

**REGIONAL TRAINING AND APPLIED RESEARCH  
PROJECT IN ARTISANAL FISH PROCESSING**

**RESEARCH PROJECT # AFPP/AR/PH2/96-001**

**BASELINE STUDIES ON POST HARVEST TECHNOLOGY  
OF ABIA - A PILOT FISHING VILLAGE  
CHOSEN FOR 1996 TRAINING COURSE**

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## SUMMARY

Abia is a fishing community belonging to one of two groups of fishing communities we have identified so far in our studies. The two groups being those in suburban areas and those in typical fishing villages. Abia belongs to the second group.

All the buildings at Abia looked like temporary structures, made of wood, mud or thatch. Abia has potable water but no electricity. It does not have a primary school or a health post. There are no toilets in the village. This village resembles some other villages we have studied, namely; Lekpogunor, Ayetepa, Mangotsonya, Ahwian, Langma, and New Galilea. Abia is a bit different also in the sense that, the settlements are scattered over a wide area and the hamlets or settlements which are far apart are joined by footpaths. Also villages such as Lekpogunor, Ayetepa, Mangotsonya are large villages with sancrete block buildings. Now, most of them have water. Abia, New Galilea and Langma are quite similar.

Because of the distances between the settlements and the bushy nature of the vegetation, sanitation problems are not noticed much.

Illiteracy is very high accompanied by high birth rate and polygamous relationships.

The common diseases are malaria, bodily pains and cough. Some common diseases identified in suburban fishing communities are hypertension, heart disease, obesity, etc. which are rare in the typical village environments.

The Chorkor smoker is not used at Abia and many of the women knew little about it. The round clay/mud and the round metal ovens are used. Only hot smoked fish are processed in Abia against both hot smoked and smoked dry fish produced in almost all the remaining fishing villages in the Greater Accra Region.

Marketing centres are quite far away and so the women have to travel by public transport to their marketing centres.

The same system of marketing and distribution of fish is practiced all over the country. Like all the other fishing villages, the profit made by the women are used to provide for basic family needs.

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# REGIONAL TRAINING AND APPLIED RESEARCH PROJECT IN ARTISANAL FISH PROCESSING

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## 1. INFORMATION ON BASELINE STUDIES

### 1.1 INTRODUCTION

Fish smokers in Ghana, with their long term understanding of local conditions, socio economic realities and marketing systems, assume the role of experts in their field. Building upon traditional practices therefore is the route to successful problem solving in the post harvest area. Before introducing new technologies, it is necessary to understand the total system and appreciate how changing one part of the system will affect the other part.

### 1.2 BACKGROUND INFORMATION

The Ghana/Netherlands Artisanal Fish Processing Project among others seeks to extend the Chorkor Smoker to fishing communities which are either still using the traditional fish smoking ovens or have wrongfully adopted the Chorkor Smoker to smoke fish.

The main feature of the project is a six week training course in fish processing for extension workers from West, Central and East Africa. The course is made up of lectures, laboratory work and field practicals.



A pilot fishing village is chosen each year for the field practicals. The participants interact with the members of the fishing community to construct a number of Chorkor ovens in the community or village. The ovens are tested before they are handed over to the community at the end of the training.

Baseline studies are carried out in the pilot fishing village prior to the commencement of the course in order to educate the participants on the pilot fishing village and to prepare the village community for the arrival of the participants.

The participants are taught and exposed to ways of fish preservation and handling including, processing, storage and marketing.

The pilot village chosen for 1996 training programme was **Abia**.

Smoking is a wide spread method of fish processing in Ghana. Traditional metal and mud ovens have been used over the years. Different improved smoking ovens have been developed but the most successful in the country is the Chorkor smoker which is an improvement on the traditional mud and metal ovens (Kagan 1969, 1970, Nerquaye-Tetteh, 1989). It has the advantage of being more efficient in its operation, having lower fuel consumption and a larger smoking capacity. It also turns out good quality smoked fish (UNIFEM 1988, Kagan 1969, 1970, Nerquaye-Tetteh 1989).

### 1.3 WORK ACCOMPLISHED SO FAR

For the past 9 years, different fishing communities have been chosen as pilot villages for the training course. The pioneer villages were Lekpogunor and Ahwian in 1988. The others were Mangotsonya and Ayetepa (Lokko 1989), Tema U-compound and Nungua Faashi (Lokko 1990), New Galilea and Amanfro (Lokko and Dake 1991), Lagma (Lokko and Anson (1992) Gbegbeise (Lokko and Anson 1993), Chemuse (Lokko and Anson 1994) and Sakumono (Lokko and Anson 1995). Post adoption impact on some of the pilot villages have also been conducted (Lokko and Anson 1994).

The studies always record the socio economic data, fish processing methods, fish smoking ovens, fish packaging and marketing. The problems identified were almost the same in each community. They included high cost of fuel, lack of improved technologies, lack of credit facilities, absence of organised women's groups, poor sanitation, low level of education, various health conditions and low incomes.

But each community has its own peculiar problems. Follow up programmes were carried out in the pilot villages to address some of the problems with the community's participation. Some were high transportation costs, high taxes, high price of inputs and unavailability of fresh fish. The programme has encouraged the women to tackle their fish smoking business with confidence. They were helped to form groups and work towards getting loans from the banks. They were introduced to family planning, credit unions, health workers, adult education and good sanitary practices.

The technology has been accepted in all the pilot villages, except New Galilea and Amanfro which have a ready market for fresh fish.

The studies have confirmed that fishing communities in suburban areas are far better off than typical villages because of access to potable drinking water, electricity, hospitals and clinics and good schools. These communities include Nungua Faashie, Chorkor, Tema U Compound, Chemuse, Gbegbeise and Sakumono.

On the other hand the following villages lacked most of the above amenities - Lekpogunor, Ayetepa, Mangotsonya, Ahwiam, Lagma, Amanfro and New Galilea.

Hypertension, obesity and heart diseases were very common in suburban communities while diseases common in typical villages were malaria, bodily pains, cough, skin rashes, diarrhoea, headaches and dizziness.

The fish smokers were not prepared to disclose their incomes but admitted making handsome profits which they use in looking after themselves and their spouses.

The constraints and problems encountered in their work were many and common to all the pilot villages: lack of credit facilities, high transportation costs, high taxes, high prices of inputs and unavailability of fish.

## 2. A B I A

### BACKGROUND TO THE STUDY AREA

#### 2.1 LOCATION

**Abia** is a fishing village, found along the coast between the towns of Prampram and New Ningo in the Dangme West District of Greater Accra Region of Ghana. The village is about 6km from Prampram, which itself is 50km East of Accra.

