditional Birth Attendant
TBI-Ghana	Tropenbos International Ghana
UC	Unit Committee
UN	United Nations
UNEP	United Nations Environment Programme
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
VAT	Value Added Tax
WHO	World Health Organization
WSC	Water and Sanitation Committee
WWF-US	World Wildlife Fund of the United States

1 INTRODUCTION

1.1 Background

Lake Bosumtwi is a natural inland freshwater lake in the Ashanti Region of Ghana. It is located about 30 km south-east of Kumasi in the Northern tip of the Adansi mountains in the forest zone of Ghana. The lake exhibits a radial drainage system of 106 km^2, a diameter of about 11km at its widest part and a maximum depth of 78m. Lake Bosumtwi covers an area of about 52 km^2 (Turner et al., 1995).

Studies by Jones et al. (1981) confirm that the lake is the result of a meteoritic impact (cited by Turner et al., 1995). The lake sediments have been researched by scientists worldwide to reconstruct and understand the climate change of the past 10,000 years in West Africa. The lake is one of the youngest, best preserved meteorite craters in the world (Grieve et al., 1995 ass cited by Karp et al., 2002). It is "more comparable in form and impact to lunar and planetary craters than other terrestrial craters" (Karp et al., 2002).

To the traditional communities of the Ashanti Region in Ghana, the lake represents a sacred place. The Ashanti consider Lake Bosumtwi as a god. There are several sacred sites around the lake that are of cultural importance to the people in the Ashanti region (Lissewski, 2003).

The lake is also one of the main sources of livelihood for 24 communities living around it since they heavily depend on the fish catch for their income and food (protein). Besides fishing, they (probably ?) depend on the aquatic resource for drinking water and irrigation water for agricultural activities.

The lake also provides the basis of other social and economic opportunities such as transportation and tourism. However, the developments related to tourism are mostly concentrated at the community of Abono.

1.2 Description of the study area

Ankaase

Ankaase is a little town located about 45 kilometers south-east of Kumasi in the Amansie East district of the Ashanti Region of Ghana. Ankaase is one of the twenty-four (24) communities surrounding Lake Bosumtwi. It is a rural community consisting predominantly of agricultural farmers. Some of the men in the community are also fishermen. The language spoken by the people of Ankaase is Twi.

Ankaase was chosen by the research team during a reconnaissance survey as a case study site for livelihood analysis. One of the reasons for this was that people in the more developed town of Abono seemed 'research fatigue' and did not seem to be interested in another research in their town. Secondly, zero development status of Ankaase in terms of tourism motivated the research team to come up with a planned and organized community level tourism concept to avoid the negative consequences of tourism as they were seen at Abono. Finally, the community of Ankaase responded very well to the research team and showed keen interest in the tourism concept development during the reconnaissance survey.

Abono

Abono is bigger and more developed, with a higher population compared to other communities around the lake. It is located about 30 kilometers south-east of Kumasi in the Bosumtwi Atwima Kwanwoma (BAK) district of the Ashanti Region. It is a farming community and men also engage in fishing in Lake Bosumtwi. The main language spoken is Twi.

Abono is the main gateway to the lake site. It is the only community among the 24 surrounding the lake with good, tarred access roads. Almost all tourism activity in the lake area is concentrated at Abono. There are currently a number of hotels and accommodation facilities in the community. Basically all tourists, both domestic and international, who come to the lake site visit Abono.

Abono was chosen as a site for the second part of the research i.e. for destination analysis. The reason being that most of the tourists visiting the lake come to Abono as almost all kind of infrastructural development like road, hotels, restaurants etc. has taken place mostly in Abono.

1.3 Justification for the research

To most residents of Ashanti, Lake Bosumtwi is noted for its cichlid fishery. However, there are indications that due to growing human populations and various developmental activities in the area, the fish stocks of the lake have come under intense and sustained pressure. Studies by Dassah and Agbo

(2003) have shown that pressure from over 1000 fishermen in the 24 communities surrounding the lake has led to a drastic reduction of fish stocks. Also, the sizes of fish being caught presently are becoming increasingly smaller (Konadu, 2004).

Tourism industry could be an alternative livelihood for the communities who depend heavily on fishing. To the communities and local authorities of the Lake Bosumtwi basin, development of tourism could be important for various reasons:

- as a major source of foreign exchange,
- for employment generation,
- as a contribution to government revenue,
- for the improvement of infrastructure,
- for individual and corporate income generation.

However, tourism development at Lake Bosumtwi could be accompanied by over-development and disruption of local cultural values and economies. Overcrowding, misuse of natural resources[1], insensitive tourist behaviour, mismanagement of waste disposal, and uncontrolled infrastructure development produce negative impacts on soils, vegetation, water resources, animal life, and sanitation. Furthermore, there could be aesthetic impacts on the landscape.

To minimise the negative impacts of tourism, it should be linked with the concept of sustainability as defined by the UN-Brundtland Commission (World Commission of Environment and Development) in 1987 as "development that meets the needs of the current generation without compromising the ability of the future generations to meet their own needs". This brings in the concept of sustainable tourism, often referred to as ecotourism. Hector Ceballos-Lascurain (1996) defines ecotourism as "environmentally responsible travel and visitation to relatively undisturbed natural areas, in order to enjoy, study and appreciate nature and any accompanying cultural features that promote conservation, have a low-visitor impact and provide for substantial beneficial active socio-economic involvement of local populations."

Lake Bosumtwi is becoming a popular tourist attraction in Ghana and has the potential to be developed as an ecotourism site in the future. The attractions related to tourism at the lake include:

- the lake itself for recreation and aesthetic values,
- remnants of the moist semi-deciduous forest around the lake,
- rural landscapes and lifestyles,
- the cultural heritage of the people.

An important pre-condition for ecotourism is high quality of resources. In cases where some degradation has already taken place, the resources have to be restored back to the 'undisturbed' state. There have been some indications of unregulated human activities, unplanned infrastructure development, and increased levels of pollutants in the lake water. As the lake represents one of the main sources of income for the local communities, and it is also the main focus for tourism development, it is necessary to gather information on the causes and impacts of the pollutants on the state of the lake. This information can be used to formulate management strategies which will help to reduce pressure on the lake and restore it to a relatively undisturbed state. The human impact on the water quality and quantity has to be studied to gain insights into the sustainability of the human activity and development in the area. The major concern is to secure the quality and quantity for the future generations. Besides analysing actual problems it is also of great importance to estimate possible problems that might occur in the future. As ecosystems have a (large) buffering capacity, negative effects of human activities on the environment usually become clear in the long term. These effects have to be taken into account to judge whether a management strategy will achieve desirable goals. A major concern is that the lake is in a hydrological closed basin[2] (Turner, 1998), so all pollutants remain in the lake, and concentrations will increase in the future.

1.4 Objectives

Main Objective

- Assessing the potential of ecotourism development of Lake Bosumtwi basin for sustainable livelihoods.

[1] For example: Mismanagement of activities related to tourism could actually lead to more over-fishing in the lake in order to meet the demands of the tourists.

[2] A hydrologically closed basin means there is no water flowing out of the lake. The only output of water is caused by evaporation.

Specific objectives

- To provide baseline information on Ankaase community in Lake Bosumtwi basin using a Sustainable Livelihoods Approach.
- To make an inventory of possible threats to the water quality of Lake Bosumtwi.
- To identify the opportunities and potentials of natural and cultural sites around the lake.
- To assess existing physical facilities for tourism and requirements for future development and to establish a tourist profile of Lake Bosumtwi.

2 METHODS USED

2.1 Sustainable Livelihoods Approach[3]

There have been numerous examples worldwide where ecotourism instead of delivering desirable benefits, has led to various negative social and economic impacts. In most of these cases, it is a result of the promotion of a loose and unorganized collection of activities that "simply let ecotourism activities happen based on market forces" (Brandon, K. as stated in Lindberg and Hawkins, 1993). For this reason there has been an increasing emphasis on planning and designing ecotourism projects and controlling how they evolve in an area.

An important criteria required to make ecotourism socially responsible, economically efficient and environmentally viable is to foster a dialogue "constructed and controlled along indigenous needs and in indigenous terms" (Johnson, 1990; Lindberg and Hawkins, 1993).

In order to make ecotourism successful in a long-term, local people should have a sense of ownership towards the project. They should be "social actors rather than passive subjects, should manage the resources, make decisions, and control the activities that affect their lives" (Cernea, 1991; Lindberg and Hawkins, 1993) – in short, they should be empowered to mobilize their own capacities.

The basis for ensuring empowerment is access to reliable information. Reliable information about the community and local preferences is key to sound ecotourism plans. For example, it would be important to know if the idea of ecotourism development came from within or outside the community. This could help in foreseeing whether potential benefits of ecotourism would flow in or out of the community, or if the benefits would only go to a certain section of the society. Also, it will identify if the benefits would be distributed 'equally' among diverse community members.

This report uses the ***Sustainable Livelihoods Approach*** to collect the primary data on practically all aspects of livelihoods of people of Ankaase. The Livelihoods Approach gives an insight in the individual and household assets of the people and concentrates on "what people have rather than what they do not have" and "strengthen people's own inventive solutions, rather than substitute for, block or undermining them" (Allison and Ellis, 2001) – an important aspect of empowerment. Also in the context of tourism in Ankaase, the livelihoods approach applied here seeks to plan rural (eco) tourism developmental policy and practices, by recognizing seasonality and complexity of livelihood strategies, helping to remove access constraints to assets, and identifying ways of making livelihoods as a whole. Furthermore, this approach also seeks to identify existing power structures, institutions and organizations in the community and establish their link to individual or household or even community assets. Identifying these processes, institutions and organizations is key to sound ecotourism plans. It is the most effective and sustained way to get people to participate in a project through existing structures and organizations as compared to individual participation. "Local institutions can act as a focus of mobilization among local people, a way of involving people directly in nature-tourism projects. Organizations can also serve as a link between local people and external organizations, such as governments, NGOs, or tour groups" (Brandon, K. as stated in Lindberg and Hawkins, 1993). For example, organizations like local development associations can serve as an excellent base for ecotourism projects, since "these groups already have development objective in mind" (Brandon, K. as stated in Lindberg and Hawkins, 1993). Furthermore, cooperatives provide economic benefits to their members through the collection of some common assets like money, labour etc. Moreover, local leaders, institutions and organizations bring in different kinds of expertise and experience to the project design. The most important reason for identifying different leaders is that the participation of each of these leaders in a process begins to make the project belong to the community.

[3] See 'Sustainable Livelihoods Guidance Sheets' (DFID, 2000) for a detailed explanation on the objects of the Sustainable Livelihoods Approach.

For this reason, this research apart from concentrating on the environmental and economical aspects emphasizes strengthening of the social capital, structures and processes, as well as policies and institutions in the community. An individual could be extremely vulnerable to changes, but a group is able to cope with and recover from shocks and stresses with much greater efficiency, and utilise the available assets and capabilities to change and modify livelihood strategies.

The livelihoods approach helps in identifying "entry-points to development intervention or policy support" (Allison and Ellis, 2001) for finding alternative livelihoods - ecotourism in this case. Furthermore, the approach helps to realise the current assets, capacities and capabilities of individuals, households, institutions and organizations, and defines ways to strengthen the existing and develop new livelihood strategies. Most importantly, it avoids "undue preoccupation with a particular component of individual or family livelihood strategies, to the neglect of other components that make their own demands on the resources available to the household" (Ellis, 1998; Bebbington, 1999). Also, the approach gives a very clear picture of 'what is there', 'what can be achieved with it', 'what and who is needed to achieve it' and 'what more could be done'. Therefore, it prevents any kind of unnecessary and possibly irrelevant pre-assumptions related to developmental or recommendation plans – an aspect that is unfortunately related to most of the developmental strategies as they tend to work more in terms of projects, not people.

2.2 DPSIR-framework

In order to make an inventory of possible threats to the water quality of Lake Bosumtwi (also called 'water pollution assessment') the DPSIR framework (**D**riving Forces, **P**ressures, **S**tate of the resource, **I**mpacts and **R**esponses/Actions) as developed by the UN was used (see figure 1).

The **D**riving force is the first step of the DPSIR framework. The **D**riving forces represent the socio-economic activities that cause pressure on the environment (in this case, the lake). These are the underlying causes (both socio-economic and natural factors) leading to pressures on the water quality of the lake in terms of pollution loads – such as domestic and industrial effluents and emissions, nutrient and pesticide leaching and runoff from farmlands, and atmospheric deposition of pollutants.

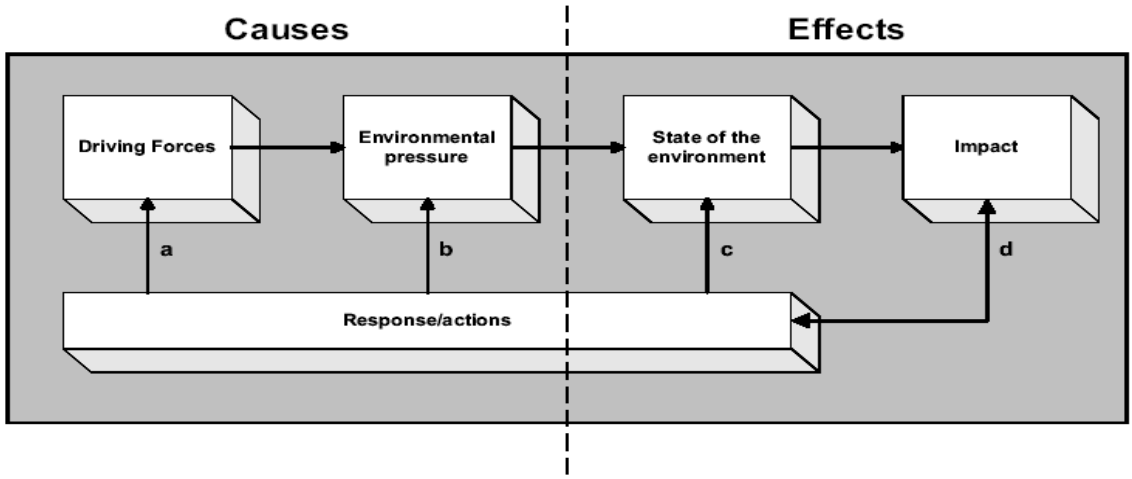


Figure 1 DPSIR framework (Source: Scheren, 2003)

An inventory of the driving forces of water pollution in the lake enables any subsequent developers and stakeholders to know the potential sources of pollutants into the lake water. This will help in planning well before any investment is made. There may be the need for a very comprehensive research on the state of the water quality of the lake. Lake Bosumtwi, being the main attraction for ecotourism in the lake basin, needs to be protected and conserved because the decreasing quality of the lake would mean a possible end to ecotourism development in the Lake Bosumtwi basin. A major concern is that the lake is in a hydrological closed basin (Turner, 1996), so all pollutants remain in the lake, and concentrations will increase in the future.

Some of the main features of ecotourism, according to Ceballos-Lascurain (1996) are to promote conservation and have a low visitor impact. Ecotourists like to enjoy nature and this activity is highly dependend the state of the resource.

The driving forces (anthropogenic influences) of water pollution in Lake Bosumtwi were identified during the household survey and observations by the authors. This is the first step of the DPSIR framework. The questions, which were integrated in the household survey based on the Sustainable Livelihoods Approach, were related to land-use, environmental awareness, livestock, agricultural activities, and domestic use of water.

The second step in the water pollution assessment (DPSIR) is to relate the driving forces to the pressures on the water quality. The pressure of the pollutants is expressed as the pollution load (kg/year). This is the actual yearly input of pollutants into the lake as a result of the driving forces. For this part of the DPSIR framework a method called "pollution sources assessment" is used (often referred to as ´'Rapid Assessment') (Scheren, 2003). This method is developed by WHO (Economopoulus, 1993).

The pressures eventually affect the state of the lake water quality. The state of the water quality can be expressed in the average concentration of pollutants (mg/L) in the lake. The measured or estimated concentrations have to be compared with values from previous research to assess the water quality.

The eventual problem, which is a consequence of the state of the water quality, manifests itself in adverse impacts on socio-economic use values and ecosystem values (Scheren, 2003).

Main focus on eutrophication

In this research the total Nitrogen and total Phosphorus are used as main indicators for eutrophication as these compounds appear to be the most important nutrients responsible for eutrophication. Eutrophication is one of the most widespread environmental problems of inland waters. The impacts of eutrophication include loss in aquatic biodiversity due to the reduction of oxygen in water, release and accumulation of toxic substances in the water and sediments polluting the aquatic environment. Other impacts of eutrophication are the loss of visual amenity due to dirty water and dead fish, and the creation of habitats for bacterial and parasitic communities including waterborne and insect diseases causing vectors such as diarrhoea, typhoid, dysentery, cholera and bilharzias.

Eutrophication makes the water unsuitable for consumption and irrigation. It also reduces the aesthetic or tourism value of the lake and causes increased growth of floating plants and algae. Eutrophication ultimately leads to the reduction of oxygen in water, release of cynotoxins, massive fish kills and damage to recreational activities.

Besides Nitrogen and Phosphorus, agrochemicals (pesticides, herbicides, and fungicides) used for crop (mainly cocoa) protection reach the aquatic environment via runoff. Apart from pollution of the lake water these compounds may cause considerable hazards to consumers and farmers. A major problem with these pesticides (e.g. DDT, containing organochlorines) is bio-accumulation. The substances accumulate in the food-chain and because of this; birds and fish have the highest concentration in their fat. The chemicals enter their body through feeding on other animals living in the polluted aquatic environment. Researchers in Britain linked cancer and sexual abnormalities in humans and animals to these chemicals. They disrupt hormone operations either by acting like the female hormones or by blocking normal hormonal activity. It was found that male fish rapidly began to produce female hormones and develop female characteristics (Jones, 1997). This negatively influences reproduction of fish species. Besides, the consumers of the fish accumulate the chemicals in their fat tissues.

Finally, another threat to the water quality and the surrounding environment might be the uncontrolled disposal of solid waste.

2.3 Destination Analysis

In the tourism sector this method can be used to analyse the present tourism development, the visitor characteristics and to identify interesting sites at a destination amongst others.

To start with, analysis of the current state of the facilities concerning aspects such as capacity, seasonality, visitor flows, variety, and state of services, promotion activities, prices, community involvement, waste disposal, and sanitation was conducted. Moreover it aimed at the identification of the authorities in charge and the rules and regulations concerning the set up and the running of a tourism business.

Secondly, analysis of the tourism characteristics (origin, demographics, and purpose of visit, likes and dislikes, length of stay, means of travel etc.) of the visitors at the lake was done.

An additional activity done by the research team was to do site identification to find core attractions with attractive features for possible visits by future (eco) tourists. These attractions are the principal assets that a region or a community can offer tourists. "Sometimes these attractions seem common place to the

local residents but it is often because they are typical of the area that they appeal to tourists". "Core attractions include natural attractions, such as lakes or rivers, geological formations, a tropical rainforest, certain species of wildlife or cultural heritage attractions" (Ceballos-Lascuráin, 1996).

Destination Analysis can also give an indication how the future development of ecotourism could be possible considering the rules and regulations for starting up tourism businesses and the influence of those ruling the area. Furthermore it shows if the current visitors that come to the lake site are possibly interested in using ecotourism facilities in the lake basin by relating the data to the criteria for the characteristics on ecotourists.

Even though clear-cut statistics do not exist, there are features that have proven to be general for the "typical" ecotourist[4]. These features were drawn up by the World Wildlife Federation-United States (WWF-US) in 1988 when they carried out an eco tourism study in five Latin American and Caribbean countries.

3 PROJECT STEPS

3.1 Field Access and Entry

The research started with an intensive literature review about Lake Bosumtwi and its surrounding communities. Sites for the case studies were identified during a one day reconnaissance survey. Ankaase was chosen as a case study for a household survey based on a Sustainable Livelihoods Approach after having a short meeting with the Traditional Authority and the Unit Committee. The motives of the research team were communicated to the people of Ankaase and only after their consent; Ankaase was chosen to be a research site.

Abono was chosen as a second research site to carry out the destination analysis. This was done after observing the presence of tourists and tourism facilities solely at Abono.

3.2 Household Survey

During the field research, a household survey based on the sustainable livelihoods framework was conducted in Ankaase over a period of 3 weeks. A sample size of 70 households was selected randomly by taking the statistical minimum of 30% of total 210 households[5]. The survey was used to gather quantitative as well as qualitative information.

