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Gender, Health, and Sustainable Development

**Proceedings of a
Workshop held in
Nairobi, Kenya,
5-8 October 1993**

Edited by
Pandu Wijeyaratne,
Lori Jones Arsenault,
Janet Hatcher Roberts, and
Jennifer Kitts



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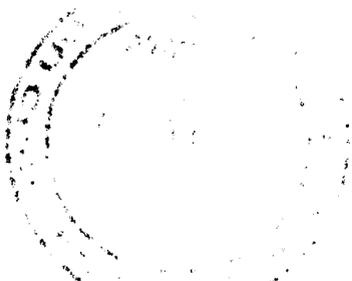
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Environmental Degradation, Gender and Health in Ghana

Dzodzi Tsikata¹

Introduction

In August and September 1993, after months of preparation, I carried out the fieldwork for a study of two communities - Mepe and Tefle in the North and South Tongu Districts of Ghana, respectively. The purpose of the study was to document the effects of ecological change on health and livelihood, and the responses of community members to these effects. This report concentrates on the health issues raised by the study, although questions of livelihood are discussed whenever relevant.

There are a number of reasons why the Tongu area^a, situated in the Lower Volta Basin, was particularly suitable for this enquiry. The Lower Volta area in Ghana has experienced dramatic ecological changes over the last few decades. This is a result of major development projects - the construction of two Hydro Electric Power Dams over the Volta at Akosombo and Kpong in 1964 and 1982, respectively. There have been many changes related to the river, the creek and the soils which have been acknowledged^b to be a direct result of the Dam.

With regard to the river, two changes are of particular importance. First, the river's flow has become quite sluggish all year round. Second, the seasonal flooding of the river stopped in 1964 when the first dam was constructed. This is significant because livelihood and major economic activities, such as farming and fishing, were organised around the seasonal flooding.

River changes have also created the appropriate conditions for the growth of thick vegetation over large areas of the banks of the river. As a result, the river now harbours snails which are vectors of schistosomiasis (better known in the area as bilharzia), as well as mosquitoes which transmit malaria.

There has also been a loss of alluvial soil, which used to be deposited annually along the banks of the river and numerous creeks in the Lower Volta. This has led to a decline in soil fertility, and therefore agriculture, which relied on this source of moisture in an area of traditionally low rainfall.^c Furthermore, there has been a significant decline in the fish population in the river and creeks, and clams have completely disappeared from the Lower Volta.

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Finally, industrial waste, deposited into the river by two textile factories located at Akosombo and Juanpong, which were made possible by the generation of electricity from the dam, has led to increasingly high levels of pollution in the river.

Many of the ecological changes and problems outlined above were predicted (Preparatory Committee 1956), and have been confirmed in more or less detail by a number of studies (Lawson 1972; Hart 1980; Chisholm 1983). However, they have not received much attention. This is due in part to financial arrangements which were made during the construction of the dams, which concentrated on compensating individuals who had to be resettled because the lake flooded their homes and farmlands. Policy-makers expected that the losses of the areas downstream would be mitigated by the seasonal upstream migration of Tongu fishermen, who were expected to benefit economically from the large increase in fish stocks in the lake created by the Akosombo dam (Preparatory Committee 1956). Large numbers of Tongu fishermen and their families did migrate to the lake, but their seasonal migration was soon transformed to permanent migration in many cases as the conditions in the Lower Volta continued to deteriorate economically.

The effects of this migration on the Lower Volta are not fully known. However, Chisholm (1983) recorded demographic indications, such as high dependency ratios and peculiarities in the structure and composition of households. He argued, however, that the communities have adjusted to the changes brought by the dam (Chisholm 1983). Few studies of the Tongu area have been done, with the exception of Lawson's work in 1956 and 1967 (1972). Most studies about the Volta Basin have concentrated on the lake and lakeside problems and resettlements (for example, Paperna 1969, 1970; Derban 1984; Diaw et al. 1990). The purpose of this study was to begin to address this gap in knowledge about the Lower Volta - that is, how the changes have affected health and livelihood, and how members of affected communities have coped with their situation.

