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Anambra State of Nigeria
Ministry of Health

World Bank/UNDP
Regional Water and Sanitation
Group
Abidjan/Ivory Coast

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Plans for Development of
Rural Water Supply and
Sanitation in Anambra State

Volume 2: Plan of Action

IWACO

Consultants for Water & Environment

Head Office:
P.O. Box 183
3000 AD Rotterdam
The Netherlands

Rotterdam

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THE PRESENT REPORT CONSISTS OF TWO VOLUMES:

VOLUME 1: STRATEGIC PLAN

VOLUME 2: PLAN OF ACTION

PLAN OF ACTION

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PLAN OF ACTION

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1. INTRODUCTION

In 1987 a Sector Memorandum on Rural Water Supply and Sanitation (RWS&S) for the Federal Republic of Nigeria has been published on initiative of the Regional Water and Sanitation Group (RWSG) at Abidjan, Ivory Coast, of the World Bank/ UNDP Water Supply and Sanitation Group. In the same year a Memorandum on RWS&S in Anambra State of Nigeria has been prepared. In this last document it has been recommended to prepare a Plan of Action for short term activities in the sector in Anambra State. The RWSG invited IWACO B.V., Consultants for Water and Environment for this task.

The objectives for the study were to develop a Plan of Action for three Local Government Areas (LGA) that would fit in a long term Strategic Plan for the sustainable development of the RWS&S sector. The present report consists of two volumes. A first gives a wide overview of the rural water supply and sanitation sector in the whole State and includes a strategic plan for its development. A second volume concerns the three selected Local Government Areas for which activities are proposed in a short term Action Plan.

The selection of the three LGA's has been done by the Ministry of Health on behalf of Anambra State Government. They they are reasonably representative for the conditions of the rural environment of Anambra State.

The first volume gives the necessary background information for the second volume so they cannot be seen apart one from another. This report gives only some particularities of the three selected LGA's: Anambra, Igbo-Eze and Ikwo. In each of these LGA's three sample villages have been visited and interviews have been held (see annex 7). Recommendations are based upon the results of the surveys in these 9 villages and the visits to the LGA's more in general.

This action plan aims to draw interest of external donors to fund Rural Water Supply and Sanitation activities within a short period of time. The existence of a long term strategy makes funding of these activities more attractive as one knows where to go and how.

After some particularities of the three LGA's the Plan of Action is presented in chapter 3 and onwards, in such a way that funding by one or several donors is possible. The project objectives, beneficiaries and outputs have been identified. Separate budgets have been elaborated for the three LGA's and for support of interventions at State level. It must be stressed that the last activity is considered of great importance for a sustainable development of the RWS&S sector, so all effort should be given to find a donor for this part of the Plan of Action as well.

2. DESCRIPTION OF THE SELECTED LGA's

2.1 ANAMBRA LGA

2.1.1. The natural environment

Anambra LGA (see figure 2.1) is the Western most LGA of Anambra State. Typical for this LGA are the Niger and Anambra Rivers. Its area is approximately 1295 km². The capital Otuocha is approximately 35 km from Onitsha and approximately 90 km on a good road from Enugu. A new road from Onitsha to Nsukka intersects the LGA from South-West to North-East. Other roads within the LGA are of moderate quality.

The rivers divide the LGA into two very different areas; the "low land" or riverine areas that lies on the river plain and the "high land": the South-Eastern area of the LGA. At Otuocha two ferries link the "low land" with the "high land", one for the Northern part, the other for the Southern part. Crossing times are about 20 minutes and the ferries are continuously operated during the day. A bridge is under construction between Otuocha and Umueze-Anam. During the wet season only access by boat is possible in the "low land".

The natural environment varies considerably over the LGA. The "low land" is flat, consisting of sands and clays and many areas are flooded during the rainy season. The villages are located on slightly higher grounds. During the rainy season people cultivate rice and live in the field in areas that just remain dry. During the dry season some cassava is cultivated. The area can be classified as being agriculturally rich area.

Surface water is the traditional and common source of drinking water. At the end of the dry season its quality is very poor. Groundwater is however at shallow depth and could be exploited by hand-dug wells provided that they are protected against flooding.

On the "high land" the natural environment shows variations as well. The main, Southern part of the high land is underlain by the Bende Ameki Group that consists of a succession of sandstones and shales. The shales tend to perch the groundwater, so that it can be exploited from the sandstone aquifers.

This feature is also the reason for the occurrence of springs in the valleys. In the more hilly areas in the surroundings of Nsugbe and Nkwelle such springs are numerous and are exploited by villagers. Where these springs do not exist groundwater can be exploited by hand-dug wells in the valleys. The disadvantage is that people have to carry the water uphill to their homes, as the majority of the settlements are situated on top of the hills instead of at the bottom of the valleys.

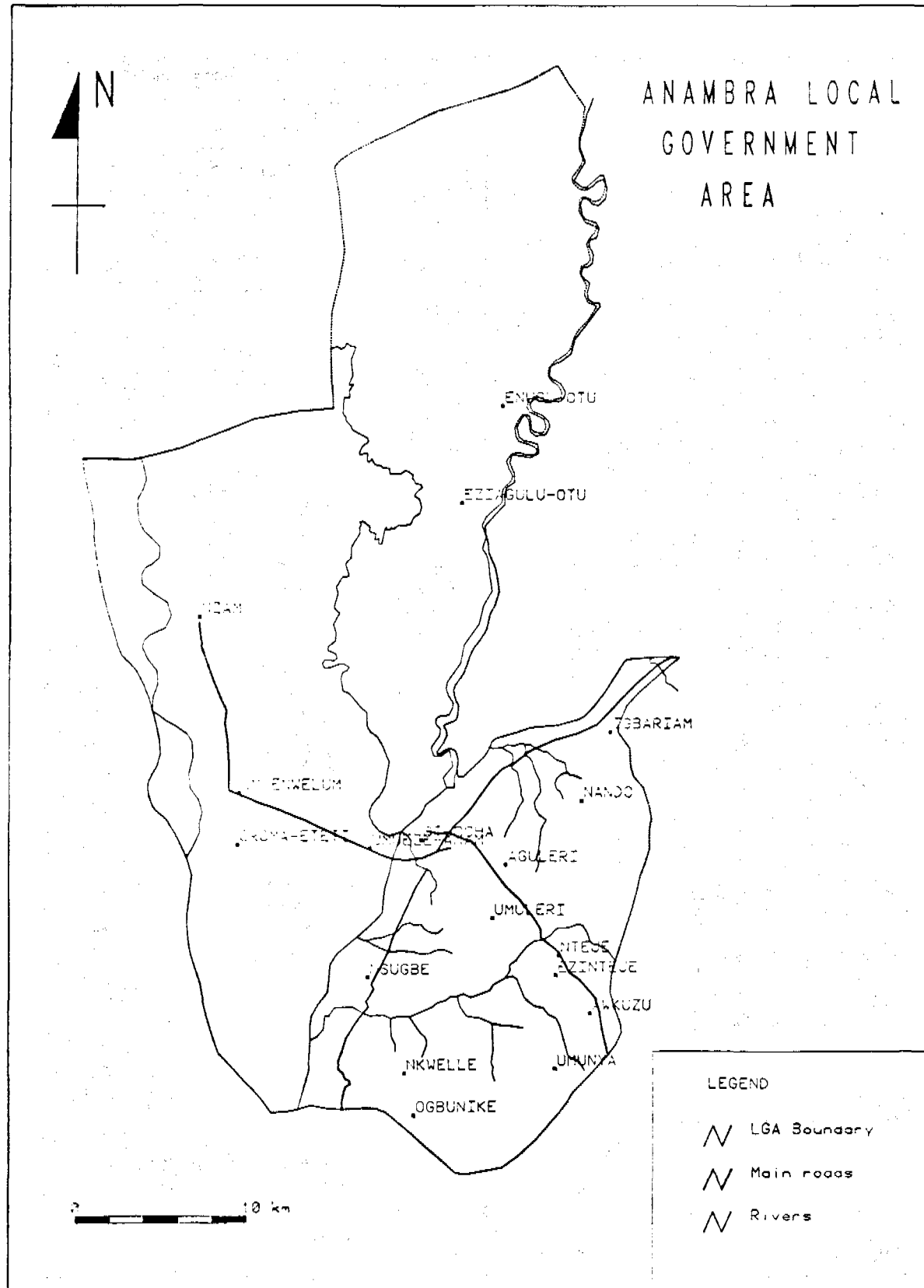


Figure 2.1

A solution to overcome this problem would be to make boreholes on the hills, but in many cases they would need to be equipped with mechanical/ electrical pumps which would be too expensive for isolated communities.

The North Eastern part of the high land is underlain by the Imo Shale Group, which is unfavourable for groundwater exploration. The most promising solutions for drinking water supply in this part of the LGA are hand-dug wells and bulldozer dug ponds for water storage in combination with slow sand filter. Considerable care should be given to well location as the chances of siting a good wells are slim.

The Anambra river drains most of the "high land" and has a considerable discharge into the Niger river, even at the end of the dry season receiving an large contribution from outside Anambra LGA as well.

There is little existing infrastructure for RWS&S in Anambra LGA:

- In Otuocha some parts of a water supply system have been constructed but nothing is operational.
- In Awkuzu a piped water supply systems is operated by ANSWC
- Some spring captations were found
- Elsewhere surface water is used.

2.1.2. The human environment

The projected population for Anambra LGA in 1990 is 387,240 inhabitants. The densities for this year will be 299 persons per km². This density figure hides the difference in population densities between the "high land" and riverine areas of Anambra LGA. The riverine area is much less populated than the high land area near Onitsha.

Anambra has a total of 20 communities with populations ranging from seven to over fifty thousand people. Eight communities will have more than 20,000 people in 1990 and the remaining twelve fall into the category 5,000 to 20,000 inhabitants. The largest six towns are all situated in the high land area (see table 2.1). Detailed information of the inhabitants per village or even villages per community was not available.

Typical for the riverine area are the very dense towns and villages situated on elevated places. The rest of the area floods during the wet season. People spend a large proportion of their time out in the fields, where temporary huts are built on hillocks. This is particularly so during the planting harvesting times in the rice cultivation cycle.

Agriculture and to a lesser extent small scale trading are the main sources of income in the riverine area. The most important product is rice.

The high land area borders with greater Onitsha where a large proportion of the male work-force migrate to work. Another major source of income in this area is trade. Agriculture and small scale industries are other activities. Compared to other LGA's in Anambra State, Anambra LGA inhabitants are generally wealthy; the riverine inhabitants because of their rice cultivation and the high land inhabitants because of their paid labour in Onitsha.

TABLE 2.1: COMMUNITIES AND POPULATION OF ANAMBRA LGA (1990 PROJECTIONS).