Standard Interviews

Standard interviews were conducted in the form of a household survey. It gave good standardised (quantitative) information that was used as statistical results for a (big?) number of interviewees. It also gave an overview and a basis for information about the opinions and attitudes of the people of Ankaase; also related to tourism.

In-depth Interviews

Respondents for in-depth interviews were identified spontaneously during the standard household survey. The criteria for choosing people for in-depth interviews included good knowledge about a certain aspect of community livelihoods, good vocal skills and interest in the process of the research. For example, owner of the pharmacy shop in Ankaase was chosen for an in-depth interview because of his membership in diverse groups and NGOs.

Expert Interviews

People for expert interviews were identified during the household survey (standard and in-depth interviews) as they were mentioned by the interviewees to be important for their livelihoods. Some experts and informants were identified by the research team as they appeared to be influential, important and in

[4] For a checklist on ecotourist's characteristics, refer to: Ceballos-Lascurain, H. (1996): *Tourism, Ecotourism and Protected Areas*. IUCN, Gland, and Cambridge, UK, page 162.

[5] Total number of houses was counted by the authors and was found to be about 105. An assumption of approximately 2 households per house was made in order to come up with a statistical minimum sample size of 70 households (30% of 210 households).

possession of some expert knowledge because of their profession, age (experience) and special position (social or political). For example, NGOs like Friends of the Earth and Heifer Project International were chosen for expert interviews because of their engagement in livelihood enhancement activities in Ankaase.

3.3 RRA-Methods

The aim at this stage was to get other relevant information, to empower the villagers and to assess the already collected information. Two different RRA-methods or focus group discussions were conducted in Ankaase – (1) *expectation ranking* related to tourism, and (2) *Venn diagram* for establishing institutional relationship in the community, were applied to gather information on individual, household and community assets and capitals, local leaders, existing organizations, key priorities and problem areas of the community, its ideas, expectations and concerns related to ecotourism.

3.4 Assessment of the water quality of the lake

To assess the quality of the lake water and also to identify the driving forces of pollutants and their pressure on the lake, 10 water samples were collected at Ankaase and Abono from different parts and depths of the lake, from river Ebotwiwaa and also rainwater samples. Furthermore, questions related to land use and use of soaps and detergents were integrated in the household survey to get an overview of the possible pollutants which might be flowing into the lake.

3.5 Destination Analysis

Site Identification

Site identification was done to find core attractions with attractive features (sacred sites, groves, hiking trails etc.) for possible visits by future (eco) tourists. In smaller groups the team set out to hike around (guided or unguided) in certain areas around the lake and then later their attractiveness was discussed. This part was done not only in Ankaase but also in other areas around the lake. Members of the communities around the lake were also asked about their knowledge of such sites.

Visitor Characteristic Analysis

Self-administered questionnaires were used to analyse the tourist's characteristics (origin, demographics, and purpose of visit, likes and dislikes, length of stay, means of travel etc.) at the lake. This was done over a period of 4 days at Abono.

Assessing existing physical facilities related to tourism

This was conducted in the area from the gate at Kuntenase, along the main road to Abono, and just past the community of Obo. Also in this case, questionnaires were used to get information on different accommodation facilities.

3.6 Data analysis

All the collected data were analysed over a period of 4 weeks while staying in Kumasi. The quantitative data were analysed, and graphs and tables were made by using Microsoft Excel. For the final report writing, tasks were divided among 7 members of the group. For results, discussion and recommendation parts, team members met on a regular basis and exchanged their opinions and views about these parts.

4 RESULTS

4.1 Life in Ankaase

Human Capital

The community of Ankaase comprises of about 110 houses; each house consisting of approximately 1.53 households[6]. An average household size is found to be about 4.7. According to a household survey[7] from the authors, the population is estimated to be about 670 people of whom about 53% are females.

Figure 2. Population Pyramid of Ankaase (Age groups of 5 years, N = 70 households)

The population pyramid (figure 2) of Ankaase shows a trend of out-migration (22% out-migrating) in the young age groups which might be a result of lack of higher education and limited employment opportunities in Ankaase.

No serious health related problems were mentioned by the interviewees during the household survey. According to information from the Bosumtwi Methodist Clinic in Amakom, there is an increase in the number of malaria cases in the rainy season (May-July, December). In serious cases, patients are referred to hospitals in Pramso, Agogo, Komfo Anokye Teaching Hospital (Kumasi) and Bekwai Government Hospital. Also, people tend to suffer from diarrhoea frequently. Mal- and under nutrition among children is not reported in the hospital but during the field research some children were observed to have inflated stomachs and thin legs. One concern shown by authorities in the Bosumtwi Methodist Clinic was the problem of teenage pregnancy. In Ankaase, AYAS (Ankaase Youth Association) together with Bosumtwi Methodist Clinic organises HIV/AIDS awareness/education workshops for a target group of 10 – 24 years[8].

In terms of education[9], there is an easy access for the people to Primary and Junior Secondary School (JSS) (previously Middle School) in Ankaase. This is the reason why the number of people (age-group 6-16 years) entering primary school is relatively high – almost 80% for males and 70% for females. Also, JSS accounts for a large number of admissions (Figure 3). There is a sudden drop in the education level of people after JSS. Number of people completing Senior Secondary School (SSS) was found to be extremely low. Only about 26% of males in age-group 16-30 years and about 14% of females in age-group 30-45 years have pursued the education to Tertiary Level (University or Teacher Training or Polytechnic).

[6] Authors of the report defined a Household as '*number of people living in a house and eating from the same pot*'.

[7] The household survey was conducted in 70 households which represented a sample size of 30% (statistical minimum) of estimated 210 households in Ankaase.

[8] The workshops on HIV/AIDS are part of a programme sponsored by Bill Gates; also in Botswana, Uganda and Tanzania. In Ghana, ten clinics are benefiting from this programme. Apparently, these workshops take place only in Presby and Methodist Churches which might be restricting its reach to a wider audience who do not go to churches.

[9] Educational levels and concurring ages in Ghana - Primary: 6-12 yrs, JSS: 12-15 yrs, SSS: 15-18 yrs. It is to be noted that this represents only an ideal situation.

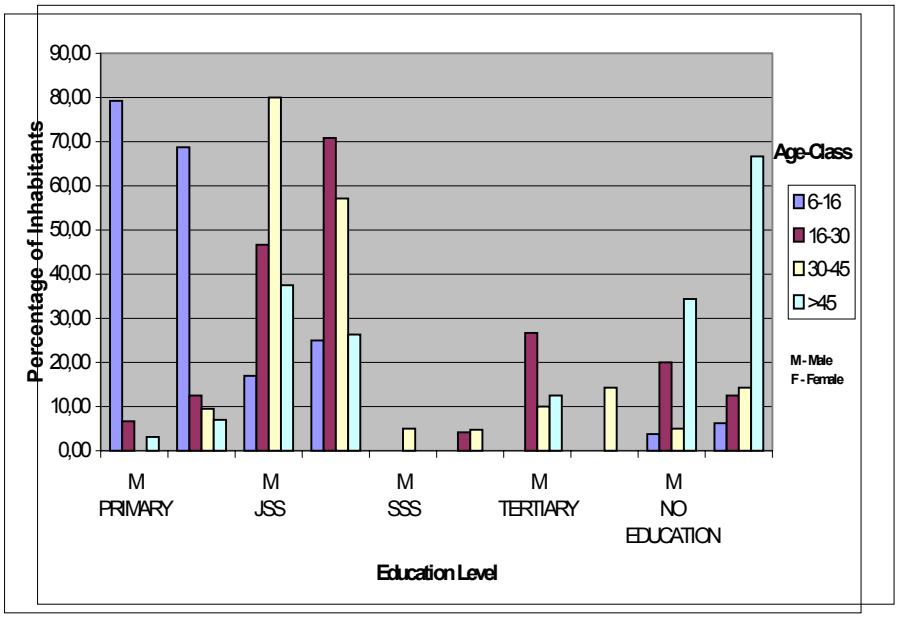


Figure 3. Education Level of Inhabitants of Ankaase (%) in different Age-groups

The reason for a sudden drop in the education levels after JSS could be unavailability of higher education facilities in or near Ankaase. Also, terrain hardships and poor transport facilities make it difficult for people to reach the nearest higher education facilities like SSS in Beposo. Another reason for not being able to pursue higher education could be high competition in Ghana to get into SSS and universities. As children in Ankaase – besides learning for school - appeared to spend considerable time in supporting their families in farming and household activities like washing, cleaning and cooking, this might have affected their grades and hence influenced their chances to get admission in SSS or Tertiary Level. Also, lack of financial means was reported by many interviewees as a reason for dropping-out of their children.

In general, the livelihood activities of the people of Ankaase show a quite diverse picture. Figure 4 depicts the main occupation of the people[10]. Surprisingly, farming (almost 50%) not fishing was found to be the main occupation probably because farming (different crops) is carried out all round the year. Further, fishing activities are mostly seasonal and take place on a much larger scale in the months of August – October. There is a specific division of roles in a household related to fishing as men go to the lake to fish while women take the role of fish sellers. Interestingly, teachers represent almost 6% of the total population but most of them have been recruited from other regions.

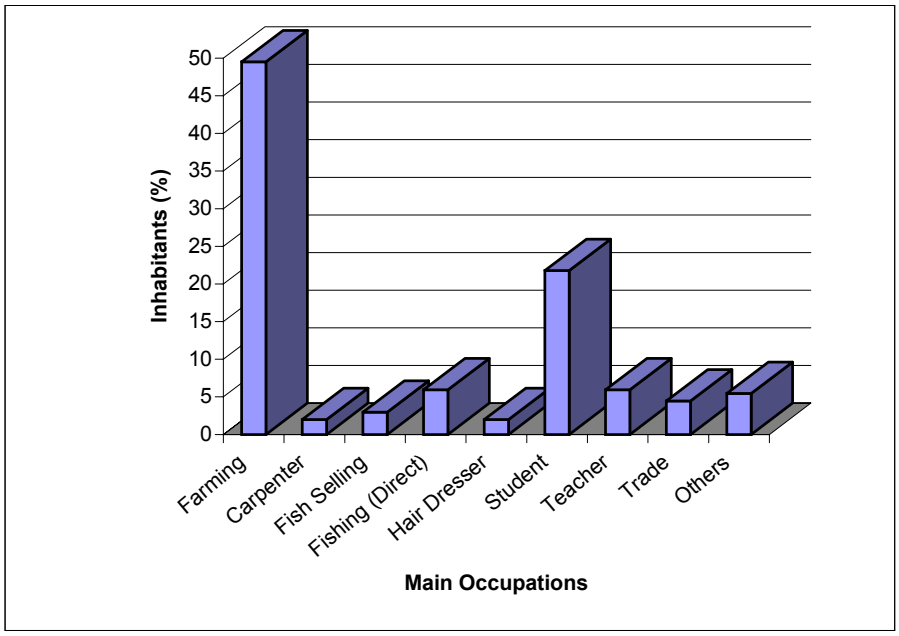


Figure 4. Main Occupations of Inhabitants of Ankaase

[10] Most of the people are following several livelihood activities at the same time. Figure 4 represents only the main occupation. Main occupation was taken as the one which was mentioned first by the interviewees.

Natural Capital

Almost all households in Ankaase possess agricultural/farming land which in most cases is inherited. Farming land of a household is not concentrated on one spot but rather scattered. An average plot size of farming land per household is calculated to be about 1.8 acres while average farming land (total) per household is estimated to be about 5.3 acres.

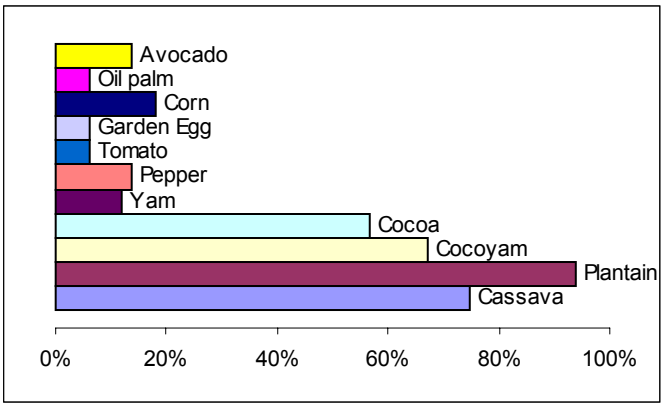


Figure 5 shows different kinds of crops cultivated by the people of Ankaase. Almost 94% of the people cultivate plantain as one of the crops. It is to be noted that people grow multiple crops at the same time depending on the requirements and seasonality. So for example people growing plantain might also be growing other crops in combination. Other major food crops include cassava (75%) and cocoyam (67%) while cocoa is the major cash crop grown by about 57% of the inhabitants.

Figure 5. Crops Cultivated in Ankaase

A trend of an increasing number of people opting for cocoa farming in the last few years can be established (Figure 6). The reason could be support from the government in planting cocoa and also during the spraying of insecticides and pesticides[11]. Further, cocoa trees give a sense of security of delivering benefits in a long term.

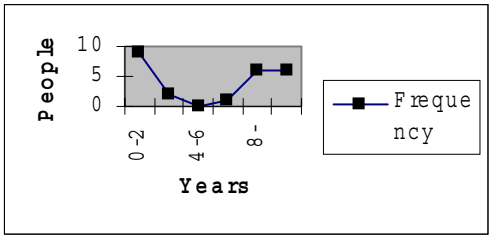


Figure 6. Trend of Cocoa Farming in Ankaase

Spraying insecticides and pesticides was found to be important to prevent Black Pod disease in cocoa trees. Furthermore, the government also guarantees the purchase of the produce at a reasonable price (537,000 cedis[12] per bag of 50 kilos). This prevents farmers from being exploited by wholesaler-moneylender-contractor networks in an open market.

The main mode of farming is still rain-fed as very few people utilise lake water for irrigation purposes (mostly for nurseries to raise seedlings). People reported a decrease in annual yield of almost all kinds of crops, partially due to erratic rainfall patterns and degrading soil quality. Degrading soil quality and erosion could be a result of intensive slash and burn and shifting cultivation practices (Figure 7). The fallow period (2-4 years) in shifting cultivation might be getting shorter due to population and nutrition pressures, thus undermining the minimum time period needed by land to rehabilitate (recover) after burning.

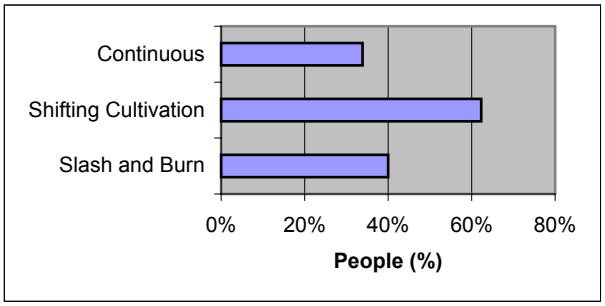
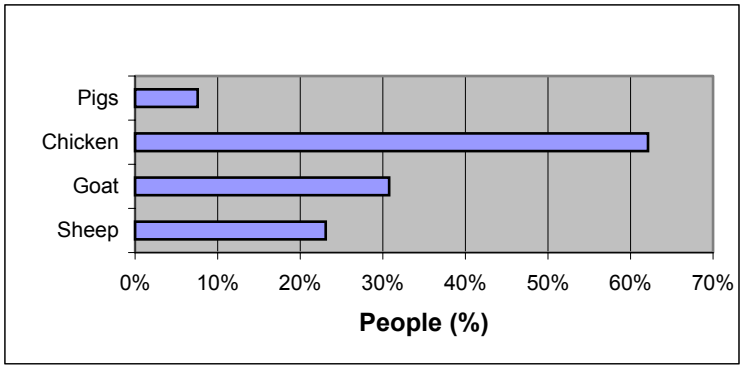


Figure 7. Methods of Farming in Ankaase

Most of the forest around Ankaase (and also around the lake) has been converted into farming land. Patches of remaining forest are in a degraded state and only some sacred groves like graveyards of the royal family have been partially spared from human activities. This degraded forest area still provides for the fuel wood and some herbal/medicinal requirements of the communities around it. In terms of wild animals and hunting practices, only grasscutters and a very small population of duikers remain. In order to restore the forest area, the government has introduced a system called Taungya. Under this system, people are given farmland by the government. People are also given different kinds of tree seedlings by the

[11] Every community has its own Agricultural Extension Agent (AEA) who apart from spraying the cocoa farms once a year, also provide seedlings and other material needed for maintaining cocoa farms. One of their tasks also includes educating people on different aspects of cocoa farming and informing people about safe and reliable measures to market and sell their produce. AEA are employed by the government.

[12] 1 US $ = 8800 cedis (2004)



government to grow on the farm. There is a restriction to grow certain crops like cassava[13]. When the trees forms the canopy people abandon farming on the land and give it back to the government. Depending on the management objective (production or protection forest), government utilises them as commercial timber species or uses them to increase the forest cover.

Figure 8.Livestock Statistic of Ankaase

Concerning livestock (Figure 8), there has been a considerable increase in their numbers in the last few years due to the sheep/goat rearing project by Heifer Project International (HPI). Members of HPI in Ankaase have started to utilise sheep/goat droppings as manure. Also, sheep/goats can be sold in the market at reasonably good prices[14]. Further, they serve as a source of animal protein.

Cases of livestock poisoning were reported in Ankaase because sheep/goats were found to graze on private farming lands of other people. Therefore, owners of the land apparently sprayed salt on polythene bags which were consumed by sheep/goats. This constant consumption of polythene caused their stomach to bloat resulting in their death. For this reason, sheep/goats are kept and fed in pens during the whole day and are left out to graze only in the late afternoon when they are satisfied. Also, incidences of hitting the livestock with stones were reported.

For other natural capital, river Ebotwiwaa used to be an important source of drinking water for the people of Ankaase. But presently the river has almost dried up which might be a result of decrease in rainfall in the last few years and large scale deforestation that has taken place along the river bed. People in Ankaase believe that river water has some medicinal properties therefore they drink it for treating stomach ailments.

Lake Bosumtwi represents one of the major and important kinds of natural capital for the people of Ankaase. It provides them with the livelihood of fishing and also as a source of food (protein). Other than that, people use the lake water for washing, cleaning and cooking purposes[15]. Some people were also found to utilise lake water to irrigate their farms. Moreover, the lake has enormous tourism potential because of its uniqueness and natural beauty (See Introduction for details).

Physical Capital

Housing as an important element of physical capital highly varies between different houses in Ankaase. While most of the houses in Ankaase are made up of cement with aluminium (???) roof tops, quite a few mud houses with thatched roof still remain. Probably because of poor economic conditions of the people, a large number of houses is not maintained properly as it can be seen in the rusted roof tops and falling apart of mud and stone walls. First few houses at the eastern entrance of the village are made up of stone and cement with concrete ceilings and roof tops. These were found to be of extremely good quality and belong to some of the influential and richer people of the community. These houses are mostly built by out-migrated people and are either empty during most part of the year or are inhabited by their relatives.

Cooking facilities are normally in front of the house containing a small fireplace (mud or swish stove) with a space for one pot. From the field observations, cooking appeared to be solely women's business. For cooking purposes, almost all households in Ankaase use fuel wood as a source of energy while some households reported to use kerosene and charcoal occasionally. About 87% of households have access to

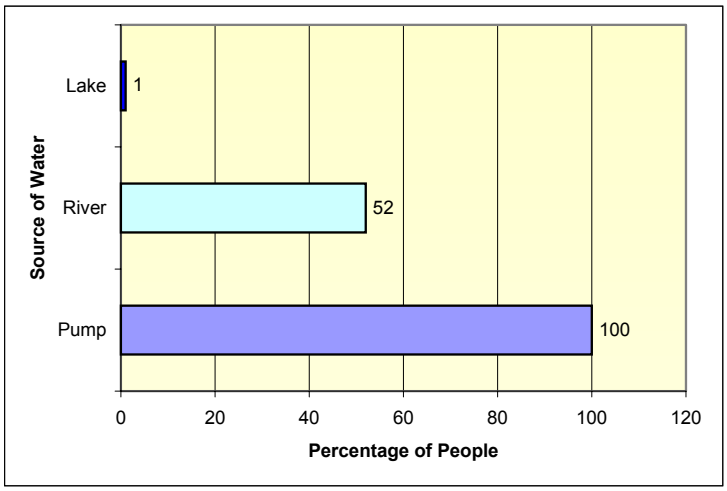
[13] Cassava builds large roots and uptakes enormous amounts of nutrients from the soil. Thus, it affects the growth of neighbouring trees considerably.