One shortcoming of the few studies to date, is the absence of consistent disaggregation of effects and responses to effects, by gender, age, occupation, and access to and control of resources such as land, labour, capital and education. As a result, findings do not differentiate between various social groups, their responses to changes, and the factors which have shaped their responses. This study was seen as a step in that direction.

Studies of this nature are useful for a number of reasons. To begin with, there is an increasing understanding that there is a close link between the environment and sustainable development. Increased knowledge about the effects of ecological change on health and livelihood, and the responses of different constituents of affected communities, could lead to more informed decisions about future development projects. This type of information might also lead to the development of community-centred criteria for environmental impact assessments. Such studies promote the possibility of the adoption of measures which alleviate the negative effects of ecological degradation for the community as a whole, and not just some social groups.

Some Conceptual Issues

This section will define key concepts being employed in this study, such as health, livelihood, sustainable development, and gender relations. These concepts are interconnected. For example, health and livelihood are central to any assessment of the state of development. Gender relations are an important component of social relations, which govern the health and livelihood chances of individuals and their access to and control of resources, and therefore the state of their development.

The concept of health adopted in this study, *a state of physical, mental and social wellbeing* (1978 WHO/UNICEF Alma Ata Declaration, quoted in Ostergaard 1992), allows for the consideration of cultural, economic, social, political and environmental factors, as well as biological and genetic ones. This broad definition acknowledges the role of human activities, social structures and the environment, including ecological factors, in good health. It also creates the space for discussing preventive health measures. This broad definition of health is important because this study focuses on the contribution of environmental, economic, social and cultural factors to disease and health patterns. In this study, disease is used to mean both the diagnosis by medical practitioners of an abnormal health condition, as well as the patient's own perception of the existence of these conditions (See Ostergaard p. 111, for a distinction between the two).

The adopted definition of health also creates the space for a discussion of the role of gender and gender relations in health. Gender relations are the largely unequal and hierarchical socio-economic relations between men and women, which operate in the household and other institutions in society, and are rationalised in terms of real and assumed biological differences between the sexes. Some of the manifestations of these relations are the legitimization of a sexual division of labour beyond purely biological roles in both production and reproduction, and gender discriminatory practices in society.

Livelihood refers to income earning occupations or economic activities. In the study area, the major means of livelihood are also the key sources of food and nutrition. Sustainable development is defined as a state of satisfactory achievement of needs such as health care, food, shelter, safe water and education, which can be produced for both present and future generations. Environmental conservation and the efficient harnessing of natural resources are key factors in this definition of sustainable development, as is the equitable distribution of the benefits of development.

Environmental degradation in this context includes negative changes in both the physical environment and the ecology, such as water pollution, inadequate rainfall, receding vegetation, and poor soils. It also includes negative changes to the human environment such as poor sanitation and hygiene and poor housing. It is important to identify the connection between these two components of the environment and their relationship with health. Ecological degradation can adversely affect the human environment and lead to poverty, which in turn can adversely affect the health prospects of people.

Methodology

Research Sites

The two rural communities selected as research sites, Tefle and Mepe, are situated below the Volta Lake on the lower reaches of the Volta River, the last 60 kilometres before it enters the sea. In this quite homogeneous riverine environment, these two communities were chosen for both their similarities and differences.

Tefle, the former site of an important ferry crossing, is very close to the bridge across the Volta River, on the international road to Togo, Benin and Nigeria. This bridge, which was constructed a few years before the Akosombo dam, introduced changes in river transport and related support services, and brought an end to Tefle's role as a river transport port. This led to a decline in service occupations, such as food, the renting of shelter, mosquito nets and mats, which had sprung up in connection with the crossing. Only the bread making industry, mainly women's work, continues to thrive in Tefle.

