

Community analysis of Asa North, Abia State, Nigeria



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G. Tarawali, J.B. Ayoola, C. Ezedinma, R. Okechukwu, A.F. Lum,
A.G.O. Dixon, M. Akoroda, F. Ogbe, J. Lemchi, L. Sanni, P. Ilona,
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Acronyms and abbreviations

ADP	Agricultural Development Project
CAP	Community Action Plan
CBOs	community-based organizations
CEDP	Cassava Enterprise Development Project
IITA	International Institute of Tropical Agriculture
LGA	Local Government Area
NGOs	nongovernmental organizations
RTEP	Roots and Tubers Expansion Program
SWOT	Strength, weaknesses, opportunities, and threats
USAID	United States Agency for International Development
NRCRI	National Root Crops Research Institute

Executive summary

The purpose of the community analysis at Asa-North on 16–17 December, 2004 was to identify and analyze with the community members their constraints and opportunities with respect to cassava production, processing, and marketing, and to determine their priorities for cassava enterprise development. Participatory Rural Appraisal (PRA) tools were used to collect and analyze information from different focus groups.

The major findings of the community analysis are presented below.

Major livelihoods: Farming is the major livelihood activity in the community. All men, women, and youths are involved in crop production, and the most important crops are cassava, oil palm, garden eggs, telfaria, yam, and plantain. Cassava and oil palm contribute about 70% of the income from crop production. The cultivation of plantain, oil palm, and yam are exclusive to adult men and youths. The community members also earn a living from nonfarm activities. The most important nonfarm activity is trading. Other nonfarm activities include “Okada” transport, mainly for young men; food processing/vending, health work, and dress making, predominantly for women; and brick laying, welding, and mason work mainly for men.

Vulnerability to poverty: The major indicators used by the community to classify resource status were type of house, land holding, mobility, and food availability. The wealth distribution showed that about 60% of the population are poor and 30% are moderately rich. This shows that the majority of the community is poor.

Land tenure systems, soil fertility, and livelihoods: The most common land tenure systems in the community are leasing and inheritance. While the men ranked inheritance as the most common, the women ranked leasing, and youths considered communal land ownership as the most important. Average land holding by the households is very small, usually less than one hectare, therefore, the soil is subjected to continuous cropping, which results in low soil fertility and poor crop yields. Most households use green manure, poultry manure, and inorganic fertilizer to improve the fertility of their soils.

Major institutions: There are functional and registered institutions for men, women, and youths. Some have strong interactions with one another, but weak interactions with outside bodies related to agricultural development. The women cooperative group has the strongest link with these organizations, especially the International Institute of Tropical Agriculture (IITA), the Rural Women Foundation (RWF), the National Root Crops Research Institute (NRCRI), and the Agricultural Development Program (ADP). The men farmers’ cooperative and youth associations are also distinct among all men and youth groups in terms of intracommunity interaction. There is a very weak link between the community and their traditional leaders because of a communication gap, and (apparently) the lack of trust.

Cassava production problems: Among the problems associated with cassava production, inadequate access to land, labor, cassava varieties, and fertilizer are the most important.

Cassava processing problems: Lack of processing machinery is the greatest constraint in cassava processing. The two most important are grating (pulping) and frying machines for processing *gari*. Other processing problems are poor water and electricity supply.

Lack of capital: Lack of capital is a serious problem both in production and processing. Lack of capital is linked to lack of farm inputs (fertilizers, improved varieties, and labor) and processing machinery. With working capital in the form of credit, farmers could procure farm inputs and machinery for processing.

Marketing of cassava products: The community ranked transportation as the most serious problem in marketing, followed by inadequate market outlets, and low prices. There is no active local market in the community and no reliable market information system.

Community action plan: The community identified areas of interest for the Cassava Enterprise Development Project and the potential roles of IITA and the community in the implementation of interventions in 2005. A calendar of the activities for 2005 was to be agreed upon with the community in January to facilitate the commencement of production activities.

Introduction

Background and purpose of the community analysis

The current policy direction of the Federal Government of Nigeria, which is consistent with global efforts in the development of cassava, has put in place a Presidential Committee for exporting cassava with the mandate to ensure that the country becomes the world's acknowledged cassava exporting nation. Currently, Nigeria is producing 40 million t of cassava roots, a rise from the previous estimate of 30 million t (Eno 2004). The policy direction has encouraged cassava development leading to a new orientation in the research–extension–farmer linkage, especially in the IFAD-assisted cassava multiplication program (Abdullahi 2003). Labor saving machinery for processing stages like peeling, slicing, chipping, pounding, sieving, and drying machines exist at the research institute level (IITA 1990; Kwatia 1986; Nwokedi 1984). However, their precision, efficiency, and suitability for the investment capacity of the smallholder farmer are problematic and consequently deter dissemination at the farm level (Ezedinma and Oti 2001). In line with this global and national dispensation, the United States Agency for International Development (USAID), in collaboration with Shell Petroleum Development Cooperation (SPDC) and IITA, initiated the Cassava Enterprise Development Project (CEDP) in the 11 cassava growing states of the south-south and southeast of Nigeria. The community analysis of Asa North, in Abia State, Nigeria, was conducted from 16 to 17 December 2004. The purpose was to assess the needs and priorities of the community in terms of cassava production, processing, and marketing, and consider how existing structures could be enhanced to improve on cassava enterprises and make cassava more commercialized in the domestic markets as well as a competitive product in the international market.

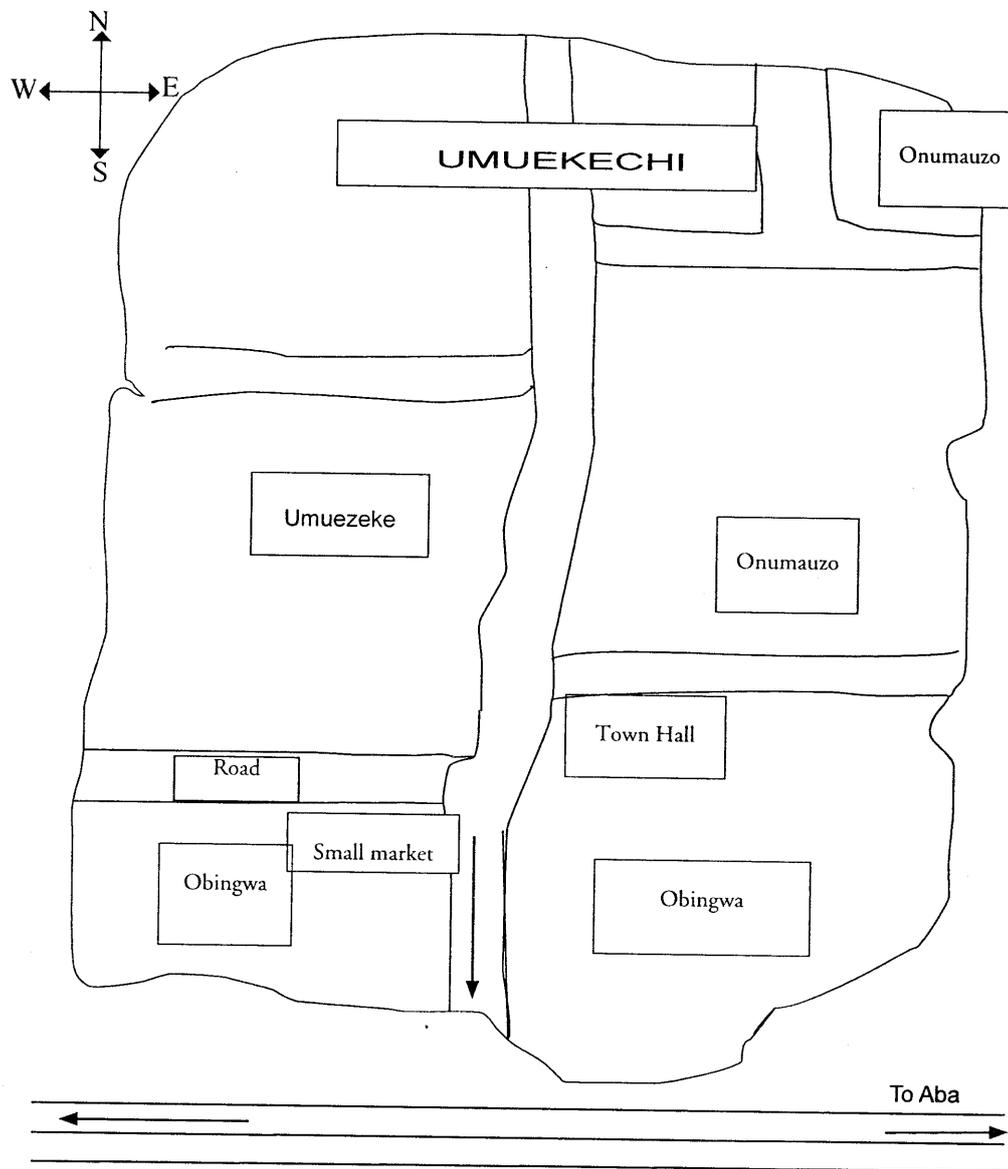
The objectives were as follows:

- Determine priority crops and cassava enterprises in the community, and contribute to community livelihoods.
- Determine priority problems associated with the production of cassava roots, as well as the processing and marketing of cassava products.
- Explore the root causes of these problems for proper problem diagnosis.
- Identify the local and external institutions, structures, and processes, within the community and those outside that relate with the community, as possible entry points for the project.
- Determine gender roles and differences, trends in accessing the production resources of men, women, and youths, and benefits associated with cassava enterprises.
- Trace the network and channels for marketing cassava products to identify gaps for intervention purposes.
- Explore previous local practices and evaluate them with respect to improved practices to determine priority options for intervention.
- Develop a community action plan for project implementation.

This report comprises an introduction including the background, purpose, and details of the agroenvironment; the methodology describing the process and highlighting the participatory tools used, the presentation, analysis, and discussion of results, priorities, and possibilities for developing cassava enterprises; and the conclusions and recommendations for CEDP.

Agroenvironment of Asa North

Asa North is located about 8 km from Aba town, in the southeast zone of Nigeria. The vegetation is rain forest. This community is made up of four villages, Umuekechi, Onuma-Uzo, Umuekeze, and Obingwa (Fig. 1). The population estimate of the community is about 10 000. It is bounded to the south by the Aba–Port Harcourt express way.



Aba-Port Harcourt Express Way

Figure 1. Sketch map of Asa North.

Methodology

A Participatory Rural Appraisal (PRA) of Asa North was carried on 16 and 17 December 2004 (Annex) at the Umuekechi village hall. A combination of participatory tools (Fig. 2) was employed in focused group discussions, involving an average of 15 men, 22 women, and 20 youths on each day. Plenary sessions were held at the end of the focused group discussions to give the feedback to all participants. Similarly, semistructured interviews were held with a cluster sample of 15 respondents from randomly selected households, input service providers, and cassava processors.

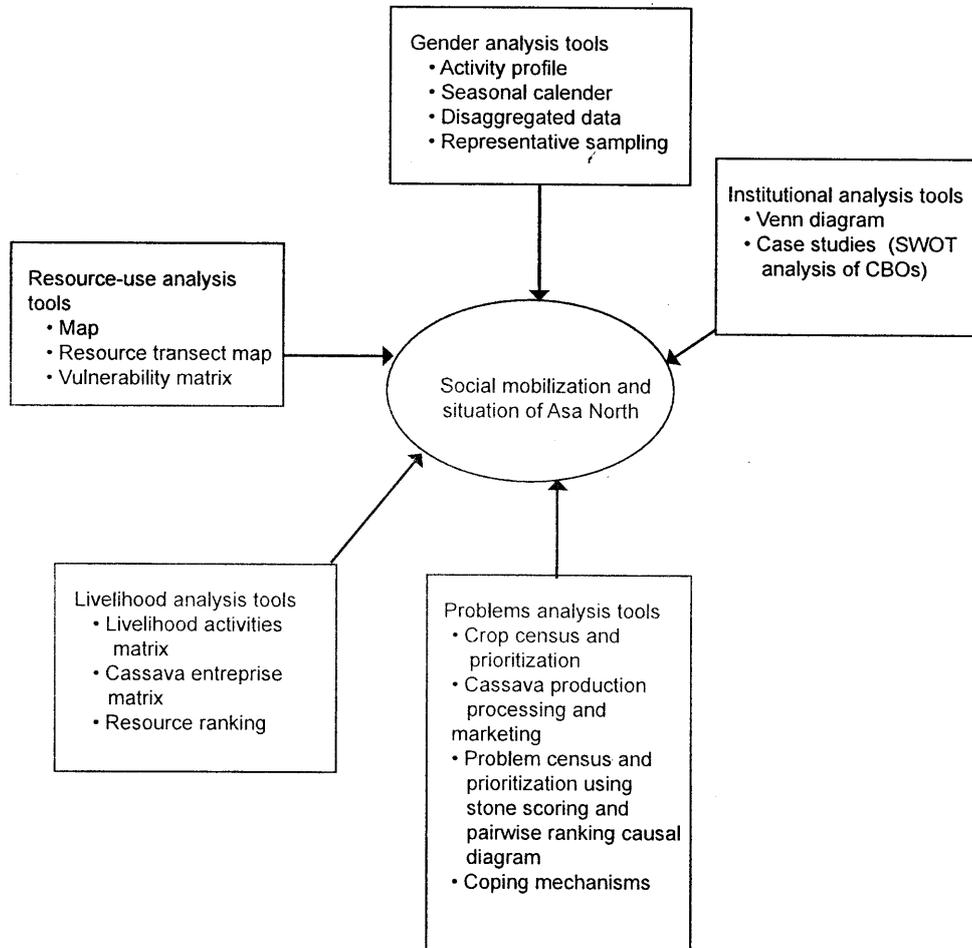


Figure 2. Participatory tools for social mobilization and situation analysis for cassava enterprise development.