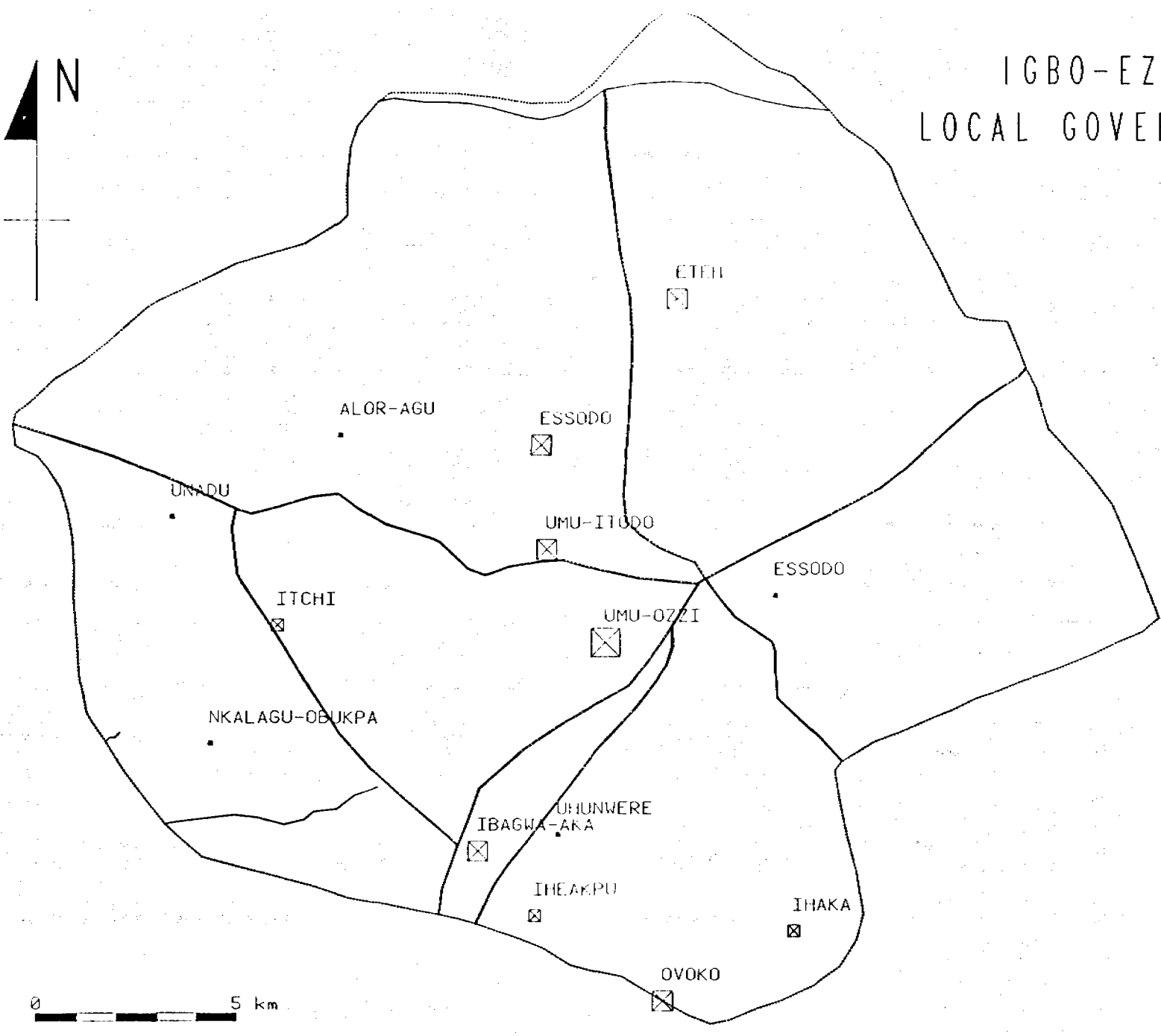
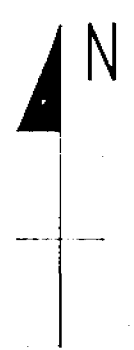
COMMUNITY	POPULATION 1990
Aguleri	25,988
Awkuzu	33,541
Enugu-Otu	21,161
Eziagulu Otu	10,534
Ezi-Anam	13,582
Efitie-Anam	24,499
Igbariam	9,912
Nando	52,203
Nkwele-Ezunaka	9,684
Nsugbe	14,038
Nteje	28,915
Nzam	7,980
Ogbunike	11,474
Otuocha	38,266
Olumbanasa	13,677
Ora-Etiti	7,148
Umuenwelum-Anam	8,566
Umueze-Anam	15,686
Umuleri	26,136
Umunya	14,250
TOTAL	387,240

2.2. IGBO-EZE LGA

2.2.1. The natural environment

Igbo-Eze (see figure 2.2) is the most Northern LGA of Anambra State. Its area is 466 km². It takes about one hour and a half to travel from Enugu to Enugu-Ezike, the capital of Igbo-Eze on good tarred roads. Within the LGA few tarred roads exist and the quality of the gravel roads is moderate.

IGBO-EZE LOCAL GOVERNMENT AREA



LEGEND

- LGA Boundary
- Main roads
- Rivers

POPULATION IN 1990

- 0 - 10 000
- 10 000 - 20 000
- 20 000 - 30 000
- 90 000 - 100 000



Figure 2.2

Igbo-Eze is underlain mostly by the Ajali Sandstones and the Nsukka Formation, of which the former is the most important. This formation consists of very deep and permeable sandstones that have a good infiltration capacity. For this reason groundwater tables are deep (150 to 200 m below ground surface level) and few streams exist.

The Nsukka Formation lies on top of the Ajali sandstones, in the Eastern part of the LGA discordantly, in the Western part continuously. The shale layers in this formation perch groundwater that gives rise at some small springs. Water flowing from these springs infiltrates further down into the Ajali sandstones, so that almost no streams develop.

The only rivers are the River Obele near the border with Benue State and the River Okpo the South West of the LGA. No confirmation was obtained if these streams flow during the whole year.

Under the circumstances described above the only technically feasible solution to improve water supply is by deep boreholes. Considering the great depths required and the potential of the aquifer to provide high yields it is better to construct and equip boreholes so that they can serve a large number of people, say 20,000.

Eleven such systems already exist but their operational condition is often very poor. Several incomplete systems have also been found. It is recommended that the upgrading of existing schemes together with the completion of the existing incomplete ones should be given priority over new works.

2.2.2. The human environment

The projected population for Igbo-Eze in 1990 is 307,980. The accompanying density is 661 people per km². This figure makes Igbo-Eze one of the more densely populated LGA's of Anambra State.

Igbo-Eze comprises a total of 14 communities with 1990 population figures varying from over ninety thousand to less than four thousand people. Only one community will have a population of less than 5000 by 1990, eight communities will have between 5000 and 20,000 inhabitants, five will have between 20,000 and 30,000 and one community will have a population of nearly 100,000 people. The communities each have between 2 and 36 villages. Unfortunately no detailed information on distribution of population over the villages was available. The list of village names per community is included in annex 2, that may be useful at later stage.

The high population pressure results in a settlement pattern of continuous habitation. Except for the North West of the LGA, villages and communities join. Virtually no piece of land is unused. Farms are ablate the next seemingly indefinitely. A community or a village typically has a relatively small and dense centre with schools, a market, a post-office and the like. Surrounding these centres are compounds with their farm-fields in an alternating pattern. Fields and compounds nearly completely fill up the area .

Agriculture and small scale trading are the main occupation. The most important products are: palm oil, palm wine, yam and cassava.

TABLE 2.2: COMMUNITIES AND POPULATION OF IGBO-EZE LGA (1990 PROJECTIONS).

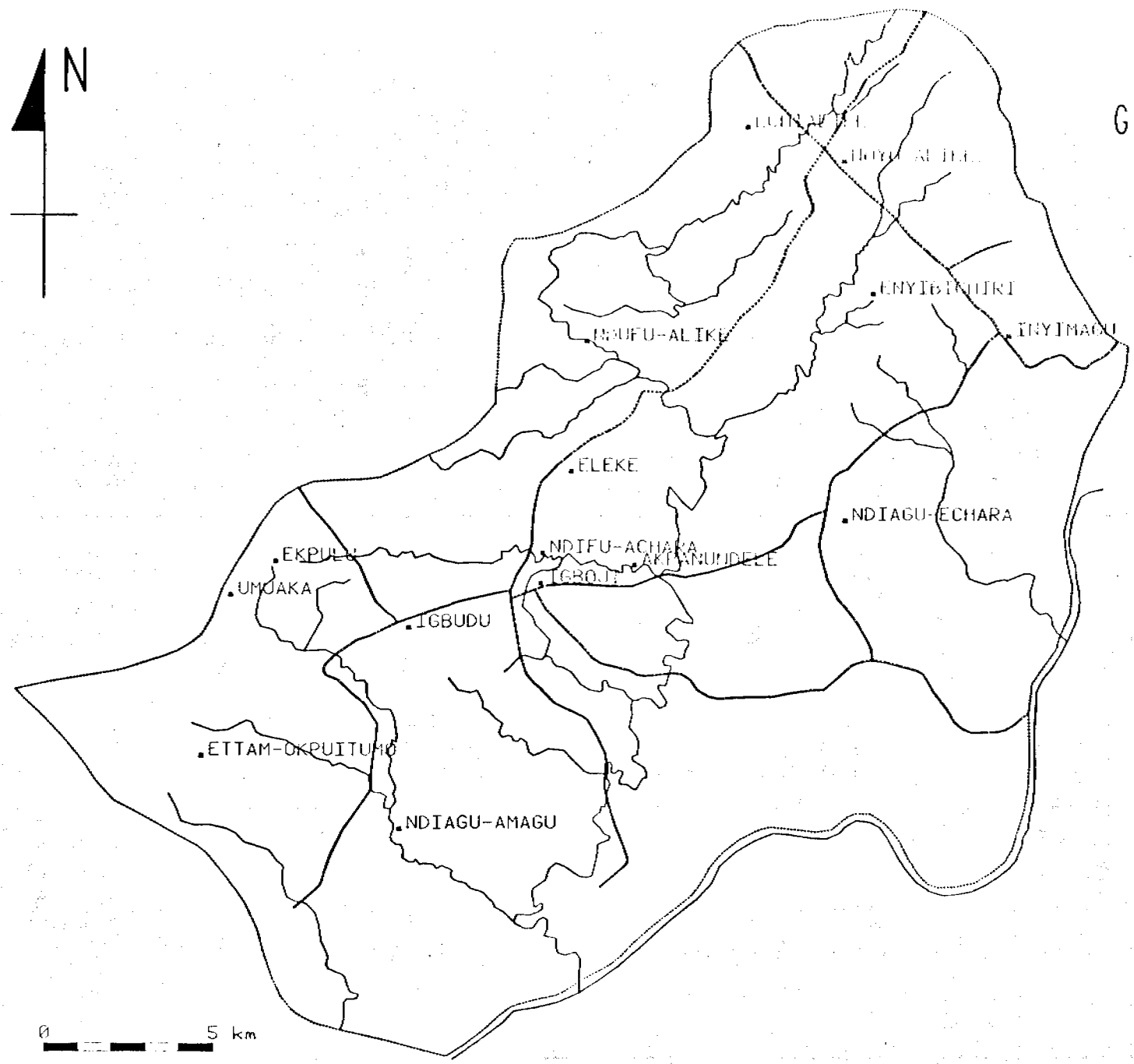
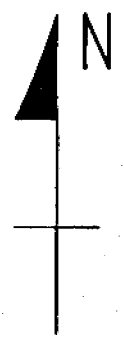
COMMUNITY	POPULATION 1990
Error-Agu	6,913
Essodo	29,305
Ezzodo	6,515
Eteh	28,157
Ibagwa-Aka	27,961
Ihaka	16,155
Iheakpu	14,540
Itchi	12,507
Idiagu-Obukpa	6,260
Ovoko	24,273
Uhunwere	4,162
Umu-Itodo	30,684
Umu-Ozzi	93,631
Unadu	6,917
TOTAL	307,980

2.3. IKWO LGA

2.3.1. The natural environment

Ikwo LGA (see figure 2.3) is situated in the South-East of Anambra State. Its area is approximately 374 km². It takes about two hours driving by private car from Enugu to Echara-Onuaboyi, the headquarters of Ikwo-LGA, from Enugu to Abakaliki on a good tarred road, from Abakaliki onwards on a reasonably good gravel road. Within the LGA only gravel roads exists, but extensive road construction works are going on to improve the quality of North-South road.

IKWO LOCAL GOVERNMENT AREA



LEGEND

- LGA Boundary
- Main roads
- Rivers

Figure 2.3

Ikwo-LGA is underlain mainly by shales, partly of the Asu River Group, but mostly of the Eze Aku Shale Group. At this point no further distinction will be made between these two formations as they look from hydrogeological point of view much alike. On the banks of the Cross River alluvial deposits are found.

In some areas zinc and lead are found in commercial quantities. The presence of these minerals pollutes the groundwater. Therefore only the shallow groundwater which has not yet been in extensive contact with the high mineral content sub-soil is drinkable.

Some springs are said to occur in the LGA, but were not located by the Mission. The most promising source to develop is the shallow groundwater that can be exploited with shallow boreholes or hand-dug wells. There is a preference for the latter, because of low permeability and minor costs. Well siting should be done on the basis of fractures or the presence of dolomite intrusions or dykes. Recent aerial photos would be a useful tool to identify these features.

A second possibility are impounded reservoirs of which some 20 already exist. They are constructed by means of bulldozer that excavate a pond and constructs an impoundment wall with the excavated material. As the soil consists of heavy clay there are no problems of exfiltration. Measures must be included to prevent the Guinea Worm disease. This can be done by a periphery fence that prevents people going into the water. An additional measure can be the construction of slow sand filters (good quality sand is available from the Cross River area) and handpump delivery.