#### 2.1 HISTORY

The land belongs to the people of Prampram and the early settlers had come from there. The pioneers of the village like Ogoletse, Tetteh Olowey and others used the beach as a trading centre with the whitemen and later decided to settle there and fish from the sea. They started the settlement in 1918. They built farm houses and named part of the community Tenkporbo and the other part Akokorkrom. As they searched for a name for the village, they stumbled upon **Abia** - which is the name of a big tree found at the landing site of the fishermen, situated right in the middle of the two parts of the village. They finally agreed to name the village after the tree - **ABIA**.

The first ruler of the village was Nene Komagetse-Kpongo, who was a fisherman and who ruled for many years.

### 2.3 CLIMATE AND VEGETATION

It is hot throughout the year with the average temperature around 30°C. The main rainy season is between May and July each year, while the minor rains is from September to November. Relatively, cool temperatures are experienced during the rainy season. The hot and dry season is from December to March. The vegetation is savanna grassland with coastal thickets of neem trees. The land is flat, with shallow or no streams flowing on it and has loamy soil suitable for vegetable growing.

### 2.4 POPULATION

The adult population is about 350. The population of children may be more than double that of the adults. The average family size is 8. A man may marry several wives.

### 2.5 HOUSING

There are settlements built with mud walls and thatch roofs. There are others built of wooden structures and asbestos roofing - there are also a few houses built from sancrete blocks. The houses are mostly compound ones, with each house having a bath house. All the scattered hamlets or structures are joined by foot paths. There are also pens constructed in most houses for rearing of animals but these animals are allowed to roam freely during the day. There is no electricity neither is there any market for the villagers. There is no road network either.

## **2.6 HEALTH AND SANITATION**

There is no health centre in the village. Health care is available at Prampram on cost-recovery basis. Community Health workers visit the village occasionally to conduct educational campaigns on family planning, sanitation, etc. There is no toilet facility in the village. Two standpipes however serve as a source of potable water for the community. Sanitation in Abia is better compared to most fishing villages.

## **2.8 EDUCATION**

There is a day-care centre for children between the ages of 3 and 10 years. It was built by the community. Primary and Junior Secondary Schools are available at Prampram. Most of the women have not had any formal education. A few of the men have the Middle School Leaving Certificate (MSLC).

## **2.9 OCCUPATION**

The main occupations are fishing and farming. The men do the fishing and the women process the fish. Both male and female farm during the rainy season.

The area is a major producer of vegetables like tomatoes, okros and peppers. Cassava is also grown but is mostly processed into cassava dough, gari and cassava chips. Some women do sand and stone winning.

## 2.10 CULTURE AND SOCIAL LIFE

The common language spoken is Adangbe. The chief of the village - Nene Tete Owule died recently. The duties of the chief is thus being performed by a regent. Chiefs are normally selected from the royal family; the Anewey Family. Members of the royal family are the original settlers of the village. The present ruler is Nene Narteh Nalley, who is helped by elders to rule.

The main festivals celebrated in the year are the Kpledzo and Homowo just after Easter and September respectively. The rationale behind these festivals is to foster unity among families and enhance development.

Drumming, weeping and mourning are prohibited about a month before the celebration of the festivals. During festivals, puberty rites are performed. This is known as "Dipo". It signifies the passage of girlhood to womanhood. Abia is a polygamous society and the patrilineal system of inheritance is practiced. Fishing is done everyday except Tuesdays. There are no farming activities on Mondays in the eastern part of the village. Christians and Moslems may not adhere strictly to some of the cultural practices.

The people interact freely with each other. Men and women are never separated. The inhabitants go to Prampram for entertainment, funerals, church services and worship at mosques. The main source of information is radio, newspapers and television. Postal facilities are available at Prampram.

A unit committee assists with the political administration of the village. They also relay information from the District Assembly to the people. When the need arises, the elders and people convene meetings to discuss major issues and take decisions concerning the running of the village.



### 3. PRESENTATION OF RESULTS

#### 3.1 SOCIO ECONOMIC BACKGROUND

This information was obtained from 20 women, who were identified as fish smokers and whose names were given by the villagers themselves (see Appendix 1) for their names.

#### 3.2 DEMOGRAPHIC DATA

Out of the 20 women studied, 2 did not know their ages. The mean age of the remainder was approximately 40 years, with the highest age being 69 and the lowest 24 years. Eleven of them were within the 30-50 years bracket. 2 were below 30 years and 5 above 50 years.

Table 1: Age, Ethnicity and Religion

Religion	Age	Frequency	Ethnicity	F
Christian 10	Below 30yrs	2	Prampram (Gbugbla)	18
Traditional 4	30-39.9	10	Teshie (Ga)	1
Holding 6	40-49.9	1	Dodowa (Shai)	1
	>50	5		
Total		18		20

### **3.3 EDUCATION**

The majority of the women, sixteen of them have not had any form of education. Out of the remaining four, two had the basic education, one dropped out of school and the other attended a literacy class and so can read and write in the vernacular.

### **3.4 MARRIAGE AND NUMBER OF CHILDREN**

All the women were married. One was a widow. Polygamy is practiced in the village.

The average number of children is five with the highest being eight and the lowest one. One woman had only one child who died in infancy. One had ten children and three died. Another had five, and three died. The last had five and two are dead. If the children had all been alive, the average would have been higher.

### **3.5 OCCUPATION**

The main occupation is fish smoking but they have other occupations as well, because according to them, very little fish is landed. Besides, they have to work during the lean season in order to get money to look after the family.

**Table 2: Occupation of Women Fish Smokers**

<u>Occupation</u>	<u>Frequency</u>
Winning of sand	5
Farming	3
Cooked food vendors	5
Hairdressing	1
Animal rearing	3
Stone Quarrying	1
Petty trading	1
Distillation (Local gin)	1

Sand winners and food vendors form 50% of them. Almost all the households have domestic animals but they are not reared as an occupation. It is for home consumption and sale, once in a while, eg. sheep, goats, fowls and pigs.

### 3.6 OWNERSHIP OF PROPERTY

Eleven women had no property. They have only their jobs. Either their husbands owned the house they live in or they have rented the house.

**Table 3: Ownership of Property**

Ownership of boat by husband	-	3
House	-	4

1 house and 2 boats

- 2

It was refreshing to note that some of the women said the property belonged to both of them and not only to the husbands.