Application of tools

Livelihood activities

Aim: To assist the participants to evaluate the sources of livelihood in the community and trends over the years.

Achievements: At the end of the activity, community members were able to:

- List their sources of livelihood.
- Determine the importance of each in terms of both food security and general cash.
- Determine the trends and reasons for such trends.

Cassava enterprise analysis

Aim: To assist the participants to evaluate the main cassava enterprises and their contributions to livelihoods in the community.

Achievements: At the end of the activity, community members were able to:

- List cassava enterprises.
- Determine their priorities using pairwise ranking or stone scoring.
- Determine the income obtained from each enterprise.
- Determine the percentage contribution of each enterprise to the rural income matrix.

Wealth ranking

Aim: To assist the community members to identify the criteria for assessing their wealth status.

Achievements: At the end of the exercise, participants were able to:

- List the criteria for wealth.
- Identify the different wealth categories existing in the community.
- Estimate the percentage of the community members that fall within each category.

Land tenure systems

Aim: To determine land property right regimes and their possible impact on cassava-based technology adoption.

Achievements At the end of the exercise, community members were able to:

- List the types of land tenure systems.
- Determine the most common systems using pairwise ranking or stones.
- Determine the effect of the tenure systems on men, women, and youths.
- Determine the effect of land tenure systems on farmers' decisions on soil fertility improvement.
- Establish the need for a change in the land tenure system.
- Determine the type of change.
- Determine how the change will affect current users (men, women, and youths).

Soil fertility assessment

Aim: To assist participants to assess their soil fertility status and management practices.

Achievements: At the end of the exercise, participants were able to list:

- The criteria for evaluating soil fertility.
- The traditional practices for maintaining soil fertility.
- Some of their tillage practices for soil conservation.

Institutional analysis (Venn diagram)

Aim: To identify the different institutions within the community that may be involved in the project.

Achievements: At the end of the activity, the community members were able to:

- List institutions within the community that the members interact with.
- Acquire knowledge about the relative importance of the institutions and the interactions among them.

Case study of selected CBOs

Aim: To have a better understanding of the major CBOs in the community and to determine how they could be strengthened.

Achievements: At the end of the exercise, the community members were able to determine.

- The strengths, weaknesses, opportunities, and threats of various CBOs in the community.
- The relationship between the CBOs and the project.

Daily activity profile

Aim: To provide a better understanding of the differences in the daily work and areas of responsibility for men, women, and youths in the community.

Achievements: At the end of the exercise, participants were able to:

- List their daily activities and the periods during which these activities were always carried out.
- Understand the roles of each individual in the household.

Seasonal calendar

Aim: To enable the community members to understand better the differences in seasonal work and areas of responsibility as well as local patterns of labor, food availability, and health.

Achievements: At the end of the exercise, the community members were able to:

- List the major activities, problems, and opportunities for a period of one year.
- Determine the peak and low periods for each activity and the implications for the community.

Crop prioritization

Aim: To assist the community members to arrange their crops in order of priority based on their own criteria, to show their perception of the importance of cassava within their livelihood framework.

Achievements: At the end of the exercise, the community members were able to:

- List the crops that they cultivate.
- Identify the crops that are most important to them.
- Appreciate pairwise ranking and consensus scoring/stone scoring.

Cassava production problem census prioritization

Aim: To assist the community members to identify and rank the problems they face in agricultural production, postharvest, and other nonfarm activities.

Achievements: At the end of the session, the participants were able to:

- List all their agricultural production problems.
- Reduce the list to major problems.
- Conduct pairwise ranking on them.
- Determine the most important problems and explain why they consider them important to their livelihood.

Cassava postharvest problem analysis

Aim: To assist the community members to understand the causes of their problems by increasing awareness and helping to identify possible solutions.

Achievements: At the end of the exercise, participants were able to identify and discuss all the causes of specific priority problems.

Coping mechanisms

Aim: To assist the community members to identify the methods that are currently used to solve their problems, and other options that could also be used.

Achievements: At the end of the meeting, participants were able to:

- List all the methods that are currently in use.
- Determine where the knowledge came from.
- State how long each method had been in use.
- Determine the appropriate percentage of people in the community using each method.

- State the advantages and disadvantages of each method.
- Determine the trends over time (increasing, decreasing, or static) and reasons for such trends.

Evaluation of cassava production, processing, and marketing strategies

Aim: To assist community members to evaluate available technologies using their criteria.

Achievements: At the end of the exercise, the community members were able to:

- Identify the criteria for assessing the different technology options.
- Evaluate each technology based on the identified criteria.
- Add the scores of each technology and rank them.

Market information network mapping

Aim: To determine the direction and magnitude of information flow on various inputs and major commodities within the community.

Achievements: At the end of the activity, the community members were able to:

- List the commodities produced within the community as well as the inputs required.
- Determine the sources of the inputs.
- Determine market outlets for the major commodities.
- Determine the magnitude of the flow of the commodities, based on participants' consensus.

Market infrastructure mapping

Aim: To assess the types of infrastructure that facilitate the efficient performance of market functions.

Achievements: At the end of the session, participants were able to:

- List available market resources.
- Identify their location within and outside the community.

Market channels for major cassava products

Aim: To trace the different categories of individuals and institutions through which cassava products pass before reaching the ultimate consumers.

Achievements: At the end of the exercise, the community members were able to determine the different market functions carried out from the primary producers to ultimate consumers.

Household surveys

Semistructured interviews were conducted from a cluster sample of households using a checklist

Main livelihoods, individual household participation, and trends

On-farm activities

The community is largely agrarian, with most men, women, and youths engaged in cropping activities to derive food and cash income for their livelihoods. About 55% of the rural household cash income is derived from farm activities, excluding household subsistence.

Crops

The men and youths are exclusively involved in producing yam, plantain, pineapple, garden eggs, and oil palm (Table 1). Women, on the other hand, are exclusively engaged in cropping melon; they grow bitter yam along with the men. However, the participants indicated that all community members (100%) grow cassava, with 60% of the produce used for household consumption while 40% goes to generate income (Table 2). In general, the trend in crop production is increasing, except for melon. Table 2 also indicates that cassava contributes about 40% of the rural household income, followed by oil palm (about 30%), while the other crops contribute to the remaining 30%.

Livestock

The majority of the community members are involved in livestock production. All members of the community keep poultry, 60% rear goats, 40% rear sheep, and 10% rear cows. Only men are involved in rearing cattle, while both men and women are involved in rearing sheep. All livestock are produced primarily to generate income, with only 40% of the proceeds from poultry and 20% from sheep and goats being used for subsistence farming. There is an increase in the number of people keeping poultry and goats in the community, because the need for cash is increasing, while the rearing of sheep and cows is static.

Table 1. Analysis of on-farm activities at Asa North.

Activity	Percentage involvement	Who is involved (m/w/y)	Relative importance (1-5)		
			Food	Cash	Trends (I/D/S)
<i>Cropping</i>					
Yam	80	M/Y	2	3	I
Cassava	100	M/Y/W	3	2	I
Plantain	80	Y/M	2	3	I
Melon	50	W	4	1	D
Pineapple	30	M/Y	1	4	I
Garden eggs	80	M/Y	1	4	I
Maize	100	M/Y/W	3	2	I
Bitter yam	40	M/W	3	2	I
Oil palm	40	M/Y	1	4	I
<i>Livestock</i>					
Goats	60	M/Y/W	1	4	I
Poultry	100	M/Y/W	2	3	I
Sheep	40	M/W	1	4	S
Cows	10	M	0	5	S

Note. I/D/S = Increasing, Decreasing, or Static; M/Y/W= Men, Youths, or

Table 2. Relative importance of major crops in rural livelihoods at Asa North.

Activity	Importance			Average income from activity (₦)	Contribution to rural income (%)
	Men	Women			
Cassava	1	1	1	45 000	40
Yam	5	-	6	2000	2
Plantain	3	-	4	5000	5
Melon	9	4	9	2000	2
Pineapple	8	-	3	5000	5
Garden eggs	4	2	5	10 000	10
Maize	6	8	7	2000	2
Trifoliate yam	10	9	8	2000	2
Oil palm	2	-	2	30 000	30
Okra	6	3	10	2000	2

Off-farm activities

The predominant nonfarm activities in the community are trading and work in the civil service, according to the men and youths, and food processing and the civil service according to the women (Tables 3 and 4). Between 1 and 3% of the men and youths work as masons, welders, plumbers, electricians, carpenters, and drivers. Only men do survey work and palm wine tapping, while the paramedical section involves both men and women. Off-farm

activities are mostly for the generation of income (Table 5). With the exception of surveying, off-farm activities are increasing because of the increasing need for cash. Surveying is static because of the lack of money for building projects.

Table 3. Analysis of off-farm activities in Asa North—the perception of men and youths.

Activity	Percentage involvement	Who is involved?	Relative importance (1-5)		
			Food	Cash	Trends (I/D/S)
Mason work	2	M/Y	—	5	I money
Welding	3	M/Y	—	5	I money
Plumbing	2	M/Y	—	5	I money
Electrical work	3	M/Y	—	5	I money
Carpentry	3	M/Y	—	5	I money
Tailoring	2	M/Y/W	—	5	I money
Teaching	2	M/Y/W	—	5	I money
Pasturing	3	M/Y/W	1	4	I money
Driving	2	M/Y	—	5	I money
Surveying	1	M	—	5	S less building
Civil service	10	M/Y/W	—	5	I money
Trading	30	M/Y/W	1	4	I money
Paramedical	2	M/W	—	5	I money

Note. M/W/Y= Men/Women/Youths; I/D/S=Increasing/Decreasing/Static.

Table 4. Analysis of off-farm activities in Asa North—the perception of women.

Activity	Percentage involved	Who is involved	Relative Importance (1—5)			
			Food	Cash	Trends ↑↓	Why?
Trading	70	M/W/Y	2	3	↑	Money
Sewing	15	M/W/Y	1	4	↑	Money
Carpentry	10	M/Y	1	4	↑	Money
Mechanic	30	M/Y	2	3	↑	Increase in car owners
Welding	10	M/Y	—	5	↑	Money
Driving	40	M/Y	—	5	↑	Money
Food processing	90	W	2	3	↑	Increase in population
Food vending	10	W	4	1	↑	Increase in population
Palm wine tapping	10	M	4	1	↑	Money
Palm fruit harvesting	10	M/Y	4	1	↓	Old age and civilization
Hair dressing	20	W/Y	—	5	↑	Money
Transport	40	M/Y	—	1	↑	Money
Teaching	10	M/W/Y	—	3	↓	Late/poor payment
Civil service	30	M/W/Y	—	3	↑	Political era
Bricklaying	15	M/Y	—	2	↑	Money

Note. M/W/Y= Men/Women/Youths.

Table 5. Relative importance of major off-farm occupation in rural livelihoods.

Occupation	Importance (stone score)			Income from activity (₦)	Contribution to rural income (%)
	Men	Women	Youths		
Carpenters	6	—	6	2000	2
Masons	7	—	7	2000	2
Health workers	9	4	9	2000	2
Drivers	5	—	4	2000	2
Sand sellers	10	—	10	2000	2
Tailors	8	—	8	2000	2
Mechanics	4	—	4	2000	2
Palm wine tappers	9	—	9	2000	2
Traders	1	2	1	70 000	50
Welders	3	—	3	2000	2
Civil servants	3	—	3	15 000	10
Food processors	—	1	—	40 000	30
Food vendors	—	3	—	10 000	5
Palm fruit harvesters	2	—	2	20 000	10
Hairdressers	—	5	—	2000	2
Teachers	—	—	—	5000	5
Bricklayers	8	—	8	2000	2

Cassava enterprises

Gari is produced by everyone and *fufu* by about 90% of the community members, while only about 2% are involved in the production of flakes (*abacha*) (Table 6). *Gari* is a major source of food. About 60% of the *gari* produced goes for consumption and 40% for cash, while *fufu* (*akpu*) is mostly produced for cash (60%) and flakes are produced for food. *Fufu* and *abacha* are produced by the women. The trends for *gari* and *fufu* production are increasing, and decreasing for *abacha*.