[14] Selling price: Sheep ~ 200,000 cedis; Goat ~ 70,000 cedis.

[15] Recently, a law has been passed by Asantehene that prohibits the use of soaps and detergents for washing, cleaning and bathing in the lake. A fine of 300,000 cedis is imposed on the community if any of its inhabitant is caught doing so in the lake. For this reason, people have started to fetch water from the lake and wash in their homes. Some people also wash some distance away from the lake. During the field research many people were still observed using soaps and detergents directly in the lake. Also, waste water from the washings done near the lake flows directly into the lake. Further, gullies created almost throughout the village as a result of erosion cause streams of water and wastes to flow into the lake as well.

electricity. People without electricity access complained of the extremely high price (~500,000 cedis) for getting an electricity connection.

Almost no one in Ankaase possesses a private means of transportation. People rely on a mini-bus that operates twice a day and three shared taxis[16] in order to commute in and out of the community. However, community accessibility was found to be very poor as the frequency of these modes of transportation is extremely low. They are also reported to be quite expensive; so many people are forced to walk long distances in order to reach their destinations. Some people were even observed to walk all the way to Beposo which is about 5 kms from Ankaase. Furthermore, poor condition of the road (dirt road) makes accessibility to Ankaase extremely difficult. The condition of the road deteriorates considerably in the rainy season and after-effects of erosion can be observed quite clearly. At least 10 years ago, a boat was used to transport people and goods to the other side of the lake but after building of the dirt road and an accident which resulted in 11 people drowning in the lake, boat services have been abandoned. Bosumtwi Methodist Clinic still uses a boat service sometimes to transfer patients to the other side of the lake.



In terms of drinking water supply, three hand pumps were installed last year by the Unit Committee. Pumps were financed through the contribution made by the inhabitants of Ankaase at Easter last year[17]. Users of the hand pumps pay 1000 cedis per house per month to the Unit Committee. As seen in figure 9, some people (52%) also mentioned the use of the river Ebotwiwaa as a source of drinking water and occasionally very few (1%) still fetch lake water for drinking.

Figure 9. Use of different sources of drinking water

Sanitation was mentioned as one of the major problems by the interviewees. Only about 24% of the population of Ankaase has toilet facilities at home. So the rest uses the only public toilet located near the western entrance of the village. However, the public toilet was found to be in extremely bad shape and needed urgent repair and maintenance as wooden material of the toilet was rotten and could sink and fall apart any time. The Unit Committee is now planning to build Kumasi Ventilated Improved Pits (KVIP)[18] for Ankaase.

Very few households are in possession of a TV as most of the people rely on radio and mouth-to-mouth kind of information sources. One gong-gong beater informs people about important schedules and happenings in the community.

One soccer field is available in the southern part of Ankaase. Other than that there are no buildings or premises for common use. Meetings between the community, Traditional Authority and Unit Committee take place mostly on the lake side under teak plantations. Some groups like HPI use school premises for meeting purposes.

Five small grocery stores, one stand (mostly with tomatoes, onions, peppers, garden eggs and fish), a donut seller, a corn mill and a chain-saw owner are some other types of physical capital available in Ankaase.

Social Capital[19]

Overall, respondents claimed to be satisfied with the activities of the Unit Committee (UC) and had good relations with the members of the Traditional Authority. There was less satisfaction about the Assemblyman and District Assembly, who were said to be not helpful and the relation to them distant.

[16] Cost per person in shared taxis: Ankaase-Bekwai: 6000 cedis; Ankaase-Kumasi: 10,000 cedis.
[17] 10,000 cedis for men; 5000 cedis for women.
[18] KVIP is a type of compost toilet facility that is made up of concrete stone walls.
[19] Political capital, described by DFID as 'access to wider institutions of society' (DFID, 2002), can be seen as a part of social capital.

Through Expert Interviews with the UC Chairman and the Queen Mother, it became clear that the Unit Committee, Queen Mother and sometimes the Chief of Ankaase visit the District Assembly in Bekwai, to remind them of the community problems and needs, and the promises made to the community on the district level.

Membership in groups is important in terms of social capital. Membership decides over access to certain assets (for example financial capital) and social processes and often goes along with a feeling of inclusion and empowerment. It is at the same time a source of relations or friendship. According to the household survey, 47 % of the people of Ankaase were found to be a part of an organized group[20]. Of the 53% that is not part of any organization, some were not aware of the existence of any formalized group in the community.

There appears to be a growing number of organisations in Ankaase that positively influence the livelihoods. A few positive examples are the HPI sheep and goat rearing, which offers people an alternative livelihood strategy and a new source of income and protein. AYAS contributed to development projects, like the construction of water pumps and an electricity network. Credit Unions of churches help people with obtaining credit for expansion of their farming or trading activities or for sending children to higher education.

With reference to Financial Capital, Ankaase teachers receive their monthly salaries through the bank and therefore have access to its credit facilities. Cocoa farmers can also go for a credit with the Bosumtwi Rural Bank. And lastly, the Catholic Church Credit Union gives out credit to members and others. These (financial) groups can be seen as networks as well as formalized groups and contribute to the strengthening of social capital[21].

According to the Ankaase UC Chairman, there is some cooperation on Unit Committee level with neighbouring communities Duase and Atafram, mostly concerning infrastructure (the road). For this reason the Unit Committees visited the District Assembly already two times this year.

Another example of cooperation with other communities is formed by a catholic group, whose members from different neighbouring communities contribute to a common fund to organize and visit (each others) services, and restore church buildings.

The social ties within the (extended) family are mostly very close. As also discussed under financial capital, remittances are being sent by out migrated children to their family members in Ankaase, and parents living in Ankaase send their out migrated children food crops or money.

There is a certain task division between men and women. Mostly, men are the heads of the households and the community, and take care of the household finances. Women actually run the household; they do most of the cooking and care-taking of the children.

As concerned to commercial fishing, men do the fishing and women sell them, in or outside the community. Men and women work together on their farms. There is also a task division during Communal Labour Day. Men's work includes the digging of pit latrines and construction of school and road, women undertake the sweeping and cleaning of the dumpsites.

Respondents stated that men and women were said to get equal opportunities to express their opinions during community meetings. During the focus group this could be seen in practice, although men did do a larger part of the talking.

As also stated under *Natural Capital* and *Commonly Accepted Rules*, there are problems related to cattle poisoning by other members of community. People don't trust each other with their livestock, because there are cases of stealing and killing of goats and sheep. People also prosecute the owner when a goat damaged their property.

[20] Among these groups are Traditional Authority, Unit Committee, HPI (Heifer Project International), Ankaase Youth Association (AYAS), Young Ladies Association, Churches (Catholic Church Credit Union), Susu savings scheme, Parents Teachers Association (PTA), Water and Sanitation Commission, Friends of the Earth etc.

[21] In the Venn diagram (Figure 10) two financial institutions were placed: the Ghana Commercial Bank Bekwai, with the 2nd circle size, but placed far away from the community, and the Christian Mothers Association, with the same size, but closer to Ankaase than the Commercial Bank.

Short overview of the most important organized groups in Ankaase

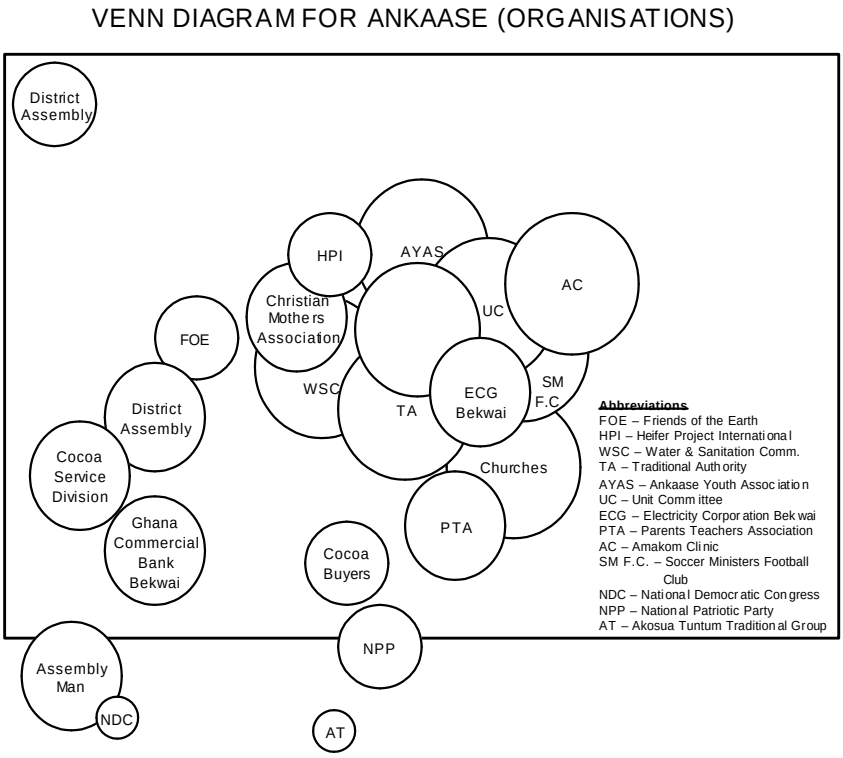


Figure 10. Venn Diagram for Ankaase

Ankaase Youth Association (AYAS) is a popular, well-known and appreciated organisation. It consists mostly of out migrated Ankaase born people. AYAS helped with the construction of the boreholes and electricity within the community and deposits sums of money during each Easter Durber (community meeting).

Ankaase also contains a women self-help group, the **Young Ladies Association**. It was formed after some young women realized that they depend (too) heavily on the fish catch. The seasonality of the catch makes their income insecure (also see *Vulnerability Context*). Their objective is to help each other in times of hardship and to make it possible for the members to start a small-scale enterprise when the Association becomes more resourceful. There are currently 35 members in the association, with 12 of them based in Ankaase and the remaining based in Kumasi. There is (temporarily) one male in the group who is the chairman/facilitator of the group. Every member pays a membership fee and a monthly amount, which is being saved at the bank in Kumasi. In this way the women can finance their members' plans.

Friends of the Earth (FOE) is an NGO that is active in a number of communities around the lake. According to one respondent, the FOE visited the communities to explain the causes of the receding lake water level. To prevent further receding, programmes of tree planting were started. During periods of (enough) rainfall, members go out to plant seedlings which they get from the Forestry Departments, weed around them and collect fallen seeds. Apart from trees, they also plant plantain around the lake, which they irrigate during the dry season. Droppings of goats are collected and mixed with water and then sprayed over the tree to prevent goats from eating the plants and trees. Last year members had access to a loan of ¢200,000 per person per year for personal use (reasons: expanding farming, trading or children's' education). Per month ¢10,000 has to be paid back. At the moment, Ankaase has 26 members (of which 15 are women) which is the maximum. A part of the Ankaase community knows of the activities of Friends of the Earth, but do not know its name or what it exactly is.[22]

Heifer Project International (HPI) started its activities around the Lake in 2000, in three different communities, Ankaase, Beposo and Konkoma. Sheep and goats were given to some 68 families. Part of the offspring is given to new members, based on the principle of 'passing on the gift'. With this project HPI aimed at providing an alternative livelihood strategy and alternative source of protein to the people of

[22] In the Venn diagram (Figure 10), Friends of the Earth received the 3rd largest circle and was placed at some distance from Ankaase.

the basin, for poverty reduction and for reducing pressure on the fish in the Lake. Presently, there are 120 member-families around the Lake, who are trained in constructing pens for keeping the livestock and using the sheep and goat droppings as manure. Other activities are hybrid mango planting, tree planting, erosion control programme and several workshops, and future projects include bee keeping, mushroom cultivation, grass cutter rearing, snail farming and more[23].

Financial Capital

Sources of Income

Contrary to the assumptions of the research team, not fishing, but farming is the main source of income of the largest percentage of inhabitants of Ankaase (84%) (Figure 11). The relatively small size of the farms, lack of farming equipment (only manual instruments like cutlass, hoe, axe), limited money available for buying fertilizer and pesticides, and seasonal character of many of the crops as well as fish, results in unstable income for the people of Ankaase and often only at subsistence level. Fishing includes commercial trade of fish (34%) and active fishing (23%). Respondents mentioned that the fish catch is declining in amount and size.

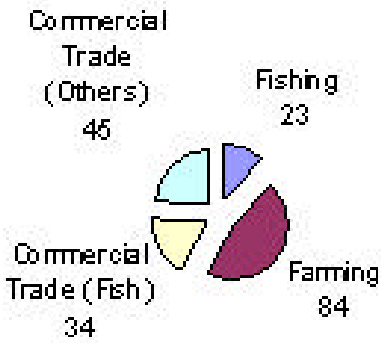


Figure 11. Sources of Income of People of Ankaase (%)

Remittances

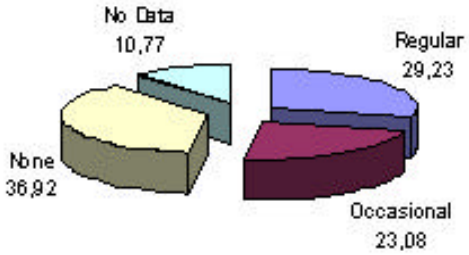
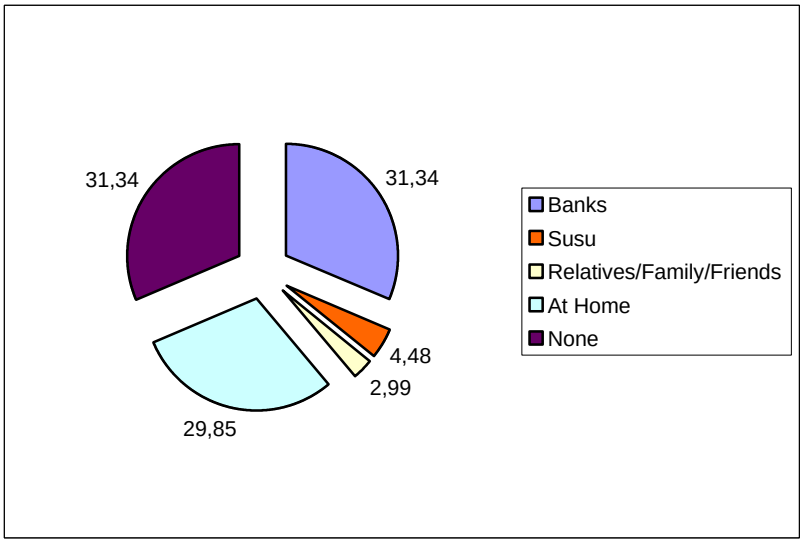


Figure 12 shows that at least 50% of the people of Ankaase receive remittances from relatives outside the community (29% regularly and 23% occasionally).

Figure 12. Remittance Chart of Ankaase (%)

Means of saving

Almost 30% of the respondents save their money in their homes. A slightly higher percentage (31.3%) saves at a bank, mostly at the Bosumtwi Rural Bank at Bekwai or Kuntenase, bank in Kokofu, Governmental Bank of Bekwai (Figure 13).



About 4.5% of the people of Ankaase saves through a private (Duase) or bank related Susu scheme. About a third of the respondents do not save at all, with reasons of not earning enough money to set some aside (income at subsistence level), not trusting the Susu collector or not being able to get access to a bank.

Generally, those who save at a bank, also have access to the banks' credit facilities. Loans are mostly used for expanding agricultural production, fishing business or financing the education of children studying outside Ankaase.

Figure 13. Means of Savings of People of Ankaase (%)

[23] According to the community, HPI is of not too much importance to Ankaase; during the Venn diagram (Figure 10) exercise it received the 3rd largest circle, as did Friends of the Earth, but was placed closer to Ankaase.

A reason to 'save' at home, according to the respondents, is that children in school may need money at any time to buy the necessary items.

Groups, such as teachers, fishermen, cocoa farmers can provide for common collateral, and therefore can have relatively easy access to credits. There is also a scheme for members of the ruling party, *NPP Women Fellowship Scheme*, which helps women setting up small businesses.

The *Bosumtwi Rural Bank* at Bekwai has two requirements for credits: the applicant must be a member, have the testament of two people who already save with the bank and must explain what the credit will be used for.

As far as bank regulations are concerned, at most banks it is necessary to first save a certain amount for a certain period of time, before one is able to receive a loan. Many farmers in the lake basin are saving at the *Amansie West Rural Bank* (Bekwai). Aside savings, credit schemes (farmers loan, salary loan, school fees loan) and micro-finance (individual Susu or group contribution), the bank offers education on how to manage financial resources, purchases farming tools and equipment for the farmers and trains people in animal rearing. For group arrangements, the group contributes about 20% of the amount of the assistance needed; their farm lands are used as collateral and the executives of the group guarantees the credit.

The *Amansie West Rural Bank* advices their customers to collect the cocoa check (*akuafo*) after the sale of their cocoa and to deposit their earnings at the bank, in order to get access to credits during the non-harvesting seasons. For tourism investment, the Rural Bank offers credits to customers who want to invest in areas other than farming.

The Vulnerability Context of the People from Ankaase

Shocks

The major resource shock affecting the people from Ankaase is the decline in fish number and size, probably as a result of over fishing and increasing population pressure. This affects not only an important source of income but also the nutritional status of the people. Further, it forces people to look for other livelihood strategies, which in most cases, seems to be switching to farming. However it happens at the cost of forest area.

An example of a political shock could be lack of support from the District Assembly. The District Assembly has an extremely low level of trust among the community as it is seen by the people as an institution which is apparently misusing the resources and is a major bottleneck for development in the community. On the other hand, shocks can be positive, as for instance the support by NGOs like HPI and Friends of the Earth.

Trends

One of the major trends observed in Ankaase is out-migration (rural-urban migration) of the younger part of population. This is due to lack of employment and higher education opportunities in or around the community.

Along with this trend go unpredictable rainfall patterns of the last decade, probably as a result of global warming. This has led to a decrease in the annual yield of different crops forcing people to seek for alternative livelihoods.

Government's enormous support for cocoa plantations has led to a trend of increasing the number of people opting for cocoa. Further, due to the sheep/goat rearing project by HPI, more people have started to undertake sheep/goat rearing in order to meet food (animal protein) demands and also as an alternative source of livelihood.

Seasonality

Seasonal changes have a big influence on highly rural societies. First of all the climate varies according to the season splitting the year into a dry season and a rainy season. Agriculture and other income possibilities change according to the season and determine the livelihood strategy of the rural poor to a high extent. Fishing season (August-October) overlaps with the months of cocoa harvest (October-November), thus limiting the months of the major sources of income and production to four. The rest of the year is spent with only selling subsistence crops like plantain, cassava, cocoyam etc. to meet basic household requirements.

Transforming Structures and Processes

Before one can give recommendations concerning ecotourism development in any area, gaining an insight into the governance structure is necessary. The governance structure forms the context within which laws and regulations on national and local governmental level to community based bye-laws, and traditional power structures and uses are determined.

Next to this and as stated in Chapter 2.1., the governance structures influence the livelihoods of people on three levels: (1) access to the capitals, (2) terms of exchange between different kinds of capital and (3) returns to livelihood strategies.

In this paragraph the Transforming Structures and Processes **concerning Ankaase** will be discussed shortly. In what way do institutions and organisations influence the livelihoods of the people of Ankaase and how do the people themselves react to these influences?

Transforming Structures and Processes

Structures

- Levels of government

- National Government
- Regional Coordinating Council (RCC)
- District Assembly (DA)
- Area Council (AC)
- Unit Committee (UC)

- Private Sector

- NGO (HPI, FOE)
- Commercial banks
- AYAS
- Cocoa Buyers
- Young Ladies Association
- Churches

Processes

- Laws

- National Laws
- Bye Laws: Lake Bye Law, communal labor day etc.

- Policies

- Cocoa support policies
- Taungya system

- (Culture)
- Institutions

- Agricultural Extension Officers

Structures

Levels of Government

The traditional and political authority together make up the political structure. The first exists of the Chief, sub-chiefs, elderly and the Queen Mother, with as overall rulers, the custodian of the Lake (Asamahene) and the Asante king (Asantehene). The second is built up of several layers: the central government in Accra, the Regional Coordinating Council (RCC), the District Assembly (DA) in Bekwai and the Unit Committee (UC). The Assemblyman is the intermediate for the last two actors as well is the Area Council.