Mepe, on the other hand, had been a predominantly farming and fishing economy until the Volta Dam was constructed. Economic activity surrounding the harvesting of clams, a predominantly female activity, has completely disappeared. There are other differences between the two communities. Mepe has easier access to the Battor Hospital. However, Tefle's proximity to a major road gives it easier access to markets and other facilities in Tongu and neighbouring districts.

Research Tools

The study was conceived as an exploratory study. The interview schedule of the survey, the major source of data, covered a wide range of issues. Questions addressed bio-data, some demographic characteristics of target population, such as household size and composition, age and sex distribution, household headship, the characteristics of migration - sex distribution of migrants, ages, patterns of migrations. Other issues explored include economic activities and occupations, the organization of production and consumption, local knowledge about the ecological and socio-economic changes and their relation to livelihood and health. The survey also looked at responses of individuals, households and communities to these changes. Specific questions were asked about common diseases, the ones which have been suffered by the respondent and other members of his or her household, duration of illness, treatment and cost of treatment. There were also questions about preventive measures, whether any members of the household were particularly vulnerable to any of the diseases, and the effects of diseases on the household.

In addition to the survey, four small groups (5 people each) were brought together in each community. There were two groups of women, young (up to age 30) and older (over age 30), and two groups of men of similar composition. These groups answered questions concerning the organization of the communities and social relations, such as marriage,

kinship and the organization of production. They also answered questions pertaining to existing educational, health, recreational, water and sanitation facilities, and community organisations and institutions.

Finally, personnel of the health facilities in the two communities and in Sogakope and Battor (which were also used by the research communities), were interviewed. They were asked about their facilities, catchment area, and disease patterns and control in the research communities. Health statistics were obtained from two of these institution - the Battor Hospital and the Sogakope Health Post.

When the full report of this study is written, the survey and other sources of information will be supported by secondary data on ecological degradation, livelihood and health, HEP dams, population responses to ecological change and so on. It will be further enriched by interviews with officials of the Volta River Authority (VRA), as well as petitions, letters and other information about the Tongu area, which can be obtained from VRA files.

Sample Size

The sample size for the survey was computed on the basis of 1984 population census figures because reliable estimates could not be obtained from the Statistical Services for 1993. The total population for the two Tongu Districts for 1984 was 115,768. The two research areas had a total population of 3366, with the following breakdown:

| | |
|--------|-------------|
| Tefle: | 1553 |
| Mepe: | <u>1813</u> |
| Total: | 3366 |

Only a section of this population formed part of the sample population. The study concentrated on three age clusters of the population: 15-24, 25-44, and 45 and over. The choice of these three clusters was to ascertain the contribution of age and gender to the effects, and to the choice of responses to the crises of livelihood and health. It was also to ensure that persons over 45 years of age were part of the sample. These individuals were adults at the time of dam construction and could therefore discuss the changes directly from their own experiences. The section of the population which fell outside the sample (0-14 years) was estimated at a little over 40% of the total population. Therefore, the section of the population relevant to the survey was 60% of 3366 or 2019 individuals. The sample size was 20% of this figure, that is, 408 people - 204 men and 204 women. There was an equal division among the three age clusters. The sample for each community was computed as follows:

| Community | Target Population | Sample Size |
|-----------|-------------------|-------------|
| Tefle | 931 | 192 |
| Mepe | <u>1088</u> | <u>216</u> |
| Total | 2019 | 408 |

The sex division of the population in the two communities in 1984 indicates that there were more females than males. In Tefle, the figure was 645 males to 908 females, while Mepe had 820 males to 993 females. It is unlikely that this structure of the population would have altered significantly. However, an equal number of men and women were interviewed in each community. Therefore, the sample size for each age cluster in the two communities together was as follows:

| Community | No. of males | No. of females |
|-----------|--------------|----------------|
| Tefle | 32 | 32 |
| Mepe | <u>36</u> | <u>36</u> |
| Total | 66 | 66 |

From the above discussion, it is clear that purposive sampling techniques were applied to a random choice of respondents in the two communities. Not more than one person was interviewed in each household to ensure that a reasonable number of households were covered from the 776 households in the two communities. Both male and female headed households, as well as a range of economic activities, were represented in the sample.