In the alluvial deposits of the Cross River the most appropriate solution for rural drinking water supply are hand-dug wells.

2.3.2 The human environment

The projected population for Ikwo LGA in 1990 is 170,598 The population density is 456 people per km².

The LGA consists of 15 communities each having from 5 to 25 villages. None of the communities will have over 20,000 people by the year 1990 (see table 2.3). Only one community will have less than 5,000 people, six will have below 10,000 people and eight above. Detailed information on population numbers per village was not available. A list of village names is included in annex 2 that may be useful at later stage.

PLAN OF ACTION
DESCRIPTION OF THE THREE LGA's

- 11 -

Unlike in both Anambra and Igbo-Eze LGA where communities are relatively compact, the villages in Ikwo belonging to one community can be located at considerable distances. Villages are self-contained and clearly separate units within a community. This is not only a characteristic in settlement but also in administration.

Agriculture is the main source of income in Ikwo. The most important cash crop is rice, to a lesser extent yams and ground nuts are also sold.

TABLE 2.3: COMMUNITIES AND POPULATION OF IKWO LGA (1990 PROJECTIONS).

COMMUNITY	POPULATION 1990
Akpanwudele	10,699
Amainyima	9,248
Echi-Alike	5,242
Eka-Awoke	7,575
Ekpelu	4,024
Enyibichirm Alike	14,665
Ettam	9,096
Igbudu	13,444
Inyimagu	17,341
Ndiagu-Amagu	19,418
Ndiagu-Echera	14,418
Ndufu-Alike	5,847
Ndufu-Amagu	16,104
Ndofu-Echara	17,219
Noyo-Alike	6,258
TOTAL	170,598

3.

OBJECTIVES

The general objectives of the Strategic Plan (see Volume 1) must be translated into more specific immediate objectives, which in their turn can be translated into activities. Immediate objectives can be defined as follows:

- a. Sustainable improvement of the level of RWS&S in order that approximately 60% of the rural population in the three selected LGA's are adequately served.
- b. Application of the proposed model for village/ community based development of RWS&S (see matrix of table 10.1 of Volume 1).
- c. A permanent involvement of the LGA staff in RWS&S matters.
- d. Creation of a state wide responsible unit in charge of planning, monitoring and coordinating RWS&S activities in the LGA's
- e. Provide training at all levels in order to achieve a long term sustainable result.

4.

PROJECT BENEFICIARIES

- a. The population in the three selected LGA's not covered by existing or proposed projects, but limited to a coverage of 60% to reflect Federal Government policy. Priority ranking of villages within each of the LGA's should be done on the basis of
 - ability and willingness to pay
 - degree of community mobilization
 - needs
- b. The three Local Governments as they will be strengthened institutionally.
- c. Eventually the remaining 40% of the population in the three selected LGA's, as their Local Governments will then be capable of assisting them also to improve their RWS&S situation.
- d. The State Government, and in particular the State Department for Rural Development (DRD).
- e. The rest of the State, i.e. the other LGA's, as the State Government will have an improved capability to assist in RWS&S improvements.
- f. The Federal Government Directorate for Food, Roads and Rural Infrastructure (DFRRI) as the action plan supports and strengthens the objectives of their nationwide rural water supply and sanitation (RUWATSAN) programme.

5. LINKAGES TO OTHER RELEVANT PROJECTS

There are other ongoing projects in the RWS&S sector with which the project should be coordinated:

Within the state:

- The UNICEF assisted WATSAN project, that has been developed along similar lines and adjoining areas. Both projects can benefit from exchange of information and experience.
- The JICA funded shallow borehole project that is limited only to construction, and will have activities in Ikwo LGA, where approximately 60 boreholes are planned. The action plan should give a follow up to the JICA funded project by funding of rehabilitation of existing facilities and introducing community involvement and sanitation activities.
- The activities of the ANSWC in the semi-urban and rural water supply: the activities proposed in the Action Plan are designed to be complementary to those already planned by ANSWC; it is therefore important to monitor overall rates of implementation in order to estimate progress towards planned percentage coverage.

Outside the State:

- The UNDP funds a RWS&S project which will have activities in the Federal Capital Territory and Bauchi, Benue, Borno and Plateau States. The project recently started and activities are coordinated from Jos. It aims at direct project support and institutional building at State and LGA levels, and secondary at Federal level. Regular exchange of information and experience would benefit both projects.
- UNICEF gives direct assistance to RUWATSAN projects in five other states and other donors may soon actively support additional RUWATSAN projects; it is essential that experiences gained and information obtained from all projects are regularly exchanged so that not only LGA's are strengthened in this sector but so also are State and Federal level authorities.

6. **OUTPUTS**

For each of the immediate objectives outputs can be defined that are such that they can easily be identified during after execution of the action plan. This allows to monitor of its rate of success.

For objective a) (Improvement of the level of RWS&S in order that up to 60% of the rural population in the three selected LGA's are adequately served) the following outputs are expected:

1. Three baseline surveys indicating population distribution, RWS&S needs and preferences, up-to-date maps developed from aerial photos or satellite images.
2. The following works constructed and operational:

TABLE 6.1: WORKS TO BE CONSTRUCTED

TYPE OF SCHEME	LGA		
	ANAMBRA	IGBO-EZE	IKWO
CONSTRUCTION:			
Handdug wells	302	14	80
Shallow boreholes	49	14	54*
Spring captations	1	2	2
Bulldozer dug ponds	0	0	6
'Deep boreholes'	0	4	0
REHABILITATION:			
Piped systems	0	10	0
Impounded reservoirs	0	0	20
SANITATION FACILITIES:			
Lined latrines			
Unlined latrines			

*) of which about 50 will be constructed by the JICA funded project.

For objective b (Application of the proposed model for village/ community based development of RWS&S):

3. Village Water Associations for each of the newly constructed works or other suitable village/ community based responsibility for operation and maintenance of RWS&S facilities.
4. A system of permanent health education by officers from the LGA's that regularly visit the villages; includes equipment and audio-visual materials.

5. A system for cost recovery of water supply for each of the systems, including a regular adjustment of the rates and system for management of collected funds.
6. Sufficiently trained Village Based Workers, operators and caretakers for daily operation, maintenance and health education.
7. A LGA based system for more complex maintenance, distribution of spare parts, that can be handed over to the private sector.
8. An improved knowledge and awareness by the advantage of good personal hygiene and sanitation practices.

For objective c (Initiate a permanent involvement of the LGA staff in RWS&S matters).

9. The presence of permanent LGA staff with (upgraded) knowledge of RWS&S matters, in particular the following:

- community development officer 1 person
- financial administration staff 2 persons
- technical staff 3 persons
- health staff 3 persons

This staff should be capable of assisting villages in building up their own facilities along similar lines as this project. This assistance should also include requested support from State Level Agencies (e.g. RDA) or contractors.

For objective d (Create a State wide responsible unit in charge of planning, monitoring and coordination of RWS&S activities in the LGA's).

10. Staff capable of executing the above mentioned tasks:

- 2 Water Supply/Sanitation Engineers
- 1 Economist
- 1 Community Development Expert
- 2 Data Collection and Processing Staff

A baseline survey and monitoring team consisting of:

- 1 Demographer/Sociologist
- 1 Cartographer

11. Minimum essential requirements for the efficient functioning of the aforesaid unit.
12. A database of needs and status of existing facilities.
13. Procedures and guidelines for a continuous and uniform data collection of RWS&S facilities.

14. Procedures and guidelines for the initiation and appraisal of activities and projects in new LGA's.
15. Capacity to raise funds for assistance of new LGA projects.
16. A capacity of the private sector to assist with RWS&S activities especially in the field of design and supervision construction operation and maintenance, spare part manufacturer and distribution.

For objective e (Provide training at all levels in order to achieve a long term sustainable result).

17. Training courses including training materials and equipment.
18. Training of approximately 7600 villagers and LGA staff together with 71 State Government Staff in tasks related 1 RWS&S.
19. Two seminars for Local and State Government officials to exchange ideas and update information relating to the implementation of RWS&S projects.

7. BUDGETS TO ACHIEVE THE OUTPUTS

Budgets have been set up separately for the three LGA's and for the support of state activities. This distinction allows funding of parts by different donors. A condition for success is that in any case the support of state activities are funded with construction activities in one or more LGA's.

The summaries of the budgets are as follows:

TABLE 7.1 SUMMARY OF BUDGET FOR RWS&S PROJECT IN THREE LGA'S

Items	Estimated costs million US\$				
	ANAMBRA	IGBO-EZE	IKWO	STATE	TOTAL
Constructions	1.50	2.22	0.63	0	4.35
Staff	0.76	0.74	0.57	1.76	3.84
Training	0.20	0.06	0.06	0.20	0.52
Logistics (initial purchases)	0.69	0.45	0.47	0.26	1.86
Logistics (running costs)	0.69	0.41	0.31	0.35	1.76
Sanitation revolving fund	0.10	0.10	0.10	0	0.30
Aerial photographs and satellite images				0.20	0.20
TOTAL	3.94	3.97	2.14	2.78	12.83
CONTINGENCIES 25%					3.17
GENERAL TOTAL					16.00

Details of these budgets are given in annex 4. In the text hereafter some comments will be made to clarify them and the present assumptions.

Constructions

Costs of constructions are budgeted on the basis of the unit prices of annex 6.4 of the Strategic Plan and the quantities provisionally estimated. The baseline surveys will allow to do these estimates with more precision.

As explained in chapter 8 hereafter the number of handdug wells to be constructed in Anambra is reduced by 48 to 254, which seems to be more realistic within the set period of 4 years. In Ikwo the number of boreholes to be constructed is reduced by 50, because of the planned JICA assisted activities.

Staff

Staff requirements are estimated for each of the LGA's, distinguishing permanent and project staff. The permanent staff should be civil servants that, for continuity, keep their position after completion of the project. Their salaries are to be paid by the Local or State Government. Provisions are made to cover there travel costs.

The second group is the non permanent or "project" staff. This can be civil servants as well that are temporarily seconded to the project on the same financial basis as the permanent staff. Furthermore there are budget provisions for expatriate experts, for Nigerian consultants that execute special services that the normal staff cannot do because of the knowledge required or the amount of work involved.

Support staff must ease project execution and is paid on the projects budget.

For Anambra LGA the number of area coordinators is higher than in the other two LGA's. As the majority of the schemes are handdug wells the technology level is relatively low but the number of people involved is high. One area coordinator is supposed to supervise 10 to 11 construction teams.

In the other LGA the constructions are more complex so higher qualified staff is needed for detailed design, construction and supervision. For the same reasons the number of mechanics, store clerks, drivers and vehicles vary.

Community mobilization teams will consist of a coordinator and 1 to 3 village teams of 2 persons each. It is estimated that with the proposed approach one village team can handle about 20 villages/year and on average one village needs 1.5 water point. With 3 village teams this would allow a construction of 96 water points in a year, as requested in Anambra LGA. In the first year production of the village teams will be lower due to training requirements etc., so it is recommended to have 3 village teams during the whole community mobilization period.

In the two other LGA's the same assumptions would lead to 2 to 3 village teams per community mobilization team. As in these LGA's the schemes cover on average more people than in Anambra LGA the community mobilization efforts can be relatively smaller so two village teams are recommended per community mobilization team.

Logistics

Procurement of goods is budgeted that are necessary for project execution:

- office equipment and computers
- seacontainers for conversion into offices or workshop
- survey equipment
- vehicles
- hand drill and survey rigs

Numbers vary with the particularities of each LGA, the number of staff, the type of constructions etc.

Vehicles are planned for staff with tasks in the field. State level operating staff will travel mainly to the LGA head quarters, so will be equipped with private cars. LGA based staff will travel into the villages so they need either 4 wheel drive cars or motor bikes. Especially the village teams and the area coordinators will travel on motor bikes.

Unit prices are estimated for running costs of vehicles and offices.

Sanitation

Sanitation construction activities are expected to start gradually after a few years of permanent health education. The technical solutions proposed in the strategic plan are such that costs involved correspond in order of magnitude with the financial capacity of the population. This means that very little direct financial input is required from the project for construction of sanitation facilities. As the demand for sanitation facilities may be generated only at the end of the project cycle it is better anyhow that this activity can be done almost independently from external donors.