Lake Bosumtwi basin falls under the jurisdiction of two districts: Bosumtwi-Atwima-Kwanwoma (BAK) in Kuntenase and Amansie East in Bekwai. Abono lies in the first one, Ankaase in the second.

The Unit Committee officially represents the District Assembly in the community. The research team has observed that in practice the UC mostly represents the community with the DA.

community for a fundraising. During this meeting, money is being collected by the UC for different projects which are announced at the beginning of the year. Last year ¢7.2 million were collected, which will partly be used for the building of the new kindergarten, next to the JSS.

The relationship between the interviewees and the Unit Committee was in none of the cases described as problematic. Most people knew some of the tasks of the Committee and could give extra information - how often they meet, their cooperation with the traditional authority, their task of dealing with the Assemblyman and District Assembly, etc. Some people contact the UC also for personal problems. The weekly communal labour day in Ankaase, as organized by the Committee, is seen as a good initiative and people mostly participate.

Box 1. Unit Committee

The Unit Committee (UC) is a democratically elected organ, which consists of 15 members, who work on a voluntary basis. The Traditional Authority of Ankaase approached a number of candidates and ten of them were elected by the community through 'secret' voting/balloting. The other five were appointed by the District Assembly, and are therefore member of the ruling national governmental party (currently NPP).
Its official task is representing the District Assembly in Ankaase; this mostly means that the Unit Committee transfers every decision made at district level to the community.
Generally, the members of the Committee meet 7 to 8 times per year, every first Sunday of the month. The major tasks of the UC, according to its Chairman, are development, sanitation and bye-laws.
The Unit Committee is an agent of development in the communities. They prepare development plans and are consented by the District Assembly.
For every decision, the UC first discusses the plan with all members of the traditional authority[24]. After this, the plan is proposed to the community during one of the meetings[25]. According to the Chairman, no decision concerning activities in Ankaase can by-pass the Unit Committee.
The Unit Committee and the community have appointed two people for the collection of the pump fee/levies: the Water and Sanitation Committee (WSC). They collect ¢1,000 per month per house which will be used in case one of the three pumps needs repairing. Through this system an amount of ¢1,116,000 per year is collected (which means that 93 houses monthly pay ¢1,000).

The Water and Sanitation Committee (WSC), which falls under the Unit Committee, consists of two people, chosen by the UC and the community. They are charged to collect the monthly fee of ¢1,000 from every house for the maintanance of the pump.

The Assemblyman of Ankaase represents the District Assembly in 11 communities of the Lake basin, by whom he is democratically elected for four years. According to the respondents, the Assemblyman has visited Ankaase only a few times since his election (about two years ago). Many interviewees said they did not know what the tasks of the Assemblyman are, or claimed not to know him. Others responded that the relation to him was very distant.

Box 2. Assemblyman

The Assemblyman is an intermediary. He transfers information between community (Unit Committee) and District Assembly (Amansie East) in case of community requests on infrastructural development or DA message about new or altered legislation. From the interview with the Amansie East DA a more elaborate task description of the Assemblyman was received. Next to serving as the link between the unit committee and the Assembly, he has to solve issues that arise from the communities under his jurisdiction and liaise with the District Assembly for assistance. Furthermore, he should explain governmental policies, programmes, and projects to the communities and whether the community can be involved through self-help. Lastly, he is the representative of the Area Council at the Assembly.

Most respondents complained about the functioning of the District Assembly. The Chief District Executive has visited Ankaase several times and made promises about repairing of the road and school

[24] The Unit Committee in principle can make a decision together with the sub-chiefs and elderly, without the Chief being present. The Chief will then be informed on the decision afterwards. In principle, the Chief has the ultimate power to refute this decision, but until now this has not happened.
[25] Community Meeting: About 10 times per year on Tuesdays, announced on Friday with gong-gong.

buildings, amongst others. According to many, none of these promises has been lived up to[26]. During the PRA it was mentioned that Ankaase did not have its share of the Common Fund for a long time. Some spoke about the donation of bags of cement for the school building and the help during the electricity and bore-hole projects. Overall, the relation between the community and the Assembly was said to be distant or very distant[27]. Concerning developmental activities, the District Assembly has not transferred money (cash) to the Unit Committee or community, but did deliver about 50 bags of cement for construction of one of the school buildings[28].

About three years ago, Ankaase became connected to the electricity network. The District Assembly in Bekwai named it a *self-help project*, which meant that the community had to bear a part of the costs themselves, to get people committed to the project (community pays 5% of the total cost to ensure ownership and maintenance, the DA also pays 5% and the project provider takes up the rest of the costs, 90%). According to the UC Chairman of Ankaase, the community with the help of AYAS provided 43 electricity poles and the Assembly paid for 10 poles.

There were conflicting sounds about the responsibility of the District Assembly in developmental activities. While the District Assembly (Amansie East) stated to offer funds, skilled labour and arrange for any necessary felling of trees for a project if necessary, the Chairman of the UC Ankaase on his turn explained that the Unit Committee has to generate its own funds for financing a project.

Box 3. District Assembly

The District Assembly (DA) is the local-(ized) governmental authority. According to the Chairman of the Unit Committee, some of their tasks are to provide and rehabilitate schools and sanitation[29].
Concerning infrastructural responsibilities, the Planning Officer of Amansie East claimed that the District Assembly has little influence over the road(s). They have lobbied with the Ghana Highway Authority (GHA) to construct it, but the final decision rests with the central government. There is a plan to construct an asphalted road from Amoafo to Peminase through Ankaase, but when the activities will commence is unknown.

According to The Commonwealth Local Government Handbook, a District Assembly is responsible for the provision of basic education, public health, environmental protection, public sanitation, and road and transport regulation[30].

The influence of the Area Council on the community is difficult to judge. No interviewee, not even the Chairman of the Unit Committee, talked about the Area Council, nor was it mentioned during the Venn diagram exercise.

Box 4. Area Council of Amansie Central

According to the Amansie East District Assembly, it is not the duty of the Unit Committee to deal directly with the Assembly. Normally, problems and needs are sent to the Area Council, by way of petition, from where it will be forwarded to the District level. The Assemblyman is the head of the Area Council. Other members are representatives of every Unit Committee in the area. The AC is now being restructured; Ankaase belongs to the Mmorontuo Area Council which has just been established.
According to a member of the AC who lives in Ankaase, the basic function of the Council is to mobilize people to raise funds. There are 15 members, who are also Unit Committee members. There are some kinds of taxes paid to the AC, which is supposed to be used for developmental projects, like building roads, water supply etc.
The AC has four meetings per year with the Unit Committee and Traditional Authority.

[26] The Queen Mother told the research team about a petition being drawn and signed by the community and delivered to Amansie East District.
[27] The District Assembly received two circles (second and third largest) in the Venn diagram because the group could not reach a consensus on the size (importance); both circles were placed relatively far away from Ankaase (figure 10).
[28] According to the Ghana Tourist Board, each District Assembly receives money from the national government to put up community based projects. Furthermore, there are so called Common Funds, which a DA can use to exercise its responsibility of creating roads. Interview in Accra, 28th June 2004.
[29] According to the BAK District Assembly, the roles of the DA are town planning and site selection, waste management, and development of the area.
[30] The Districts' expenditures are paid from governmental transfers (Common Fund, 69%), own taxes (22%) and user fees (9%) (The Commonwealth Local Government Handbook 2004:66).

Generally, relations with the Traditional Authority were described as good and helpful, although some mentioned they do not see the Chief regularly. Some young respondents said Traditional Authority members did not know what their problems are.

The Chief of Ankaase lives outside Ankaase (in Anwiase). There were no clear complaints by the interviewees about his functioning, although people acknowledged that he does not visit Ankaase often. Neither during nor after the research did the research team meet the Chief.[31]

Private Sector

There are several different private sector organisations active in and around Ankaase. The Cocoa Marketing Board and Cocoa Company yearly buy up the cocoa for a price which is guaranteed by the national government.

Heifer Project International and Friends of the Earth are NGO's who are directed on the protection of the natural environment as well as on the well-being of the inhabitants of the lake basin.

Banks are important for providing credit to people who want to expand their commercial trade, farming (mostly cocoa), or have to pay for their children's' education. Their services are helpful; some banks even provide extra services like training. Herewith they give their customers the opportunity to expand or intensify their livelihood activities, although some people complained about the requirements being hard to reach.

Churches are helpful in providing credit facilities (Christian Church Credit Union) to members and others and are said to contribute during community fundraisings.

Finally, the newly established Young Ladies Association is aimed at reducing dependency of young women in Ankaase and commonly providing financial support for those who want to start up or expand business.

Processes

Commonly accepted rules in Ankaase include the Lake Bye-Law[32], participating in communal labour, and bringing household garbage to dumpsites. Not adhering to these rules and norms is said to be punished by means of a fine and many people are aware of this, but there have been only a small number of cases in which people actually were fined for using soap in the lake and for not appearing at Labour Day. The Lake Bye-Law is from another character than the others mentioned, because it was decided on by the Asantehene. The Lake Bye-Law aims to regulate human activities in the lake, in order to minimize the negative human impact on the water quality. It was 'issued' by the Asantehene and Asamahene, the Chief of Kokofu who holds custody of the lake in name of the Asantehene. According to the BAK District, the Asantehene, Lake Bosumtwi Development Association, Environmental Protection Agency (EPA) and the Water Research Institute monitor the human activities around the lake.

Going against the Lake Law can mean a fine of around ¢300,000 to ¢400,000 but it is also said that some people (still or again) go against the rules. No one actually seems to control whether people abide, although the Chairman of the UC did mention the bye-laws as one of their responsibilities, and no fine has been given out yet. People do get fined when their livestock is destroying other people's property, and this is a cause of conflicts and distrust in Ankaase.

Communities can also form bye-laws. In order to become valid, the bye-law has to be approved upon by the District Assembly, and accepted by the General Assembly and the Ministry of Local Government and Rural Development.

An example of a community bye-law is compulsory attendance at Communal Labour Day. Not attending can mean a fine of ¢20,000.

Building permits are given out by the District Assembly and land can be bought from chiefs and private persons[33]. The District Assembly sets regulations for building activities in the lake basin. For the construction phase, the building party must subject the project to an environmental impact assessment and must obtain environmental clearance to make sure that the activity does not have any negative effect on the lake. At the operational level, the DA charges a yearly property rate on hotel and accommodation facilities. As to whether the individual communities benefit from the charges of the hotels and restaurants,

[31] During the RRA exercise the Chief together with the sub-chiefs, elders and Queen Mother, were taken as one: the Traditional Authority (TA). The Unit Committee and Traditional Authority were placed equally close to the community and were appointed an equal circle size (the largest), which reflects their similar importance (figure 10).

[32] It is forbidden to fish on Sundays, to use soap in the lake, and for women to go into the water during their menstruation.

[33] In Ankaase, most farmers privately own their land.

the Planning Officer (of the Amansie East) said that the money forms a part of the internally generated fund of the DA and it is used for the general development of all the communities within the district.

A policy of the central government concerns the support of cocoa production. For this purpose, an institution has been erected: the Agricultural Extension Department. The Agricultural Extension Officers provide cocoa seedling, training of cocoa farmers and coordinate the yearly spraying of the cocoa trees.

Just outside the lake basin, the Taungya system of farming is practiced. Farmers pay an amount (¢60,000) to the government for a plot of farmland which they will farm for five years. They will also plant certain types of trees and plantain on the 'farms'. The government sends people to monitor these activities. When the canopy of the renewed forest has grown, farmers leave the area and the government uses the area for timber production. This gives people the possibility to farm and at the same time ensures that certain amounts/areas of forest are maintained.

4.2 Water Quality of the Lake

4.2.1 Driving forces of Eutrophication[34]

Potential sources of water pollutants (Nitrogen and Phosphorus) that might cause eutrophication of Lake Bosumtwi are summarized below:

1. Agricultural activities
2. Domestic activities
3. Atmospheric deposition

Agricultural activities

Chemical fertilizers

Chemical fertilizers are not intensively used in the lake basin because farming is carried out traditionally and most farmers can not afford to buy fertilizers. However since 2 years, the government has started supplying chemical fertilizers[35] (e.g. Cocofeed) for cocoa farming. Cocofeed might become an important source of Phosphorus into the lake through land runoff. According to the Ministry of Food and Agriculture office in the BAK district, the supply of fertilizer and spraying pesticides has doubled the yield of cocoa over the previous years. This might be a reason for farmers to start with cocoa farming (livelihood analysis of Ankaase). Another reason for farmers to start with cocoa farming is the relatively long life span of the trees and the ready market for the products. Consequently, the use of chemical fertilizers is expected to increase.

Livestock and the use of organic fertilizers

There is quite a large population of livestock in the Ankaase community and other communities around the lake. Because of their large numbers their impact on the lake is substantial.

Animals such as sheep, goats, and pigs reared in the community defecate along the banks of the lake whilst grazing and drinking from the lake. Because of this, it is likely that a large portion of the droppings (containing Nitrogen and Phosphorus) end up close to the shore and will be washed into the lake by the rain.

During the household survey it was found out that most people do not use the goat and sheep manure as a fertilizer but bring the droppings to the dump-site very close to the shore of the lake. However, some people recently started with using the goat and sheep droppings and cattle dung. The HPI started with a project to educate people of Ankaase to create pens and collect the droppings for use as fertilizer.

Land use

Shifting cultivation and slash and burn are widely practiced by the Ankaase community (Figure 7). This removes the vegetation cover of the soil and enhances soil erosion by rainfall. When it rains, surface runoff water washes away the soil nutrients and all the streams in the farm lands flow directly into the lake causing enrichment of the lake water (eutrophication). The pollutants also end up in the lake through

[34] Data obtained from: Livelihood Analysis in Ankaase and accommodation/tourism survey at Abono and field observations by the authors.

[35] Such as ammonia (20% concentrated), and Cocofeed (50kg/bag) containing: Nitrogen (0%), Phosphorus (60%): Potassium (40%).

leaching into the groundwater. The groundwater is in connection with the lake water and it seeps through the soil into the lake.

Domestic Activities

Domestic pollution loads are directly related to the population size. It is likely that a large portion of the Nitrogen and Phosphorus from human faeces and urine will get into the lake. Although most people use the public toilet facilities that usually exist of a deep hole in the ground, the pollutants might still end up in the lake due to leaching via groundwater. Leaching might be of major influence because these facilities are close to the lake shore (100-200 metres).

Use of detergents and soaps in the lake

Clothes are washed with detergents (containing Phosphorus) in the lake water and also at the bank of the lake where the used water is eventually thrown. Also cars are washed with detergents at the bank of the lake (observed in Abono). Some of the people in the community bath with soaps in the lake water and fishermen wash their nets with soap in the lake.

Burning of organic and inorganic waste at the lake banks

Regularly the lake banks are weeded by the women in the community during Communal Labour Day and the weeds are collected and burnt at the bank. Also, plastic material found at the banks are collected and burnt at the bank. The ash is left on the bank and eventually carried into the lake by wind and rain water.

Increasing human activity close to the lake

Human activity close to the lake is increasing with several accommodation facilities springing up very close to the lake (in Abono). If this trend continues it is likely that more waste originating from the accommodation facilities will end up in the lake. From the operating accommodation facilities interviewed, only one had a kind of waste management system in place.

Atmospheric deposition

Land clearing and slash and burn practices in the agricultural sector substantially adds to Nitrogen emissions into the atmosphere. Besides this, the nearby urban area of Kumasi would probably influence atmospheric deposition through extensive burning of biomass and car exhaust emissions, etc. “Phosphorus emissions would be more difficult to estimate, in the absence of any stable gaseous form for Phosphorus, but particulate releases from smoke and dust would probably also add substantially to the atmospheric deposition of Phosphorus” (Scheren, 2003). The main source of water into the lake is rainfall so pollutants in the atmosphere return to the lake through rainfall.

The main source of energy (for cooking) for the people of Ankaase and communities living around the lake is fuel wood. The burning of fuel wood results in the emission of N and P to the atmosphere.

The use of agrochemicals such as pesticides and chemical fertilizers.

DDT was used to spray crops, especially cocoa, grown in the lake basin. The national government, through the Ministry of Food and Agriculture, has been spraying the cocoa trees since two years with other chemicals such as Gamalin 20 and Cocostar[36] for control of capsid bugs (local name - Akate). Farmers also buy these chemicals privately to spray their farms.

The use of agrochemicals is also expected to increase as more farmers are getting into cocoa farming. This means more chemicals are going to be used and eventually might end up in the lake.

Disposal of garbage

There are three refuse dumps in the Ankaase community with one sited close to the lake, about 20 metres. This refuse dump is overflowing and the refuse is washed into the lake during rainfall.

There is also indiscriminate littering at the bank of the lake with plastic materials, used as carrier bags, from food vendors and sellers of other products. Some of these eventually find their way into the lake.

[36] Cocostar: 10g/litre bifenthrin, 200g/litre pirimiphos-methyl, FAO/WHO class III, slightly hazardous. Contains: hydrocarbons, can produce lung cancer.

4.2.2 Pressures on the water quality

Eutrophication

As mentioned in chapter 2, the second step in the water pollution assessment (DPSIR) is to relate the driving forces to the pressures on the water quality. The pressure of the pollutants is expressed as the pollution load (kg/year). This is the actual yearly input of pollutants into the lake as a result of the driving forces. This means the yearly pollution loads have to be quantified in order to identify the levels of pollutants from certain pollution sources. To formulate effective pollution control policies, the pollution sources are divided into: **domestic pollution**, **agricultural pollution** (land runoff and livestock) and **atmospheric deposition.** This should give an insight in selecting priority areas for mitigating possible pollution effects.

Table 1 and Figures 14 and 15 represent the quantification of the pollution sources described in the Driving Forces chapter. The bars represent the average value and the black lines the uncertainty ranges (minimum and maximum values). The uncertainty range is considerably wide, particularly where it concerns land runoff. Also the atmospheric deposition is very uncertain because the presented pollution load is based on rainwater analyses from Lake Victoria and the Ivory Coast. The reason for this is that the measured values for the samples from Lake Bosumtwi are considered to be unreliable. The values from Lake Victoria and Ivory Coast are used to give an indication of possible pollution loads. Also, these values for atmospheric deposition are within a realistic range and taken from tropical areas close to some cities in Africa in a more or less similar environment as Lake Bosumtwi.

However, some conclusions can still be drawn:

- Nitrogen input in Lake Bosumtwi might be largest from atmospheric deposition (approximately 50% of total pollution load) if the concentration of N and P are comparable to values from other tropical areas in Africa.
- Land runoff is also probably an important source of Nitrogen input although the magnitude of this source is not accurately estimated. This is because some variables to calculate runoff are taken from previous research results in other areas. As the minimum and maximum values for land runoff in the Lake Bosumtwi are based on these values, the estimated pollution load has a wide uncertainty range. However, the values in Lake Bosumtwi will probably be in the higher range (>50,000kg/year for Nitrogen and >6000 kg/year for Phosphorus). This is because the catchment area of the lake is relatively steep, and sensitive to quick runoff and erosion compared to the case studies presented in the literature.
- For Phosphorus, the input by livestock might be one of the major sources. In the future this load might become larger as people are investing more in livestock since recently as an alternative source of income (livelihood analysis Ankaase).