The survey provided general information about the current situation in the two communities, as well as information concerning changes that have occurred since the Akosombo Dam. One expected difficulty was whether or not respondents would be able to reliably and accurately recall information that happened many years ago. Respondents were expected to answer questions about the current community situation, as well as recall changes which took place nearly thirty years ago. In an attempt to deal with this potential difficulty, open-ended questions and probes were used to allow for the opportunity to remember, and also to allow variations in experiences to be expressed more fully. The data collected from the survey is in the process of being compiled and analyzed. The discussion below is based on notes made from a preliminary reading of approximately 50% of the questionnaires.

Results

Background Information on Research Sites

The Volta River is the main source of water for household use in both communities. Water is fetched by women and the young in households. Each town has a few wells, but

these are privately owned. Most households use firewood as fuel, and cooking is usually done in an open courtyard. A few homes use charcoal and even fewer use kerosine. Household members usually live in one room, although a few respondents had between two and three rooms. A few large houses were built in both towns as a result of the fishing boom on the Volta Lake, but they have not been maintained. Mepe has more shops selling household needs and drinking bars than Tefle. Mepe, unlike Tefle, has a local market. Neither community has hydro-electric power.

Both Mepe and Tefle have suffered ecological degradation as a result of the changes in the Volta River. In addition, many respondents in both areas mentioned that lack of proper toilet facilities, poor sanitation and hygiene were causes of stomach and diarrhoeal diseases. 1988 and 1990 Ministry of Health statistics showed that the Tongu area had the highest figures for diarrhoeal diseases, typhoid fever and intestinal worms in the Volta Region. Furthermore, it had the second highest figures for malaria. These were among the top ten diseases in the Tongu Districts' Health Profile for 1990-1991.

With regard to diseases related to polluted water, the Tongu area had the highest figures for bilharzia and acute eye infections. Most respondents complained about the deterioration in food sources. Agriculture and fishing are the main sources of livelihood. The Tongu area also had the highest figures for malnutrition and anemia in the Volta Region.

Health Facilities

Tefle has a small health centre which is run by 1 enrolled nurse and 2 public health nurses, and serves Tefle as well as neighbouring communities such as Vume, Sokpoe, and Kodzi. This centre is mainly concerned with public health programs such as child immunization, child care education, nutrition, sanitation and family planning. In addition, it diagnoses and treats general ailments such as malaria, diarrhoea and upper respiratory tract infections. Schistosomiasis cases are referred to Sogakope, which has laboratory facilities.

The Sogakope Health Centre, a few kilometres away from Tefle, is run by 9 general nurses, 2 midwives and 5 maternal/child health nurses. It has a maternity block and a laboratory which does basic blood, urine and stool tests.

Mepe is three kilometres away from the Battor Catholic Hospital. This district hospital has 145 beds, laboratory, x-ray and fluoroscopy equipment, and operating theatres. The hospital has a staff of over 120 people including 4 medical officers, 29 nursing officers and 38 ward assistants and attendants. The Battor hospital serves a wide area, with people coming far distances for some of its specialised facilities such as gynaecology and fertility treatment. 44% of its patients are Tongu and 39% are Adangbe (from a nearby district). In 1987, the hospital had 108,000 cases. The most common cases were as follows in descending order of prevalence: intestinal worms, malaria, upper respiratory infection, gynaecological disorders, hypertension, diseases of musculo-skeletal nature, diarrhoeal

diseases, skin diseases, anemia, bilharzia, eye diseases, pregnancy-related complications, malnutrition, ear infection and tuberculosis. A significant number of these disease are directly or indirectly related to the large scale environmental degradation of the area.

Battor Hospital statistics are not disaggregated by gender or age. However, admission figures give some indication of gender and age. For hookworm and ascaris cases, the admission figure for children (508) is more than double the figure for either male (205) or female adult patients (249). In the case of bilharzia, there were 121 children, 96 men and 71 women. All hospital malnutrition cases were children. Anemia is the only condition with a significant difference between men (215) and women (571). For anemia, children once again have the highest number of cases (1045).