For this reason only a provision of US\$ 100,000 is made per LGA for a sanitation revolving fund. This will allow the procurement and transport of building materials that can be sold to the villagers for construction of sanitation facilities.

Training

Training requirements are evaluated mainly on the basis of number of facilities and the training modules as presented in annex 6. As a result the number of training man days are found. An average of 80W is assumed to cover one day of training per person.

Apart from these costs a provision of US\$ 200,000 is made on the "state budget" for development or procurement of training materials.

Aerial photographs, satellite images

US \$ 200,000 has been budgeted for the procurement and interpretation of satellite images and for new aerial photographs including processing. An activity as this one and the baseline survey are too specific to execute them at the LGA's. They need to be coordinated by experts that will operate at State level. For this reason this item is part of the "State budget".

The budget should be sufficient for aerial photos of the whole state and satellite images of the 3 selected LGA's.

8. PLANNING OF ACTIVITIES

The barchart of activities presented in annex 5 is set up in such a way that field activities last 4 years, exclusive mobilization of the project team and equipment. Half a year will be necessary for the baseline survey, so up to 3.5 year remain for other field activities. Doing the baseline surveys in the LGA's one after another can allow the start of project implementation with 3 months intervals.

Number of facilities to be constructed must be well in balance with available time, staff and training capacity and with the needs that have provisionally been identified (see Strategic Plan). They will anyhow depend on the results of community mobilization. In the following table it is indicated how many schemes can be constructed in each year of activities. During year 1 there will be no construction activities yet, while project activities will terminate after 6 months in year 5.

TABLE 8.1: DISTRIBUTION OF CONSTRUCTION ACTIVITIES OVER THE YEARS (NUMBER OF SCHEMES)

Year ---->	1	2	3	4	5	Total
<u>Activity</u>						
<u>Anambra LGA</u>						
Handdug well	0	40	70	96	48	254 ¹⁾
Shallow borehole	0	15	15	19	0	49
Spring captation	0	0	1	0	0	1
Ponds	0	0	0	0	0	0
Deep borehole	0	0	0	0	0	0
Rehabilitation/Completion of existing scheme	0	0	0	0	0	0
<u>Igbo-Eze</u>						
Handdug well	0	2	6	6	0	14
Shallow borehole	0	0	0	14	0	14
Spring captation	0	0	2	0	0	0
Ponds	0	0	0	0	0	0
Deep borehole	0	0	2	2		4
Rehabilitation/Completion	0	2	3	3	3	11
<u>Ikwo</u>						
Handdug well	0	15	30	35	0	80 ²⁾
Shallow borehole	0	0	4	0	0	4
Spring captation	0	0	1	1	0	2
Ponds	0	0	10	10	0	20
Deep borehole	0	0	0	0	0	0
Rehabilitation/Completion	0	6	0	0	0	6

- 1) In order to achieve a 60% coverage in Anambra LGA it is estimated that 302 handdug wells will be required. It is thought however that this could not be achieved during the 3½ year construction phase and therefore this figure has been reduced to the more realistic one of 254.
- 2) In order to achieve a 60% coverage in Ikwo LGA it is estimated that 54 shallow boreholes will be required. It is known that the JICA funded borehole programme plans to drill 150 boreholes in two LGA's, of which Ikwo is one, plus in part of a third LGA. It is assumed that the number of boreholes per LGA will be divided in the proportions 60, 60, 30. It is further assumed that 10 boreholes per LGA will be non productive thus producing 50 successful ones in Ikwo. An additional 4 boreholes will then be required to achieve the proposed coverage.

In Anambra State the construction of handdug wells will require the availability of 32 well construction teams, that are supposed to be artisans, working on a private basis. This capacity will not be fully developed during the first year so production speed will be gradually built up to 96 handdug wells/year i.e. 3 per construction team per year.

Administration

1. INTRODUCTION

A general description of the structure of the Local Governmental Administration has already been given in the section on "The modern institutional framework" of the Strategic Plan. Therefore, this annex will only concentrate on some particularities in relation to rural development found in the sample villages and the Governmental Administrations of the three LGA's.

In general, it was difficult to get a clear picture of the rural development activities executed by the various Local Governments. This is partly due to the many deviations from the proposed plans, and partly because responsibilities are not always clearly defined. With regards to the development of infrastructure, priority is given to the construction of roads and expansion of electrification.

All three local governments visited had a community development officer. Although this official is often seen as one of the key staff in the Local Government, his position in the organisation was not always clear. However, no negative effects were mentioned. Community development officers usually have a one-man job, but can to a certain extent rely on the services of the State level organisation for social mobilisation.

2. ANAMBRA LGA

2.1 Local leadership, administration and organization for WS&S

Local leadership in Anambra LGA is characterized by its diversity. In some communities, especially the more isolated ones, traditional structures of Councils of Elders are maintained, while other communities, primarily the ones close to Onitsha, are ruled by chosen Town Unions or Development Committees. A third group of communities find themselves in the transition of traditional leadership to more modern structures. In these communities particularly many disputes disrupt communal bindings.

Similar to the State as a whole, village level groups participate in decision-making and implementation. The difference is that in communities engaged in disputes, these groups operate very autonomously and at village rather than community level.

Future organisations for Water Supply and Sanitation should preferably be as small and as close to the facility as possible, to prevent that the organisations being hampered by existing disputes and local politics.

2.2. Particularities of the Local Government

The Local Government administration give a centralized impression; the key person controlling its activities is the Secretary of the Local Government.

An up-to-date, reliable list of staff indicated 50 staff, all grade level 07 and above. The Estimates for 1988 and 1989 showed 69 and 75 staff respectively of level 07 and upwards.

The Works Department will need serious strengthening in order to deal with any technical activity: at present staff and activities of the Works Department seem virtually non-existent. Derived from the provided list of staff, only a senior technical officer is available. No workshop facilities are available, also general tools are scarce. Of the heavy equipment (bulldozer, tipper truck and grader) only the grader is operational: apart from the lack of spare parts (and their prohibitive costs) high transport and operation costs of the equipment was also mentioned.

The LGA is in urgent need of additional means of transport: only one car is available for a large area. For the riverine area motor boats are necessary, particularly during the wet season when the area is flooded.

Staff of the LGA mentioned that the LGA by itself cannot initiate much on rural development; most initiatives are taken by the communities, and only projects which need expertise or funds which are not available within the communities will be proposed to the Local Government. Planning mainly consist of compiling proposed items and submitting these to higher level authorities; usually no discussions or follow-up are given to these proposals. In many community initiated activities the community development officer is involved. LGA staff made some serious criticism of the severe political influence, often from traditional rulers, on development activities and the in-efficient use of state funds.

Anambra LGA was included in the shallow boreholes DFRRI programme; this resulted in disappointment as the boreholes -a total of 5 were constructed- went dry after some time.

In the Estimates 1989 an amount of 50,000 Naira has been appropriated for water resources and water supply. However, during the visits to the LGA no planned activities in this context were mentioned. The Local Government is willing to take up the responsibility for smaller water supply systems and to a certain extent the communities can be involved in the technical operation and revenue collection.

3. IGBO-EZE

3.1. Local leadership, administration and organization for WS&S

Local leadership in Igbo-Eze is very traditional and still rests with the elders. The Oynishi, or oldest man, of a family, represents the family in a council of elders at the village level, and the oldest Oynishi of this council represents the village in a council of elders at the community level. The overall oldest Oynishi is the ruler of the community. An Igwe or traditional ruler has a separate but less powerful office. The general pattern of participation in decision-making and implementation by other village and community groups as described in Chapter 4.4 of the Strategic Plan, is similar in Igbo-Eze.

In discussions at the village and community level people express the need for a Village Water Association or Committee to be responsible for any future water projects. Preferably the people using one facility should be organized around that facility, making the organization as close as possible to the users. At community level each village committee would be represented by one or two people in a community water board.

3.2. Particularities of the Local Government

The way of working in the Local Government Administration seems to be relatively decentralized. That is, control and supervision by the Chairman and the Secretary is not felt dominant thus leaving the heads of the various departments and the respective supervisory councillors a high degree of freedom. This does however not mean that there is a lack of control and supervision; the organisation is thus not heavily controlled in a top-down approach.

In general, the Local Government Administration seems to be able to attract sufficient qualified staff. This is perhaps due to the geographical location: although a rural area, the population is high and therefore the labour market better. Also, the living conditions (in the vicinity of Nsukka town) are better than a lot of other Local Governments Areas, attracting staff.

Both the relative high degree of freedom of the departments and the presence of qualified staff give the impression of a well developed organisation. Partly for practical reasons, perhaps also already facing the re-arrangements of the organisation structure, the Community Development Officer is actively liaising with the Works Department.

The staffing of the Works Department is the following:

- 3 senior driver/mechanics
- 5 plant operators and heavy equipment operators

- 11 craftsmen (5 masons, 3 carpenters, 2 painter, 1 plumber)
- about 90 road men. Actually, the road men are working on revenue collection in stead of technical matters.

Although some additional skilled craftsmen are required, especially mechanical and electrical technicians, it is expected this need will be included in the budgets for the next two years and thereby be solved.

The Works Department is apparently willing and to some extent able to take up responsibility for water supply and sanitation but despite the urgent need for water supply schemes, the Department is mainly involved in the construction of roads. Request for water supply systems have been submitted to state government, however without any follow-up.

In the 1989 Estimates Naira 50,000 has been voted for water projects. Another Naira 200,000 is voted for area development water resources.

4. IKWO-LGA

4.1. Local leadership, administration and organization for WS&S

Villages are not forming strong units at community level as is characteristic in both Igbo-Eze and Anambra LGA. Although villages do form organizations at the higher level, one cannot speak of strong community leadership. Villages are located too far apart and are managing their own affairs at that level. Age grades form the ruling group at the village level, and the Community Development Committees govern in name rather than in reality at community level.

It is recommended that water supply initiatives and user's organizations should be concentrated at the village level. At the community level, intervillage rivalry and disputes will likely obstruct the development of improved systems as well as consumer associations.

4.2. Particularities of the Local Government

The LGA is made up of nine departments with their respective staffing:

administration	61	treasury	8
education	4	revenue	64
works	56		
agriculture	12		
health	63		
veterinary	6		
social welfare	3		

Together with one community development officer, this adds up to a total of 278 staff. In the 1989 Estimates the following staff are mentioned: 258 staff from grade level 01 up to grade level 06, 44 staff grade level 07 and higher. Together a total of 302 staff. Again, the impression was given that not all LGA-appointed staff are employed the whole year round.

The number of skilled staff of the works department is 13 (almost equal number of masons, carpenters and roadmen). Technical facilities of the LGA are limited; tools and equipment for agriculture and road construction is available, a workshop however is not present. Because of the lack of a workshop and standard mechanical tools, maintenance of vehicles is done elsewhere. The LGA relies partly upon the zonal office and facilities of the State Ministry of Works

The Works Department is mainly involved in construction and maintenance of roads and buildings. Roads in particular are high on the priority list of the LGA, together with development of markets and industrial activities. It is hoped that these activities and facilities will facilitate an improved economic development of the area. The Local Government has requested communities to submit proposals for the construction of roads. There is no experience within the Works Department regarding the construction of water supply schemes.

A DFRI funded borehole programme has been executed in the LGA, unfortunately with disappointing results. Local Government staff mentioned that they were not involved in the decision making regarding the sites.