		N[kg/y]			**P** [kg/y]	
Total	Min	Max	B.G.	Min	Max	B.G.
Domestic	3551	32548	18247	89	3945	1973
Livestock	8429	38585	21235	2719	13704	7367
Run-off	5400	270000	27000	540	27000	2700
Deposition	49152	77965	62743	5932	9322	7627
Total input of pollutants	66532	419099	129225	9280	53971	19666

Table 1. Input of Nitrogen and Phosphorus in Lake Bosumtwi

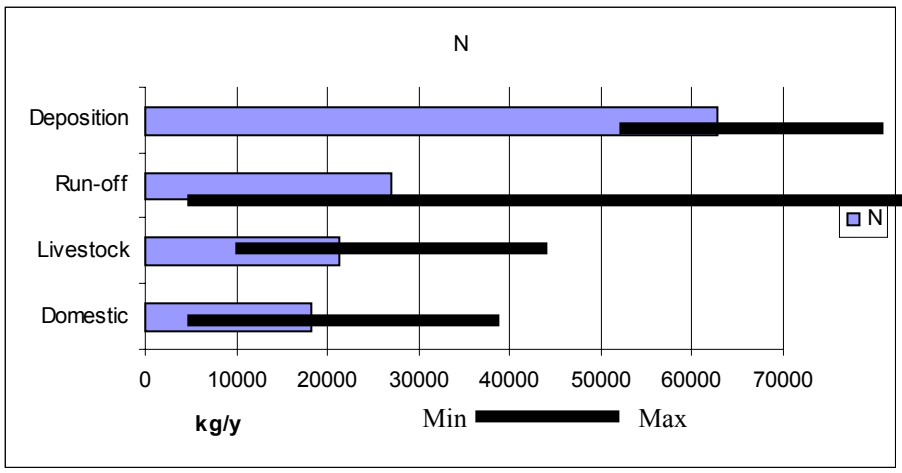


Figure 14. Quantification of Pollution Loads (total Nitrogen).
The bar presents the average value and the black line the uncertainty interval (95%)

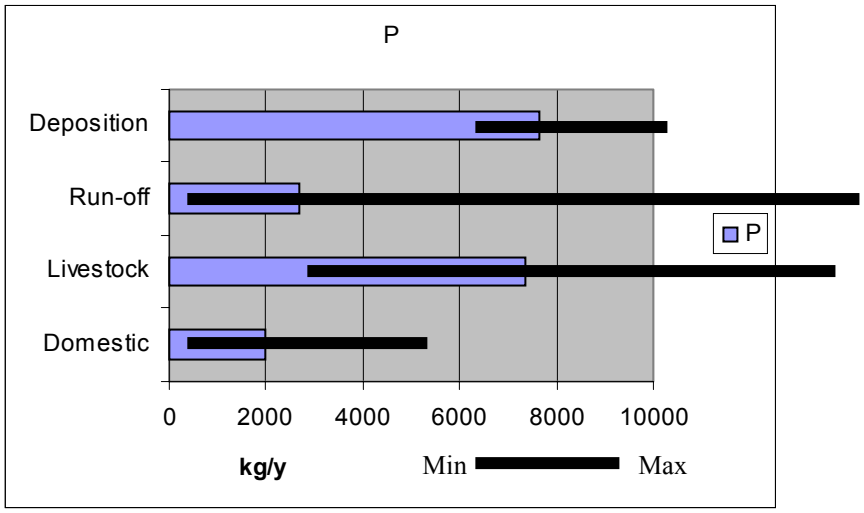


Figure 15. Quantification of pollution sources (total Phosphorus).
The bar presents the average value and the black line the uncertainty interval

4.2.3 Current state of water quality

Eutrophication

The current state of the water quality is attempted to assess by analyzing the samples from the lake (Abono and Ankaase) on the concentration of pollutants (total Nitrogen and total Phosphorus). The samples were analyzed at the lab of the Institute of Renewable Natural Resources (KNUST)). Besides, the concentrations (mg/L) of other indicators for eutrophication (NO_2 and PO_4) were analyzed with a Salifert water quality test. The results are not presented in this chapter as the results from the lab of the Institute of Renewable Natural Resources (KNUST) indicate heavily polluted (hypereutrophic) water whereas the Salifert test indicates good water quality.

4.3 Destination Analysis

4.3.1 Current state of Tourism at Abono

Facilities

Five of the six accommodation facilities in the area in and around Abono were interviewed[37]. From the gate at Kuntenase, the Tourist Lodge, Twum Barima Hotel and Lake View Guest House were turned to in order to conduct an interview. In Abono, Padua rest stop and a bit further just beyond the small neighbouring community of Obo, Lake Point Guest House was visited.

The types of accommodation in the area are 4 hotels (3 of which were interviewed), 1 guesthouse and 1 campsite. The total available capacity of the interviewed accommodations is 81 bed nights[38]. That means that the total available capacity in a year is 29,565[39] bed nights.

As indicated in the records of the accommodation facilities, Ghanaians are the majority of the visitors to the accommodations. From other African countries only Liberia is mentioned. The majority of the foreign guests are from Germany and the United Kingdom followed by visitors from the Netherlands, France, Switzerland, Austria, Sweden, Denmark, the Czech Republic and the United States.

Despite the variety in the origin of the visitors, most of the accommodations complain about a lack of guests. And if one looks at the numbers it becomes clear that there is a significant gap between the available capacity and the capacity used.

To be more precise only 8%[40] of the total available capacity of the accommodation facilities was used. Seasonal influences were taken into consideration. Low season seems to be from April to May but for some companies it runs from January to July. Also October and November are mentioned. Generally high season runs from July to September with another peak in December and March.

The services that are provided by the owners are restaurant and bar, laundry service, entertainment, conference hall. The services are limited and only offered by some individual operators.

In all cases food and drinks are provided. All serve local dishes and some offer continental. Most of them serve on request by the guests. Except Lake View all accommodations open their restaurant or bar to non-guests. Lake point is the only restaurant that works with a menu.

Padua and Lake Point offer a variety of other services which include, drumming lessons, boat rides, Padua[41] tours, guided hiking tours and car hiring among others. They compliment each other when it comes to these services.

All in all the variety of services offered is limited, as said before. This influences the expenditure pattern of the visitors that stay in the lodgings. The cost is mainly determined by the price for staying and the cost of restaurant and bar services. The average price per night varies quite a lot between the different accommodations. The cheapest room is ¢24,000, and the most expensive one is ¢200,000.

The difference can be found in the facilities that are offered with the room like private toilet and bathroom, and the "style" of the room.

The prices for food and drinks do not differ too much, with drinks ranging between ¢7,000 to ¢9,000 for beer and ¢3,000 to ¢5,000 for soft drinks and the price per plate of food varying from ¢15,000 to ¢40,000 respectively.

The average expenditure of ¢100,000 per guest per night is the same for most lodgings. Only one guest house goes over that with an average of ¢200,000 and Padua goes far under it. This price is calculated over the costs that the visitors have with the consumption of food and lodging and not by other services offered that could influence this pattern.

None of the accommodation facilities along the road from Kuntenase say they work together with other tourism facilities in the surrounding areas or anywhere in Ghana even though one of them is trying to get connected with a travel agency.

As mentioned before there are only two facilities that cooperate. In most cases promotion and marketing do not appear to be very structured or thorough.

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[37] The manager of Paradise hotel at Abono refused to give an interview to the research team. Paradise hotel is owned by an American living in New York and is the most expensive hotel around the lake. Price per night at the hotel is approximately US$ 40.

[38] Here1 bed night stands for the available capacity of 1 person per bed per night.

[39] 81*365=29,565

[40] Average length of stay over all interviewed accommodations =6.5 bed nights. Yearly average is 2372.5. Available capacity was 29565 -> 8% of total available capacity was used.

[41] Traditional plank used by fishermen on the Lake.

One of the accommodation facilities makes efforts to make the place more known by printing T-shirts and distributing them over the whole country, by running advertisements on the radio and by distributing brochures in companies, hospitals, and banks. Nevertheless this particular company said that their business is going down. Another accommodation mentioned that they had put an advertisement in a newspaper.

Besides that the main means of promotion is mouth to mouth even though it is not often mentioned as such. Some managers even complained of a lack of promotion and noted that as a reason why the number of guests was declining. Some companies do not make any promotion.

All the facility operators seemed to acknowledge some kind of social responsibility. To begin with; 14 from the 16 employees that work for the 5 facilities that were interviewed are from local communities around and close to the lake. However none of them is from Abono.

One accommodation allows members of the community to take water from their outside taps while others financially assist the members of the community.

Operators of Lake Point indicated that they have tried to train members of the community on how to learn skills such as dressmaking, or for more responsible tasks in the business, but this however failed since the community members were not interested. The latter facility is one of the two companies with a foreign owner (Austria).

To get land for developing a tourism business in the area the traditional power plays a major role. In all but one case the land was appointed, given by, or bought from the chief. There is one accommodation that belongs to the District Assembly (DA at BAK[42]). It is not clear though how they got the land. The building permits are in some cases given out by the District Assembly, however others do not make mention of them.

In only one occasion the Environmental Protection Agency (EPA) was mentioned as an organisation that was involved in setting up the company. They come to see if the building would not pose any threat to the public health.

The Ghanaian Tourist Board is mentioned in most cases as a body that gives the companies a license to start up a tourism business.

One facility made mention of the fire department, the police, and the Ministry of Health as organisations that needed to be consulted before a company can be set up.

It is possible that some of the managers that were interviewed have not been involved in the starting up procedures and therefore have not mentioned all steps that need to be taken.

For running the business certain taxes and levies have to be paid. The Property tax is paid to the Bill board of the DA at BAK. Besides the VAT of 12.5%, a 2.5% National Health Insurance Levy (NHIL) has to be paid. However not all companies made mention of it. Not every one seemed to pay as supposed to.

Three out of 5 interviewees said that an amount between ¢200,000 and ¢300,000 has to be paid yearly to the GTB for a license fee.

The total flat rate of obligatory fees ranged between ¢400,000 and ¢600,000. Interestingly the rate appears to be negotiable in some cases. And one interviewed caretaker thought nothing was paid at all because the land was private and in possession of the owner for very long.

Only one company made mention of Social Security, which has to be paid at Bekwai.

All in all there are fixed costs for running a tourism business. But there are some differences in opinion about the amount. It even seems to be possible to avoid paying certain fees or negotiate them. Besides that there is no clarity at all about what is done with the taxes, the levies, and the license fee paid to the GTB.

Waste disposal is not organised in most cases. Some burn it; others bury it, and most seem to throw waste into the surrounding bushes. Lake Point has a separate compost pit for organic waste, while in-organic debris is taken to Kumasi. Nevertheless they are not aware what happens with it there.

For most of the interviewed hotels the drainage goes into the ground. The interviewees did mention that there are no streams around. Lake point is the only one that actively uses a septic tank. Padua has one as well but it has never been emptied.

Concerning waste disposal the answers from the interviewees complimented the observations of the research team. In the area of research including the grounds of the accommodations there was a lot of litter. On more than one occasion employees were actually seen throwing the remnants of a meal, including plastics into the bushes.

Concerning the waste water it is difficult to draw conclusions whether the methods used by the businesses are sustainable or not. But it seems that not much thought is given to the whole issue by most of the accommodations.

[42] BAK=Bosumtwe Atwima Kwanwoma district

If water goes into the ground, as said by some, it will pollute the ground water at a certain point. Only one company considered put thought into waste and waste water management with regard to the environment. Even though to bring solid inorganic waste to Kumasi is not necessarily a sustainable solution.

4.3.2 Visitor Characteristic Analysis

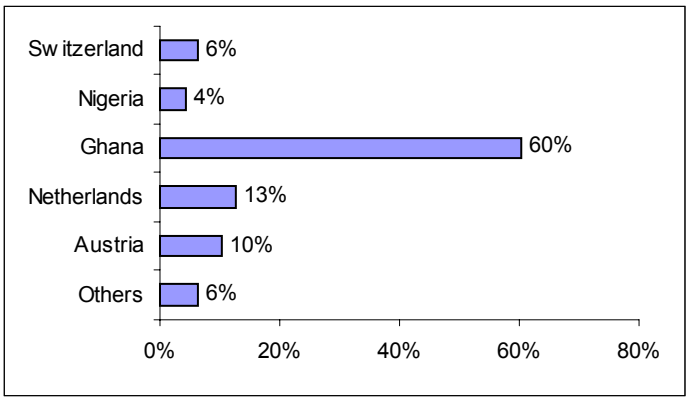


Figure 16. Origin of Visitors to Lake Bosumtwi

Questionnaires were administered to a total of 48 visitors at the lake side within a period of four days. Most of the foreigners were from countries such as the Netherlands, Nigeria, Austria as well as Switzerland (figure 16). Still 60% of the visitors to the lake side were from Ghanaian origin. A majority that is, 62% of the Ghanaian visitors to the lake side were from the Ashanti region. Other regions in the country that were represented include the Brong Ahafo, Western and Greater Accra regions of Ghana. (figure 17).

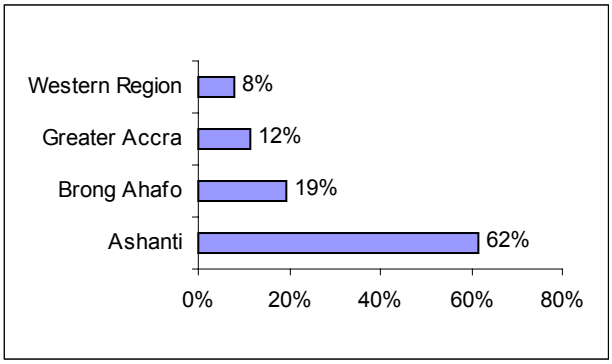


Figure 17. Residential Status of Ghanaian Visitors

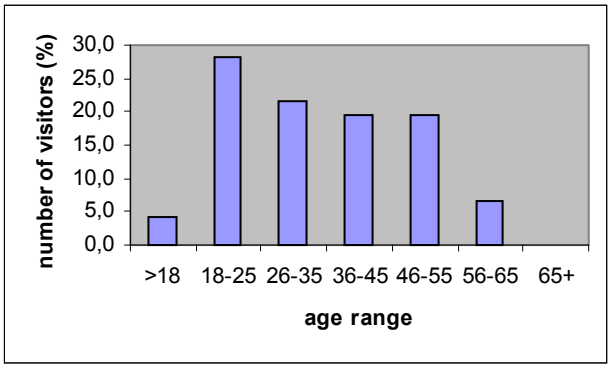


Figure 18. Age Range of Visitors

35% of the visitors were females while 65% were males. A high percentage of the visitors were between the ages of 18-25 years (28.3%). 21.7% of the interviewees belonged to the age-group 26-35 while 19.6% of the visitors were between the ages of 36-45 and 46-55 (Figure 18).

The educational level varied depending on the country of origin. For the foreigners 26% were pursuing their masters and another 26% were also in the high school. Students pursuing their bachelor's degree accounted for 22% while 4% had PhD (Figure 19).

A high percentage that is 36% of the Ghanaian visitors is either in or had completed tertiary schools. 16% of the Ghanaian visitors had a bachelor degree.

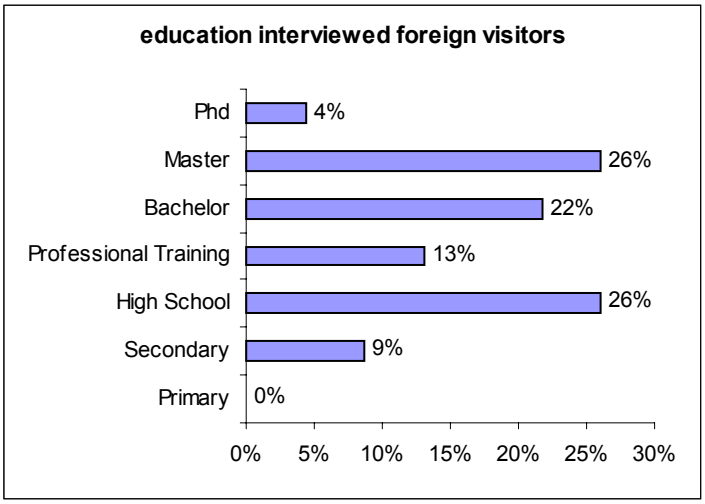
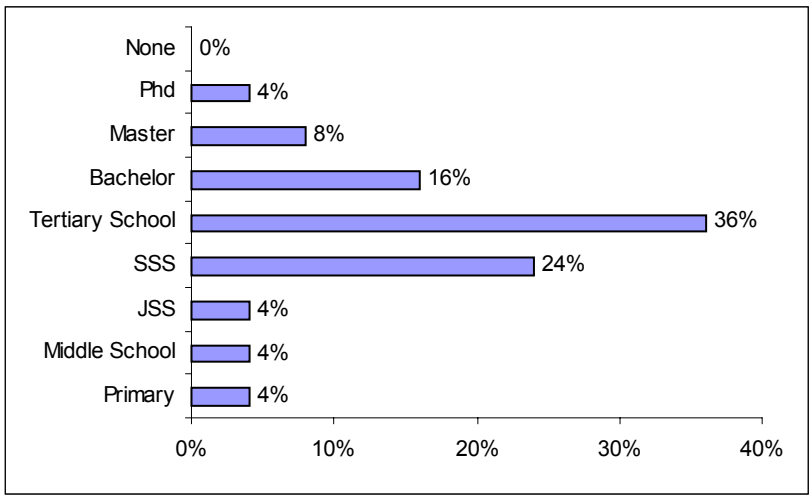


Figure 19. Education Level of Foreign Visitors



The rest of the Ghanaian visitors had varied levels of education and these include PhD holders (4%), middle school leavers (4%), and Junior Secondary School (4%) and primary schools students (4%) (figure 20).

Figure 20. Education Level of Ghanaian Visitors

A total of 46% of interviewees are engaged in different occupations such as architecture, hairdressing, journalism as well as art amongst others. 29% of visitors were students while 23% were teachers. Only 2% was found to represent researchers at the place.

45 % of the visitor travelled to the lake with their personal vehicles. Other means of transportation to the side were buses (28%), trotro (17%), NGO car (7.5%) and the least was with travel agent.

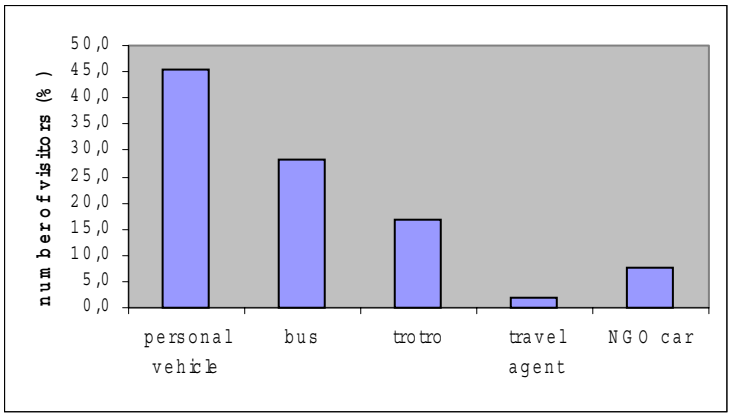
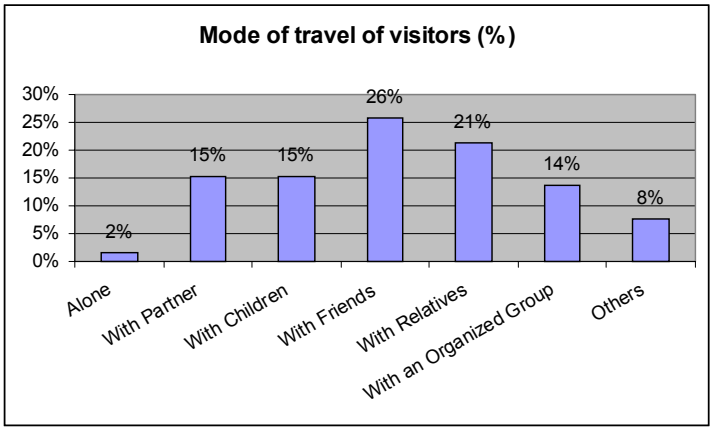


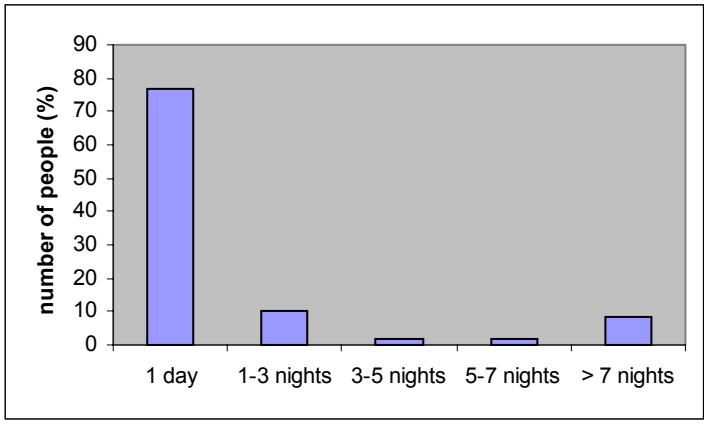
Figure 21. Mode of Transportation Used by Visitors to Lake Bosumtwi



A dominant number of visitors did not travel to the place alone. They were with friends (26%), relatives (21%), partners (15%) and children (15%). Organised groups such as students, teachers and institutions also visited the lake and this was 14%.