Disease Patterns

Respondents in both Mepe and Tefle stated that malaria/fever, bilharzia, skin itching and rashes, eye troubles, diarrhoea, stomach problems, hypertension and anemia were the most prevalent diseases in the area. This response confirms Battor hospital statistics. While very few respondents referred to intestinal worms specifically, the references to stomach problems probably includes such cases. Malaria, bilharzia, skin itching and rashes, eye troubles and diarrhoea were attributed to river pollution, the slow flow of the river, and the use of the river for domestic activities. A few attributed malaria and fevers to high temperatures arising from low rainfall. A few respondents also suggested that diet was a cause of disease.

With regard to disease distribution, some patterns are emerging from the survey. Malaria and bilharzia are mentioned most frequently. Mepe may have more cases of bilharzia than Tefle. This is may be because the practice of having household water fetched by young men with barrels for a fee is more widespread there. Age seems to be the most significant variable in bilharzia infection. The population below the age of 25, especially the children (up to age 14), is the most infected for both communities. Gender differentials seem to be negligible, although women have a slightly higher figure. Educational qualifications and occupation do not appear to be significant, except that virtually all fishermen have suffered from bilharzia in the last two years. Respondents over the age of 45, of both sexes, have the lowest figures of infection.

Malaria does not present the same patterns. Infection rates are almost uniform in the population. Respondents in both Tefle and Mepe reported seasonal increases in malaria, diarrhoea, malnutrition, eye troubles and skin rashes.

When questioned about groups at risk, most could not identify particular groups at risk, or said that everyone was at risk. The few who did mention a particular group identified the children, and said they were at risk from malaria, bilharzia and diarrhoea.

People were identified as being at risk of disease because of the following: the use of the river for domestic purposes, the practice of bathing and swimming in the river, lower levels of resistance to disease, and poverty (which results in an inability to pay for treatment).

Most male respondents who were working said they paid for treatment of diseases of household members. Only a few men said that they accompanied the sick to the hospital. Not surprisingly, most female respondents over the age of 25 took the sick to the hospital, sometimes paid for treatment, and performed household chores. A few women mentioned that they prepared herbs for treatment.

The reported adverse health effects include: loss of income generation time (due to care of the sick), financial costs of treatment, loss of labour from the sick, long-term adverse health effects, poor school attendance, as well as pain and suffering.

The most common preventive measures reported were the boiling of drinking water and the cessation of the practice of bathing in the river. A few mentioned that they had constructed wells. A number of people pointed out that they could not change their situation because they had to use the river.

Discussion of Findings

The most serious health hazards in the Tongu area are environmental degradation, and poverty stemming from the resultant deterioration and loss of livelihood sources. Therefore, health education would only partially assist in helping communities to cope with the diseases which afflict much of the population. In fact, respondents of all ages and both sexes displayed a high knowledge level about the causes of malaria and bilharzia. The continued use of the Volta as a source of household water is a necessity in the absence of better water sources. Viable sources of livelihood for all sections of the population is central to any long-term solutions.

Disease and treatment findings suggest that age is the most important variable in disease distribution and adverse effects. Important exceptions are the figures for anemia, gynaecological disorders and pregnancy-related complications. Battor Hospital morbidity statistics indicate that women suffer from some diseases particular to them as women. While anemia is not a gender-specific disease, the high figure for women (571 cases compared to 215 male cases) suggests that there are gender differentials in the health prospects of the population. A full explanation would require an examination of the extent to which socio-economic factors interact with environmental factors in the determination of health.

The Tongu area has more women than men. In 1984, there were 62,632 women and 53,136 men. Survey results found that more young men were planning to migrate than young women. In discussions about migration, women were more likely than men to cite caring for children, accompanying husbands, widowhood and divorce as reasons for not migrating or returning to the area. Among those who had lived outside the area, women were more likely

to cite marriage as their reason for living outside the community. It appears to be easier for men to respond to economic problems by migrating than it is for women. As a result of high male migration levels, there is a large number of single income households headed by women in both communities.