List of villages

LIST OF VILLAGES PER COMMUNITY IN IGBO-EZE

UMU OZZI COMMUNITY

- | | |
|-----------------|-------------|
| 1. Ogrute, | Enugu-Ezike |
| 2. Amaja, | Enugu-Ezike |
| 3. Okpo, | Enugu-Ezike |
| 4. Ikpamodo, | Enugu-Ezike |
| 5. Igogoro, | Enugu-Ezike |
| 6. Ezillo, | Enugu-Ezike |
| 7. Nkpamute, | Enugu-Ezike |
| 8. Ugwo Attama | |
| 9. Onicha | |
| 10. Okata | |
| 11. Umuida | |
| 12. Aguibeje | |
| 13. Umu-opo | |
| 14. Isi-Ugwu | |
| 15. Owerre-Eze | |
| 16. Inyi | |
| 17. Ugbaike | |
| 18. Umachi | |
| 19. Amube | |
| 20. Ogbodu | |
| 21. Umu-opu Agu | |
| 22. Iyionu | |

UMUITODO COMMUNITY

1. Imufu Enugu-Ezike
2. Amufie
3. Amachalla
4. Ikpuiga
5. Igbelle
6. Olido

ESSODO COMMUNITY

- | | |
|---------------------|-------------|
| 1. Umuogbo-Uno, | Enugu-Ezike |
| 2. Umuogbo-Agu | |
| 3. Umu-Agama, | Enugu-Ezike |
| 4. Umu-Ogbo Inyi, | Enugu-Ezike |
| 5. Umu-ogbo Ekposhi | |
| 6. Aji | Enugu-Ezike |
| 7. Ufodo | |

ETTE COMMUNITY

1. Umu-Asanya Ette
2. Umunebe
3. Umuebe
4. Umuishi
5. Ogodo
6. Ochigide
7. Obida
8. Umunodaba

ALOR-AGU COMMUNITY

1. Ovoko Alor-Agu
2. Aju-ona
3. Owerre Eze
4. Ogbueke
5. Umuneko
6. Umundu
7. Umuavuru
8. Umuegogidiaka
9. Umunakata
10. Ubiam
11. Umu-Oroko

NKALAGU-OBUKPA COMMUNITY

1. Ukwu-okpe
2. Agbonkuru
3. Edmbekwu
4. Okpaligbo
5. Emohe

ITCHI COMMUNITY

1. Umu-ogbo Itchi
2. Amebo
3. Oka
4. Itchi-Ohe
5. Umu-Akenyi
6. Ezikenajimo
7. Amakpuru
8. Itchi-Agu

UNADU COMMUNITY

- | | |
|------------------------|-------|
| 1. Oduma, | Unadu |
| 2. Oshowu, | Unadu |
| 3. Abaroji, | Unadu |
| 4. Aba-agu, | Unadu |
| 5. Atikor, | Unadu |
| 6. Ekenya, | Unadu |
| 7. Onazi, | Unadu |
| 8. Okpachi-Obaka, | Unadu |
| 9. Onyiro, | Unadu |
| 10. Okene-Ajugwu, | Unadu |
| 11. Okene-Owo, | Unadu |
| 12. Umunwata, | Unadu |
| 13. Ezenweze, | Unadu |
| 14. Umunwata-Umoidoko, | Unadu |
| 15. Umu-Agada | |
| 16. Okpachi-Ohom | |
| 17. Oyijerewu Unadu | |
| 18. Ogbogluinya | |
| 19. Onazi Uno | |
| 20. Oduma-Agu | |
| 21. Ugbuagbo Onyeke | |
| 22. Ero-Aguafor | |

IBAGWA COMMUNITY

1. Amebo Ibagwa-Aka
2. Echezema
3. Owerre
4. Ndioke
5. Amebo Unada
6. Umuegwu
7. Nsu
8. Idi
9. Umuelo
10. Ishi-agu
11. Amaukpum
12. Udadam Ngwuinyi

UHUNOWERRE COMMUNITY

1. Achara
2. Umuagbado
3. Amogwu Ulo
4. Umu Orogbo
5. Umu-ona
6. Umuede-Odaga
7. Umu Ibara
8. Amekwuru
9. Umugbaba Odicha
10. Umuodobo
11. Amozi
12. Umuegbu Okazi
13. Okajara
14. Ogbu

IHEAKA COMMUNITY

1. Akoyi
2. Ugo
3. Like
4. Eka-utara
5. Anwama

EZZODO COMMUNITY

1. Uda Enugu-Ezike
2. Uroshi

IHEAKPU-AWKA COMMUNITY

1. Umu ori
2. Ikolo
3. Edem
4. Umu Ato
5. Umu-jeju
6. Amenyije
7. Achebule
8. Ngwuala
9. Oruku
10. Umuuyaba
11. Umu Okwu

OVOKO COMMUNITY

1. Ukwu-Ekpu
2. Amebo Oda
3. Udumagu
4. Umu odu
5. Umu Ogagwu
6. Amaja
7. Amahaba
8. Ama Ani
9. Umu Oshi
10. Ama Ajim
11. Ama Agu
12. Umu-shire
13. Umu-eko
14. Umu Akaro
15. Eboro
16. Ibeku
17. Umu Oroko
18. Umu Ogida
19. Umu Eze Avuru
20. Aza-agu
21. Ama-Ache
22. Umujimuta
23. Umu ogburugbu
24. Umu Oshigu olu
25. Umukada
26. Umuezoka
27. Umu-ogene
28. Amachala
29. Ogwude
30. Oheagu
31. Amaekpere
32. Amaofia
33. Ogbodu-Ukwu
34. Umuji-Oha
35. Umu Ugbabe
36. Umu Awogu

LIST OF COMMUNITIES/VILLAGES IN IKWO LOCAL GOVERNMENT

AMAINYIMA COMMUNITY

1. Ndiagba Enyim
2. Ndiagu Enyim
3. Ezeagu Enyim
4. Idah Enyim
5. Ime-Ndufu Enyim
6. Onuigberi Square
7. Ogidiga Anuma-Ocha
8. Enyibichiri Anumaocha
9. Ama-Enyi Anumaocha
10. Aguinyima Odeligbo
11. Ndiagu Odeligbo
12. Agumiri Enyim
13. Omege Enyim
14. Ndioduma/Otaka Enyim

ETTAM OKPUITUMO COMMUNITY

1. Ettam Health Centre (Okpuitumo)
2. Nnoche
3. Ohattekwe Okpuitumo
4. Ndiagu Ohatekwe
5. Enwumini Oduku
6. Ndiagu Azu Uduku
7. Ndiagu Elugu
8. Ndechi Elugu
9. Ndiagu Azu Elugu
10. Ebisiki Ettam
11. Ime Ndufu Ettam
12. Ivu Akpu Uduku
13. Nsuba Ettam
14. Ndiofia Ettam Elugu
15. Enyibichiri Ettam

NDUFU ALIKE COMMUNITY

1. Enyim Chukwu village
2. Izziamgbo village
3. Ogidiga
4. Ohankwu village
5. Agalagu
6. Elegu-Anyim
7. Enyim Agalagu
8. Omege Ukwu Inyima
9. Elu-Egu Enyimu
10. Ndiagu Azu Enyim
11. Onunwakpu Enyim
12. Onuako Enyim
13. Onyikwa
14. Ugwu afor

EKPANWUDELE COMMUNITY

1. Ebo Ekpanwudele
2. Ndioduma Ekpanwudele
3. Ifelemene
4. Amokpor
5. Ndiechi
6. Imeabali
7. Akahufu
8. Ebiem
9. Akataka
10. Mbada

NDUFU AMAGU COMMUNITY

1. Agalagu village
2. Akunakuna
3. Ndiofeke
4. Abina
5. Ohatekwe
6. Dweledeha

NOYO ALIKE COMMUNITY

1. Omege Noyo

2. Ebianja
3. Enupefia
4. Ikpata
5. Azungele
6. Ndiofia
7. Ndiekete
8. Ndiechi
9. Ndiogu
10. Ndiagu Ndofe

ENYIBICHIRI COMMUNITY

- | | |
|------------------------------|-------------|
| 1. Ndiaguazu | Enyibichiri |
| 2. Enyi Akumba Ndiaguazu | |
| 3. Nkaleke | Enyibichiri |
| 4. Ndioduma | Enyibichiri |
| 5. Ndiokpata | Enyibichiri |
| 6. Mgbabe | Enyibichiri |
| 7. Ndiubia | Enyibichiri |
| 8. Obulechi Ohatekwe | Enyibichiri |
| 9. Obulechi Ndiechi | Enyibichiri |
| 10. Obulechi Ndumesa | Enyibichiri |
| 11. Ndinjakpu Ndinwesa | Enyibichiri |
| 12. Ndiakpurata Ndinwesa | Enyibichiri |
| 13. Ndiosopo Ndinwesa | Enyibichiri |
| 14. Utuenyim Obegu Ndinwesa | Enyibichiri |
| 15. Ugbeafura Obegu Ndinwesa | Enyibichiri |
| 16. Ndiofia Obegu Ndinwesa | Enyibichiri |
| 17. Obegu Ndiechi | Enyibichiri |
| 18. Obegu Ohatekwe | Enyibichiri |
| 19. Ndiegwu Ndiguazu | Enyibichiri |
| 20. Odamiko | |
| 21. Ndieze Obi | |
| 22. Onuojon market | |

EKPELU COMMUNITY

1. Amainyima
2. Amaechara
3. Omege
4. Inyimagu
5. Amankwuru

EKA-AWOKE COMMUNITY

1. Ndufu Umuta
2. Ndiagu Umuta
3. Agu Inyima Umuta
4. Ezeke
5. Echara Ukwu
6. Ndiofia
7. Obiagu Ndufu

INYIMAGU COMMUNITY

1. Obeagu Inyimagu
2. Effiamgbabu
3. Ibam
4. Amunu
5. A gbanyima

6. Ukwenyim
7. Odomowo
8. Ugwufeke
9. Ochokwu
10. Akauhufu
11. Ofenakpa
12. Oferekpe

NDUFU ECHARA COMMUNITY

1. Ndufu Echara
2. Obegu Noufu
3. Nkalafor Echara
4. Okpera Ndufu
5. Okpera Ndufu
6. Obegu Eleke
7. Eleke Echara
8. Okpotagu Echara
9. Ugbo Nzashi Echara
10. Amuda Nzashi

NDIAGU AMAGU VI

1. Ndinkashi
2. Okworike
3. Anyagbarigwe
4. Ndieeke
5. Nsobokwonyim
6. Umu-Omara
7. Obegu Omege
8. Ochienyim
9. Obegu Item

NDIAGU AMAGU CONTINUED

10. Item
11. Enyibichiri
12. Ezemeze Oronga
13. Ndi-Ekete Oronga
14. Omege Oronga
15. Onyikwa Oronga

ECHIALIKE COMMUNITY

1. Ugogo Echialike
2. Ndodouma
3. Ndalegu
4. Ndova
5. Nudegu
6. Ofutenyi
7. Okposhi
8. Ndinwoyarighi
9. Ndioku

IGBUDU COMMUNITY

1. Umeh Igbudu
2. Izzo Igbudu
3. Ogagbo Igbudu
4. Oleputara Igbudu

PLAN OF ACTION
LISTS OF VILLAGES

ANNEX 2 -8-

5. Ndilara Egu Igbudu
6. Ejara Igbudu
7. Uduku Igbudu
8. Amuda Igbudu
9. Isheke Igbudu
10. Imogo Igbudu

NDIAGU ECHARA COMMUNITY

1. Ugbodo
2. Okpera
3. Nzashi
4. Omege
5. Ndi oduma
6. Ndi Ogadoshi
7. Ndiegu Azu Offie
8. Obegu
9. Onyerigbo
10. Agubata

Guidelines for community mobilization

1. INTRODUCTION

The proposed general approach for water supply and sanitation projects was already explained in chapter 7 of the Strategic Plan. Here a detailed description will follow of the actual activities undertaken at the village level when working according that approach. The matrix of project stages and functions serves as a summary of this chapter (table 7.1 of the Strategic Plan. The paragraph opens with general remarks and next discusses the four project stages: (1) initiation, (2) pre-construction, (3) construction and (4) operation and maintenance in detail.

Rural Water Supply and Sanitation Improvement seen in the perspective of endogenous community development asks for an approach in which the village community is the main actor. Other outside agencies like a Project or a Rural Development Authority are merely involved to give the necessary assistance at the right moment. The assistance the village community requires takes the form of information, motivation, mobilization, education, institutional, technical or financial support or training.

Improving the present water supply and sanitation facilities and practices involves the introduction of innovations. These can be technical like pumps, generators and latrines, but also social innovations like alternative ways of village organization or administration, new practices in sanitation and hygiene, etc. Consequently the village community members go through processes of adoption of innovations.