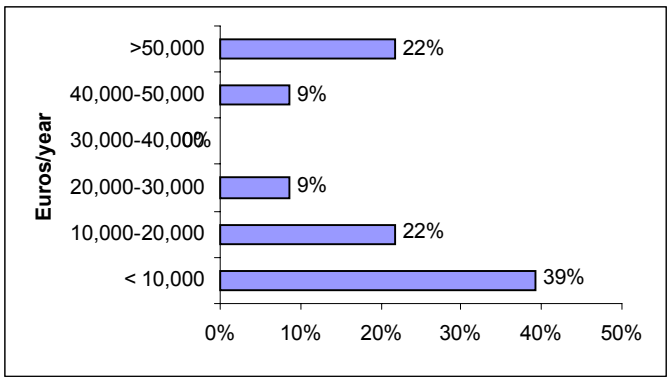
Only 2% travelled to the lake alone and 8% travelled by other means apart from those mentioned.

Figure 22. Mode of Travel of Visitors



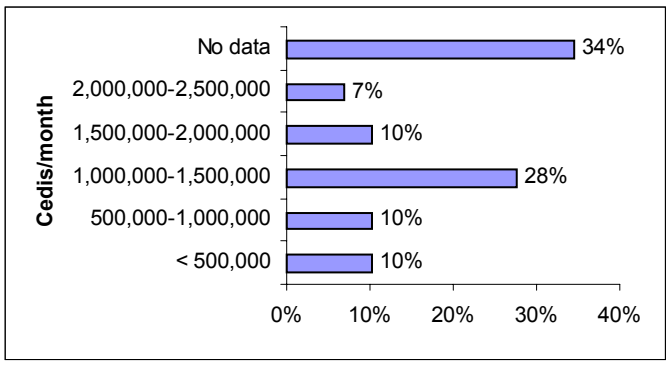
77% of the visitors were staying at the lake for only a day and were not planning on spending the night at the place. 10.4% of visitors were spending 1-3 nights at the lake while only 8.3% people were spending more than 7 nights at the place (figure 23).

Figure 23. Time Spent at Lake Bosumtwi by the Visitors



As it can be seen in figure 24, majority (39%) of the foreign visitors had a yearly income of less than 10.000 Euros. This can be related to a high percentage of young age group of foreign visitors of 18-25 years, most of them being students (29%).

Figure 24. Yearly Income of ForeignVisitors



Quite a reasonable percentage of visitors (22%) have an average annual income of above 50.000 Euros. This group was found to be mostly in their middle ages. Concerning Ghanaian visitors, majority (28%) belongs to the middle class as their monthly income ranges from 1 to 1.5 million cedis. Interestingly, most of the Ghanaian visitors (34%) refused to give information about their monthly incomes (figure 25).

Figure 25. Monthly Income of Ghanaian Visitors

43.75% of the visitors were first time visitors to the lake. For 27.08% of the visitors they have been there between one to three times. 16.67% have been there for more than six times.

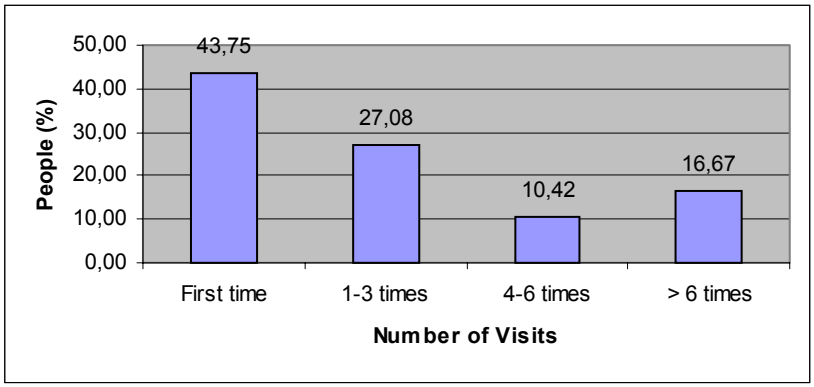
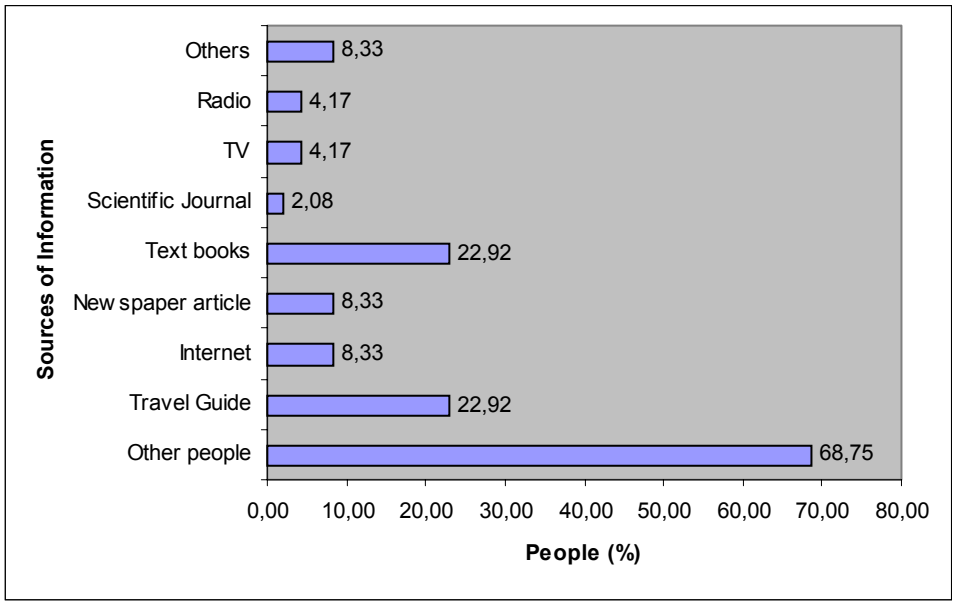


Figure 26. Frequency of Visits to the lake



Concerning information about the lake before their visit, the main sources were from other people (68.75%), travel guide (22.92%) and through textbooks (22.92%). Use of electronic media like internet, TV and radio was found to be very low in terms of marketing and publicising the Lake side (figure 27).

Figure 27. Sources of Information about Lake Bosumtwi

Most of the information that the visitors had about the lake was on its history (60.42%), origin (54.17%) and natural features (39.58%). 35.42% of visitors didn't know anything about the problems facing the lake (Table 2).

	0rigin	History	Natural Features	Local Comm. Culture	Social Live-lihoods	Existing Problems
Yes (%)	54.17	60.42	39.58	20.83	16.67	25.00
No (%)	14.58	14.58	22.92	39.58	41.67	35.42

Table 2. Visitor's Knowledge Base about Lake Bosumtwi (%)

As can be seen in table 3, visitor's perceptions about the facilities around the lake varied. Facilities such as the road, food and drinks, as well as accommodation, were considered as good[43] and this accounted for about 43%, 35%, and 31% respectively. Sanitation facilities were rated as bad by about 22% of the visitors. Transportation was rated by 33.33% of the respondents as average.

	Accommodation	Drink and Food	Transportation	Road	Car Park	Sanitation
Very Good (%)	4.17	8.33	0.00	4.17	0.00	10.42
Good (%)	27.08	27.08	18.75	39.58	14.58	10.42
Average	29.17	20.83	33.33	22.92	22.92	18.75
Bad	2.08	12.50	10.42	10.42	14.58	12.50
Very Bad	0.00	4.17	4.17	4.17	2.08	10.42

Table 3. Rating of Different Facilities around the Lake by the Visitors (%)

However, table 4 shows that 52.94% of the respondents were willing to pay more for their experience at the lake if the sanitation facilities are improved. There was an indication of willingness to pay more for the improvement of other facilities such as accommodation (45.1%), of laying nature trails (39.22%) as well as camping facilities (39.22%).

Facilities	Yes (%)	No (%)
Accommodation	45.10	19.61
Drink and Food services	33.33	23.53
Transportation facilities	37.25	19.61
Road	31.37	23.53
Car park	29.41	25.49
Sanitation facilities	52.94	5.88
Nature trails	39.22	9.8
Camping areas	39.22	9.8
Interpretation Centre	35.29	9.8
Other recreation facilities	29.41	11.76

Table 4.Visitor's (%) Willingness to Pay More for Different Facilities

As seen in table 5, about 72% of the visitors indicated enjoyment of nature to be an important reason for their visit to the lake[44]. Other major reasons cited to be important were to get away from stress of daily life (43%), to get to know special features of the lake (54%), to get away from the masses in the cities (43%) and to have fun (51%). About 59% of the visitors reported the enjoyment of the rural atmosphere at the lake side as an important reason for their visit. Interestingly, about 43% of the visitors did not consider swimming to be an important form of recreation. This could be attributed to the fact that most of the

[43] In this case, rating 'very good' and 'good', and 'very bad' and 'bad' have been added together. For details and separation between the ratings, see table 3.
[44] Categories 'Very Important' and 'Important' taken together.

Ghanaians can not swim while on the other hand foreign tourists were found to be sceptical about the water quality of the lake. Also, hiking around the lake was not considered important by about 35% of the visitors, partially due to non-availability of information about hiking trails and also because the majority of Ghanaians do not consider hiking to be a form of recreation.

	Very Important (%)	Important (%)	Not so Important (%)	Unimportant (%)	No Comments (%)
to get away from the stress of daily life	33.33	10.42	22.92	0.00	2.08
to enjoy the nature	52.08	20.83	2.08	0.00	2.08
to swim in the lake	2.08	12.50	31.25	12.50	4.17
to enjoy the rural atmosphere	22.92	37.50	6.25	2.08	2.08
to get to know other people	18.75	22.92	16.67	6.25	4.17
to get to know about the special features of the lake	25.00	29.17	8.33	4.17	4.17
to let children play and enjoy in the nature	14.58	14.58	18.75	14.58	6.25
to get away from the masses in the cities	16.67	27.08	14.58	8.33	2.08
to hike around the lake	10.42	14.58	25.00	10.42	4.17
to carry out a research					
to see the cultural happenings around the lake	8.33	33.33	10.42	8.33	4.17
to participate in a festival	12.50	12.50	68.75	62.50	25.00
to visit friends/relatives	10.42	6.25	62.50	27.08	8.33
just to have fun	20.83	31.25	25.00	0.00	4.17

Table 5. Visitors (%) Motivation to Travel to Lake Bosumtwi

Table 6 shows that almost half of the total number of the visitors indicated that the tourism at Abono in the present form will not degrade the environment. This statement could be due to the fact that during the four days of field survey, the density and number of tourists at Abono was low. So, the interviewees might not have felt or seen the impact of mass tourism at the lake as it is on the public holidays and festivals. The same reason goes for the next statement where most of the interviewees (54.17%) reported not being disturbed by other tourists. Transportation according to 70.73% ('strongly agree' and 'agree' taken together) of the visitors was good.

	Tourism in the present form will degrade the environment (%)	Other tourists disturb me (%)	I would be interested in having an organized tour guide (%)	Transportation to Lake Bosumtwi was good (%)	I am happy with the facilities (hotels, restaurants) at the Lake (%)	I would be willing to pay an entrance fee to come to the lake (%)
Strongly agree	16,67	4,17	12,50	20,83	4,17	8,33
Agree	14,58	16,67	39,58	50,00	45,83	45,83
Do not agree	50,00	54,17	25,00	10,42	27,08	25,00

Table 6. Visitor's Perception towards some Statements related to Tourism

According to the research done by the authors on the visitor's Willingness-To-Pay entrance fees for Lake Bosumtwi, visitor's willingness ranged from paying 5000 to 40.000 cedis. The calculated mean of this range indicates a Willingness of 10.000 cedis as an entrance fee.

The major facilities that visitors missed at the lake were garbage bins (33.33%), first aid kits (33.33%), rest seats (31.37%) and an information centre (29.41%). 25.49% indicated provision of enough and proper food as being missing.. 31.37% of visitors reported missing and unmanaged restroom/washroom facilities while 25.49% indicated a lack of a waste disposal system at Abono (Table 7).

	Yes (%)	No (%)
Nature trails	17,65	45,10
Look out areas	15,69	47,06
parking areas	13,73	49,02
interpretation centre	27,45	35,29
camping facilities	15,69	49,02
restrooms/washrooms	31,37	33,33
provision of lodging	9,80	50,98
provision of food	25,49	37,25
provision of vehicle fuel	13,73	47,06
waste disposal system	25,49	35,29
garbage bins	33,33	29,41
first aid facilities	33,33	29,41
Handicapped access.	15,69	43,14
information centre	29,41	35,29
rest seats/benches	31,37	29,41
other recreation facilities	23,53	31,37

Table 7. Facilities missed by Visitors at the Lake

The average expenditure per person per night was 191,612 cedis. For Ghanaian groups visiting the lake, an amount of ¢30,000 is to be paid to the chief of the community. A gate fee of ¢1000 is paid by Ghanaians and ¢5000 for foreigners. For tour guides 40% of the visitors would prefer having an organized guard. Thirteen percent however were not interested in having an organized tour guide. The average amount that is paid to tour guides is ¢5000.

4.3.3 Site Identification

Three sites or hiking trails were identified by the research team during the field survey. The research team asked the local people and authorities about the presence of potential tourism hiking trails and features around the lake. Following is a short description of the identified sites:

Holy Rock

A hiking trail through the remnants of the forest starts in Ankaase from the path next to the Methodist Church. The trail leads to the river Ebotwiwaa. The flow of the river is higher in the rainy season; in the dry season, the river dries up and flows underground. River water is still used by the communities for drinking purposes. The river flows through a hilly terrain consisting of large rocks. Hikers have to climb these rocks, which have water flowing over them, in order to reach the Holy Rock. The river water is very clean and has small populations of 'shiny blue and red crabs'. At certain places, natural pools can be found under the rocks. The hiking trail goes through a number of cocoa farms, plantain and corn fields. The farms eventually lead to an area of thick, dense vegetation of rainforest (moist semi-deciduous) which is still intact and devoid of extreme human-induced impacts. The trail gets very narrow at certain places and has lantana bush on both sides of it. Orange trees, cocoyam plants, mata fruits, pepper and avocado (pear) trees can be seen at several places. Farms and areas of thick vegetation abruptly lead to some amazingly huge emergent trees. The trail also goes past a sacred graveyard of Asantehene, royalties and chiefs. A part of the graveyard is still untouched and depicts how the whole forest might have looked like before intensification of agriculture took place. Unfortunately most of the forest area around the graveyard has

been cleared and burned, possibly 1-2 years ago. The trail eventually leads to a huge rock which actually lies in the authority of the chief of Atafram. So the tourists who are interested in hiking to this rock have to seek permission from the Chief of Atafram. The rock has a folklore that anyone who comes to it on Tuesdays, disappears and never returns. The trail also goes up to the source of the river Ebotwiwaa. But the terrain after the holy rock gets very hard as it still consists of dense bush which has to be cut with machete while walking. Also, the walk up to the hill is physically very demanding. The forest near the source of the river has a small population of monkeys.

A round trip to the source of the river could require about 4 hours plus some resting time of 30 minutes as the climb to the hill is very steep and slippery. For not so hard-core adventure hikers (casual hikers), a trip around the holy rock is recommended. This would require about 2 hours. In both cases, the hiking trip should be led by a local nature guide because the trail ends abruptly at some places and way-out has to be discovered by walking through some farms and cutting bush with machete. Additionally, it is also necessary that tourists respect the traditional boundary lines of different communities by not crossing them if they do not have permission of the concerned traditional authority (chief). Local guides know these boundaries and regulate the hiking trip accordingly.

Overflow Channel

Hiking to the spill-over point (overflow channel) is possible through farms and remnants of rainforest. The walk on the trail takes place on steep slopes at some places which could be somewhat physically challenging. Some parts of the trail could therefore be not very easy to walk on during the rainy season as these parts consist of rocky terrain and muddy slopes. The initial part of the trail goes through numerous farming areas like cocoa plantations, plantain, corn fields etc. and also through sites that show the impacts and visual impression of slash and burn practices. At some places large chunks of vegetation was found to be cleared for swidden farming. There are several view points along the trail that show diversification of the landscape which is also a result of intensification of anthropogenic influences in the area. This includes several farming areas; some of them supplied with single emergent trees. Also the spill-over point which emerges in the form of a valley appears in the initial stage of the trail. Due to its steepness, this valley still contains remnants of rainforest. Additionally, the view-points give some beautiful sights of the lake with rainforest in the foreground and hills in the background. Some fishermen can also be observed fishing in the lake. The latter part of the trail goes through some rainforest typical structures of dense vegetation and epiphyte influence. Some wildlife like Duikers, Grasscutters etc, is still found in the forest. Neighbouring communities still follow the practice of hunting them. Just before reaching the shore of the lake, the trail leads to a small community, Old Brodekwano. Kids and some people seemed to have some kind of contact with the tourists as they start asking for money, pens etc. on seeing the outsiders. The lake itself gives a very good overview of the main livelihood of the community – fishing. The shore is supplied with numerous planks that are used by the indigenous people for fishing purposes. Fishing nets hanging at several places can also be observed on the shore.

The hike starts from Konkoma and leads to the shore of the lake at Old Brodekwano. A round trip Konkoma-Old Brodekwano-Konkoma would take approximately 3 hours.

Some distance before Old Brodekwano, there is a trail through the forest and partially along the lake leading all the way to Amakom.

Bosumtwi Forest Reserve

Forest conservation in Ghana started around 1927. In some areas the trees are being replanted while in other areas there is minimum replanting, however, the forest is being protected from further destruction. Bosumtwi forest reserve is one of such places where the people in association with the forestry commission have taken up reforestation projects. This forest reserve covers a total land area of 140 square kilometres and is situated about 3km from Ankaase community. The main responsibility of the fringe communities around the reserve includes planting of tree seedlings as well as taking care of these tree species till the canopy is formed (taungya system). Benefits include financial assistance given to them as well as the opportunity to farm crops on the land until the canopy is formed. This gives the community a sense of ownership and therefore cases of encroachment are scarce.

Apart from interesting tree species in the reserve that vary from timber species, ornamental and medicinal plants, to species that are becoming extinct in the area, the reserve also provides a wide variety of wild animals such as grass cutters and duikers. The reserve is divided into productive (where logging is allowed) and restricted (where there is total restriction on the reserve) areas. The restricted area of the

reserve is situated close to Dakabunso one of the fringe communities around the reserve, about 50 minutes drive from Ankaase, it is less than an hour walk to get to the forest.

A number of rivers take their sources from this reserve. It must be noted that it will however be difficult to walk through some parts of the forest especially the area close to Adaito where the slopes are steep and slippery during the rainy season.

The forestry commission employs guards whose work is to ensure that people do not enter the forest illegally.

The Bosumtwi forest reserve is a legally protected area which can be developed for ecotourism. Especially the restricted reserve which consists of semi deciduous tropical rainforest provides a typical natural quietness that could please nature lovers. The biodiversity of the reserve provides opportunities for researchers and students to study in the area. On the conservation side, the benefits could include entrance and other fees associated with ecotourism which has a sprawl effect on the development of the local communities involved.

4.3.4 Expectation Ranking

Tourism according to the participants refers to the following:

- travelling to other places to see and admire what is there;
- having heard of something and travelling to see it;
- church group travelling to a place to see the things there and to have fun; and
- enjoyment.

The participants afterwards discussed among themselves their expectations and benefits they would derive from tourism. The results were as follows:

Expectation	Rank	Number of stones
Road Construction	1	135
Cleanliness	2	108
Water Transportation	3	77
Meet - Me -There	4	68
Bring more teachers in the school	5	66
Sale of Farm Produce	6	60
Trading of their goods	7	55
Some will get opportunities to travel outside	8	54
More Income	9	48
Revenue to the government	10	47
People from Accra will have shorter distance to travel	11	46
Sale of more fish	12	45
Restaurants	13	43
Revival of Brass Band Organization	14	42
Offer Employment	15	41
Hotels	16	37
Knowledgeable Men	17	32
Improve the work of Caterers	18	31
Community members working outside will come back and establish their business here	19	30
More visitors will come	20	27
Out-migrated members will come back	21	24
Inter-Marriage	22	12

Table 8. Expectation Ranking for Tourism by the People of Ankaase

The construction of the roads was realised to be the most important expectation from tourism. They however indicated that they would have better business opportunities and this is reflected in the way the number of stones for ranks 7-15 are close to each other.

Perceived disadvantages of tourism:

- Armed robbery would increase;
- teenage pregnancy;
- smoking (marijuana, cigarette and so on);
- prostitution;
- gossip and other bad habit;
- quarrelling, under the influence of drugs and alcohol;
- drowning in the lake; and
- increase in the number of school dropouts

They further indicated that some of the disadvantages of tourism and social vices already existed in the area however they would be done publicly when tourism is developed in the area.