Table 6. Cassava enterprise matrix.

Cassava enterprise/activity	Percentage involvement	Who is involved	Relative importance (1-5)		Trends (I/D/S)
			Food	Cash	
<i>Gari</i>	100	M/W/Y	3	2	I
<i>Fufu (akpu)</i>	90	W	2	3	I
Flakes (<i>abacha</i>)	2	W	5	0	S

Note. M/W/Y= Men/Women/Youths; I/D/S=Increasing/Decreasing/

Community-based organizations (CBOs)

Asa North community is organized into different groups of men, women, and youths, as well as mixed groups. The traditional ruling council comprises the chiefs of all the four villages and the Eze is the overall leader. The CBOs exclusive to women are the Asa North Women's Society and Asa North Women's Cooperative Society (ANWCS). The mixed organizations are the Asa North Development Union, and the Cultural Dancers' Association. The youth organizations are Asa North Youths' Association, Umuekechi Youths' Association, Umuekeze Youths' Association, Omumuzo Youths' Organization, and Obingwa Youths' Association. The groups for men include Asa North Men Society, Asa North Development Union, Hunters' Association, Palm Cutters' Association, the Independence Age Group, and Asa North Farm Men Cooperative Society (FMCS). Although CEDP has been working with ANWCS, there are possibilities for interaction with other groups in the community towards enhancing cassava enterprise development.

Purpose, strengths, and weaknesses of selected CBOs

Selected organizations for men, women, and youths were studied to determine their strengths, weaknesses, opportunities, and threats (SWOT). The indicators include the relevance of the organization to cassava enterprises, age of organization, membership (size and gender), frequency of meetings, community coverage, financial arrangement, programs, and achievements, as well as their limitations. The strongest men's organization is Asa North FMCS. It has a high membership as well as interactions outside the community (Table 7, Fig. 3). The Asa North Youths' Association is the strongest youths' association because it interacts with other youth organizations within and outside the community. In the case of women, two very strong organizations that emerged are the Women's Society and Women's Cooperative Society, the latter being a subset of the former. All these organizations are registered, but none of them has acquired any formal or informal training to develop its members either in technical or managerial skills. Their common constraints include poor financial base, limited access to required inputs, and lack of transportation.

Table 7. Analysis of selected CBOs in Asa North.

Name of organization	Membership		Size	Linkage/coverage	
	Who	Women		Intracommunity	Intercommunity/ external
Asa North Women's Society	Women	Women	>100	Asa-North Youth Association, Development Union, Women's Cooperative Society, Men's Society	Ukwa West Women Society, Ukwa West Progressive Union, Idinotu Women's Progressive Union, Idinotu Progressive Union, Ukwa West Local Government Area, Rural Women's Foundation, IITA
Asa North Youth Association	Male/female youths		>70	Asa North Women's Society	-
Asa North Development union	Men/women		N/A	Asa North Women's Society	-
Asa North Women's cooperative	Women		73	Asa North Women's Society	Rural Women Foundation, IITA
Asa North Men's Cooperative Society	Men		N/A	Asa North Women's Society	-

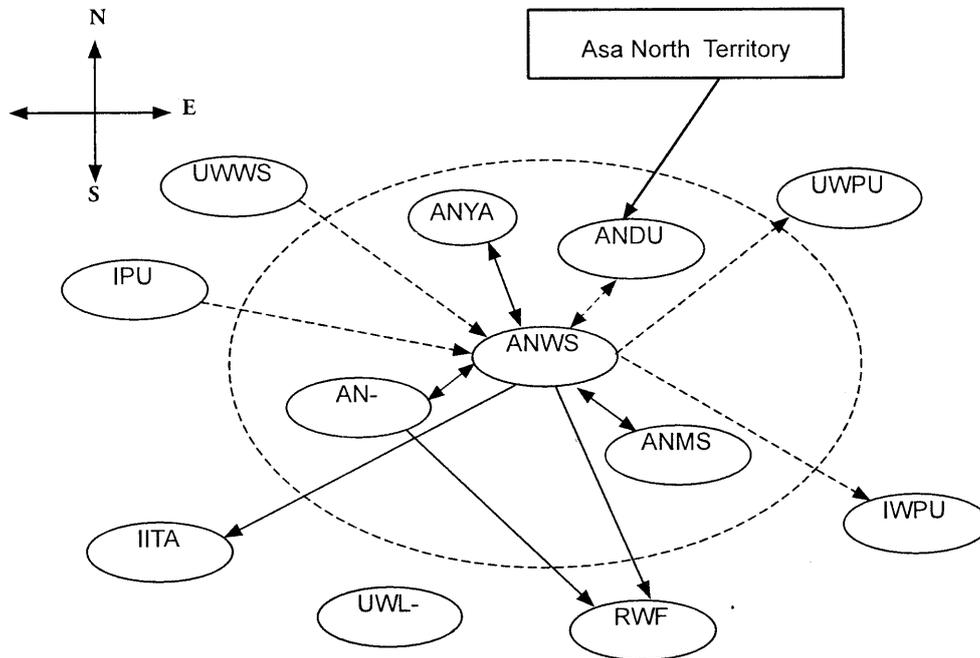


Figure 3. Venn Diagram of CBOs in Asa North LGA, Abia State by the Women's Group.

Key

Internal

- ANWS = Asa North Women's Society.
- ANWCS = Asa North Women's Cooperative Society.
- ANYA = Asa North Youth's Society.
- ANMS = Asa North Men's Society.
- ANDU = Asa North Development Union.

External

- UWWS = Ukwa West Women's Society.
- UWPU = Ukwa West Progressive Union.
- IWPU = Idinotu Women's Progressive Union.
- IPU = Idinotu Progressive Union.
- RWF = Rural Women Foundation.
- IITA = International Institute of Tropical Agriculture.
- UWLGA = Ukwa West Local Government Area.

Asa North Women's Society (ANWS)

Purpose: ANWS was established on 29 March 2000 (Table 8), with the objective of fostering the unity and development of women through fortnightly meetings, and establishing revenue generating projects, such as renting out chairs/canopies.

Sources of finance: The sources of funds for the organization include individual contributions, profits from joint businesses such as the renting of chairs, canopies, and tables. They have nothing in their coffers, and contribute money when the need arises.

Achievement: The association helps members who are in financial difficulties.

Constraints

- Lack of capital.
- Bad roads.
- Poor market infrastructure such as mobility, and lack of processing machines.

Future plan/hope: To drill boreholes, train more children in school.

Table 8. Asa North Women's Society (ANWS).

Question	Information
Name of society	Asa North Women's Society.
When established	29 March 2000.
Mandate	Women's unity and development; unity of purpose.
Membership (sex, size)	Women, over 100 (active) members.
Frequency of meeting	Fortnightly.
Registration status (when)	Will register soon.
Training received	Training on group formation and management.
Financial arrangement (source, capacity)	Contributions, profits from joint business (renting of chairs, canopies, tables, etc.)
Current program	Construction of a new community center.
Achievements	Bought chairs, canopies, tables.
Limitations	Lack of capital, no good roads, poor market infrastructure, etc.
Future plans	Drill boreholes, train more children in school.
Scope of operation: Internal	Yes
External	Yes

Asa North Women's Cooperative

Purpose: It was established in 1999. Since then, its membership has increased to about 73 women, and they meet once a month. The main objective of the association is for rural livelihood improvement through enterprise promotion. It was registered in 2000, and it has established a linkage with the Rural Women Foundation (RWF), an external organization (Table 9, Fig. 4). The organization is currently implementing cassava enterprise development in Asa North, with a focus on cassava processing into odorless *fufu* flour, and marketing. Thus, the linkage between ANWCS, RWF, and IITA has been strengthened.

Source of finance: Funds are obtained through contributions, loans, and grants. The assets of the organization are estimated at about ₦12 m.

Achievement: With assistance from IITA, SPDC, and USAID, and supervision by RWF, the organization has developed cassava processing, packaging, and marketing of *fufu* flour. Members have also acquired training in organizational management and cooperative principles, as well as efficient financial management.

Constraints/failures

- Bad roads.
- Intra-community communication gap.
- Low working capital.

Future plan/hope

- To expand the market.
- To produce starch.
- To process cassava flour.
- To produce sachet water.

SWOT analysis of ANWCS

Strengths

- Functional cassava processing factory.
- Availability of markets (local and international).
- Certified product quality through the intervention of IITA.

Weakness

- Low working capital.
- Poor communication network.

Opportunities

- Possibilities for business expansion.
- Women (rural) empowerment.

Threats

- Political (local) interferences.
- Competition is envisaged.

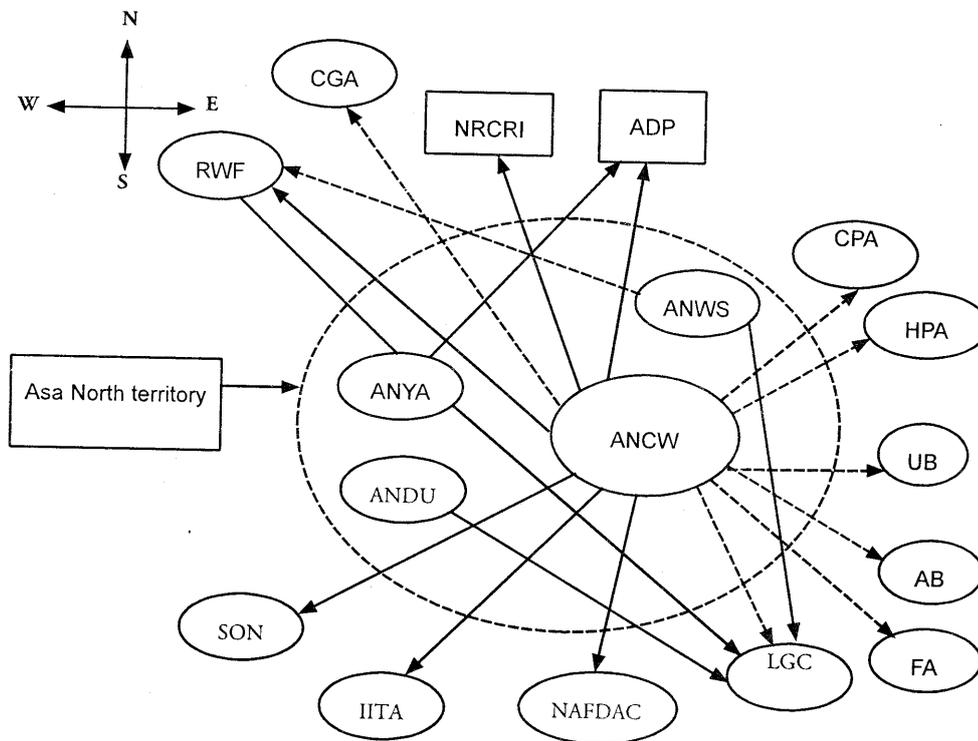


Figure 4. Venn diagram for Asa North Women's Cooperatives (ANWC).

Key

- ANWC = Asa North Women's Cooperative Society.
- ANWS = Asa North Women's Society.
- ANYA = Asa North Youth Association.
- ANDU = Asa North Development Union.
- RWF = Rural Women Foundation.
- CGA = Cassava Growers' Association.
- CPA = Cassava Processors' Association.
- FA = Fabricators' Association.
- HPA = Hotel Proprietors' Association.
- UB = Union Bank.
- NAB = Nigerian Agricultural Bank.
- ADP = Agricultural Development Program.
- NRCRI = National Root Crops Research Institute.
- LGC = Local Government Council.
- IITA = International Institute of Tropical Agriculture.
- SON = Standard's Organization of Nigeria.
- NAFDAC = National Agency for Food and Drug Administration and Control.

Table 9. Case Study of Asa North Women Cooperatives (ANWC).

Name of organization	Asa North Women's FMCS.
When established	1999.
Mandate	Rural livelihood improvement.
Membership (a) sex (b) size	Women. 73.
Frequency of meeting	Monthly.
Registration status	Registered.
How long ago	2002 (2 years).
Scope of operation (a) commodity (b) intracommunity (c) intercommunity	Cassava. Yes. Yes.
Training received	On cassava processing, packaging and marketing of <i>fufu</i> flour. Organizational management: cooperative principles. Financial management. Enterprise development.
Financial arrangement: (a) source (b) capacity	Contributions by members, loans, grants. ₦ 12 m.
Current program	Processing cassava into <i>fufu</i> flour and marketing.
Achievements	<ul style="list-style-type: none"> • Group establishment. • <i>Fufu</i> flour production. • Cassava production (with improved varieties).
Limitations	<ul style="list-style-type: none"> • Bad roads. • Intracommunity communication gap.
Future plans	<ul style="list-style-type: none"> • Expanded market. • Starch production. • Cassava flour. • Sachet water production.