### **3.7 KNOWLEDGE ABOUT THE CHORKOR SMOKER**

The Chorkor smoker has been around for over 20 years now. It is being used in Prampram and some villages near Abia. The women were asked about their knowledge of the Chorkor Smoker. Surprisingly, there were three people who have not even heard of it or what it is used for. The rest, 17 of them have heard about the smoker. Many heard about it being discussed at the beach and in Prampram. One person saw the picture of the Chorkor smoker in a book. The rest heard the name mentioned but did not know what it is used for. For those involved in the discussion of the Chorkor Smoker they heard that it is a good oven, especially for smoking large quantities of fish.

## 4. THE FISH SMOKING INDUSTRY

### 4.1 FISH SMOKING AND RELATED ACTIVITIES

The fishing industry is not very well developed at Abia. Canoes are used for fishing but there are no cold storage facilities. All the fish landed are smoked immediately. A lot of fish used to be landed at the beach but for the last couple of years, not much fish has been landed. The fishermen claimed that they do not get good catch. However, there is suspicion that they take the fish to other areas to sell before coming to their main landing site at Abia.

### 4.2 TYPES OF OVENS USED FOR FISH SMOKING

Two main types of smoking ovens were identified at Abia. They were the round metal ovens and the round clay ovens. There was not even one oven resembling the Chorkor Smoker which is rectangular in shape.

**Table 4: Types of Smoking Ovens Used**

<u>Description of Oven</u>	<u>Frequency</u>
Round clay only	13
Round metal only	3
Both clay & metal	<u>4</u>
	<u>20</u>

The method of construction of both the clay and metal ovens have not changed. The raw materials for the clay ovens are either clay or mud. Iron rods, placed at intervals across the round oven serve as the grill on which the fish is placed. There is a stoke hole cut at the base of the oven where the oven is fired using firewood, sticks and plywood.

Discarded oil drums continue to be used for the construction of the metal ovens. The top and the base of the drums are removed. The metal cylinder is cut open to form flat rectangular sheets. These are then fashioned and joined together to form the round ovens. Again, iron rods are fixed across the ovens and used as grills. With the exception of clay, all other materials are purchased by the women.

#### **4.3 COST OF CONSTRUCTION**

The construction costs of the metal ovens are higher than that of the clay ovens. The cost was found to depend on the cost of raw materials - clay, drum and iron rods, cost of labour and the size of the oven. Some get free labour and others get clay easily. The range of the metal oven was between ₦6,000 and ₦30,000 the average being ₦15,000.

For the clay ovens the range was between ₦4,000 to ₦20,000 with the average being ₦10,000. The cost of the metal ovens was double that of the clay ovens. Clay was very easily available.

#### 4.4 PROTECTION OF OVENS

Rain water and hot weather affect the clay ovens. The water washes away the clay. The sea breeze - and the salt as well as rains etc. rust the metal ovens made of iron. Therefore the women were asked to discuss how they could protect their ovens from the weather.

As means of protection - one woman built her oven in the kitchen. Seven of them cover the ovens with plywood. Two have raised sheds over their ovens, and one uses plastic sheets. The rest, nine of them do not protect the ovens in any way. The commonest type of protection is plywood or nothing.

After careful examination of the ovens, six of them were found to be in very bad shape. The rest were in good condition.

**Table 5: Types of protective material used**

<u>Protective material</u>	<u>Frequency</u>
Placed in kitchen	1
Polythene	1
Plywood	7
Shed	2
No protection	<u>9</u>
Total	<u>20</u>

#### 4.5 FUEL USED FOR FISH SMOKING

The wood from the neem tree is what the women use for smoking their fish. They gather the wood from the bushes around them, and, therefore, do not spend much on fuel wood.

However, there are occasions when they purchase hard wood from traders, who come to the village with truck loads of wood. Hard wood is purchased especially when there is an unusually large quantity of fish landed which required immediate smoking. Then a head load of wood, depending on the quantity will be purchased at between ₦500-₦2000.

In extreme cases, the wood is purchased in truck-loads. 2 types of trucks are used. A larger one and a smaller one. The larger truck loads ₦100,000 to ₦160,000 worth of wood. Different women quoted different amounts for a lorry load of wood and clearly they were talking about different trucks and different quantities of wood.

**Table 6: Cost of Fuel Wood**

<u>Cost of lorry full of wood</u>	<u>Frequency</u>
100,000	3
75,000	2
70,000	1
50,000	2
36,000	4
30,000	2
15,000	2
10,000	1
No response	3

It can be seen clearly from the responses that they have not been purchasing wood from the traders but have heard about the cost of the wood because of the different prices quoted.



#### 4.6 RAISING OF SHEDS OVER OVENS

As part of the accessories of the oven, it is recommended to fish smokers to raise sheds over their ovens to protect them from the elements, and to use as a working area. Three women were found to have raised sheds. The rest, seventeen of them have not. The women would each like to raise a shed over their smoking ovens because it offered comfort and protection against rain and sun. They have not however raised sheds because of financial constraints.

One woman did not see the need for a shed because she smokes only in the evening.

**Table 7: Cost and types of shed needs**

Materials needed	Cost of shed (¢)	Frequency
Hardwood & iron roofing sheets	100,000	2
Branches and slate	50,000	2
Slate/palm fronds	25,000-30,000	2
Neem tree & Palm fronds/grass	3,000-9,000	2
No response		12
<b>Total</b>		<b>20</b>

Answers to the amount of money needed for shed construction were interesting.

It is cheaper when the structure is temporary, using cheaper quality materials but expensive when it is permanent. The labour charge is higher when an expertise is needed thus increasing the expenses. Twelve of them did not know the cost. The remaining eight gave the information.

#### **4.7 FISH SMOKING**

Fish smoking is the most popular method of fish processing at Abia. About 90% of the fish landed is smoked. Smoking adds value to fish. It is more profitable to sell smoked fish than fresh. Consumers prefer smoked fish to salted or fresh fish. It is cheaper to smoke fish than fry it.

Smoking is the main traditional method of fish processing. All the twenty women smoked all types of fish including mackerel, tuna, herrings, red fish, buruto, barracuda, seabream, scad mackerel, tuna, shrimps, etc. They all stated that they wash the fish before smoking it.

Each woman could smoke different quantities of fish depending on the scale of their operations. The quantities ranged from just 1 carton/crate of fish to 6 cartons/crates of fish/day. The big fish are however cut into chunks before they are smoked.

**Table 8: Quantity of Fish Smoked/day**

<u>Quantity of fish smoked/1 day crates/cartons</u>	<u>Frequency</u>
1	5
2	3
3	3
4	3
5	4
6	<u>2</u>
	<u>20</u>

#### 4.8 LABOUR OR HELPERS USED DURING FISH SMOKING

The women were helped by several people during fish smoking sessions. They include:

in-laws (2)

children (8)

nephews & nieces (2)

Sisters (2)

The rest, six of them work on their own.