Essentially the adoption process is an information seeking, information processing and decision-making process. People go through several stages from first acquaintance with an innovation until a final acceptance or rejection of such innovation:

- awareness/interest: somebody learns about the innovation for the first time and interest is aroused so he or she seeks for more information. Obviously the interest will depend on the need someone feels for the innovation;
- evaluation/persuasion: the person concerned compares presumed advantages and disadvantages (costs and benefits) of using the innovation. On basis of this evaluation he will either be in favor or against;
- trial/decision: the individual will test the innovation on a small scale (if possible), or engages in other activities, on basis of which ultimately the decision to either use or reject the innovation, is taken;
- implementation: the person uses the innovation;

- reconfirmation: after and during using it the person will evaluate whether the results are as expected and on basis of these decide to stop or continue using the innovation.

In a community the process is more complicated because people will not follow it through in a synchronized way. In addition a number of different adoption processes are taking place simultaneously. The overall innovation might be the hand-dug well with handpump, but during the adoption process of that well, other new ideas need to be adopted before ever the decision on wells can be taken satisfactory, e.g. organization into Village Water Committees, involving women in formal decision making and participation in health education.

Different communication methods and media are appropriate for different stages in the adoption process. In the early stages, when people primarily need factual information (like what is a hand-dug well, what is it for, how much will it cost, etc.) mass media communication can be suitable. In later stages however when persuasion and decision making are involved, mass media are less appropriate. Near the end of the adoption process people need communication and methods that help them in decision making, encourage them and convince them of making the best decision for themselves. In that case one way communication methods like radio and TV will not do. Then two-way interpersonal (or face-to-face) communication methods are more appropriate, because these enable people to interact with the mobilizer/educator as well as amongst themselves.

The task of a Project is to facilitate the adoption process and to assist with the informational, technical, institutional or other kind of support the people need. Important is to give the right support at the right moment. Clearly pushing or forcing people through their decision making process is not only wrong but also impossible.

An important remark for village level activities concerns the target groups to be approached. Presently women, and to a lesser extent also children, are the "water-managers" in every-day village life. Men, however, make up the groups that are in charge of formal decision making. Unfortunately it is still not superfluous to state the obvious. A water supply and sanitation project should involve women in activities as a target category, since they are the users of water facilities rather than men. Women therefore should play a key-role in decision making on facilities despite the fact that men normally deal with decision making in development efforts. Considering the present village authority structures, village level staff has to make special efforts towards participation of women in decision making. It is however not propagandized to bypass formal (male) decision making bodies, since that would only have an adverse effect.

Community mobilisers need to explain and convince communities that it is in their interest to involve women in decision making on issues of water and sanitation.

2. PROJECT INITIATION STAGE

The project initiation stage starts with the first visit of project staff to the village and finishes when the village community decides to apply for the project programme. The accent in this stage is on awareness creation of existing problems in water and/or sanitation and on interest arousal for the project.

The objectives of the series of village level activities in this stage are that at the end of the initiation stage:

- the village community knows what the objectives and working methods of the project are;
- the village community in conjunction with project staff has identified present problems in water supply and sanitation and has assessed the provisional alternatives to solve these problems;
- the village community applies for the assistance of the project in their development of better water supply and for sanitation facilities.

The activities to be undertaken in the village to fulfil these objectives described below:

Introductory meetings

Community mobilisers in conjunction with other project staff conduct successive introductory meetings with (1) the community authorities, (2) the village authorities and (3) the village population as a whole. In each of these meetings general information is presented on the aims of the project, the way it intends to operate and on the different stages in project activities. Also more specific information is given as to what the village community has to do to become involved. The aims for and the programme for the activities in the immediate future are discussed: baseline survey, discussion with specific groups regarding problem identification and ideas for improvement, preliminary assessment of technical alternatives and a general meeting for application for project involvement.

Problem identification and ideas for solution discussions

Community mobilisers discuss with smaller groups existing in the village what they perceive as problems in water and sanitation and what ideas they have for solutions. It is of prime importance to discuss with women separated from men. Other relevant groups to discuss with are male age grades that in general are concerned with village development.

In a mobilization team of one male and one female, each should discuss matters with members of their own sex. The main objective of these discussions is awareness creation or conscientization. Educational methods appropriate for these aims resemble the "GRAAP" method, in which a mobilizer assist the target group in their own problem analysis and action planning through posing relevant questions in connection with visual aids.

Preliminary assessment of feasible facilities

The technical staff members conduct a preliminary survey of the water supply and sanitation systems that are technically feasible in the village. Rehabilitation of existing facilities can be one of the alternatives in this respect.

Application

A general village meeting is called for. In this the groups that have participated in discussions of problems and possible solutions can express their views. Also project staff can explain the technical possibilities for improvement of present water supply and sanitation.

In a general discussion, facilitated by the community mobilizer, the population decides to apply for the project or not. The village authorities (community leaders) make the application behalf of the population.

3. PRE-CONSTRUCTION ASSESSMENT AND DESIGN STAGE

The pre-construction stage starts as soon as the application is received by the LGA and project authorities. It ends when a contract is signed by the representation of the future users of the facility and the project. In this contract the future commitments of both parties are spelled out. The emphasis during this stage is an evaluation of costs and benefits of embarking on a project by the community, and on making the final decision to either be or not be involved.

The overall objectives of the activities are that at the end of the stage:

- the project has prepared an assessment of the technical options and the community input required for each of these options in terms of capital cost, recurrent cost, management systems, labour and organizational systems;
- the village population has evaluated advantages and disadvantages of embarking on an effort to improve water supply and sanitation facilities;
- the village community has decided on one of the options to improve the water and/or sanitation facilities and has signed a contract prepared by the project in which commitments from both parties are recorded (the village could decide not to embark on a project at all);

- the future users of each facility have formed a Village Water Association (VWA) and elected an executive board to represent them;
- selected target groups have basic knowledge of the relationship between health, water and sanitation.

The actual activities to be undertaken during this stage are the following:

Presentation of assessment of feasible options

The technical staff of the project has to finalize the assessment of technically alternative solutions adopted to the village concerned. For each of the options the project has to clarify what the consequences for the village community will be. Think of contributions during construction in terms of cash, labour, building materials, but also of financial and organizational requirements after construction when the consumers themselves need to bear responsibility for operation and maintenance.

The different options both for water supply and sanitation are presented to the village population in a meeting. The community mobilisers initiate and facilitate discussions amongst the future users to compare advantages and disadvantages of the alternatives. To stimulate the discussion and to clarify what people are deciding about a video-tape could be shown. The video demonstrates the different technical options but most of all features users of completed systems in other villages who explain their experiences with the system.

Time must be allowed between this presentation, the discussion and the final decision. People should be given the opportunity to think things over, discuss amongst each other or even visit villages with completed systems. During the first presentation a date should be agreed on which the village will have made the final decision.

Health Education Introductory Sessions

Selected target groups receive introductory health education. The sessions can concentrate on creating awareness of the connection that exists between health, water and sanitation. The lessons are aimed to serve as consolidation and extra motivation in the decision process for improved facilities.

Earlier it was observed that water is already considered a priority problem rather on quantity than quality or health related considerations. Yet if people were more aware of the effect of unprotected and contaminated water on health, this would be an additional motivation to embark on water supply projects.

With regard to sanitation it can be stated bluntly that, since it is not regarded a problem let alone a priority problem, people will not likely decide on large scale improvement of their sanitation facilities. Through health education people will learn to see the importance of hygienic latrines and likely develop the motivation to spend their time, money and energy to build them. The most sensible approach would be to not force improved latrine construction on people along with improved water supply, but to start with health education on this particular subject. On-going health education and ample time should be offered to the people to make up their minds about improved sanitation. The project should consider to postpone assistance in latrine construction to a later period in villages not ready for initiatives in sanitation improvement at this stage.

Target groups for health education during this stage are: women's organizations, traditional birth attendants, and age grades of young men who are frequently involved in community development projects. The communication methods here should combine GRAAP-like group discussions with AV media. Radio-programmes on the same subjects can serve as an additional reinforcing method.

Decision making, VWA formation and contract signing

In a general meeting the village population has to make a final decision as to whether they want to co-operate with the project. If so they need to choose among the options which are technically feasible. It is up to them to decide whether the undertaking will involve water supply, sanitation or both.

For each water system to be constructed, the future users can form a Village Water Association (VWA). This in fact is a consumer organization combining all adults around a water facility. The community mobilisers assist in the process of electing the executive bound for each VWA.

In a first general meeting the village community makes a decision. Next the project has to prepare the contract in which is recorded what the community can expect from the project and what the community is expected to do in return. Commitments of the community can be in terms of investment capital (cash); labour, lodging and food during construction; organizational structures for operation and maintenance; cash contributions during operation and maintenance and village staff requirements.

In a second meeting the VWA are formally founded, the VWA boards officially elected and the contracts signed.

4. CONSTRUCTION STAGE

The construction stage starts as soon as a contract is signed between the project and the village community and finishes when the facility has been completed and transferred to the owner (VWA). The emphasis during this stadium is on fulfilment of the commitments that have been made in the contract.

The overall objectives of the activities undertaken are that at the end of this stage:

- the Village Water Association (VWA) has contributed to the construction as promised;
- the VWA and the project in combined effort have completed the construction of the water supply and for sanitation facilities;
- the VWA has selected the Operators, Pump Caretakers and Village Based Workers to be responsible for respectively future operation and maintenance of the facility and health education at the village level;
- the VWA executive board, Operators, Pump Caretakers and Village Based Workers have been trained in the knowledge and skills needed to perform their duties;
- the completed facility is commissioned and transferred to the VWA as its owner.

Here follows a description of the activities undertaken in this stage.

VWA board training

As early as possible the board members of the VWA need to be briefed on what is to be taken care of by them during the construction of facilities. Community mobilizers assist them to develop their skills in community leadership. A kind of seminar can be conducted in which the following subjects are discussed: community leadership for community development; organization of village contributions such as cash, labour, food and lodging; health, hygiene and sanitation among others. An idea would be to invite board members from surrounding villages to discuss their experiences with just starting boards.

Site selection

Community mobilizers/educators guide the process of site selection. A site must be (1) sanitary, (2) technically feasible but also (3) social acceptable. The methodology would be to involve both women and men separately and ask both groups to make a suggestion for a site. Then a site needs to be evaluated on sanitary conditions and technical feasibility. If proposed sites are not according criteria, the users should pick an alternative. It is of utmost importance to select a site which is approved of by the future consumers. One important additional criterion is that the site should not be on a privately owned property. If such a place is preferred the village community is responsible for expropriation prior to construction.

Contributions

The VWA board is to organize the contributions which have to be made by the villagers towards construction. They are the representatives of the future consumers. Before and during construction the village might have to provide food and lodging for project staff working in the village, unskilled labour during construction e.g. for digging wells or collecting sand and gravel, and financial contributions. If commitments are not forthcoming, the Project can decide to postpone construction. The project in its turn should treat the VWA as a client, to pay for services and is in a position to make demands.

Construction of facilities

The Project and village in conjunction construct the water supply and/or sanitation facilities as agreed. It is the Project's task to give the technical support in terms of equipment, expertise, skilled labour, supervision, imported materials, etc. In other cases a contractor might be hired to conduct some or all construction activities.

VBW selection and training

The Project offers the VWA to assist them in training two Village Based Workers, who later in the village can be responsible for health education and treatment of minor ailments. Community mobilisers/health educators help select suitable people for such a task. Women, traditional birth attendants and local healers would be eligible.

Village Based Workers receive a training on basic public health conducted by health educators. On return to the village the VWA can support the VBW through fund-raising, building a hall or room for public health services and health education, awarding regular remunerations, etc.

During the course of the Project, Project health staff can assist and monitor VBW performance, but afterwards LGA health staff has to do follow-up.

Operator or Caretaker Selection and training

Depending on the technical facility chosen, the type of paraprofessionals necessary for operation and maintenance can differ. Nearing completion of construction the future operators and caretakers must have been selected. Again the VWA should do this, but both VWA board and community mobilisers are present to give guidelines for selection of suitable people.

Caretakers and operators are preferably trained immediately before the construction is completed. As their duties have both technical and sanitary aspects, the training and team of trainers should combine these disciplines as well.