Asa North Youths' Association

Purpose: It was established in 2000 with a membership of about 70 young men and women (Table 10). Members also come from the four villages in the community (Fig. 5). The main objective of the association is community development, including a peaceful and orderly communal relationship. Members meet twice a month.

Source of finance: The organization gets its funds through contributions by members.

Achievement: The association has succeeded in maintaining the community roads through self-help. They also organize football competitions for recreation and communal collaboration.

Constraints

- Lack of funds for projects.
- Bad roads.

Future plan/hope: Transport enterprise.

Table 10. Asa North Youth Association.

Questions	Information
Name of organization	Asa North Youth Association.
When established	4 years ago.
Membership (sex, size)	Male/female, 70 members.
Mandate	Peace, order, communality.
Frequency of meeting	Twice a month.
Project	None.
Current program	Football competitions.
Achievements	Road maintenance.
Limitations	Finance.
Scope of operation	Inter-village.
Future plans	Transport enterprise.
Financial arrangement	Individual contributions.

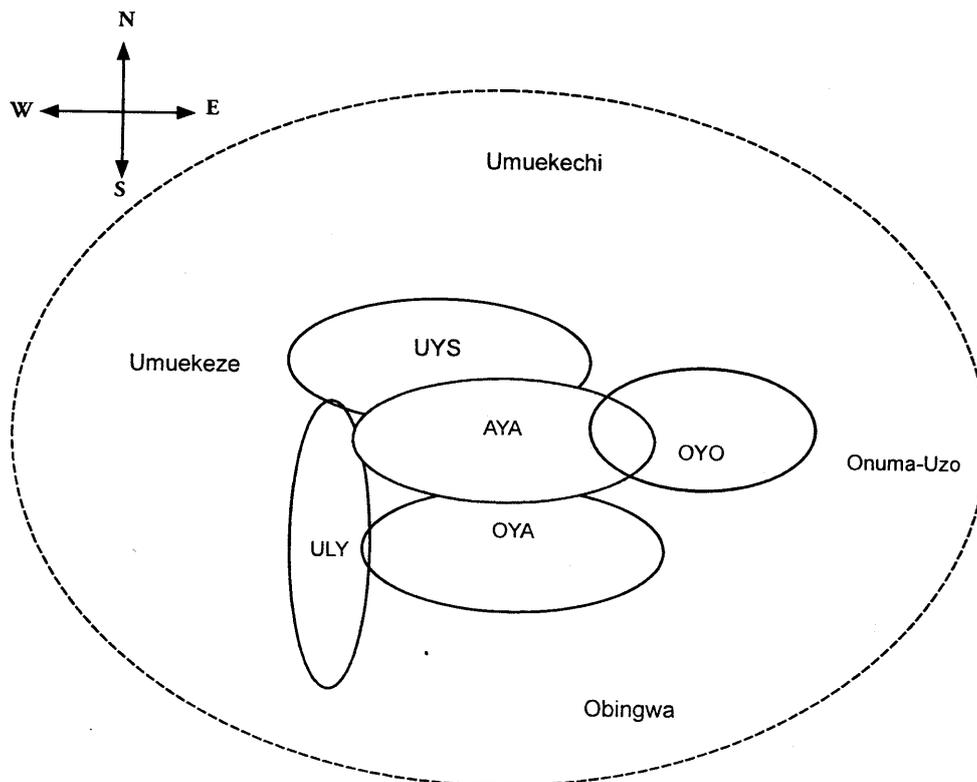


Figure 5. Venn Diagram of Asa North Youth Association.

Key

- AYA = Asa North Youth Association.
UYS = Umuekechi Young Stars.
UYA = Umuekechi Youths Association.
UZY = Umuezeke Youths Association.
OYO = Omumuzo Youths Organization.
OYA = Obingwu Youths Association.

Asa North Men Farmers' Association (ANMFA)

Purpose/mandate: The mandate of the ANMFA is to promote agricultural production for members by jointly solving problems. The association has a strong linkage with Abia State Agricultural Development Project (ADP) and Local Government Council (LGC), and a weak linkage with IITA and NCRI (Fig. 6).

Sources of finance: The organization gets its funds through contributions by members.

Achievement: The association has succeeded in maintaining the community road through self-help projects, and it also organizes football competitions for recreation and communal collaboration.

Constraints

- Lack of funds for production.
- Lack of inputs such as fertilizers.
- Bad roads.
- Poor markets.

Future plan/hope: Transport enterprise.

Asa North Development Union

Purpose/mandate: To foster community development through self-help projects, and peaceful living.

Source of finance: Grants from development agencies and levies.

Traditional Council

Purpose: To take leadership roles such as in decision-making, chieftaincy, and maintenance of law, order, and peace in the community.

Sources of finance: Grants from development agencies such as the Niger Delta Development Cooperation SPDC, and LGC.

Constraints: Lack of trust by citizens, poor information flow/communication between the Traditional Council (TC) and community.

Links to agricultural support organizations

The Asa North Men Farmers' Association (ANMFA) has a strong linkage with the ADP and LGC, and a weak linkage with IITA and NRCRI (Fig. 6). There is also a linkage between

the Development Union (ANDU) and NDDC. Similarly, the TC is interacting with SPDC, LGC, and NDDC. There exists also a relationship between the Women's Society (ANWS) and agricultural support organizations such as IITA, Ukwu West Local Government Area (UWLGA), and RWF. There is no indication that the youths' group relates with any agricultural support organization. There is the need to facilitate relationships between these local organizations and agricultural support organizations where none exist, and to strengthen the existing weak relationships between the ANF and ANWS and these support organizations. This would be of benefit to cassava enterprise development in terms of information transfer and capacity building.

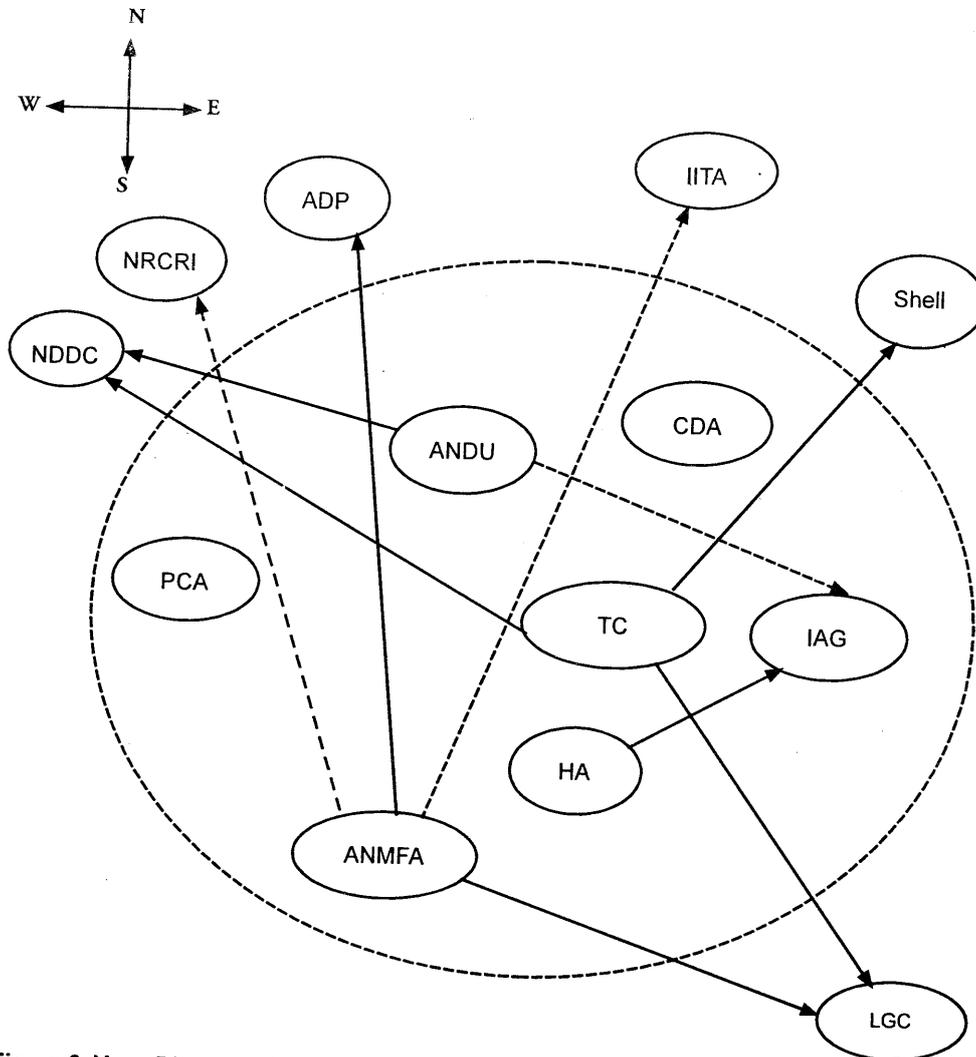


Figure 6. Venn Diagram of Asa North Men Farmers' Cooperative.

Key

ANDU = Asa North Development Union.

TC = Traditional Council.

NDDC = Niger Delta Development.

HA = Hunters Association.

NRCRI = National Root Crops Research Institute.

PCA = Palm Cutters Association.

CDA = Cultural Dancers Association.

ADP = Agricultural Development Project.

IITA = International Institute of Tropical Agriculture.

IAG = Independence Age Grade.

ANMFA = Asa North Men Farmers' Association.

ANF = Asa North FMCS.

NRCRI = National Root Crops Research Institute.

Suitability for resolving priority problems

ANMF has the mandate to promote the agricultural production activities of its members. The ANWS and ANYA take part in projects for the economic benefit of members. This makes these organizations suitable for resolving issues about promoting cassava roots production, processing, and marketing. The existing relationship between ANMS, ANYA, and ANWS could be strengthened by assisting ANYA and ANMS to grow cassava improved roots and ANWS with microprocessors. The agricultural support organizations could also promote capacity building (NRCRI and IITA), and extension and market information delivery (ADP, LGA, and RWF).

Resource (wealth) ranking and vulnerable groups

The community was classified into three resource categories: poor, moderately rich, and rich. The basis for categorization includes ownership of means of mobility, type of house, size of land, crop yield, level of education, access to credit, ability to feed the family, and access to labor and other agricultural inputs, especially fertilizer type and number of livestock. The rich are characterized by a combination of some of the following:

Mobility: The rich have at least one car either for the mobility of the household, or for a transport business.

Farm size: 2–8 acres.

Crop yield: 1–2 t.

Housing: Cement or brick house with zinc roofing sheets.

Livestock: Wide range of livestock including goats (5–10), sheep (5–10), and poultry (more than 40 birds).

Access to farm inputs: Access to about 5–10 bags of fertilizer and sufficient credit for farm operations.

Level of education: All children have the opportunity to acquire western education from secondary to university levels.

Labor: Access to hired labor for most farm operations.

Food consumption and cash availability: Food is available and consumed at leisure, and a lot of money is made from on-farm and off-farm activities.

Only about 10% of the community members are within this category (Table 11).

About 30% of the community members are moderately rich (Table 11) and they are characterized by the following:

Mobility: This resource category own at least a bicycle and/or a motorcycle.

Farm size: About one acre.

Housing: Houses are mostly built with mud bricks and zinc roof.

Livestock: Fewer livestock of all types, no cattle, about 2–3 goats, 2–3 sheep, and some poultry (at least 20 birds).

Access to farm inputs: Limited access to about 1–2 bags of fertilizer and credit.

Level of education: Fewer children (1–2) have access to western education up to primary and secondary levels.

Labor: Mostly depend on family labor with occasional use of hired labor (about two or three hired hands).

Crop yield, food consumption, and cash availability: Crop yield is about 10–15 bags (550–875 kg). Household members can afford only two meals/day.

The majority of the community members (about 60%) are poor (Table 11), and their features include the following:

Mobility: No means of mobility for the household.

Farm size: The size of farmland is limited to about two portions of 50 m by 100 m each.

Housing: Houses are built with mud bricks and thatched roofs.

Livestock: Households own few poultry (about five birds).

Access to farm inputs: Households have no access to fertilizer and credit for farm operations.

Level of education: Children barely have access to primary education.

Labor: Households depend solely on family labor for farm work.

Crop yield, food consumption, and cash availability: Crop yield is low, just about 2–4 bags (110–220 kg), hence meals are limited to about one/day, and there is limited access to cash from farming activities.

Table 11. Wealth ranking of Asa North.