The women have various ways in remunerating the helpers both in cash and in kind.

**Table 9: Payment of Helpers**

<u>Ways of payment</u>	<u>Frequency</u>
Provide clothing	3
Share profit regularly	4
The whole family enjoys (for meals, etc.)	4
Pay cash at the end of the year	2
No payment	<u>7</u>
Total	<u>20</u>

#### 4.9 FISH WASTE DEPOSIT

Waste generated during the fish smoking activities is thrown into the bush. They are scales, fins, waste water and gut. A lot of ash is built up during smoking; this is also thrown away. The waste generated so far has not created any problem in the environment.

#### 4.10 STORAGE OF SMOKED FISH

To store fish successfully, the raw material should be of good quality and one should smoke carefully, slowly, for a very long time. The smoked fish can be placed in kitchen baskets and covered well with paper or left in the oven and covered with plywood with weight. The stoke hole is also covered with plywood to prevent stray animals and insects entering to attack the fish.

The smoked fish at Abia however is not stored for long. The maximum period is three days. On the average the fish is kept just for a day before being taken to the market. All their fish are hot smoked. Four women stated that they do not store their fish at all. They dispose of it immediately after smoking and cooling.

The method of storing fish has not changed over the years. They do not even have enough fish to be able to store some.

The fish does not usually get spoilt unless the fresh fish is already spoilt. At worst, there will be breakage of the fish during smoking and red fish is the worst offender. The head keeps on breaking from the rest of the body. The fish is packed into baskets lined with brown paper, paper bags or wooden boxes. A piece of cloth is placed over the packaged fish.

#### **4.11 MARKETING AND DISTRIBUTION**

The women have to sell their fish after smoking. Since the village is a fishing village and almost every woman is smoking fish, they all have to market their fish elsewhere. Their marketing areas include Koforidua, Asamankesi, Asesewa, Suhum; all in the Eastern Region, and Ashaiman, Agomenya, Accra, Dawhenya, Tema Quarters, Agbogbloshie, Dodowa in the Greater Accra Region of Ghana.

They all agreed that they have ready market for their products. They sell on wholesale basis - ie. they count the fish for those who are going to retail. They have their clientele or "customers" who collect the fish from them at the marketing centres. The fish however sells faster in the lean season than in the main fishing season because other fish smokers would also bring their smoked fish for sale and there will be a lot of fish on the market.

The customers come mostly from the forest areas to purchase the smoked fish. Customers prefer fish like tsile, sonn, etc.

#### **4.12 PAYMENT OF PURCHASED FISH**

Normally, the fish is sold for cash, but with some customers it is sold on credit.

Credit customers usually pay half the amount on the spot and the other half at a time to be agreed upon. Sometimes the fish is given to the customer to be sold for a commission.

#### **4.13 PROBLEMS ENCOUNTERED**

Most of the time, all the fish is sold but occasionally, some of the fish is not sold and a lot of things happen then. Sometimes, they negotiate with somebody at the market centre (owner of a stall and leave the fish with them to sell and collect the money. If it is sold on credit, payment delays. The fishermen also need the money so they have to sell the fish for cash. Some customers thought the fish was too expensive and asked for price

reduction. If prices are reduced to satisfy the customers, the profit margin of the processors is reduced.

The unsold fish could also be left with association members to sell.

Occasionally, on very rare occasions, the fish is brought back to the village and resmoked. Sometimes, you have to reduce the price of the fish in order to sell quickly and leave. At other times, the fish is left with the watchmen at the market. Sometimes, some customers run away with the money and a report is made to the association. Sometimes the offender is apprehended. Most of the time too they are not seen again. Five women however, sold everything, every time and have no problem whatsoever.

## 5. INCOME

### 5.1 INCOME FROM FISH SALES

All the women agreed that the income depends on the market. The average profit is about 20% or more. Some use the money to purchase and rear animals. Others use it to provide for self and family.

All the women do not have bank accounts. They keep the money in the house. Some are part of 'susu' groups. They make very good profit when fish is scarce.

**Table 10: Use of Income from Fish Sales**

<u>How the money is used</u>	<u>Frequency</u>
Invest in fish smoking	3
Food, clothing & family needs	12
Purchase of animals to rear	1
Susu	2
No response	<u>2</u>
Total	<u>20</u>

The fish smokers use their personal savings to finance their businesses.



## 6. COMMUNITY DEVELOPMENT

### 6.1 SOCIAL FACILITIES

The village can boast of a first class road from Prampram to the village road network within the village is lacking. This is necessary because of the size of the village and the scattered nature of the hamlets.

The members of the community contributed money and labour to establish a day care centre which accommodates children aged 3-10 years.

The 8 standpipes in the village were provided by the Government but each person contributed ₺2,000.00 towards the maintenance of the stand pipes.

The general committee responsible for the welfare of the village is made up of 34 elders of the village including about 4 women.

The main food staples are maize and cassava and they obtain their protein source mainly from fish. Occasionally, chickens and goats are slaughtered for the family pot.

The children are weaned on tea, porridge, soft banku or adult food.

## 6.2 THE NEEDS OF THE COMMUNITY

The women also specified some needs and requests for the community; these were

- i. Electricity
- ii. Primary school
- iii. Credit facilities
- iv. Toilets, corn mills
- v. Chorkor smokers
- vi. Health Care facilities
- vii. Unity among them
- viii. Access roads between the settlements
- ix. Form of recreation

## 7. PROBLEMS IDENTIFIED

### 7.1 FISHING INDUSTRY

- i. Fish gear is scarce and expensive.
- ii. There is scarcity of fish.
- iii. Fishermen preferred to sell their fish for ready cash and there is favouritism in the sale of fish.
- iv. The women are using the round clay or round metal ovens with its attending problems of low capacity, long smoking time, high fuel consumption.
- v. The ovens are not well protected. Sheds have not been built to cover the ovens.

### 7.2 FISH SMOKING

The quantities smoked at a time were small. There is lack of fuel wood, cost and other inputs costing a lot of money. Smoking takes a long time ie. between 6-8 hours.

The women are at the mercy of rain, sun, heat and even smoke because of the absence of sheds. The majority of them are illiterate.

### 7.3 MARKETING AND DISTRIBUTION

- i. There is no ready market at the village so smoked fish has to be sent to markets outside the village. This brings into play transportation costs, etc.
- ii. There are post-harvest losses during loading and transportation.

- iii. The women give some of the fish out on credit and have difficulty in collecting their money. Sometimes they do not see the customer again.