Survey results show that most migrants could not or did not consistently support households. Meanwhile, there appears to be very little income generated by economic activities in both communities. Apart from a few bakers and shop owners in Tefle, and fishermen and artisans in Mepe, most respondents complained of dwindling incomes. More female respondents than males said that they were receiving financial support from relations outside the community to help maintain their households. As a result of low incomes, adequate nutrition is likely to be beyond the reach of many households, especially for farmers. Poverty is a well established factor of disease (Ostergaard 1992).

There are sharp differences in male and female educational levels in both Mepe and Tefle. Literacy figures are higher for men in all age categories. With regard to schooling, there are only 70 girls out of 202 students in one of the two Junior Secondary Schools at Mepe. At the only Senior Secondary School at Mepe, there are only 23 girls out of 96 students, and 16 of them are studying home economics. No girl is studying metal works. Only one is in building construction, while the others are in visual art.

With regard to occupation, male respondents reported a wide range of occupations, including driving, masonry, carpentry and alcohol distillation. Women in non-agricultural professions are mostly petty traders. In Tefle, a large proportion of female respondents are bakers and bakers' assistants. There are far more male teachers than female. Therefore, far fewer women than men have the opportunity to engage in occupations not tied to the deteriorating environment.

Due to an uncertainty surrounding agriculture, firewood gathering and charcoal burning are becoming increasingly popular occupations for women. Although the sample had very few respondents involved in these occupations, there is plenty of evidence of these activities on the 30 kilometre stretch between Kpotame junction on the main Accra-Lome road and Mepe. Many former clam fisherwomen, who had no training for other activities, have turned to farming, petty trading, as well as firewood gathering.

The loss of the clams and the deterioration of fishing and farming have negatively affected nutrition standards. Indeed, most respondents said that the lack of food was one of the five most serious problems facing the Tongu area. This places great stress on women who are usually the food providers. They can no longer produce their own carbohydrates and protein. Most food now has to be imported from the Afram plains and other parts of the country to be sold in Tongu communities. Low incomes make it difficult to afford enough food, especially proteins, which are expensive. This situation has likely significantly contributed to the high levels of anemia and malnutrition, as well as the reduced resistance to other diseases.

Finally, women tend to do the bulk of caring for the sick. This is in addition to their already heavy household duties, such as child-care, the fetching of water and fuel, and cooking. Therefore, women cannot afford to be sick themselves. It would be useful to discover how many ailments exist among women but never receive attention from the medical profession.

Factors which adversely affect the constitution of individuals probably play a role in the statistics related to pregnancy related complications. The statistics do not provide any information on the differences among women in their vulnerability to particular ailments during pregnancy.

Conclusion

The study's findings about the health prospects of the people of Mepe and Tefle supports that argument that morbidity figures are not enough to show gender differentials in health prospects, especially in a situation where the major diseases are the result of a deteriorating environment. The challenge is to find ways of ensuring that health studies are designed to take into account all the determinants of health and disease in any society so that these differentials become visible to policy makers.

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Unpublished Reports

1. Catholic Hospital, Battor Brochure for 30th Anniversary Celebrations, 1987
2. Tongu District Health Profile, 1990-1991
3. Ministry of Health Statistical Returns for Volta Region: 1988 and 1990.

Endnotes

a. Tongu literally means *by the river*, and is used by the people and outsiders to refer to the location, the language and the people of the area. The Tongu are a sub-group of the Ewe people who are mostly found in the Volta Region, in the most south-eastern portion of Ghana.

b. Other changes such as lower rainfall figures have been recorded, but have not been conclusively traced to the dam.

c. In Battor, one of the Tongu communities, in 1967 it was found that 65% of crops were grown on creek land which was much more productive, and matured crops such as cassava much more quickly (Lawson 1972, p.32).