Indicator	Poor	Medium	Rich
Mobility	–	Bicycle, motorcycle	At least 1 car
House	Mud + thatched roof	Mud + zinc roof	Block + zinc roof
Land	2 portions (50 × 100 m)	1 acre	2–8 acres
Crop yield	2–4 bags (110–220 kg)	10–15 bags (550–875 kg)	1–2 pickups, 1–2 tonnes
Education	Nil/Pry	Secondary	Secondary–university
Access to credit	Nil	Little access	Access
Feeding	1× daily	2× daily	3 square meals
Labor	Family labor	May hire 2 or 3, family + hired labor	Hired labor
Input (fertilizer)	No fertilizer	1–2 bags	5–10 bags
Chickens	5	20	> 40
Goats	–	2–3	5–10
Sheep	–	2–3	5–10
Rank	6	3	1

Farming systems

The farming systems of Asa North community comprise a mixture of food and cash crops including economic trees, livestock (such as goats, sheep, and poultry), postharvest agroprocessing and marketing practices, and a host of different cultivation/management practices for men, women, and youths to meet their social and economic needs. This is largely determined by the agroecology and sociocultural practices of the people.

Crops, their uses, and priorities

The major food crops grown by farmers at Asa North are cassava, yam, maize, melon, plantain, telfaria, okro, cocoyam, and bitter yam. Cassava emerged as the most preferred food and cash crop for men and women, while the youths preferred it mainly for food and garden eggs for cash (Table 12). Next to cassava is telfaria for both men and women, and yam for the youths. Other food crops preferred by men are yam, plantain, maize, trifoliolate yam, melon, okra, and cocoyam in descending order. The women also grow maize, yam, melon, garden eggs, okra, cocoyam, pepper, local beans (*akidi*), and ukpo in descending order of preference. The youths prefer plantain, maize, melon, cocoyam, pepper, okra, local beans, and ukpo in descending order. Yam is exclusively grown by men. Women grow garden eggs for food and cash, while men and the youth grow it only for cash.

Plantain is exclusively the men's crop, being the second preferred crop for cash after cassava. Garden egg is the most preferred by youths, the second crop for women, and the third for men. Women and youths grow groundnuts as their fourth priority. However, pineapple and alligator pepper are preferred only by youths for cash as their second and third priorities. The cash crops are chosen based on the amount of income derived from them. Economic trees are grown only by men and youths because of their perennial nature which demands that the land should be tied down for several years. The land tenure system favors men and youths with rights of ownership and control of land use. Hence, women can only have access to land through their husbands, or by purchase or lease for temporary use. The economic trees grown by men include oil palm, coconut, raffia palm, avocado pear, pawpaw, and pear (*ube*) in descending order of importance. Oil palm is also the most preferred economic tree for youths. The youths also grow orange, kola nut, mango, pear, red apple, pepper fruit, bush mango, giant star apple, bitter kola, coconut, and avocado pear.

Table 12. Crop census and prioritization by gender.

Crops	Ranking by gender			Reasons
	Men	Youths	Women	
<i>Food crops</i>				
Cassava	1	1	1	Diversified products.
Yam	3	-	2	Traditional food.
Plantain	4	-	3	Different methods of preparation.
Trifoliate yam	6	4	-	
Maize	5	3	4	
Melon (<i>Egusi</i>)	7	5	5	
Telfaria	2	2	-	
Okra	7	7	8	
Cocoyam	8	8	6	
Pepper	-	9	7	
Garden egg	-	6	-	
Local beans (<i>akidi</i>)	-	10	9	
Ukpo	-	11	10	
<i>Cash crops</i>				
Cassava	1	1	-	Cash income, gives more money.
Plantain	2	-	-	Plantain next to cassava.
Garden eggs	3	2	1	
Okra	4	3	-	
Pineapple	-	-	2	
Alligator pepper	-	-	3	
Groundnut	-	4	4	
<i>Economic trees</i>				
Oil palm	1	-	1	
Coconut	2	-	13	
Raffia palm	3	-	-	
Avocado pear	4	-	16	
Paw paw	5	-	-	
Pear (<i>ube</i>)	6	-	6	
Orange			2	
Cocoa			14	
Kolanut			3	
Sour sap			12	
Pepper fruit			8	
Bush mango			9	
Mango			5	
Red apple			7	
Giant star apple			10	
Bitter kola			11	

Note: M/Y/W=Men/Youths/Women

Livestock uses and priorities

Only about 10% of the men in the community are involved in rearing cattle, while all households within the community, men, women, and youths, keep poultry. About 60% of the men, women, and youths rear goats, and 40% rear sheep. The youths usually do not like rearing sheep. All livestock categories are kept mostly for cash with a relative cash importance of 100% for cattle, 80% for goats and sheep, and 60% for poultry (Table 13).

Table 13. Livestock priorities by gender.

Type of livestock	Percentage involved	Who is involved	Relative importance (1—5)			Ranking	
			Food	Cash	Youths	Men	Women
Goats	60	M/Y/W	1	4	1	1	2
Poultry	100	M/Y/W	2	3	2	2	1
Sheep	40	M/W	1	4	4	3	3
Cattle	10	M	0	5	3	4	4

Note. M/Y/W=Men/Youths/Women.

Crop–livestock interactions (utilization of cassava for livestock feeds)

Mixed farming is practiced in the community. Access to land is highly limited by a combination of high population, and land fragmentation due to land tenure systems. Moreover, soil fertility is also affected by oil spillage that degrades the fertility of the soil. Therefore, there is a need for practices to enhance soil fertility such as the use of animal manure, green manure, and inorganic manure. Droppings from the livestock represent an opportunity for improving the soil organic matter content, and hence soil fertility. Similarly, cassava peel, other wastes from cassava processing, as well as the replacement of the grain content of livestock feed with cassava, represent opportunities for improved feed for livestock fattening for cash, as well as another cassava enterprise that could be developed within the community.

Cassava storage

The value of cassava tubers depreciates considerably if they are not utilized within a few days after harvesting. Therefore, cassava is not harvested until it is about to be processed or sold. Storage of cassava in processed forms is better, depending on the moisture content. The lower the moisture content, the longer the period of storage. This implies that *gari* has a longer shelf-life than the local *fufu* which is usually a moist product. The community members sell most of their cassava in processed forms.

Cassava processing

Cassava is processed into different forms using different methods. The different products are *gari*, *fufu*, *abacha*, starch, and *akara*. Women prefer to process most of their cassava into *gari*, followed by *fufu*, *abacha*, *akara*, and starch. The men prefer cassava processed into *gari* and *fufu* because they like to eat it. Also, it has a longer shelf-life and it is more profitable (Table 14).

Cassava is processed using local indigenous methods and equipment. Also available within the community are some mobile processors for grinding/grating cassava (microprocessors) as well as manual pressers. These, apart from the associated drudgery and low productivity, also affect the quality of products, thus limiting their marketability and commercialization for the local market. However, the Project had already intervened by supporting an odorless *fufu* flour processing plant in the community. This had started functioning a few months prior to this community analysis. The capacity of the plant is sufficient to supply services such as pressing, grinding, and water at affordable rates to the community. This could be complemented with more microprocessing facilities for *gari* production, and to add value to semi-finished products supplied to the *fufu* plant.

Cassava marketing

Only one small market operates within the Asa North community, and there is no partici-

markets located outside the Asa North territory: Afor Ogwe, Ekeakpara, Orié Omuma, Afia cemetery, and Ariaria (Aba) markets (Fig. 7). Cassava stems are obtained from Afor Ogwe, and fertilizer is obtained from Akeakpara, a distance of 3–5 km away. Other products such as cassava roots, *gari*, and tapioca are sold at Ariaria and Afia cemetery markets, within 5–10 km from the community.

Table 14. Cassava products ranking by gender.

Cassava enterprise	Prioritization by gender			Reason
	Men	Women	Youths	
<i>Gari</i>	1	1	1	Food preference, shelf-life and profitability
<i>Fufu</i>	2	2	3	Food preference
<i>Abacha</i>	–	3	–	
Starch	3	5	4	
Flour	–	–	2	
<i>Akara</i>	–	4	–	

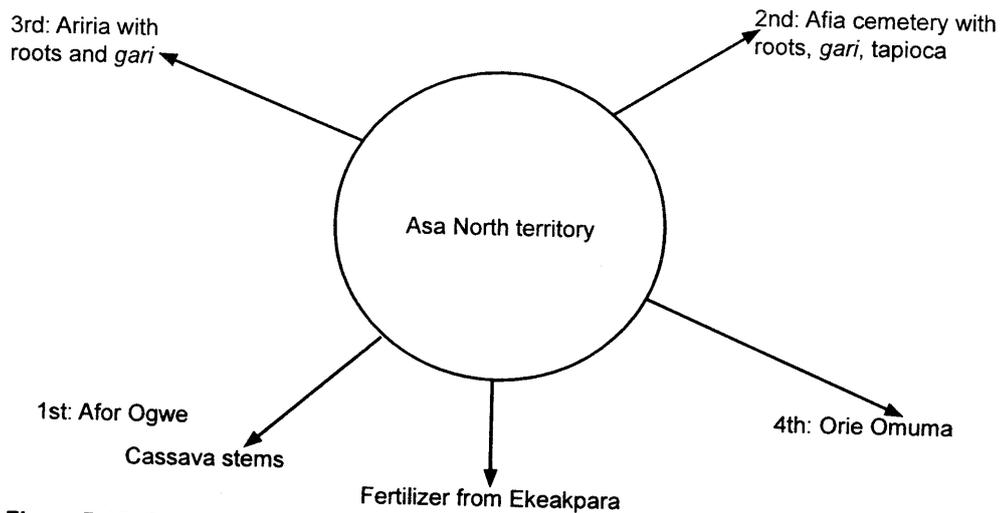


Figure 7. Market network for Asa North.

Market channels

The categories of buyers of cassava roots and *gari* are middlemen (retailers), big traders, and consumers. These people are located within the immediate neighborhood and as far as Port Harcourt, Aba, and Owerri (Fig. 8). The middlemen retail the products to consumers within the Asa North territory and immediate surrounding villages, while the big traders sell to retailers in cities, such as Port Harcourt, Aba, and Owerri. The bulk of the tubers and *gari* are sold through the big traders to the cities.

The *fufu* processing factory represents a major potential channel for cassava roots produced within the community and beyond. The ability to meet the requirement of the factory through the supply of improved roots is a challenge to the project.

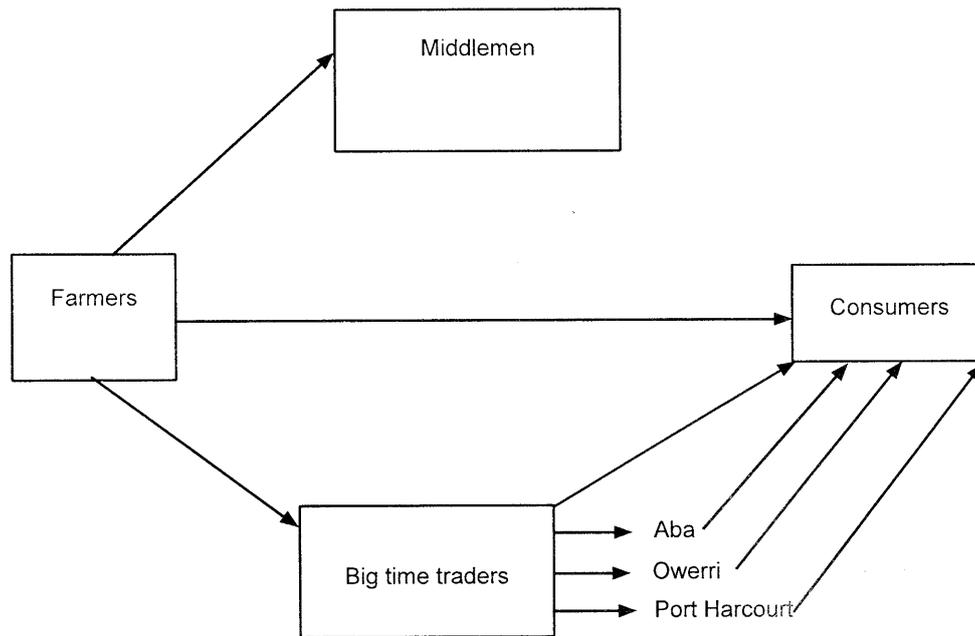


Figure 8. Marketing channels for cassava products in Asa North.

Market infrastructure

Access to market infrastructure within the community is very poor. The only market in the community is very small with one or two sheds and very poor participation from outside the community (Fig. 1). Bad roads also make access to markets outside the community difficult for the members. Water supply for processing cassava into *gari* and other products is poor. Apart from the CEDP-supported *fufu* processing plant, mobile mills with very low capacity are also available. There is a need for improved technologies for processing, such as bigger mills, pressers, and ovens with larger capacity to enhance the supply of good quality *gari* and other cassava products in the market.