#### **7.4 INCOME**

- i. All the women keep their money at home which is dangerous because that might draw thieves to attempt to steal it.
- ii. Their profit margins were not clearly discernible.
- iii. They have basic accounting problems.

#### **7.5 HEALTH AND RELATED ISSUES**

- i. There is no form of recreation.
- ii. There are no toilets or waste disposal system.
- iii. No health posts or electricity supplies.
- iv. Malaria is the predominant ailment in addition to body pains.
- v. There is no postal service; neither is there a primary nor JSS - only a day care centre.

## 8. CONCLUSION

The study has brought out clearly the background information about the village, Abia, and the lifestyle of the twenty selected fish smokers. The village has been provided with water but electricity, toilet facilities, health posts and educational facilities are lacking.

## 9. RECOMMENDATIONS

- i. The women should be organised into groups to work towards getting credits for the group.
- ii. Access roads between the settlements could be constructed.
- iii. Health facilities should be provided and there should be lectures on sanitation and family planning.
- iv. It will be better for them if they adopt the Chorkor smoker because the initial ones introduced are given free of charge. The Chorkor smoker will help with the production of good quality fish at a shorter time of between 2-3 hours.

**REFERENCES**

1. Kagan, B., 1969  
The advantages of using framed wire nets in Fish Smoking. FAO publications. Food & Agric. Organisation of the United Nations, Rome.
2. Kagan, B. (1970)  
Fish processing in Ghana. FAO publications AGS.SG/GHA/Food and Agric. Organisation of the United Nations, Rome.
3. Lokko, P., 1989  
Baseline Socio-economic Studies on Mangotsonya and Ayetepa. Ghana/Netherlands Artisanal Fish Processing Project report. Food Research Institute, Accra.
4. Lokko, P., 1990  
Baseline Socio-economic Studies on Tema U-Compound and Nungua Faashi. Ghana/Netherlands Artisanal Fish Processing project report. Food Research Institute, Accra.
8. Lokko, P., and Dake F., 1991  
Baseline Socio-economic studies on New Galilea and Amanfro. Ghana/Netherlands Artisanal Fish processing project report. FR I, Accra.
6. Lokko, P., and Anson, S., 1992  
Baseline Socio-economic studies on Lagma. Ghana/Netherlands Artisanal Fish Processing Project report. Food Research Institute, Accra.
7. Lokko, P., and Anson, S., 1993

Baseline Socio-economic studies on Gbegbeise. Ghana/Netherlands Artisanal Fish processing project report. Food Research Institute, Accra.

8. Lokko, P., and Anson, S., 1994  
Baseline Socio-economic Studies on Chemuse. Ghana/Netherlands Artisanal Fish processing project report. Food Research Institute, Accra.
9. Lokko, P., and Anson, S., 1994  
Post Adoption impact of the Chorkor Smoker to Pilot villages: Report submitted under Ghana/Netherlands Artisanal Fish Processing project report. Food Research Institute, Accra.
10. Lokko, P., and Anson, S., 1995  
Baseline Socio-Economic Studies on Sakumono Ghana/Netherlands Artisanal Fish Processing Project report. Food Research Institute, Accra.
11. Nerquaye-Tetteh, G., 1979  
The traditional post harvest fish processing technology in Ghana. FRI Project Report, Food Research Institute, Accra, Ghana.
12. Nerquaye-Tetteh, G., 1989  
Extension of Research Results to End users: Success stories and failures - access of the FAO-Chorkor Smoker. FRI Project Report. Food Research Institute, Accra, Ghana.
13. Nerquaye-Tetteh, G., 1990  
The Involvement of Ghanaian Women in Fish Processing and Marketing portraying the problems and constraints women face and the criteria for success. A paper submitted to FAO, Fisheries Division, Rome.