Health Education Sessions

Health education here also serves as a consolidation and additional motivation for the decision to embark on a project. As soon as VBW have been trained they can conduct health education sessions possibly supported by a weekly health programme on the radio. Such programmes could treat one subject every week like ORT, nutrition subjects, prevention of diseases, immunizations. In their own villages VBW can organize listener groups and act as discussion leaders and activity planners for village level follow-ups of the broadcasts.

Installation and Inauguration

Finally the day is there. The completed facility is officially opened and handed over to its owners. Messages that should come across on such a day are: (1) that the installation is the people's own, (2) that they therefore jointly are responsible for its operation and maintenance, (3) that no outsider will come to bring a free new facility if it breaks down, (4) that the Operators and Caretakers have been trained for their duties, (5) that in case they have problems they can go to the LGA for assistance, but most of all (6) that regular contributions will be necessary for the VWA to maintain the facility. To prevent lengthy speeches e.g. a theatre play could be used to deliver these messages in an attractive and yet effective way. Boosting this day to a happening not only enhances its PR value amongst the consumers themselves but can also bring publicity to the project on a larger scale. The first times installation are handed over, the broadcasting corporation could be invited to cover the event in their TV and radio reports.

5. POST CONSTRUCTION OPERATION AND MAINTENANCE STAGE

This post-construction stage starts when the VWA is given ownership of an improved water supply system. Ideally the stage does not have an end. The emphasis during this stage is operation and maintenance of the facilities.

The objectives of this phase are that:

- the consumers themselves cater for operation and maintenance of the systems (as far as preventive, financial, and hygienic maintenance and minor repairs are concerned) through structures suitable to their own situation;
- the board of the VWA have received training and assistance in developing a financial management form applicable to the village;
- the LGA is monitoring Caretakers', Operators' and VBS's performance at the village level and gives technical, educational, or other forms of support upon communities' request;
- Operators, Caretakers and VBW receive refresher courses conducted either by LGA or State level staff.

The number of activities that project staff undertakes in the village is decreasing. After some time LGA-staff has taken over the remaining responsibilities in communicating with the village community. During the time of the Project one of the Objectives was to increase the capacity for village level self development, so people are expected to run their own affairs as much as possible and only occasionally turn to the LGA for services and support beyond their capacity.

Training for and assistance in financial management
Community mobilisers but to a higher extent LGA staff train the executive board members of the VWA in financial management: revenue collection and bookkeeping among others. Assistance is given in deciding on suitable structures for revenue collection for each village. The alternatives are plenty: from flat rates per year or month to cash pay on delivery. Presently people generally prefer to pay flat (both men and women), but local preferences may differ or change. The VWA receive assistance in the discussion on what would be best for them in their situation. Recommended structures should not be predetermined by the Project, but flexible and open to local adaption.

User Education Sessions

Immediately after the inauguration of new facilities, Health Education sessions are conducted to instruct users on proper operation and use. For water supply facilities the objectives of such meetings are that consumers (1) know the possible ways and means in which water can be contaminated, (2) prefer to use uncontaminated water from the new system, (3) can explain the cycles of water borne diseases, (4) use clean buckets to fetch water and (5) store water properly. Women and children are target categories for this user education. Appropriate communication methods are: radio-broadcasts with follow-up by VBW and village activities in which role-plays, flipcharts and maybe video-productions are used for instruction.

If latrines are completed, user education on their proper use and hygiene is indispensable. People need to: (1) have general knowledge about relationship between sanitation, personal hygiene and health, (2) use the latrines properly, (3) wash their hands after using the latrine and (4) clean the latrine regularly. Different target groups need different educational activities; think of e.g. mothers who have to toilet-train their children, men and school going children. Methods as mentioned above are suitable.

If latrines were not incorporated in the Project activities before this stage, this would be the moment to concentrate on sanitation. Project assistance in terms of problem identification, evaluating the possible alternatives and assistance in latrine construction can be given here. VBW or local artisans can be trained in latrine construction.

Village Based Workers should ultimately have taken over village level health education from project staff. LGA health staff (supported by ASMOH) can take up VBW performance monitoring and assistance.

By and by subjects in health education have a more general character rather than being water supply and sanitation facility connected.

Follow-up and Refresher courses for Operators and Caretakers

LGA-authorities take over responsibility in monitoring the performance of operators and caretakers. Any assistance required by these village para-professionals is given by LGA staff: technical back-up support, refreshes courses or follow-up courses.

Spare Parts Distribution

For the time being LGA authorities can maintain a stock of spare-parts to be sold to VWA but in the future other possible ways of spare-parts distribution need to be looked into. One possibility is alternative private enterprise.

Budgets

The number of activities that project staff undertakes in the village is decreasing. After some time LGA-staff has taken over the remaining responsibilities in communicating with the village community. During the time of the Project one of the Objectives was to increase the capacity for village level self development, so people are expected to run their own affairs as much as possible and only occasionally turn to the LGA for services and support beyond their capacity.

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INTRODUCTION

Individual budgets have been elaborated for the three LGA's and for support of activities at State level. These budgets are presented on the following pages:

Anambra Igbo-Eze Ikwo State				
- Summary	1	8	14	20
- Construction costs for water supply	2	8	14	-
- Required staff	3	9	15	21
- Costs of staff	4	10	16	22
- Costs of training	5	11	17	22
- Procurement of goods	6	12	18	23
- Running costs	7	13	19	24

The breakdown of the 'State' budget is the same as for the LGA's, but no works are budgeted. Costs for construction of sanitation facilities have not been elaborated in further detailed as indicated in the summaries.

SUMMARY OF BUDGET FOR RWS&S PROJECT IN ANAMBRA LGA

Items	Estimated costs US \$
Constructions	1,502,703
Staff (4 years)	755,100
Training	199,049
Logistics (initial purchases)	688,250
Logistics (running costs, 4 years)	694,000
Sanitation revolving fund	100,000
TOTAL	3,939,101

CONSTRUCTION COSTS OF WORKS TO SUPPLY 60% OF THE RURAL POPULATION
IN ANAMBRA LGA

OPTION	UNIT PRICE ESTIMATED CONSTRUCTION NEEDS		INVESTMENT NAIRA
	NAIRA	NUMBER	
NEW WORKS:			
hand dug wells	29,000	254	7,366,000
shallow boreholes	76,000	49	3,724,000
spring captations	30,000	1	30,000
bulldozer dug ponds	85,000	0	0
deep boreholes	2,236,000	0	0
			11,120,000
EXCHANGE RATE (NAIRA/DOLLAR)		7.4	
TOTALS IN US\$			1,502,703

REHABILITATION OF EXISTING SCHEMES AND
COMPLETION OF UNACHIEVED SCHEMES

Provision: 0

PLAN OF ACTION
BUDGET FOR ANAMBRA LGA

ANNEX 4 -3-

REQUIRED STAFF AT ANAMBRA LGA IN PERSON YEARS
PROJECT DURATION (YEARS): 4

REQUIRED STAFF	CLASSIFICATION			
	CIVIL SERVANTS	EXPATS	NIGERIAN CONSUL- TANTS	SUPPORT STAFF
PERMANENT LGA STAFF:				
Community development inspector	4.0			
Financial/administrative staff (for training and guidance on book- keeping, revenue collection, basic financial analysis)	8.0			
Technical staff (for preliminary technical assessments supervision during construction, backup on maintenance)	12.0			
Health staff (for health education, sanitation)	12.0			
LGA BASED PROJECT STAFF:				
Project manager		4.0		
Community mobilisation/health education officers	14.0		3.5	
Technical officers/engineers (survey, design, training of staff on operation and maintenance)	3.5			
Area coordinators	11.0			
Draftsman				4.0
Supervisor	3.5		1.0	
Financial/administrative officer (set up and assistance on financial analyses, revenue collection systems, bookkeeping, training)			4.0	
Trainer (training coordination and administration, training of trainers)			4.0	
Accountant (project administration)				4.0
Mechanics				10.5
Store clerks				3.5
Drivers				48.0
Secretaries/typists				8.0
TOTALS PER LGA	68.0	4.0	12.5	78.0

PLAN OF ACTION
BUDGET FOR ANAMBRA LGA

ANNEX 4 -4-

COSTS OF STAFF FOR FULLY OPERATIONAL TEAM IN
ANAMBRA LGA, during 4 years

ITEMS	UNIT RATE \$/YEAR	TOTAL PERSON YEARS	AMOUNT US \$
Expatriate	120,000	4.0	480,000
Consultant	9,000	12.5	112,500
Support staff	1,300	78.0	101,400
			<hr/> 693,900

ALLOWANCES FOR GOVERNMENT CIVIL SERVANTS

Out of station allowance, for 50% of time spent, 50 N/day	900	68.0	61,200
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PLAN OF ACTION
BUDGET FOR ANAMBRA LGA

ANNEX 4 -5-

COSTS OF TRAINING FOR ANAMBRA LGA

TRAINING	DURATION (DAYS)	NUMBER OF TRAINEES	NUMBER OF MAN-DAYS
basics for project staff	10		
planning and monitoring	5		
basics for LGA staff	10	51	510
water supply technical feat.	10	9	90
village pump caretakers	5	702	3510
village pump caretakers follow-up	2	702	1404
village spring/standpipe caretakers	3	0	0
village water association board	2	1056	2112
village water ass. adm&finance	3	704	2112
sanitation facilities	10	3	30
financial management	5	2	10
training of instructors	10	3	30
handpump maintenance	5	2	10
community approach	10	4	40
village based workers	10	702	7020
village based workers follow-up operators	2	702	1404
local government officials	10	0	0
local officials seminar	2	15	30
state officials seminar	1	100	100
	2		
TOTAL		4757	18412
cost of training per man-day (Naira)	80		
TOTAL COST IN NAIRA			1,472,960
TOTAL COST IN US DOLLAR (1 US\$ = 7.4 Naira)			199,049
PROVISION FOR TRAINING MATERIALS			0

LOGISTICS: INITIAL INVESTMENTS FOR ANAMBRA LGA

ITEMS	UNIT PRICE	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
OFFICE EQUIPMENT:			
Radio set	3,000	4	12,000
photocopier	7,000	1	7,000
cyclo styling machine	500	1	500
PC computer	6,000	2	12,000
printer	1,000	1	1,000
office furniture (per person)	1,000	15	15,000
drawing board	1,500	1	1,500
air-conditioners	2,500	7	17,500
generator set	5,000	1	5,000
seacontainers for - office	18,000	5	90,000
- workshop, incl. equipment	28,000	1	28,000
FIELD EQUIPMENT:			
individual camping sets	650	5	3,250
levelling equipment	2,500	1	2,500
geophysical equipment	20,000	1	20,000
handdrill set inclu- ding testpump	12,000	1	12,000
laboratory equipment	10,000	1	10,000
hand drill survey set	6,000	1	6,000
well digging set with moulds and dewatering equipment	9,000	6	54,000
Mirror Stereoscope	2,000	1	2,000
Various equipment for hydrogeologic survey	10,000	1	10,000
TRANSPORT:			
4 wheel drive truck	15,000	9	135,000
private car	75,000	3	225,000
motorbike	12,500	0	0
boat (Anambra LGA)	1,000	9	9,000
	10,000	1	10,000
TOTAL INITIAL INVESTMENTS			688,250

PLAN OF ACTION
BUDGET FOR ANAMBRA LGA

ANNEX 4 -7-

LOGISTICS: RUNNING COSTS AT ANAMBRA LGA

ITEMS	UNIT PRICE \$/year	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
TRANSPORT:			
4 wheel drive truck	8,000	9	72,000
private car	25,000	3	75,000
motorbike	6,000	0	0
boat (Anambra LGA)	500	9	4,500
SUBTOTAL	10,000	1	10,000
			161,500
OFFICES:	12,000	1	12,000
TOTAL/YEAR			173,500

PLAN OF ACTION
BUDGET FOR IGBO-EZE LGA

ANNEX 4 -8-

SUMMARY OF BUDGET FOR RWS&S PROJECT IN IGBO-EZE
LGA

Items	Estimated costs US \$
Constructions	2,215,405
Staff (4 years)	743,000
Training	56,108
Logistics (initial purchases)	445,250
Logistics (running costs, 4 years)	412,000
Sanitation revolving fund	100,000
TOTAL	3,971,764