Daily and seasonal calendars

The daily and seasonal activities of men, women, and youths are within the context of their domestic, productive, and community roles. The determinants of the daily activities of community members include seasonal demands, such as farming activities (planting, land clearing, weeding, and processing). Usually, men, women, and youths carry out productive activities from mid-morning to early evening (Table 15). All categories are involved in on-farm and nonfarm activities. The non-farm productive activities of women are mostly

processing of palm oil, *akara*, *fufu*; trading in food stuffs, especially cassava products; and the sale of cooked food. Women are responsible for taking care of the household by cooking food, fetching water for domestic use, and cleaning the compound. They also take part in social activities, such as attending meetings (Table 15).

Table 15. Daily activity profile for women.

Time	Activity	Who decides?	Who benefits?
Morning 6:00 am–12:00 pm	Praying	Women	All
	Greeting	Women	All
	Sweeping	Women	All
	Cooking	Women	All
	Fetching water	Women	All
	Breakfast	Women	All
	Farming	Women	All
	Market	Women	All
	Processing palm oil	Women	All
Afternoon 12:00 pm–4:00 pm	Bathing	Women	All
	Lunch	Women	All
	Resting	Women	All
	Meeting	Women	All
Evening 4:00 pm–9:00 pm	Meeting	Women	All
	Cooking	Women	All
	Farming	Women	All
	Market	Women	All
	Supper	Women	All
	Sleeping	Women	All

The men and youths, on the other hand, are less involved in domestic activities, while their productive roles cover a wide range of activities including tapping palm wine, harvesting palm fruits, transporting/driving, welding, and carpentry. They also attend social gatherings and community development meetings.

There is virtually no seasonal variation in the production of different cassava enterprise activities (Table 16). All the products, *fufu*, *gari*, *abacha*, starch, and *akara*, are produced throughout the year. All gender categories are involved in *gari*, *abacha*, and starch production, while only women take decisions and are involved in *fufu* and *akara* production. Everybody in the household benefits from the proceeds of all activities.

The market survey indicates seasonal variations in the prices of cassava products especially *gari*, which falls during the post-planting period (May–December), and reaches its peak during the months of January/February to May/June when land preparation and planting take place and there is less labor for harvesting and processing cassava (Table 17).

Table 16. Cassava enterprise production roles by gender.

Cassava enterprise/product	When/time	Who does it?	Who decides?	Who benefits?
<i>Fufu</i>	All year round	Women	Women	All
<i>Gari</i>	All year round	Men/women/youths	Men/women	All
<i>Abacha</i>	All year round	Men/women/youths	Men/women/youths	All
Starch	All year round	Men/women/youths	Men/women/youths	All
<i>Akara</i>	All year round	Women	Women	All

Table 17. Seasonal calendar for cropping cassava, processing gari, cash and food availability, and market price of gari.

Item	J	F	M	A	M	J	J	A	S	O	N	D
Cassava cropping												
Land preparation	Δ	ΔΔ	ΔΔ									
Planting			ΔΔ	ΔΔ								
First weeding				Δ	Δ	Δ						
Fertilizer/FYM application				Δ	ΔΔ	ΔΔ						
Second weeding								ΔΔ				
Cassava processing												
Harvesting	ΔΔ	Δ	Δ	Δ	Δ	Δ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	ΔΔ
Peeling and washing	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Milling in factory	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Frying into gari	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ	Δ
Cash availability	Δ	Δ	Δ	Δ	Δ	ΔΔΔ						
Food availability	ΔΔ	Δ	Δ	Δ	Δ	Δ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	ΔΔ
Price of gari	Δ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	ΔΔ	Δ	Δ	Δ	Δ	Δ	Δ

Note: Δ = Number of occurrences

Problems, constraints, prioritization, and causes

The factors that constrain the production of cassava in Asa North include lack of credit, insufficient land for farming, poor access to improved cassava varieties, poor access/high cost of fertilizer, high cost of labor, pests/animal invasion, lack of chemicals, and poor farming implements. Cassava processing is also constrained by a lack of processing machines, the low price of processed products, poor storage ability, and lack of electricity and water. The marketing problems include bad roads, lack of means of transport, lack of local markets, and poor sale of domestic products.

Land accessibility, soil fertility, and tenure systems

Generally, poor access to sufficient land is a major constraint to farming in the south-south and southeast of Nigeria from a combination of factors including a low relative land mass, the land tenure system, and a high population.

Women cannot inherit land; they gain access to land owned by their husbands. Therefore, the most common source of farmland for women is by lease (Table 18). Other sources are through communal allocation and purchase. However, the land available for inheritance is insufficient. In addition, they lack funds to purchase land for farming, and communal land allocation is minimal and mostly granted for group use. Land acquired by inheritance and purchase guarantees improved soil fertility maintenance practices, while the other sources do not, because the sense of ownership is lacking. Therefore, the women recommended a change that would guarantee greater access for them through easy purchase in the absence of rights of inheritance.

As a result of this tenure situation, farmers practise intensive farming with short periods of fallow (< 5 years), and this reduces soil fertility. Moreover, oil spillage commonly occurs on farmlands in the area, and it degrades the fertility of the soil. In spite of these problems, farmers still described their land as naturally fertile but that it would give low yield without the application of fertilizer. The soil is also subjected to erosion. Therefore, soil management practices include the use of fertilizer, green manure, farmyard manure, planting on mounds, planting on center ridges, and the provision of field drainage (Table 19).

Table 18. Effects of land tenure on soil management practices of men, women, and youths.

Types of land tenure	Ranking by gender			Effects of tenure on men, women, and children			Effect of tenure system on soil fertility improvement	Need for change (yes/no)	Type of change recommended
	Men	Women	Youths	Men	Women	Youths			
Inheritance	2			Scarcity	No right	Scarcity	Improved soil fertility/maintenance	Yes	Purchase
Lease	1						Discourages fertility maintenance	Yes	Inheritance
Purchase	3			Lack of funds			Encourages fertility maintenance	No	–
Communal allocation	4			Right	Only as a group	Right	Discourages fertility maintenance	Yes	Inheritance

Table 19. Soil fertility assessment matrix.

Natural resource	Fertility status	Farmer evaluation criteria	Soil fertility management practice	Integrated nutrient management	Tillage cons. practice
Land	Fertile (F)	Ly, Sc	G, F	FF	Gmi, Pm, Pcr, Pfd
Key					
	F = anthill	F = fertilizer use	CF = Crop residue+fertilizer		-Planted crop fallows (Pcf)
	Hy = high yield without fertilizer	H = homestead refuse	Hf = homestead refuse+fertilizer		-Green manure incorporation
F = fertile	Ly = low yield without fertilizer	G = green manure	FF = fertilizer+FYM	(Gmi)	
I = infertile	Se = Soil erosion	Fc = fallow cover crop	F = fertilizer Alone		-Planting on mounds (Pm)
D = depleted	Pw = problem weed	Z = none			-Planting on centre ridges (Pcr)
A = acid	Wl = waterlogged				-Provision of field drainage (Pfd)
	Cs = Clayey soil				

Cassava crop production

The most serious problems for cassava production are poor access to credit, fertilizer, improved cassava varieties, labor, and farm implements, and a high incidence of pests. The main production activities of men, women, and youths follow the same pattern as observed in the similarities in their first three priorities, capital, fertilizer, improved varieties, and/or land availability. Access to labor and farm implements were the fourth and fifth priorities for men and women, while the youths considered the high cost of labor as the fifth and lack of chemicals as the sixth major problem (Table 20).

The youths believe the direct causes of lack of capital for production activities are unemployment, laziness, and a lack of interest in farming, while the men view lack of capital as a result of poverty and poor financial management. Lack of interest is a result of the poor price incentive from farm produce, as well as the hard labor of cassava production and processing. Therefore, if cassava production and processing are mechanized and market opportunities are explored to stimulate better prices for cassava products, it is considered that these might stimulate the interest of the community to source for capital and invest more in cassava enterprises. The causal diagrams for lack of capital and farm machinery are presented in Figures 9 and 10. The problem of lack of machinery is again directly traced to a lack of money for purchase or hire, as well as a lack of qualified technicians because of poor education and low levels of skill.

Table 20. Prioritization of cassava problems by gender.

Problem	Prioritization by gender		
	Men	Women	Youths
<i>Production problems</i>			
Land availability	7	–	2
Fertilizer availability	8	2	3
High cost of fertilizer	3	–	1
Lack of capital	1	1	4
High labor cost	4	4	5
Lack of chemicals	–	–	6
Lack of farm implements	5	5	–
Scarcity of improved varieties	2	3	–
Pests	–	6	–
<i>Processing problems</i>			
Lack of processing machines (grinders/ graters, pressers, frying machines)	1	1	1
Lack of storage facilities	–	–	–
High cost of labor	2	–	–
Water supply	3	–	–
Power supply	–	2	–
	–	3	–
<i>Marketing problems</i>			
Poor access roads	1	1	1
Transportation cost/means	2	4	4
Poor market price	3	3	2
Lack of access to market information	–	–	3
No local market	–	2	–

Cassava processing

The community has already benefited from CEDP through the recent establishment of a *fufu* processing plant. However, household processing activities are still seriously constrained by inadequate processing machines. This is due to the nonavailability and high cost of the equipment (Fig. 11). The machines are not available because there is no local fabricator,

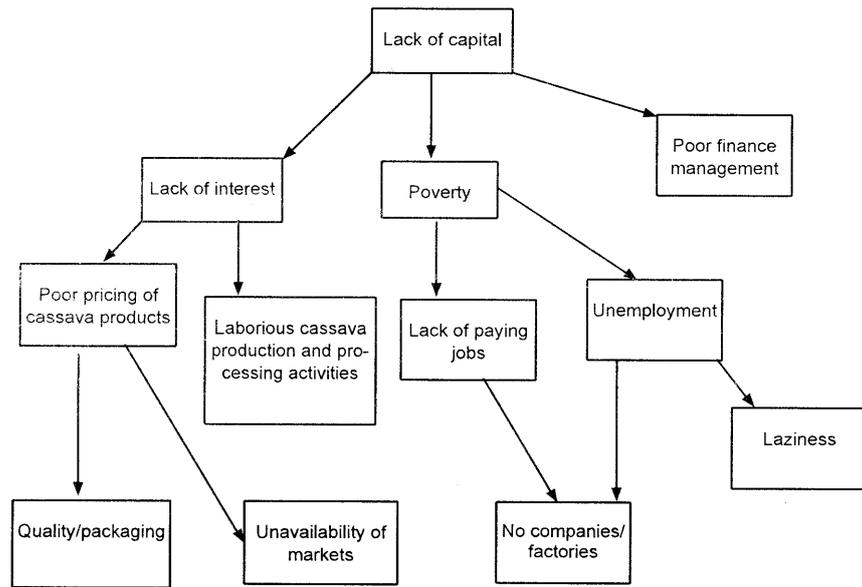


Figure 9. Causal diagram for lack of capital.

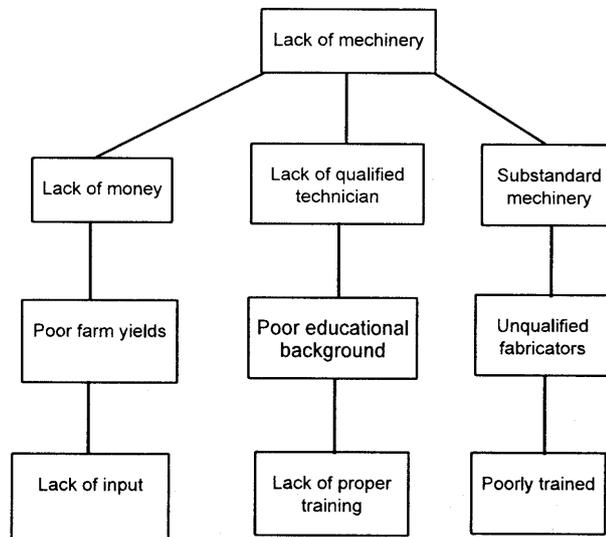


Figure 10. Causal diagram for lack of machinery.