14. UNIFEM, 1988

Fish Processing: No.4. Food Cycle Technology Source Book



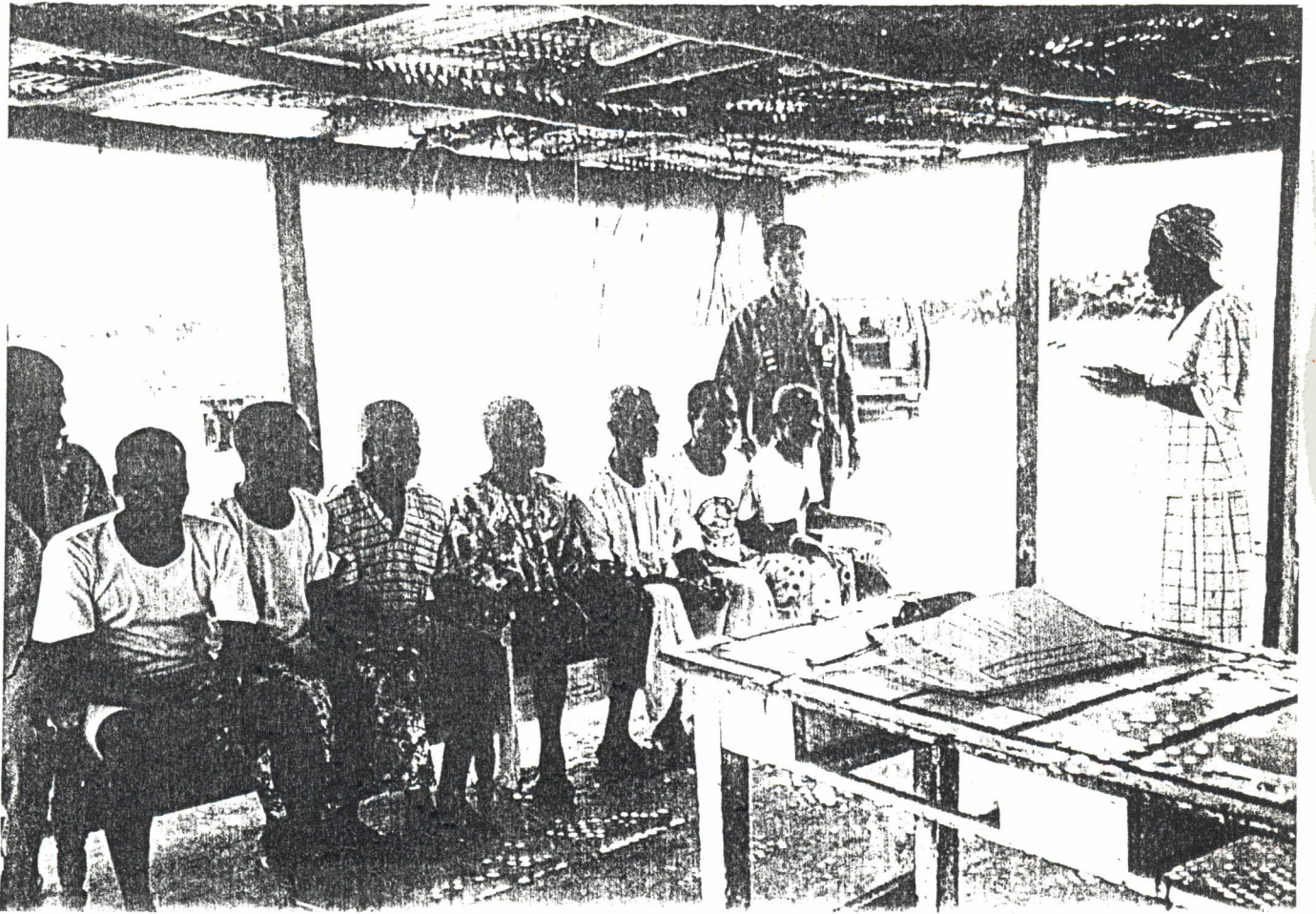
**APPENDIX I****NAMES OF RESPONDENTS**

1. Mary Kokor Narteh
2. Margaret N. Awuley
3. Hannah Nartey
4. Kokor Tsu
5. Lydia Amartey
6. Morkor Okoe
7. Rebecca N. Nartey
8. Mle Tete Kwaku
9. Emelia A. Tete-Wayo
10. Naako Zutha
11. Comfort Martey
12. Naatekuo Keklewu.
13. Mley Mensah
14. Mley Nartey
15. Selina Owuyorkor Kodi
16. Maku Labia
17. Cecilia Bortiokor Borteye
18. Kokor Gidigago
19. Oforiwa Quashie
20. Kai Abbey