Control of negative effects/disadvantages of tourism according to the people of Ankaase

- According to the participants, parents would advice their children on social vices. One thing they have observed in the community is that children adhere to the advice of their parents.
- With armed robbery, good security would be employed for example by the establishment of a police station.
- Community volunteers to check on school children who will stay out of school.

5 DISCUSSION

After conducting the field research, gathering and analyzing the results, the main findings are discussed in the following chapter. The different methods that were used resulted in different topics of discussion which are separated in three parts: people, environment and tourism.

People

Tourism and Central Government

Concerning national tourism planning, "it is common for the government to set up a statutory board to handle various aspects of implementation such as promotion" (Ceballos-Lascurain, 1996: 89). In case of Ghana, this already has been established with the Ghana Tourist Board (GTB) as part of the Ministry of Tourism. Promotion, for example, is one of the Tourist Boards' responsibilities.

The Ghanaian Tourist Board (GTB) only collects the money (taxes) for a permit for starting up and owning a tourism company. It did not transpire that any rules and regulations were to be adhered to. Nor did the interviewed facilities seem to have an idea what was done with the money paid to the GTB.

The GTB is highly dependent on financing by an external partner, USAID. If this funding diminishes or comes to a halt (and it was heard of such plans during the research) it is not clear in what way GTB can manage and maintain the existing 14 ecotourism sites in Ghana. Another potential issue is that the activities of GTB did not always seem to be structured or well managed. An example observed by the research team is the lacking coordination of promotion as none of the information folders of the 14 ecotourism sites identified by GTB were to be found in the Kumasi office. Acquisition and promotion are just two tasks of the tourism board, but they are central in expanding the existing sites and the creation of new ones.

National ecotourism planning would ask for a large scale approach, including national governmental departments, and its feasibility can therefore be doubted. This is especially so, when considering the decentralization processes that have been going on during the last decade and which the current government will probably continue, with the emphasis that is being put on the involvement of the private sector in Ghana, and lastly with the general shortage of finance.

Also, ignorance of the inter-relationship between tourism and environment, and lack of coordination and cooperation between those responsible for the management and development of environmental tourism destinations, are much to blame for ecological degradation of the resources, social disruption of the fringe communities and economic leakage of the revenues. Thus although the tourism industry is represented at ministerial level in Ghana, its interests are not fully integrated with those of various ministries, like the Ministry of Finance, the Ministry of Education and the Ministry of Environment.

Governance and Lake Bosumtwi

Ghana's process of decentralisation was started to bring government and governance closer to the people and communities. It was found though that the people of Ankaase consider the local government (District Assembly) to be important but very inaccessible. The non-functioning of the Area Council and lack of contact between the community and the Assemblyman enlarges this problem.

Another issue is that Lake Bosumtwi falls under several different traditional and political authorities. There are two Districts Assemblies, between which there does not appear to be any cooperation concerning tourism development or environmental conservation.

Lake Bosumtwi Tourism Development Association was mentioned by both the district assemblies as the organization responsible for tourism development at Lake Bosumtwi, but its activities were reported to have "relaxed" according to the Planning Officer of the Amansie East district. As a matter of fact tourism seems to be taken into consideration by the assemblies. The Planning Officer told specifically about plans to build summer huts and guest houses within fringe communities around the lake, to attract more visitors. But the bad road was mentioned as a hindrance for further tourism development.

Then there are 24 Unit Committees around the lake who, for the case of Ankaase at least, are almost not cooperating. The overall custody of the lake lies with the Asamahene, but as it became clear during a meeting[45] organized by Friends of the Earth in August 2004, developmental activities around the Lake are uncontrolled and unmanaged. The Asamahene argued that building activities had been going on too close to the shore and that there had been tourism development without the Chiefs' consent. He threatened to close down the facilities that had been and were being built without the Chief's permission.

Yet there does not seem to be an official body that looks too critically at the way facilities are built or run. Building permits are supposedly given out by the District Assembly. But this has only been mentioned once in the interviews with managers of the accommodation facilities. It also transpired from the interviews that the Environmental Protection Agency (EPA) is checking the facilities but only on threats related to the health of the people. Supposedly buildings should not be too close to the shore; however some are built so close to the shore that parts of their grounds flood during heavy rain fall. Observations made it clear that new accommodations are being built less then 50m from the water line. Apart from horizon pollution, there is the possibility that waste and drainage gets into the Lake.

Governance in Ankaase

The Unit Committee (UC) is generally an accessible and important organisation in Ankaase. People know the members and the general tasks, and are satisfied with its functioning. The UC functions as a spokesperson to outside institutions and actors, and as a central and developmental core to the people of Ankaase. Any future community-based ecotourism developmental plan should therefore involve the Unit Committee.

The Chief, sub-chiefs and elders of Ankaase are traditionally important and involved in the decision making process within the community, but their influence is more difficult to grasp in terms of development. As far as the research team could observe, there were no developmental plans coming from the Traditional Authority. The UC seems more actively involved in the developmental status of the community than members of the Traditional Authority, although they did cooperate with the Unit Committee in addressing the District Assembly about community problems.

A major impediment to the actual exercise of the Committees' developmental plans is lack of finances. For the majority of the projects, the community is forced to collect its own funds. The District Assembly has difficulties with raising enough money to carry out its own projects - let alone, financially supporting community based ecotourism plans. This shortage prevents the District Assembly from carrying out part of its responsibilities.

The role of NGO's and social groups in ecotourism

The issue of funding ecotourism plans is something that might be addressed at national and local governmental level, but the private sector will probably be the largest actor. There is a possibility of getting credit for tourism plans with the Amansie Central Rural Bank. A thing to remember though, are the very high interest rates for credit at banks, which makes investing in new, insecure enterprises unattractive. This calls for a legislation for a more flexible and favourable credit system (through the

[45] The meeting was attended by the chiefs, sub-chiefs and assembly men of the communities around the lake. Other participants included a representative of the United Nations Development Programme (UNDP), the Environmental Protection Agency (EPA) and some NGOs.

Ministry of Finance), and micro credit systems via NGOs. Friends of the Earth already provides people (only members though) around the lake with (micro) credit, at the moment for personal use, but it might be a possibility to reserve part of the credit for community based ecotourism plans.

Other organizations that provide help in collecting resources for community developmental projects, but also in providing individual micro credit, are the Churches and Ankaase Youth Association (AYAS). While the community remains dependent on any help that might be coming from district level, organizations like AYAS aim to mitigate this dependence. Among others, AYAS has helped Ankaase in the electricity and bore-hole projects, by offering money, knowledge, and services, and is a very respected and trusted organisation. At the same time, it acts as the connection to the world outside Ankaase.

Therefore, AYAS might play the role of intermediary in possible ecotourism development in Ankaase, between the community and external ecotourism experts and as a steering party for an Ankaase based ecotourism organ. They also might have a part in attracting funds for tourism training or education.

Commercial banks, investment corporations, bilateral and multilateral international development agencies, private investors, Friends of the Earth, HPI and AYAS are institutions that will certainly have to be approached. With the involvement of the Ghana Tourist Board - and Lake Bosumtwi as its fifteenth ecotourism site - organisations like NCRC might be involved as well.

Furthermore, organizations like AYAS, HPI and Friends of the Earth can also serve as vital sources of technical assistance for ecotourism projects on the ground. Moreover, "they can facilitate negotiations between local communities and tourism developers, ensuring that the adequate links and mutual benefits are obtained" (Ceballos-Lascurain, 1996).

Environment

The pollution of nutrients (N and P) into the lake caused by land runoff and atmospheric deposition is expected to increase with negative consequences for the water quality of the lake. Agricultural production in the lake basin is done with simple farm tools such as the cutlass and hoes. According to Scheren (2003), in combination with the prevalence of traditional (inefficient) farming techniques and means of living, there is a resultant increase in unsustainable natural resources utilization in terms of land cultivation, overgrazing, and forest exploitation. The yield is usually not sufficient or minimal; the demand for more land is increasing. "In the absence of "technological changes" (production increasing measures), the clearing and burning of the natural soil protecting coverings for cultivation purposes will continue" (Scheren, 2003). The consequences are increased soil erosion, resulting in more nutrient runoff and leaching. Besides that, clearing and slash-and burn practises have a direct influence on the atmospheric deposition of nutrients.

Ecotourism development in the Lake Bosumtwi basin undoubtedly depends to a large extent on the lake. Pollution of the lake water will hinder ecotourism development. For one thing it will affect the aesthetic beauty of the lake due to dirty water and dead aquatic life. This would reduce the recreational and tourism value of the lake. Ecotourists would not be able to enjoy nature as they want to. Swimming, for instance, in the lake would become unfavourable. Moreover, polluted waters provide a very favourable habitat for waterborne and insect disease vectors such as diarrhoea, bilharzias, typhoid, cholera, and dysentery (Scheren, 2003).

To reduce the input of Nitrogen, focus has to be on all sources. However, if the rainfall quality in Ghana is comparable to the quality in other tropical areas in Africa, the major source of Nitrogen is atmospheric deposition. As atmospheric deposition is influenced by an area more extensive than the lake basin itself, mitigation of the impact of pollution by atmospheric deposition will probably be very complicated. In the driving forces chapter it is mentioned that the atmospheric deposition is influenced by slash and burn practises and biomass burning. Reduction of these practises is not straightforward because many people rely on them for their livelihood strategies.

Waste management in Ankaase

Sanitation and waste disposal was found to be one of the major problems in Ankaase. All the three dump sites are relatively close to the lake which results in the flowing of refuse into the lake either through leaching into the ground water or during the rainfall as run-off.

Tourism

Tourism Facilities at Abono

The present accommodation facilities do not live up to ecotourism standards. From the research and from field observations the development appeared to be unorganised and not sustainable. This conclusion is based on the following observations amongst others.

Most of the buildings are not in harmony with their surroundings at all. They seemed to be placed there without any consideration for the natural surroundings, the local culture, or the fantasy of the visitors.

More difficult to assess because it is subjective and depending on cultural and personal factors, but worth mentioning is the fact that the buildings and the grounds did not look very appealing. Little thought seems to be given to appearance.

A simple example is the height of the buildings. In Costa Rica and Thailand, two countries that have been experimenting with ecotourism for more than ten years, there is a rule that a tourism building should not be higher then the highest trees around. If this is not adhered to there it causes horizon pollution. Especially if more buildings spring up around the lake, it will influence the view for all.

The next critical note about the current tourism facilities and their link to ecotourism is about waste management. Own observations established that personnel of the facilities throw waste in the bushes surrounding the accommodation. The in-organic waste and waste water management is not taken into much consideration. Even in Abono, which is the most developed town when it comes to tourism in the lake basin; there are no garbage bins for waste collection anywhere. There were heaps of empty cans, used papers and other waste materials just under the trees around the lake. If tourism is to be developed this becomes the responsibility of all. The District Assembly of BAK is supposed to be in charge concerning waste management. When the accommodation facilities were interviewed, no mention was made of this. The District Chief Executive of BAK told in an interview that they hired people to clean the shores in and around Abono, on special occasions.

Waste water management was only taken into consideration by two accommodations. One of whom had installed, and was actively using a septic tank to collect waste water from the facility so it would not get into the groundwater and into the lake. All other accommodation facilities mentioned that the water went into the ground. The Environmental Protection Agency (EPA) supposedly comes to control if the building activities do not have negative effects for the public health. However this was only mentioned once and it was not clarified what the standards are.

Tourism and the Communities (Abono, Obo)

The involvement of the local communities appears to be correctly attempted at first sight. Nevertheless the jobs that the locals do are low and they are not very involved in the managerial side of the companies – the so called ‘hiring the natives’ approach. The only company that seems to go into the direction of ecotourism standards is Lake Point. But from the interview it appeared that involving locals into the organisation is very difficult, if not impossible.

It can be stated that the community of Abono was overlooked in tourism development and management. The developers, and also the authorities might have wished to avoid taking the time and effort to inform local communities of specific tourism plans.

Inappropriate behaviour of the locals was observed at Abono and other tourism sites in Ghana (Larabanga, Cape Coast etc). Things like kids asking for money, pens, food etc., people forcing themselves on tourists as guides (most of them are untrained and possess incomplete and in some cases wrong information related to the lake) and litter lying almost everywhere - has resulted in irritated and unsatisfied tourists. They might not return and will probably not recommend the destination to other potential tourists. This is likely to be a result of unplanned and unorganized tourism development with no involvement of the local community and no formal training being given to the locals related to tourism.

When the research was conducted it was observed that there was almost no begging in Ankaase. Fear is, from own experiences of the researchers and from examples above, that this might change if more tourists come.

Through interviews it became clear that the local involvement in the existing accommodations was in most cases by employing them as cooks, caretakers, gardeners and only one time a manager was from a local community. In two interviews it was mentioned that there was no real interest in getting a more responsible position in a company to begin with. One accommodation mentioned that they had tried to offer a better salary and train locals who were then working as gardeners and in other more responsible jobs. Surprisingly, the locals were found to be not interested. The accommodation also complained that

they had difficulties in keeping the employees. When the employees had earned enough, they left without informing to come back later when the money was finished.

In Abono, tourism facilities are set up and managed by outsiders, but the employees are from local communities. The ecotourism aims at actively involving local people into planning and management of the facility. Both of these methods also need involvement and efforts from local authorities. Through proper planning, efficient implementation of development and continuous management of tourism the benefits of tourism to local communities can be optimal and the problems minimal.

Visitor satisfaction and services

The role of visitors in ecotourism development is one that cannot be denied. It is a main goal of the government to strengthen the country's status as an internationally competitive tourist destination.

Tourists travel to different places for varying reasons and therefore in order to develop tourism to suite these people certain factors must be put in place. Visitor management refers to managing visitors in a manner which maximises the quality of the visitor experience while assisting the achievement of the areas' overall management objective (Hall and McArthur, 1996). This is very important if tourism is to remain the second income earner to the country or improve.

An information or visitor centre is one of the facilities that were missed at the lake. During the visit the team observed that due to the absence of an information or visitor centre; record on the visitor profile was inadequate. It was therefore difficult to assess trends regarding tourists visiting the area, their country of origin, expenditure at the area and also their motivation for the visit. The formation of an information or visitor centre would help keep records of visitors, formulate management and marketing plans, as well as monitor activities around the lake. An information centre would also act as a form of security in the area.

During the survey of the accommodation facilities conducted by the team some aspects were identified that leave room for improvement. In the following part those aspects are discussed.

The accommodation facilities had some visible problems. The buildings generally appeared to have a lack of maintenance judging from things like broken toilet seats, leaking taps, rusty metal and old paint on the walls. And the grounds around the facilities were found not to be very clean.

Besides there are some critical notes that can be placed with the service of the accommodation facilities. To be fair it has to be noted firstly that the personnel in the accommodations that were visited were collaborative and treated the team kindly and most rooms looked clean and tidy. Nevertheless there are often problems with water and electricity supply, even in the more expensive accommodations.

The services that are offered besides bedding were rather limited. Additional services were actually only offered by one facility and were shared with one other accommodation. Even concerning the food there is not much choice. On more than one occasion it has proven difficult to order food at all. The few that did run a menu often did not have the items on the menu.

This influences the choice of the length of stay or of returning to the accommodation. Offering activities generally has a positive effect on the experience of a guest subsequently it could lead to positive mouth to mouth promotion.

During the survey, many tourists complained of missing sanitation and waste disposal facilities at the lake. Most of them mentioned that litter lying around the lake enormously affects their experience negatively. They also complained of the absence of garbage bins at the lake side. The majority of visitors even showed their keenness to pay more for their experience if sanitation and waste disposal facilities are improved or rather put in practice.

The development of ecotourism guidelines at all levels and also in the community will increase the cost of developing ecotourism in the area. Visitors are willing to pay if more opportunities to do so are provided. (Blangy and Wood as stated in Lindberg and Hawkins, 1993). Conversely it must be noted that a majority of tourists are willing to pay more than is currently being requested in the area they visit (Abono) if facilities and services are upgraded. Reasons for their readiness to pay more include conservation, development of the local area and improving the standard of living of the people as well.

Ankaase community and ecotourism

Rural areas generally offer an unusual opportunity for the development of nature based ecotourism. This is due to the natural resource that is available to them (in the case of Ankaase the lake and surrounding areas). It must however be mentioned that the people in rural areas depend on these natural resources for their livelihood. If ecotourism is to develop then there is the need for an alternative source of livelihood for the people. This is to reduce the over dependence on the natural resources as well as to help in conserving it.

The idea for ecotourism will not likely come from within the community, because the people of Ankaase have no experience with ecotourism. The expectations they have of tourism are solely based on Meet-me-there's[46] and the developments at Abono, which do not comply with ecotourism principles. If ecotourism would be developed, the lives of the people of Ankaase would be influenced considerably.

Community involvement is an important issue that needs to be addressed sensitively. Experience from the Bobiri ecotourism project, for example, revealed that the people of Kubease were not actively involved in the project when they refused to take care of the coconut trees planted in the community by FORIG (The Forestry Department and the main stakeholder of Bobiri Forest Reserve) for promotional purposes.

This appears to be a rather typical case where a tourism project has been set up by outsiders without actively involving the local community in the planning, implementation and management process. The locals had no real affinity with the project. This is another reason why it is absolutely essential that thorough investigation is done into the state of a community and their expectations towards tourism. Based on that survey, it should become clear how tourism is to benefit the community. Or at least, how it can be implemented in such a way that most of the community members are satisfied with it.

Expectations of the inhabitants of Ankaase might be very different from the actual developments, which makes it difficult for them to approve or reject the coming of an ecotourism project. Firstly it remains to be seen if the locals would really enjoy seeing many (foreign) tourists walking through their town. According to the expectation ranking exercise, they welcome visitors. However, to what extent will they actually enjoy larger groups?

Road construction was given the highest priority by the people of Ankaase during the field research. Unavailability of a proper asphalted road was stated as the major reason for under-development of Ankaase and it was reported that tourist influx has been prevented only because of the bad road.

In the case of Ankaase, the infrastructure required for tourism is missing entirely. Although first tourists have begun to come to Ankaase, their number is so low that it would not be economically worth to set up tourism facilities on a large scale like hotels, restaurants, interpretation centres, a new road etc. This is besides the fact that capital needed for setting up this kind of development is non-existent in Ankaase or even at the District Level.

People in Ankaase foster the idea that 'tourism' would develop a proper road, bring more income and employment, especially in line with their current activities (farming!), and would keep young people in Ankaase. It is possible that the development of ecotourism changes the lives of the people from Ankaase considerably. Farming for example is one of the driving forces behind the pollution of the lake water. It can be debated on what scale, but it is certain that if a growing population and more visitors to the lake leads to more farming in the lake basin to feed the extra mouths and do better business, the pressure on the lake would increase. This would create a downward spiral as far as the water quality is concerned (the same can be expected for the remnants of the forest) and diminish possibilities of future ecotourism development around the lake (Conflicting interest between local human activities versus future of eco-tourism).

A main issue could be the following: as said before, people of Ankaase see tourism as a Meet-Me-There kind of happening. But for ecotourists it is safe to say that they will want their privacy and some peace and quietness at certain moments of the day, if not the whole day. From own observations it has been deducted that Ankaase can be rather loud; there are loud speakers that play day and night on a very high level and people walk around with squeaking transistor radios as early as 5 a.m. It can be argued that this is a cultural thing and the visitor should just take that the way it is. However, it is likely to result in unsatisfied guests that will leave not to return, or in the worst case it could cause tensions between the guests and the locals.

It was found not only in Ankaase (presently there are no nature guides in Ankaase) but almost everywhere in Ghana that nature guides could not respond to the questions put up by the tourists, mostly because of their inability to speak sufficient English but also due to their isolation from the whole management and monitoring process. Furthermore, the role of guides in most parts of Ghana is restricted only to leading the tourists through different trails, without supplying them with any kind of information. Many people come to a natural area with little or no understanding of it, but are keen to learn from their experience. Ecotourists normally show a lot of enthusiasm in knowing not only about the natural environment but also about the management system, local people's role in the conservation and

[46] Meet-Me-There is a kind of get together of out-migrated people with the people of the place of their origin. It is celebrated with music, dance, food and drinks.

management of the environment, their culture, social life, problems etc. Going back with unanswered questions dissatisfies an ecotourist.