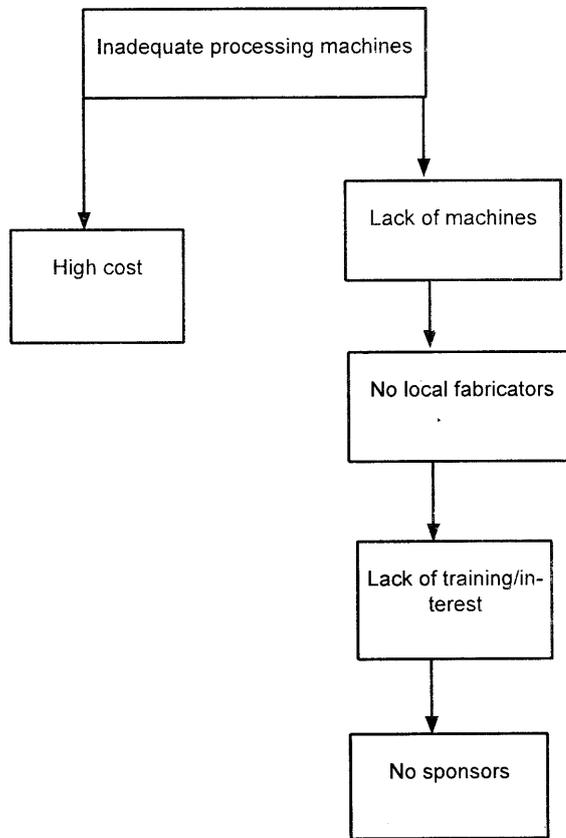


Figure 11. Causal diagram for inadequate processing machines.

as a result of lack of training and low level of interest in the community. It is believed that the situation could improve if sponsorship is made available to develop skills in fabrication and maintenance,

Labor issues and constraints

High cost of labor is the fourth major problem for men and women in Asa North, and this in addition to the laborious nature of cassava production and processing activities contributes to the lack of interest (Figs. 9 and 10). Labor issues that emerged are associated with on-farm crop production activities including land preparation, cultivation, planting, weeding, fertilizer application, and harvesting. The bulkiness of the produce constrains movement to the market and processing point. Postharvest processing activities are grating, pressing, and frying or drying. The community members are more dependent on local implements (hoes) with no access to tractors. The combined harvester and microprocessing equipment, such as mechanized graters, presses, and improved ovens, are completely lacking. These operations are therefore performed manually. This implies drudgery and a high demand for hired labor for the processing of cassava tubers into *gari* and/or *fufu* as is presently the case. Since the

main livelihood activity in the community is farming with cassava as the priority crop, the above scenario seems to be a constraint to the community. There is a need for intervention by providing labor saving devices such as appropriate tillage equipment, harvesters, and microprocessing equipment for men, women, and youths so that the scope and effectiveness of their operations and livelihood conditions can be greatly enhanced.

Input and output marketing

The main marketing problems include bad roads, high transportation costs, and poor access to means of transport, low market prices, lack of access to market information, and the absence of local markets (Table 20). Bad roads emerged as the most serious marketing problem in the community. The second problem was poor access to adequate means of transport (men), the absence of local markets (women), and low prices of products (youths). The third major problem for the men and women was the low prices of products, while for the youths, it was poor market information.

The most serious marketing problem (bad roads) was analyzed to determine the community's perception of the main cause. Lack of maintenance was suggested as the major cause of the poor roads, as a result of negligence by the community/Local Government Authority/development agencies. Poor road maintenance is also linked to the lack of machinery from the lack of money/poor capital base (Fig. 12).

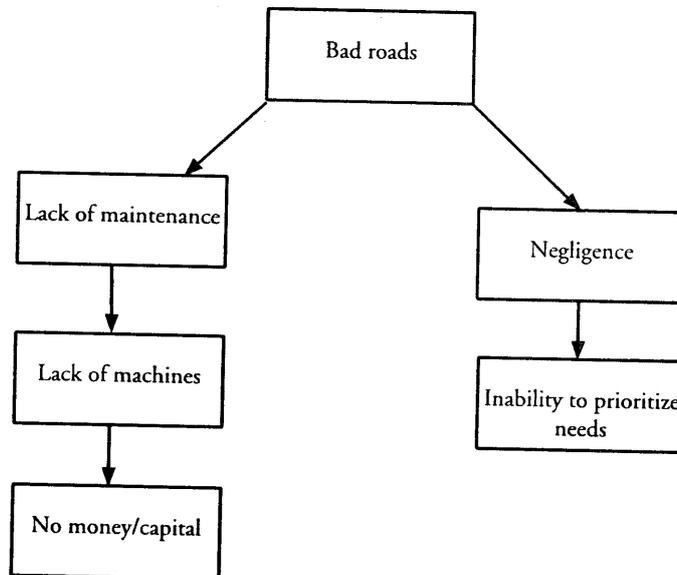


Figure 12. Causal diagram for bad roads.

Credit

The availability of credit emerged as an important issue in the problem analysis for men, women, and youths, with respect to the production, processing, and marketing of cassava. If credit is available, access to farmland could be improved through purchase and leasing. Similarly, access to farm inputs including fertilizer, hired labor, chemicals, and microprocessing machines would be improved.

Other problems

Apart from the technical problems associated with the production, processing, and marketing of cassava and its products, there are also some socioeconomic problems. These include lack of electricity, poor water supply, transportation facilities for moving produce to markets, poor access to sufficient land for farming, and the apparent lack of trust/communication gap between the community members and their traditional leader. The latter should be of serious concern to the project. This implies that the project should not consider the community leader as the informant or entry point for project intervention, rather the identified relevant CBOs or groups of men, women, and youths, should be directly involved in project activities. Interaction with the Eze should be strictly based on courtesy. Another serious issue is the effect of land tenure and management practices. The community should consider facilitating improved access of project participants, especially the women, to land for project activities and ensure appropriate soil fertility management of acquired project farmlands for sustained optimal cassava production.

Coping strategies for production problems

A census of the coping strategies for priority problems in the community was carried out and the evaluation of local and improved methods was done. Farmers' criteria for the evaluation of the local and improved methods include labor requirement, cost of acquisition, effectiveness, time requirement, and quality of product (Table 21).

The strategies for coping with poor access to capital, cassava varieties, and labor were explored and evaluated with the farmers.

Table 21. Farmers' criteria for evaluating coping strategies.

Method	Criteria	Rating	
Production problems	Cost	xxx	High
	Effectiveness	x	Low
	Time	x	High
Family labor	Quality of product	—	Not relevant
	Yield	x	Low
Processing	Labor	x	High
Manual processor	Cost	xxx	Low
	Effectiveness	x	Low
	Time	xx	High
	Quality of product	x	Low
Market problems	Labor	xx	High
Transportation by bicycle	Cost	xx	Low
	Effectiveness	xx	Low
	Time	xx	High

x = Good, xx = better, xxx = best.

Lack of capital

The community rated lack of capital as the most important problem because they believe it is necessary for the acquisition of land and other inputs, including improved cassava varieties, stem cuttings, fertilizer, herbicides, and labor for farm activities. Therefore, the provision of credit is a major demand from the community. The traditional methods that the community employs to cope with sourcing for credit are through personal savings, usually meager, and also through contributions by CBOs. Contributions through personal savings are usually insufficient, but meet immediate needs. Credit through thrift group contributions started about 50 years ago and is usually more than personal savings, however, it is still insufficient and the interest is too high (Table 22). Both methods are increasing because of the increasing need for farming, to meet the food and cash requirements of the increasing population. However, very few people in the community have benefited from bank loans in the past 20 years. Credit from banks is usually substantial, but associated with problems of high interest rates and the requirement for collateral.

Table 22. Coping strategies for bad roads, poor processing machines, and lack of credit.

Problem	Coping strategy	When known	Taught by	Advantages	Disadvantages	How many in use	Trend in use (I,D,S)
Bad roads	Communal labor.	From birth.	Parents.	On the spot solution.	No lasting effect.	All	I
Insufficient processing machines	<i>Traditional</i> Local grater.	From birth.	Grandparents.	Immediate.	Painful, burdensome.	All	D
	<i>Modern</i> Mechanical graters.	30 years.	Extension officers.	Quick service.	High cost.	All	I
Lack of credit	<i>Traditional</i> • Personal savings. • Contributions	From birth. 50 years.	Parents. Parents.	Immediate solution. Enough capital.	Not enough. Not immediate; high interest.	All Few	I I
	<i>Modern:</i> Bank loan.	20 years.	Extension officers	Enough.	Interest rate; unavailable collateral.	Few	I

Note. I, D, S=Increasing, Decreasing, Static.

Access to cassava varieties

The community obtains improved cassava varieties from ADPs and the NRCRI. This was introduced in the 1990s. However, up till now, very few people have had access to it. The use of improved cassava stem cuttings is increasing, but they are usually not easily available and are relatively costly.

Equipment

Traditionally, the use of local graters has been practiced for a very long time, and usually, they are available in every household. Using them is very slow with a lot of drudgery and hazards, therefore, its use is decreasing. Extension officers, on the other hand, introduced mechanical graters, about 30 years ago (Tables 23 and 24). The use of mechanical graters is increasing, though expensive because they are faster, more effective, and produce better quality products, though they are expensive. On the basis of these criteria, the mechanical grater was rated as superior to the manual grater (Table 25).

Table 23. Coping strategies for priority problems.

Method	When known	Taught by	Advantages	Disadvantages	How many?	Use ↓ or ↑
Traditional						
Labor						
Shared	Ancient	Forefathers	Economy of scale	Delays of operation	All	↑
Family	Ancient	Forefathers		Tied to family	All	↑
Village	Ancient	Community			All	↑
Equipment						
Manual cassava grater	Ancient	Forefathers	Accessible	Delay, low production.	Few	↓
Raw material	-	-	-		-	-
Transportation						
Bicycles	1970s	Forefathers	Ease of evaluation	Maintenance	Many	↓
Wheel barrow "Okada"	1990s	Government	Easy evaluation of produce	High cost of maintenance	Many	↑
Market problems						
Information market outlets	Before market day	Friends, neighbor	No finance involved	Not assured	Many	↑
Price fluctuation	-	Media	Reliable	Cost of access	Few	↑
Village market outlets	Ancient	- Comm.			Comm.	static
Cassava variety Modern/introduced Improved variety	1990s	ADP NRCRI	High yield, virus resistant, early maturing.	Not easily available, high cost	Few	↑
Transportation "Okada"	1990s	Government	Easy evaluation of produce	High cost of maintenance	Many	↑

* ↑=upward trend, ↓=downward trend

Table 24. Coping strategies for processing equipment.

Method	When known	Taught by	Advantages	Disadvantages	How many	Use ↓ or ↑
Traditional hand grater	Forefathers	Forefathers	None	Slow Cause injury	Common in community	↓ Use improve type
Sieve	30 -40 years	Forefathers	Good quality produce	Slow	Common in community	Static
Knife (Cutting/peeling)	Forefathers	Forefathers	No substitute	Cause injury	Common in community	↑ No alternative
Frying pot	Forefathers	Forefathers	Multipurpose	Small quantity at a time	Common in community	↑ No alternative
Modern/introduced motorized grater	30 years ago	Igbo	Fast	Not available Spoils easily	Common in community	↑ Ccost-effective
Hand-drying press	30 years ago	Igbo	Fast	Needs energy to operate	Common in community	↑ Cost-effective

* ↑=upward trend , ↓=downward trend

Table 25. Evaluation of processing options by farmers.

Method/criteria	Labor	Effectiveness	Cost	Time	Quality of product	Score	Rank
Hand grater	x	x	xxx	x	x	7	2
Motorized grater	xxx	xxx	x	xxx	xxx	13	1

Note: x = good, xx = better, xxx = best.

Coping strategies for processing problems

The lack of processing equipment, which was the major processing problem, was explored to determine the coping mechanisms in the community.

Coping strategies on marketing problems

The problem of accessibility to markets was explored from the perspectives of poor means of transportation/road, and access to market information, price fluctuations, and market outlets.

Transportation, access road, and market outlets

Most community members either trek to the market, or use bicycles and motorcycles. There are very few vehicles because of poor roads. Based on this, they cannot transport large quantities of produce to the market because it is time consuming and difficult. The suggested solution is road construction to improve on access to the community by buses, pickup vans, and lorries. This is also expected to increase the number of members from

communities in the market to improve on the participation of members from other communities in the small local market.

Access to market information

The main sources of market information are friends, neighbors, and the media (Table 23). Many of them have access to such information before market day.

Household survey

A household/market survey of 15 randomly selected respondents comprising three female-headed and twelve male-headed households was conducted using semistructured interviews and a checklist of questions. The age range was from 25 to 60 years with a family size of from four to seventeen people. About 70% of them, including all the female-headed households, are poor.

All the households are predominantly farmers, with cassava as their priority crop. Other crops grown include palm trees, cocoyam, vegetables, and plantain. Most of them acquired land through inheritance and lease. The average land holding is less than one ha/household.

Household income is derived primarily from farming, and the major expenses include payment of school fees, feeding, clothing, health-care, and other social obligations. Households have very few assets, comprising a little land, a house, a motorcycle or a bicycle.

Most households use poultry droppings and green manure to improve the fertility of their soils while a few use chemical fertilizer.

The major cassava products processed are *gari* and *fufu*. The RWF is involved in facilitating the Women's Cooperative group in processing cassava into odorless *fufu*, and a few of the female respondents belong to this cooperative.

The most serious problem of processing is lack of machinery for grinding and frying. Usually, family labor is used for peeling the cassava while all households engage the services of microprocessors for pulping. However, we were not able to interview the microprocessors because of lack of time.

Cassava is sold mainly in the form of roots, *gari*, and *fufu* in neighboring markets: Afia cemetery and Ariaria main markets at Aba. Farmers' source of price information is from retailers.