**APPENDIX II**

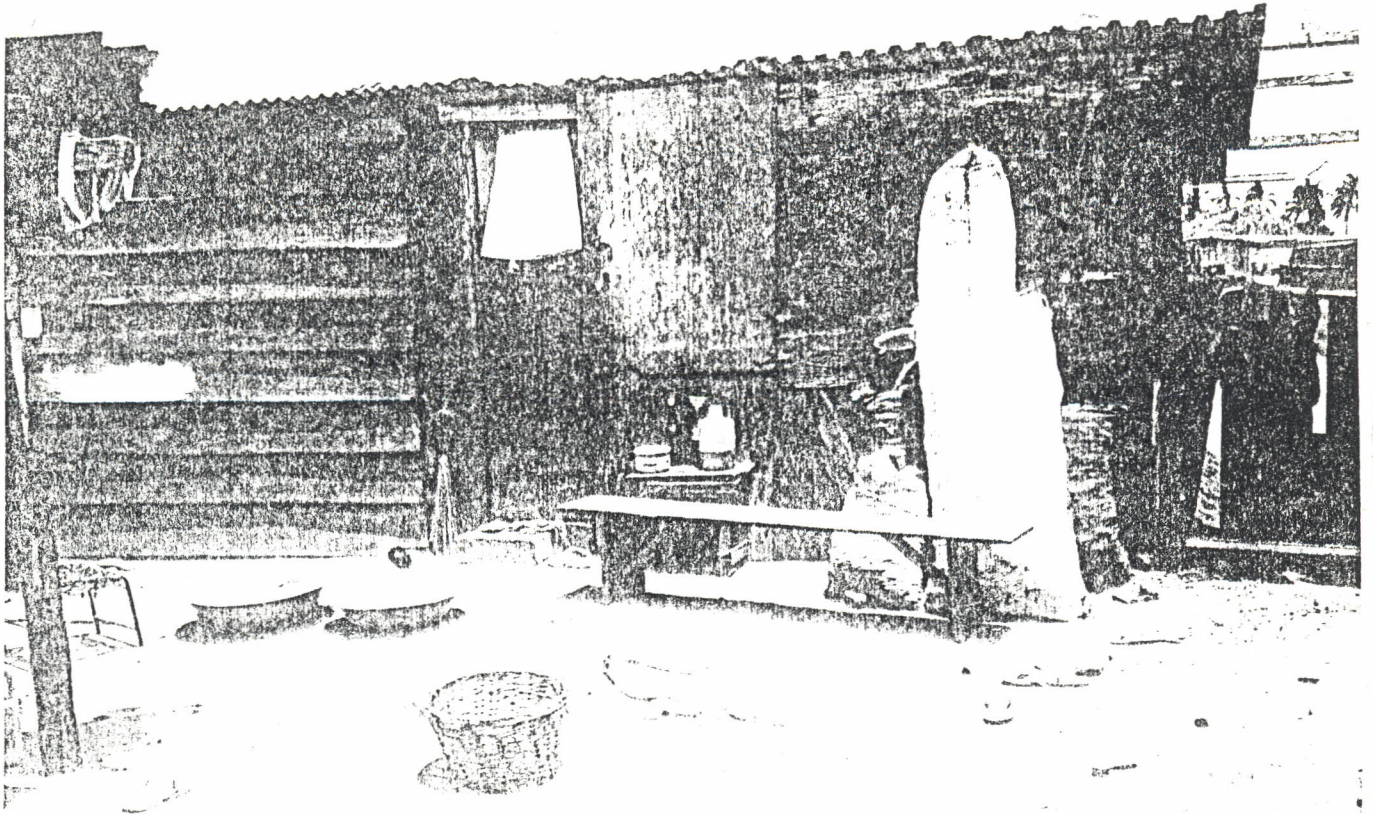
**PICTURES**



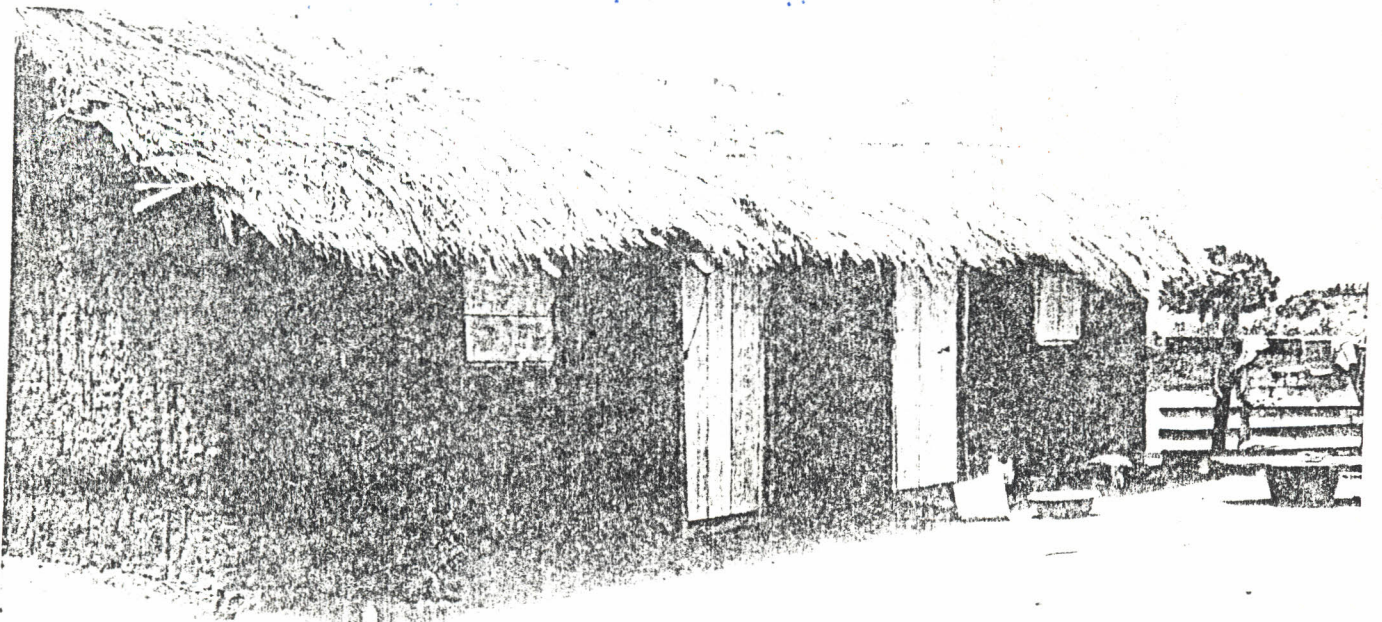
COMMUNITY LEADERS



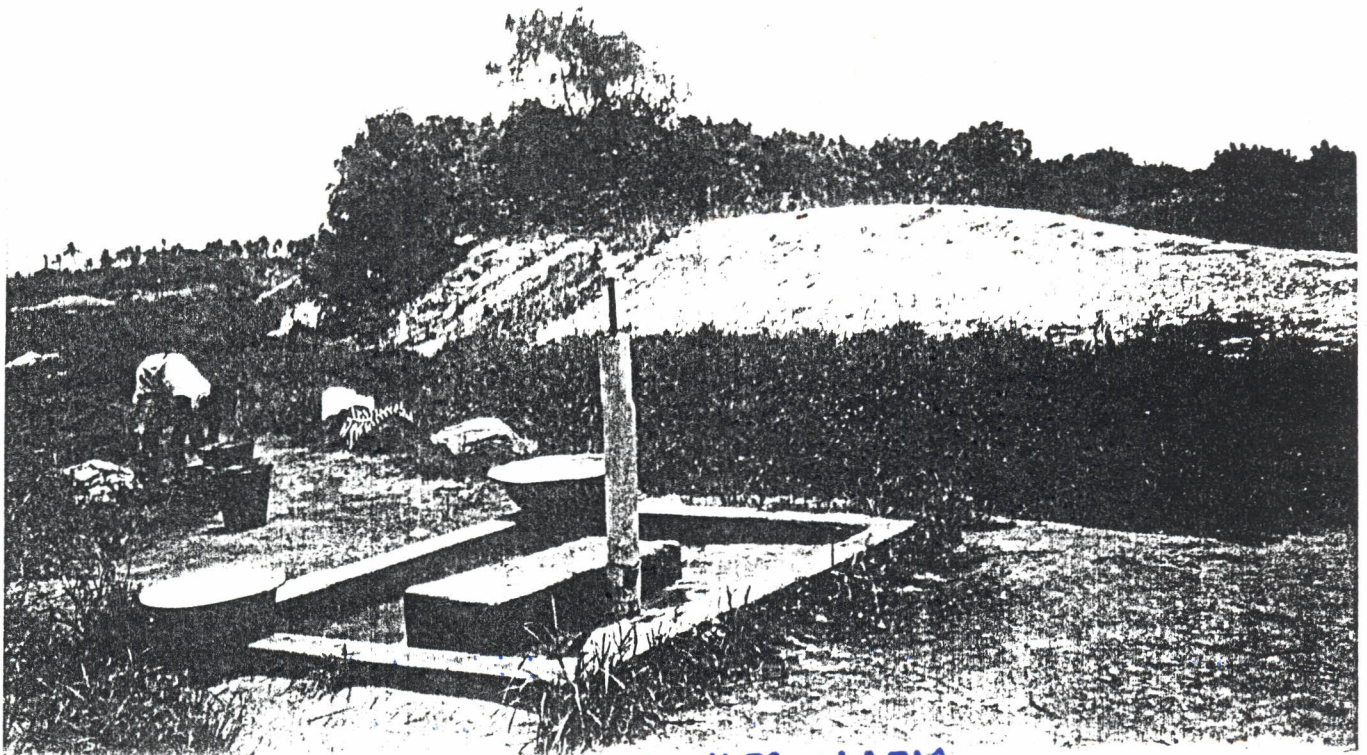
A SECTION OF WOMEN FISH SMOKERS.