Ecotourism is a relatively new concept and is still unknown to most of the people. Developing (eco) tourism based only on the market forces, without proper consultation and without any training for the locals, would lead to an unorganized and unplanned development as it can be seen at Abono. Ankaase and probably the surrounding communities do not have any expert who can train individuals on skills required to carry out diverse ecotourism principles. Skills might include – nature guides, managers, construction workers and architects for ecotourism accommodations, 'ecological' farmers, waste management etc.

Differences between domestic and foreign tourists

It is vital to remember that tourists are not a homogenous group. Different tourists have different motives to visit an area. It was found out during the research that most of the foreign tourists seek peace, quietness, and solitude while visiting the lake. On the other hand, the majority of Ghanaian tourists prefer to listen to loud music, play games etc. in their leisure time at the lake side. The Ghanaian tourists go to see a specific attraction more than looking at the local culture or ways of living.

Generally these differences could result in a difficult situation potentially resulting in a conflict between two tourist groups. There are no blue print solutions to make the two groups compatible. Both groups might have to make certain compromises and respect each others' needs and cultures.

It was found through the literature review, field research, and observations that foreign tourists and Ghanaian tourists mostly have totally different perceptions when it comes to travelling to a natural area. Ghanaian tourists prefer to have permanent asphalted roads to reach the natural area while on the other hand foreign, mostly western tourists can see a dirt road (well-maintained though) as part of a unique off the beaten-track experience which gives them a feeling of adventure and isolation from the 'civilization'.

Places of natural and cultural interest

There were some admitted farming activities along the existing hiking trail at the spill-over point. These form a threat to the forest and future ecotourism development since it causes the depletion of vegetation. Some parts of the trail to the spill-over point can be difficult to walk on during the rainy season as these parts consist of rocky terrain and muddy slopes.

When the team went on a reconnaissance survey to the Holy Rock (Ebo Kofi) without informing the chief of Atafram for permission to walk on his land, he was not pleased. He almost sued the guide from Ankaase for taking the research team into his forest land. The ownership rights of the lands in Ghana, especially related to the royals, pose a challenge for future tourism developments, for instance in case of laying walking trails through the forest. It is therefore necessary to involve the owners of the lands, royals and traditional authority before starting a tourism business.

Forest conservation in Ghana started around 1927. In some areas the trees are being replanted while in other areas there is minimum replanting even though the forest is being protected from further destruction. Bosumtwi Forest Reserve is one of such places where the people in association with the forestry commission have taken up reforestation projects.

Ecotourism has an advantage that provides an impetus to expanding tourism development and conservation of the natural resource. The prime areas for nature–based tourism including ecotourism are evidently those that are legally protected since they offer the best guarantee for maintaining their attractions in the long term (Ceballos-Lascurain, 1996).

The Bosumtwi Forest Reserve is a legally protected area which could be interesting for ecotourism. Especially the restricted reserve which consists of semi deciduous tropical rainforest provides a typical natural quietness that could please nature lovers. The biodiversity and nature of the reserve provide opportunities for researchers and students to study in the area. On the conservation side, the benefits could include entrance and other fees associated with ecotourism which has a sprawl effect on the development of the local communities involved. According to Elizabeth Boo, "threats are generally those things that affect a species to reproduce and survive. They include slash and burn method of farming, logging, poaching etc" (as stated in Lindberg and Hawkins, 1993).

It is necessary to note that close to no tourism activity is currently going on in the identified potential sites for ecotourism. Hence there is no tourist effect on the resources. But it must be emphasised that the admitted farms as well as the slash and burn practices of agriculture is gradually eating away the vegetation and the forest around the identified sites. Besides, presently before tourist can get to these sites, they would have to walk through peoples farms. The other threats include logging and poaching in these areas.

6 RECOMMENDATIONS

People

Tourism and Central Government

One thing mentioned by Ceballos-Lascurain is that comprehensive cooperation between different national departments is necessary in stimulating tourism. This especially counts for sustainable tourism. "[…] collaboration between officials from the national tourism bureau (or any other body), the protected area/parks services, and treasury is particularly important if the policies and structures that will enable successful ecotourism development are to be put into place" (Ceballos-Lascurain, 1996:93)[47]. This means that the Ministry of Tourism, and with it the Ghana Tourist Board, must secure the involvement of the Ministry of Finance/Treasury in making the (micro)financing of ecotourism enterprises possible; Infrastructure (Ghana Highway Authority) in providing the necessary transportation/infrastructural facilities for tourism; Ministry of Local Government and Rural Development in the coordination of tasks between the different local governmental levels; Ministry of Education for imparting necessary environmental awareness, preparing local communities for tourism and establishing guidelines for appropriate tourist behaviour; and the Ministry of Environment to account for the overall conservation of natural resources.

The Ghana Tourist Board might be an obvious partner in starting up and promoting eco-tourism development around Lake Bosumtwi. GTB already has experience with setting up ecotourism activities; in 1997 the first phase of the 14 ecotourism sites commenced, in cooperation with NCRC and USAID.

The government should mobilize another multidisciplinary team that will include a tourism development planner, tourism marketing specialist, tourism manpower and training specialist, transportation planner, economist, sociologist or anthropologist, ecologist, forester, hydrologist, landscape architect and specialist in recreation planning. As funds for bringing such experts are not really available with the government, this would need immense support from international development agencies.

One important point to be considered in designing a national tourism policy is the decision on the degree of planning centralization. For a country like Ghana, which is small in size and has extremely limited finances, it may be more economical and practical to centralize the planning process at the national level.

It should be the duty of the Ministry of Tourism to work with private sector and international funding agencies to develop adequate tourism infrastructure, not only to accommodate tourists but also to provide opportunities for tourists to spend money.

Governance in Ankaase and Lake Bosumtwi

If community-based ecotourism in Ankaase (or around the Lake) is to be developed, a good relation, clear task division and a structured cooperation between Unit Committees, District Assemblies, and community grass-root organizations is necessary. This would already imply a big change in the way these institutions are used to organise themselves and work together. This is important because the Ministry of Tourism and Ghana Tourist Board might not be fulfilling their responsibilities either due to lack of finances and personnel or due to sheer ignorance. Therefore, it is important for the local organizations to develop self-financing mechanisms for tourism. One of the ways to do that is to introduce an entrance fee system. District Assemblies should design a mechanism for collecting entrance fees for the lake. A multi-tier pricing policy would be appropriate considering the economic differences between domestic and foreign tourists. During the survey on tourist's willingness to pay, foreign tourists indicated a mean of 10,000 cedis (US$ 1) for an entrance fee, which can be termed as very reasonable. For domestic tourists, the fee could be between 2000 to 3000 cedis. Further, mechanisms should be developed to channel a percentage of tourism revenue back to the maintenance and protection of the area[48].

Any future community-based ecotourism developmental plan should involve the Unit Committee because the committee already has a development objective in mind. Most importantly, the unit committee is a respected and trusted body in Ankaase, and it can act as a source of mobilizing people of the

[47] GLOBE '90 conference about the governmental role in promoting sustainable tourism (adapted from Ceballos-Lascurain, 1996:88).

[48] It was seen though that District Assemblies were not using any part of the revenue generated in the form of taxes and levies paid by the accommodation and restaurant facilities, for the tourism development. In this case, legislation from the national government shall be passed which asks district assemblies and GTB to transfer a certain percentage of the revenue generated from tourism back to the community development and maintenance of the area and tourism facilities.

community for developmental activities. Moreover, including unit committees will ensure people to be convinced of the fact that the project belongs to the community.

Also, traditional authorities should be involved in the set-up and development of tourism. Although, they are not active in the developmental department, they are still powerful and influential decision makers.

The role of NGO's and social groups in ecotourism

Commercial banks, Friends of the Earth, HPI and AYAS are institutions that certainly have to be approached. With the involvement of the Ghana Tourist Board, and making Lake Bosumtwi as its fifteenth ecotourism site, organisations like NCRC and USAID might become funding agents as well[49]. More generally, "ties between tourism and other sectors of the economy, including private enterprise, should be strengthened and public trust funds should be created to promote development and investment in tourism" (Poder Ejecutivo Federal, 1989 as stated in Ceballos-Lascurain, 1996).

Therefore a major recommendation is that this project is continued by another team or an NGO. Ecotourism is a new area of expertise and interest and requires intensive training at all levels. Government authorities, NGOs, politicians, tour operators, travel agents, hotel and restaurant owners and managers, investors and entrepreneurs, conservationists, and local communities, all require special training programmes in order to participate effectively in the ecotourism process.

Therefore, it is strongly recommended to consult an expert on ecotourism (preferably a person with an academic degree on sustainable tourism, some field experience and knowledge about local culture and traditions) for these training programmes.

The experts on ecotourism could contact existing organizations and power structures in Ankaase. These would act as intermediaries to reach a much broader section of the community than an outside expert would. The existing organizations (AYAS, FOE, HPI for instance) and power structures (UC, Traditional Authority) have the advantage of possessing the trust of the community; so their involvement in the process would give the community the feeling that the project belongs to them. They can facilitate negotiations between local communities and tourism developers, ensuring that the adequate links and mutual benefits are obtained (See Chapter 2.1 – Sustainable Livelihoods Approach). NGOs (like FOE, HPI) and social groups (like AYAS, churches) could also be a source of financial assistance for ecotourism projects.

The outside expert could also be a foreigner or preferably a Ghanaian who speaks the language. He would stay in a community like Ankaase and use the data that has been collected so far by the research team to look at a possibility to start up a (small) ecotourism venture. Local leaders, and key stakeholders, as identified during the field research should be included in looking for ways to set up an ecotourism business.

It could be said safely that there are no funds in Ankaase to set up a really sustainable ecotourism business, but a system could be thought of (a legislation by the Ministry of Finance for relaxed conditions for taking a credit) where the people involved can borrow money in a scheme involving previously mentioned NGO's, banks or social groups. Then with available capital and technical support of an outside expert, a small tourism enterprise can be set up.

Some revenues should go to a communal fund to be used for development (hand pumps, school, etc.). These would be indirect benefits from tourism, and hence would benefit people not directly involved in the tourism sector.

Environment

It is recommended that the Ministry of Food and Agriculture (MoFA), through the extension department, educates the farmers in Ankaase on the negative impacts of agricultural practices such as slash and burn. Alternative farming methods could be introduced to the farmers. This attempts to minimize or even stop slash and burn and other farming practices that degrade the land and cause excessive soil erosion and atmospheric deposition. Organisations such as the FOE, HPI, and other NGO's could assist the farmers with production increasing measures. This would not only ensure increased food supply, but will also reduce soil erosion and land runoff and decrease the need for soil clearing.

Secondly, the lake bye-laws have to be implemented with much greater force. At the moment, no one seems to take the responsibility of acting as a 'watch-dog' for the lake. The Unit Committee could be one of the actors who could see if the law is being followed by community members or not. Another way is to

[49] Although it was heard that USAID was planning to withdraw part of its funds to NCRC.

educate people about the negative effects of bathing, washing and cleaning in the lake with soap and detergent.

The HPI, who is already doing good work in Ankaase, could intensify the education on the use of livestock droppings as organic manure for farming by including the non-members in their workshops. This will ensure maximum utilisation of the manure and prevent its dumping on the refuse dump and eventually into the lake. Wherever possible, nutrient capturing vegetation should be planted at the banks of the lake to act as natural barriers against nutrient flux into the lake.

Waste bins at vantage points around the lake basin would also be very helpful. They have to be emptied regularly of course.

Waste management in Ankaase

It is recommended to separate organic waste from inorganic waste. Organic waste should be collected for decomposition in an oxygen rich tank (which has to be kept moist) so that it can be used as compost, which constitutes an excellent fertilizer, to be applied in orchards, vegetable gardens and farms. Compost can also be used for landscape reclamation and erosion control (Ceballos-Lascurain, 1996). Dry toilets[50] (also known as composting toilets) should be constructed not only at the accommodation but also for community use as public toilets. KVIP's are another option though the waste in this case would still seep into the ground water and might eventually end up in the lake. Inorganic waste like polythene bags, tin and aluminium cans, glass bottles etc. should be collected at a different place and should be taken to Kumasi to a dump site on regular basis. Further, local people and also visitors should be encouraged to reduce the consumption of inorganic stuff, and especially visitors should be asked to carry their plastic mineral bottles, food cans etc. back to the city. Moreover, garbage bins should be provided not only around the accommodation but also at different places in the community and at the entrance and rest stops of hiking trails. Information boards on appropriate tourist behaviour (Dos and Don'ts in an ecologically and culturally fragile area like Lake Bosumtwi) which can be built using locally available wood should be provided on the hiking trails and also in the community area.

Leaflets, accompanied by education in the schools, churches and also in the form of workshops, on the need to keep the area clean would be very encouraging. Future accommodation owners, restaurant operators, as well as food vendors are to ensure that Ankaase and also other areas around the lake are not littered.

Another advice is that the beach at Ankaase is cleaned on a regular basis. This practically means that all plastic should be taken away and preferably that some people are appointed to keep things clean. Possibly include this task in the Communal Labour Day that is held every Tuesday.

As most of the farms are located among the secondary forests, reduction in forest clearing will enhance the capture of leaching nutrients into the ground water. This is because the trees act as nutrient traps. The reeds found along the lake banks also act as natural barriers protecting the lake from nutrient enrichment or eutrophication and are breeding sites for the fish. It is recommended that the community is educated on the importance of the reeds since it was found out that the reeds are deliberately removed because they are seen as weeds by the community.

Tourism

Tourism Facilities in Ankaase

It is necessary to start a promotion campaign for Ankaase and build up a marketing strategy to attract visitors. This has to be done by GTB. However, not before a low scale community-based ecotourism project like in Tano Sacred Grove in Brong Ahafo is initiated, which will go hand-in-hand with the market campaign.

To start with, it can be recommended to build a small 2 double bedroom cottage with a living room and shower and toilet facilities. The basic rule in terms of architecture is that the design should be nature based

[50]A composting toilet consists of a large tank located directly below the toilet room. Wastes enter the tank through a large diameter chute connecting to the toilet, and decompose in an oxygen-rich environment. No water is used for the toilet, but a bulking agent (such as wood shavings) is added to improve liquid drainage and aeration, and to provide fuel. A small fan draws air through the tank and up the vent pipe to ensure adequate oxygen for decomposition and odorless operation. Internal components (such as ducts, baffles and rotating tines) enhance the composting process. The finished compost can be removed from the lower end of the tank about once each year. Composting toilets need a mild temperature, moisture, fuel and air to function. Liquid may have to be added to the tank to keep the compost pile during periods of little use or a bulking agent added periodically to improve the compost texture (Adapted from Ceballos-Lascurain, 1996).

and should blend with its surroundings – natural and cultural environment (look at the example of Lake Point Guest House at Abono). Its aim should be "to enhance the sensitivity of the ecotourist, scientist or student, as well as to provide respite and comfort in environments that are hostile to humans" (Ceballos-Lascurain, 1996). The accommodation should consist of so called 'ecotechniques' which include solar energy[51], capture and utilization of rain water (rainwater harvesting), recycling of waste, natural cross ventilation, self-sufficiency in food production (through use of orchards, 'ecological farms', aquaculture etc.), use of locally available building materials and native technologies, and the blending of architectural shapes with the natural environment. However, "design should recognize the possible limitations of local labour force and take into account possible problems with availability of indigenous materials".(Andersen, 1992 as stated in Ceballos-Lascurain, 1996). As the budget in case of Ankaase is extremely limited, it would be a good idea to start with simple but well built accommodation made out of locally available timber and thatch, for instance with Redwood. Use of construction materials that include chemical elements such as formaldehyde or arsenic should be avoided.

It is advisable though to use naturally-felled trees whenever possible to avoid cutting significant trees and to minimize disruption of other natural features.

The accommodation should also include an environmental code of conduct for visitors and staff and also on-site reference materials for environmental studies (second hand editions of National Geographic, GEO and other environmental magazines).

Visitor satisfaction and services

The presence of organized and well trained tour guides, which can be regulated by the Unit Committee, is recommended. Furthermore, the Unit Committee can help in ensuring that tours in Ankaase are organized only through them so that no one with unfinished skills tries to bother the tourists by posing as a tourist guide. Further, organization of ecotours through Unit Committee would ensure that the revenue generated stays in the community.

It is recommended to identify people possessing good traditional, natural and cultural knowledge of their local environment – knowledge about animal and plant species, their abundance, uses; knowledge about local traditions, history, culture, folklores; knowledge about social livelihoods, problems; and last but not the least, an updated knowledge about the lake and problems associated with its management. With some basic training - which includes training in understanding and speaking English - they can become 'knowledgeable' ecotour guides.

This training does not have to be a part of the formal education or degree. Also, people with a basic education level (JSS) and good traditional, natural, and cultural knowledge can be chosen and trained by government, non-government, commercial or academic authorities or preferably as mentioned earlier by an expert on sustainable ecotourism. Apart from providing these individuals with employment and possibly a better standard of living, the level of local environmental awareness may be raised.

Besides it might be good to put resting chairs on the beach or under the trees. The Unit Committee can appoint someone to manage all this - perhaps the person who runs the small bar on the beach. However the one in charge should take care of the comfort of the guests. For example, he should not put the music on a too high volume level and turn it completely down during the night.

To compliment the services offered, there are some other activities that could make the stay more interesting. Padua tours could be given as an example. Here the guest can make a short trip on a traditional plank used by the local fishermen.

Traditional tailoring could be stimulated for souvenirs but also to furnish the ecotourism facilities.

For the entertainment of the visitors the brass band and the traditional dancing group can be put together again. This is not only for the guests, but also for the people of Ankaase who would get a renewed interest and pride in their cultural heritage.

Ankaase community and ecotourism

It is recommended to organize workshops on 'appropriate' behaviour related to tourism. Carefully the community members will have to be notified that some tourists, especially foreigners, do not want to be disturbed. It is not certain if the locals would understand that some tourists want to be left alone.

[51] High solar angle and availability of sufficient sunny days in a year makes it very appropriate to use solar energy. Flat-plate solar collectors to heat water, combined with thermally insulated tanks (for storing hot water) are inexpensive and highly efficient.

Understanding the needs and wants of an ecotourist would necessitate the training of the people directly and indirectly involved in tourism, because it is so totally different from their ideas of and experience with tourism.

Management should preferably be in hands of a local or group of locals. As mentioned earlier, a way to do this is to have an outside expert helping with the set up and the running for a certain period of time (an example is a project in Ecuador, where an outside expert, a so-called change agent, helps to set up and run an ecotourism company and then resigns after 3 years leaving everything in the hands of the locals).

To balance the demands of both kinds of tourists and also keeping in mind the perception of the people of Ankaase in terms of road construction and of course considering the limited budget of the Ghanaian Highway Authority, it would be advisable to use "loose gravel, or limestone chippings bound by laying on a tar-sprayed base; interlocking clay or concrete blocks in natural colours" (Ceballos-Lascurain, 1996). This would have several advantages. They can be produced in a variety of patterns and can be quickly laid by unskilled labour; can be taken up and re-laid; and finally their "cost would be comparable to the conventional road of tarmac" (Ceballos-Lascurain, 1996).

It is recommended to inform oneself about who owns certain lands that contain possible interesting sites and make appointments with that owner (usually a chief) about the conditions to walk on his land with guests.

Differences between domestic and foreign tourists

It is recommended that days of public holidays and other important days (including funerals, festivals etc.) be identified when Ghanaian people/tourists celebrate with music, dance, games etc. These days should be made known to the tourists who go to the lake side to enjoy peaceful natural and rural environment. However, in many cases like funerals which are not identifiable in advance, peace seeking tourists should be prepared to experience these cultural happenings. For some tourists, these festivals might be very interesting to experience to get an insight into the community culture. People of Ankaase should be educated about these different perceptions of tourists so that they know how to react to different groups.´

Places of natural and cultural interest

For guidelines to suite ecotourism in Ankaase it would be necessary that information on other places of attraction around the lake is provided. The information could include places such as the Bosumtwi Forest Reserve, Ebo Kofi, the Bosumtwi spill over point, as well as the lake itself. Brief information on the culture of the people around the lake and short vocabulary in Twi for the foreigners would be necessary.

The unique nature of the restricted reserve at Dakabunso if developed for ecotourism will help conserve the natural resources and develop the local communities as well. In view of this, the government should see these potentials and invest in real conservation before the forest is cut down completely. Visiting the reserves with guests from an ecotourism company located at Ankaase would already be a major step in convincing the government of the possible economic value of the reserve when it is well managed.

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