Households obtain cassava cuttings from their farms, neighbors, or Afor Ogwe. Fertilizer and seeds of other crops are obtained from the State ADP but these are not always available. The alternative source of fertilizer is Ekeakpara, but it is very expensive. There are no input dealers within the community. However, one dealer in poultry feeds who sells drugs and day-old chicks was available. There is the possibility of expansion to include crop-based agricultural inputs if the capital is available and there is a demand for them.

Community action plan

At the end of discussions on the second day of the community analysis, a feedback session was held with the community. The community agreed on their preferred options and the potential roles of institutions for the implementation of project interventions (Table 26).

Table 26. Community Action Plan For CEDP, Asa North (Abia State).

Intervention	Materials required	IITA		
		(USAID/ Shell)	NGO	Community
Cassava production and multiplication of varieties	Fertilizer	3		
	Agrochemicals	3		
	Cassava cuttings	3		
	Land			3? (Community allocation or purchase)
	Labor			3
<i>Fufu</i> processing plants (already in progress)	Machinery	3		
	Building	3		
	Land			3?
	Capital	3		
	Credit facilities	3		
	Quality control	3		
	Management		3	
Microprocessors	Equipment	3		
Marketing	Outlets	3		3
	Public awareness	3		3
	Transportation/access road	3		3

Cassava production

IITA is expected to provide fertilizer, agrochemicals, and improved cassava cuttings, while the community will provide land and labor. However, the issue on allocation of land for the mother trial was not concluded.

Cassava processing

A *fufu* processing plant is already established and it operates with support from IITA, SPDC, and USAID. The community expects IITA to provide capital, develop skills for maintaining machinery, and facilitate the quality control of products. The community agreed to provide a site for the microprocessing equipment. The microprocessors would be given as a loan to the CBOs which would in turn generate revenue to offset the cost. The amount realized could be reinvested to expand the resource base of the CBOs on terms to be further negotiated with IITA.

Marketing cassava

Both IITA and the community would participate in finding new market outlets (local and international), creating awareness about new opportunities in the community, assisting local transporters, and influencing policy decisions on road maintenance as capacity building for improved market access, to facilitate improved outlets for cassava products.

Calendar of activities for CEDP in 2005

The calendar of activities for 2005 could not be completed with the community because of the time constraint. However, cassava production activities are expected to commence in January through March. Therefore, it is necessary for the project to give feedback to the community on site locations for trials in January, during which the calendar of activities should be completed.

Possibilities and priorities for cassava enterprise development

Possibilities for intervention should focus on the capacity building of individuals and institutions in the community, based on their priorities concerning cassava production, processing, and marketing. Existing structures and arrangements in the community should be used to promote community ownership and sustained project impact. The specific priority issues for consideration are highlighted as follows:

Cassava production

- To facilitate improved access to land for farming cassava.
- To establish community-based cassava multiplication farms for the provision of planting materials on a commercial basis.
- To introduce IITA improved varieties.
- To improve on the use of cover crops, green manure, and chemical fertilizer for soil improvement.
- To control pests and diseases.
- To mechanize land preparation, tillage, and harvesting.

Mechanizing cassava processing (especially for women)

- Product options should include:
 - *Gari*, *fufu*, starch, and *abacha*.
 - Others: chips? crackers? utilization for livestock feed?
- Promote small-scale mechanization such as:
 - Grating machine.
 - Slicing machine.
 - Peeling machine.
 - Press.
 - Oven.
- Develop capacity for the maintenance of machines for sustainability.
 - Training on machine operations, fabrication/maintenance.
 - = Business management skills.
- Quality control.

Cassava marketing

“Agent” program for supplying inputs

- Invite applications from potential “agents”.
- Priority should be given to existing suppliers.
- Establish opportunities and constraints.
- Select on the basis of appropriate experience, and invest private funds.
- Provide training in small business management.
- Provide some working capital (on credit) for stocks.
- Negotiate with wholesalers to supply credit; offer short-term guarantees.
- Provide backup support and monitoring.

Improve on marketing existing produce

- Provide market information for farmers.
- Project economist to compile market information.
- Disseminate information through radio and newspapers and other print media, extension officers of ADP, LGA, NGOs.

Seek to reduce excess profits of middlemen

- Increase farmers’ negotiating powers for purchases and sales through organized groups.
- Consider local agents linked to producer groups.
- Promote appropriate units of measurement.
- Promote improved packaging.

Create an environment for local and export markets

- Promote internal community agreements for linking production with consumers.
- Investigate niche markets for cassava products.
- Link with Local Government/ traditional council/NDDC for improvement in infrastructure.
- Roads, radio networks, electricity, water supply.

Provide credit

- Operation and maintenance training.
- Small business management skills.

Institutional intervention

- Microfinance for savings and credits.
- Agent scheme for input provision.

- Suggested men's institution—Asa North Men Farmers Association.

The men's interest include cassava tuber multiplication. stem multiplication for commercial purposes.

- Suggested youth institution—Asa North Youth Association.

The youth's interests include cassava crop production, stem multiplication, machine fabrication, operations, and maintenance.

Transport business?

- Suggested women's institutions.

In addition to the ANWC already working with the project, the ANWS could also be supported with microprocessors for *gari* (and other products), at different locations in the community. There would also be:

- Training of members on small business management.
- Promoting participatory research and extension approaches.
- Improving farmer–extension–research–private sector linkage.
- Identifying issues that require policy considerations.
- Building on existing coping strategies.

Microfinance for savings and credit

- Identify CBOs that have potential sources of income.
- Women, men, and youth groups.
- Provide support in financial management, saving, and lending.
- Link to formal lending institutions.
- Identify opportunities for use of savings/credit.
 - Input purchase.
 - Cassava processing, e.g., *gari*, starch.
 - Cassava tuber farming.
 - Supply of improved cassava varieties.

Policy issues

Local government (LG)

Inform LG at start of project.

Involve LG at key stages of the project.

Indicate areas that require policy input.

Input supply policies.

Marketing policies.

Participatory research and extension approaches.

Support LG in building capacity to support community action plan.

State Government

Link with relevant ministries— Ministry of Local Government, Ministry of Agriculture (State ADP), and Ministry of Works for support in key areas.

Federal Government

Link with Federal Government on policy issues such as input supply, policies, produce marketing policies, and land-use policies.

Conclusions

The process of the community analysis was participatory, the agenda was successfully implemented, and the objectives were achieved. Given that there is lack of trust or a communication gap in the traditional institution, the project would achieve greater cooperation from Asa North community through the use of identified CBOs to advance the course of CEDP in the community.

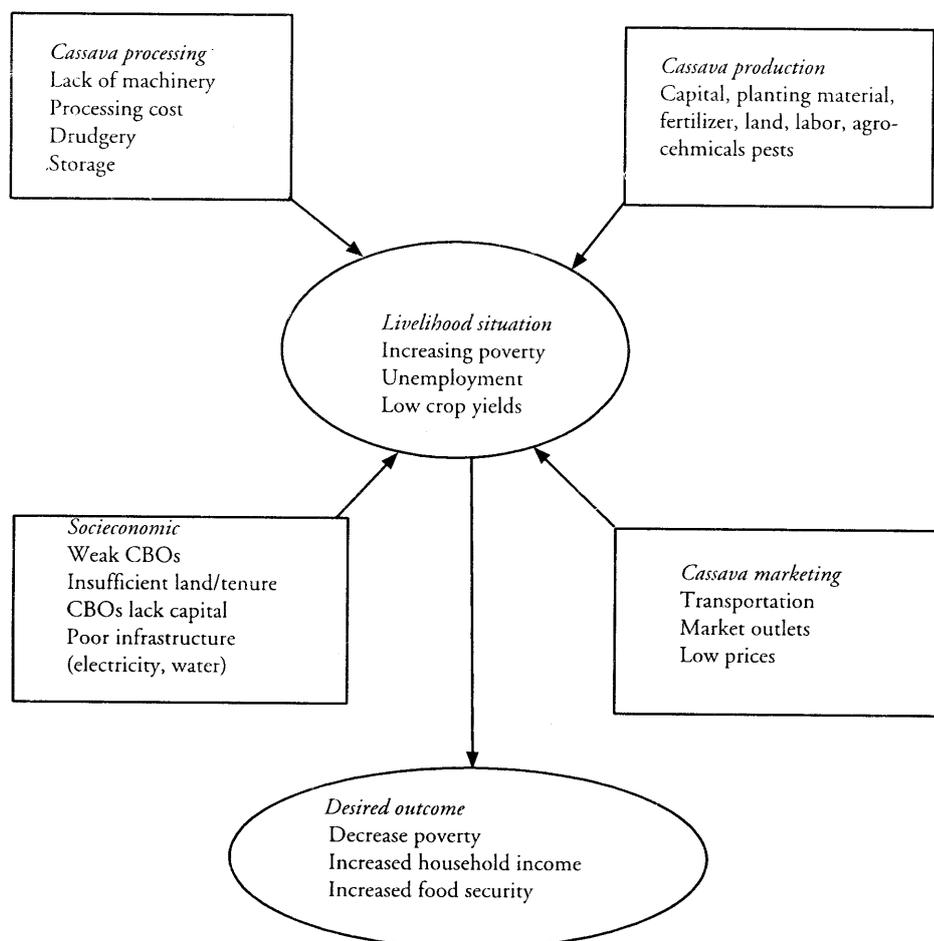


Fig. 13. Livelihood situation of Asa North, based on cassava enterprises.

The poverty level is high, with 60% considered as poor, 30% moderately rich, and only 10% in the rich category. The livelihoods of the people in terms of food security, earned income, crop yield, and employment are further threatened by the problems of insufficient land, poor soil fertility, lack of capital, unavailability of improved planting

materials, lack of processing equipment, poor access to fertilizers, poor product prices, poor market outlets, and other socioeconomic problems including poor roads, and a lack of electricity and water supply.

There is the need to develop the capability of individual men, women, and the youth, in institutions including CBOs, market delivery systems, input delivery systems, and information systems within the community towards promoting sustainable production, processing, and marketing of cassava and its products.

Similarly, a policy environment including local, state, and Federal levels should be influenced to address priority issues of rural infrastructure (road, electricity, water), input and output markets, and the access of vulnerable groups, especially women, to land and credit.

Since cassava plays a significant role in the economy of Asa North, it is hoped that a combination of these strategies would address the expressed problems towards enhancing food security, and improving income, and thus reducing rural poverty.

Recommendations

To ensure sustainability of the outcome of the project, the following recommendations are made:

Project process

The Cassava Enterprise Development Project should adopt the participatory research and extension process, drawing lessons from the DFID *Striga* and *Imperata* projects (2001–2003). The features include the following:

Mother trial/cassava processing plant—researcher control, on-station/factory premises or on farmers' fields, identifying options.

Daughter trial/initial microprocessors—in farmers' fields/beneficiaries' premises, testing and adaptation for local suitability.

Granddaughter trial/other microprocessors—farmers take over control/others purchase and use microprocessors with assistance from extension staff and earlier microprocessor operators.

Farmer-to-farmer or operator-to-operator diffusion. This is usually a learning and action process during which capacity of stakeholders is developed in facilitating and coordinating community action plans.

Phasing out interventions

The project activities should be implemented in phases. Short-term project interventions could include technical options such as cassava production, improved varieties, multiplication, and processing, among others.

Policy interventions and scaling up could be considered as long term. Scaling up implies involving more stakeholders, e.g., LGAs, ADPs, and NGOs, as well as capacity building through training.

Scaling out interventions

This entails adding more options, involving more individuals and community groups, extending to other communities through farmer-to-farmer/processor-to-processor extension–research linkage.

Annex

Community analysis of Asa North, Abia State (16–17 December 2004) program of activities.

Time	Activity
Day 1: 16 December	
9.00–9.30	- Arrival of participants.
9.30–10.00	- Courtesy call on community leader.
10.00–1300	- Livelihood analysis (onfarm/nonfarm). - Resource wealth ranking. - Soil fertility assessment. - Land tenure matrix. - Institutional analysis—Venn diagram and SWOT of CBOs. - Gender analysis—Activity profile. - Seasonal calendar/disaggregated data.
1300–1400	- Feedback session.
1400–1500	- Lunch break/household surveys.
1900–2000	- Review of day's activities.
Day 2: 17 December	
9.00–1300	- Crop prioritization. - Cassava problem census and prioritization using stone scoring/ pairwise ranking. - Cassava postharvest problem analysis. - Casual diagrams/coping strategies and their evaluation using farmers' criteria. - Cassava market analysis. - Network/channels/infrastructure mapping. - Semistructured interviews/cluster analysis. - Community action plan for CEPD.
1300–1400	- Feedback to community.
1400–1600	- Household interviews, cluster analysis.
1600–1830	- Departure for Port Harcourt.

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