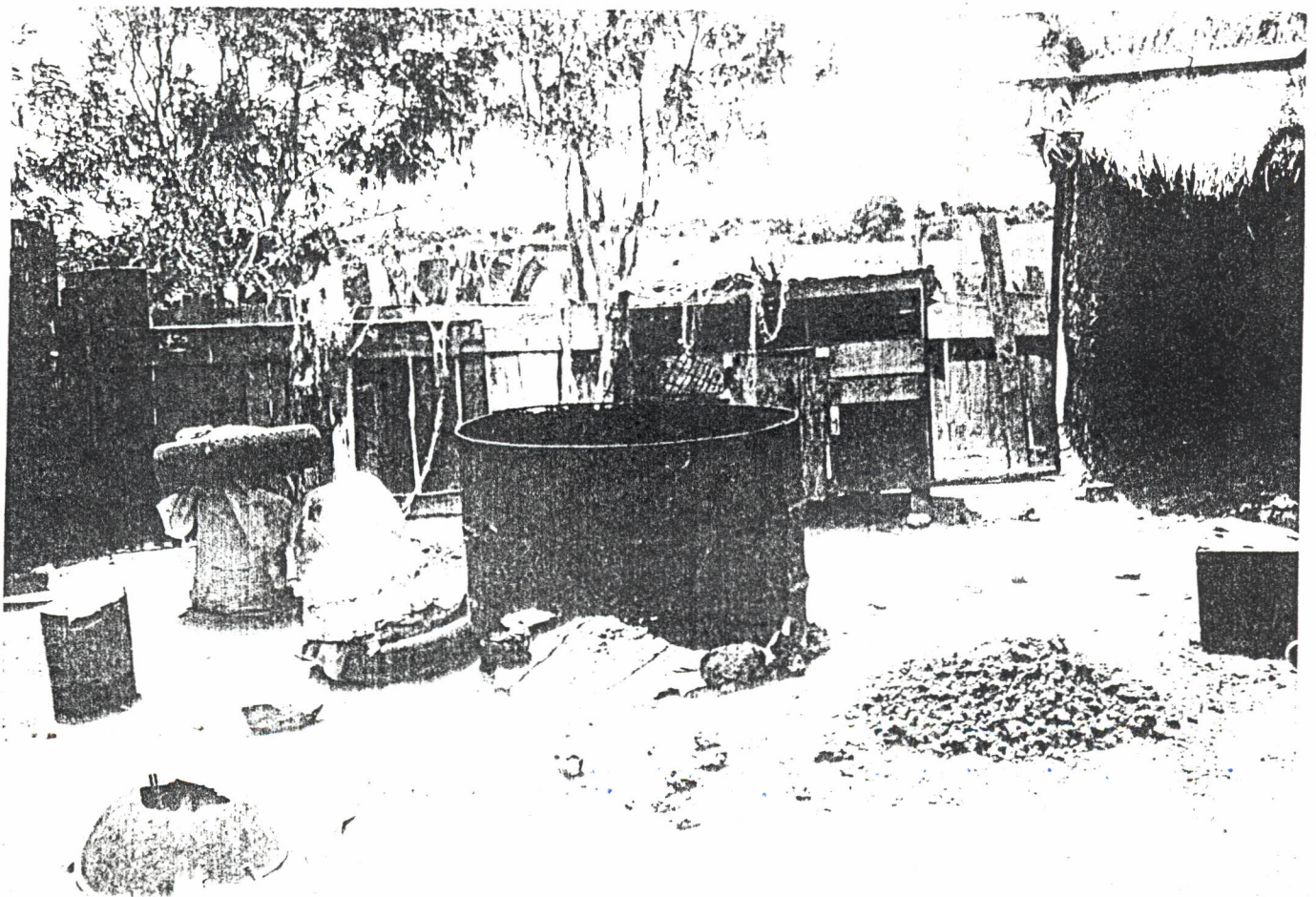
A WOODEN HOUSE WITH CORRUGATED  
IRON ROOFING



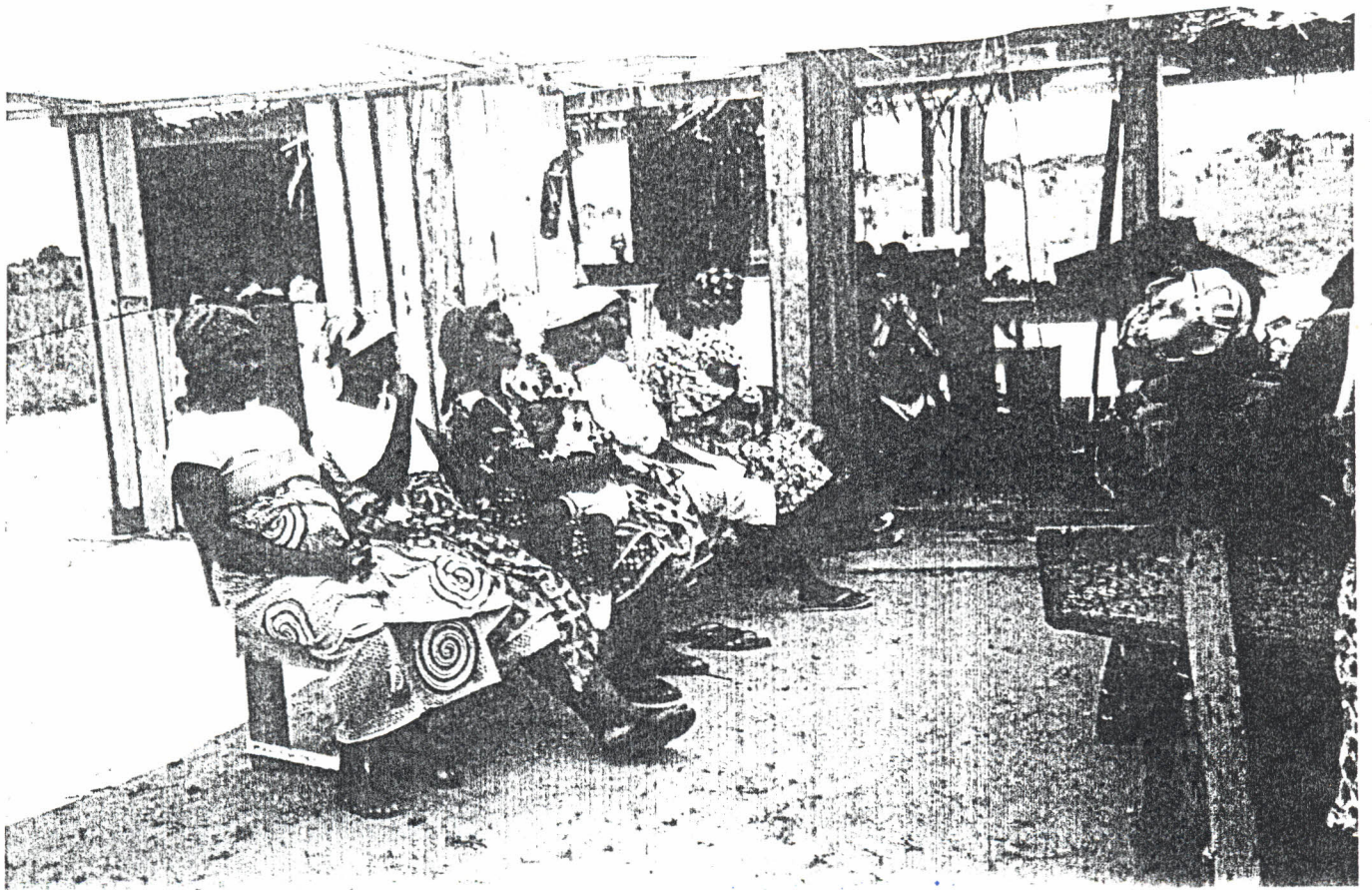
A MUD HOUSE WITH THATCH ROOF



ONE OF THE 2 TAPS IN ABIA



A ROUND METAL OVEN



A SECTION OF THE WOMEN IN FRONT OF  
THE SCHOOL BUILDING.