CONSTRUCTION COSTS OF WORKS TO SUPPLY 60% OF THE RURAL POPULATION
IN IGBO-EZE LGA

OPTION	UNIT PRICE	ESTIMATED	CONSTRUCTION NEEDS
	NAIRA	NUMBER	INVESTMENT NAIRA
NEW WORKS:			
hand dug wells	29,000	14	406,000
shallow boreholes	76,000	14	1,064,000
spring captations	30,000	2	60,000
bulldozer dug ponds	85,000	0	0
deep boreholes	2,236,000	4	8,944,000
			<u>10,474,000</u>
EXCHANGE RATE (NAIRA/DOLLAR)		7.4	
TOTALS IN US\$			1,415,405

REHABILITATION OF EXISTING SCHEMES AND
COMPLETION OF UNACHIEVED SCHEMES

Provision: 800,000

REQUIRED STAFF AT IGBO-EZE LGA IN PERSON YEARS
PROJECT DURATION (YEARS): 4

REQUIRED STAFF	CLASSIFICATION			
	CIVIL SERVANTS	EXPATS	NIGERIAN CONSUL- TANTS	SUPPORT STAFF
PERMANENT LGA STAFF:				
Community development inspector	4.0			
Financial/administrative staff (for training and guidance on book- keeping, revenue collection, basic financial analysis)	8.0			
Technical staff (for preliminary technical assessments supervision during construction, backup on maintenance)	12.0			
Health staff (for health education, sanitation)	12.0			
LGA BASED PROJECT STAFF:				
Project manager		4.0		
Community mobilisation/health education officers	14.0		3.5	
Technical officers/engineers (survey, design, training of staff on operation and maintenance)	7.0		1.0	
Area coordinators	.0			
Draftsman				4.0
Supervisor	3.5		1.5	
Financial/administrative officer (set up and assistance on financial analyses, revenue collection systems, bookkeeping, training)			4.0	
Trainer (training coordination and administration, training of trainers)			4.0	
Accountant (project administration)				4.0
Mechanics				4.0
Store clerks				3.5
Drivers				44.0
Secretaries/typists				4.0
TOTALS PER LGA	60.5	4.0	14.0	63.5

PLAN OF ACTION
BUDGET FOR IGBO-EZE LGA

ANNEX 4 -10-

COSTS OF STAFF FOR FULLY OPERATIONAL TEAM IN
IGBO-EZE LGA, during 4 years

ITEMS	UNIT RATE \$/YEAR	TOTAL PERSON YEARS	AMOUNT US \$
Expatriate	120,000	4.0	480,000
Consultant	9,000	14.0	126,000
Support staff	1,300	63.5	82,550
			<hr/> 688,550

ALLOWANCES FOR GOVERNMENT CIVIL SERVANTS

Out of station allowance, for 50% of time spent, 50 N/day	900	60.5	54,450
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PLAN OF ACTION
BUDGET FOR IGBO-EZE LGA

ANNEX 4 -11-

COSTS OF TRAINING FOR IGBO-EZE LGA

TRAINING	DURATION (DAYS)	3 LGA'S NUMBER OF TRAINEES	3 LGA'S NUMBER OF MAN-DAYS
basics for project staff	10		
planning and monitoring	5		
basics for LGA staff	10	51	510
water supply technical feat.	10	9	90
village pump caretakers	5	56	280
village pump caretakers follow-up	2	56	112
village spring/standpipe caretakers	3	0	0
village water association board	2	330	660
village water ass. adm&finance	3	220	660
sanitation facilities	10	3	30
financial management	5	2	10
training of instructors	10	3	30
handpump maintenance	5	2	10
community approach	10	4	40
village based workers	10	219	2190
village based workers follow-up operators	2	219	438
	10	0	0
local government officials	2	15	30
local officials seminar	1	100	100
state officials seminar	2		
TOTAL		1289	5190
cost of training per man-day (Naira)	80		
TOTAL COST IN NAIRA			415,200
TOTAL COST IN US DOLLAR (1 US\$ = 7.4 Naira)			56,108
PROVISION FOR TRAINING MATERIALS			0

LOGISTICS: INITIAL INVESTMENTS FOR IGBO-EZE LGA

ITEMS	UNIT PRICE	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
OFFICE EQUIPMENT:			
Radio set	3,000	4	12,000
photocopier	7,000	1	7,000
cyclo styling machine	500	1	500
PC computer	6,000	2	12,000
printer	1,000	1	1,000
office furniture (per person)	1,000	15	15,000
drawing board	1,500	1	1,500
air-conditioners	2,500	7	17,500
generator set	5,000	1	5,000
seacontainers for - office	18,000	5	90,000
- workshop, incl. equipment	28,000	1	28,000
FIELD EQUIPMENT:			
individual camping sets	650	5	3,250
levelling equipment	2,500	1	2,500
geophysical equipment	20,000	1	20,000
handdrill set inclu- ding testpump	12,000	0	0
laboratory equipment	10,000	1	10,000
hand drill survey set	6,000	0	0
well digging set with moulds and dewatering equipment	9,000	1	9,000
Mirror Stereoscope	2,000	1	2,000
Various equipment for hydrogeologic survey	10,000	1	10,000
TRANSPORT:			
4 wheel drive truck	15,000	8	120,000
private car	75,000	1	75,000
motorbike	12,500	0	0
boat	1,000	4	4,000
	10,000	0	0
TOTAL INITIAL INVESTMENTS			445,250

PLAN OF ACTION
BUDGET FOR IGBO-EZE LGA

ANNEX 4 -13-

LOGISTICS: RUNNING COSTS AT IGBO-EZE LGA

ITEMS	UNIT PRICE \$/year	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
TRANSPORT:			
4 wheel drive	8,000	8	64,000
truck	25,000	1	25,000
private car	6,000	0	0
motorbike	500	4	2,000
boat	10,000	0	0
SUBTOTAL			91,000
OFFICES:	12,000	1	12,000
TOTAL/YEAR			103,000

PLAN OF ACTION
BUDGET FOR IKWO LGA

ANNEX 4 -14-

SUMMARY OF BUDGET FOR RWS&S PROJECT IN IKWO
LGA

Items	Estimated costs US \$
Constructions	631,622
Staff (3 years)	571,850
Training	58,616
Logistics (initial purchases)	467,250
Logistics (running costs, 3 years)	310,500
Sanitation revolving fund	100,000
TOTAL	2,139,838

CONSTRUCTION COSTS OF WORKS TO SUPPLY 60% OF THE RURAL POPULATION
IN IKWO LGA

OPTION	UNIT PRICE NAIRA	ESTIMATED CONSTRUCTION NEEDS	
		NUMBER	INVESTMENT NAIRA
NEW WORKS:			
hand dug wells	29,000	80	2,320,000
shallow boreholes	76,000	4	304,000
spring captations	30,000	2	60,000
bulldozer dug ponds	85,000	6	510,000
deep boreholes	2,236,000	0	0
			3,194,000
EXCHANGE RATE (NAIRA/DOLLAR)		7.4	
TOTALS IN US\$			431,622

REHABILITATION OF EXISTING SCHEMES AND
COMPLETION OF UNACHIEVED SCHEMES

Provision: 200,000

REQUIRED STAFF AT IKWO LGA IN PERSON YEARS
PROJECT DURATION (YEARS): 3

REQUIRED STAFF	CLASSIFICATION			
	CIVIL SERVANTS	EXPATS	NIGERIAN CONSUL- TANTS	SUPPORT STAFF
PERMANENT LGA STAFF:				
Community development inspector	3.0			
Financial/administrative staff (for training and guidance on book- keeping, revenue collection, basic financial analysis)	6.0			
Technical staff (for preliminary technical assessments supervision during construction, backup on maintenance)	9.0			
Health staff (for health education, sanitation)	9.0			
LGA BASED PROJECT STAFF:				
Project manager		3.0		
Community mobilisation/health education officers	10.0		2.5	
Technical officers/engineers (survey, design, training of staff on operation and maintenance)	3.0		2.0	
Area coordinators	2.5		1.0	
Draftsman				4.0
Supervisor	3.0		2.0	
Financial/administrative officer (set up and assistance on financial analyses, revenue collection systems, bookkeeping, training)			3.0	
Trainer (training coordination and administration, training of trainers)			3.0	
Accountant (project administration)				3.0
Mechanics				3.0
Store clerks				2.5
Drivers				22.5
Secretaries/typists				3.0
TOTALS PER LGA	45.5	3.0	13.5	38.0

COSTS OF STAFF FOR FULLY OPERATIONAL TEAM IN
IKWO LGA, during 3 years

ITEMS	UNIT RATE \$/YEAR	TOTAL PERSON YEARS	AMOUNT US \$
Expatriate	120,000	3.0	360,000
Consultant	9,000	13.5	121,500
Support staff	1,300	38.0	49,400
			<hr/> 530,900

ALLOWANCES FOR GOVERNMENT CIVIL SERVANTS

Out of station allowance, for 50% of time spent, 50 N/day	900	45.5	40,950
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COSTS OF TRAINING FOR IKWO LGA

TRAINING	DURATION (DAYS)	3 LGA'S NUMBER OF TRAINEES	3 LGA'S NUMBER OF MAN-DAYS
basics for project staff	10		
planning and monitoring	5		
basics for LGA staff	10	51	510
water supply technical feat.	10	9	90
village pump caretakers	5	180	900
village pump caretakers follow-up	2	180	360
village spring/standpipe caretakers	3	0	0
village water association board	2	276	552
village water ass. adm&finance	3	184	552
sanitation facilities	10	3	30
financial management	5	2	10
training of instructors	10	3	30
handpump maintenance	5	2	10
community approach	10	4	40
village based workers	10	184	1840
village based workers follow-up operators	2	184	368
local government officials	10	0	0
local officials seminar	2	15	30
state officials seminar	1	100	100
	2		
TOTAL		1377	5422
cost of training per man-day (Naira)	80		
TOTAL COST IN NAIRA			433,760
TOTAL COST IN US DOLLAR (1 US\$ = 7.4 Naira)			58,616
PROVISION FOR TRAINING MATERIALS			0

LOGISTICS: INITIAL INVESTMENTS FOR IKWO LGA

ITEMS	UNIT PRICE	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
OFFICE EQUIPMENT:			
Radio set	3,000	4	12,000
photocopier	7,000	1	7,000
cyclo styling machine	500	1	500
PC computer	6,000	2	12,000
printer	1,000	1	1,000
office furniture (per person)	1,000	15	15,000
drawing board	1,500	1	1,500
air-conditioners	2,500	7	17,500
generator set	5,000	1	5,000
seacontainers for - office	18,000	5	90,000
- workshop, incl. equipment	28,000	1	28,000
FIELD EQUIPMENT:			
individual camping sets	650	5	3,250
levelling equipment	2,500	1	2,500
geophysical equipment	20,000	1	20,000
handdrill set inclu- ding testpump	12,000	1	12,000
laboratory equipment	10,000	1	10,000
hand drill survey set	6,000	0	0
well digging set with moulds and dewatering equipment	9,000	2	18,000
Mirror Stereoscope	2,000	1	2,000
Various equipment for hydrogeologic survey	10,000	1	10,000
TRANSPORT:			
4 wheel drive truck	15,000	8	120,000
private car	75,000	1	75,000
motorbike	12,500	0	0
boat	1,000	5	5,000
	10,000	0	0
TOTAL INITIAL INVESTMENTS			467,250

PLAN OF ACTION
BUDGET FOR IKWO LGA

ANNEX 4 -19-

LOGISTICS: RUNNING COSTS AT IKWO LGA

ITEMS	UNIT PRICE \$/year	QUANTITY FOR LGA LEVEL OPERATIONS	AMOUNT INVOLVED
TRANSPORT:			
4 wheel drive truck	8,000	8	64,000
private car	25,000	1	25,000
motorbike	6,000	0	0
boat	500	5	2,500
SUBTOTAL	10,000	0	0
OFFICES:			
	12,000	1	12,000
TOTAL/YEAR			<u>91,500</u>
			<u>103,500</u>

SUMMARY OF BUDGET FOR RWS&S PROJECT IN STATE

Items	Estimated costs US \$
Staff (4 years)	1,768,400
Training	204,757
Logistics (initial purchases)	259,250
Logistics (running costs, 4 years)	348,000
Aerial photographs and satellite images	200,000
TOTAL	2,780,407

NUMBER PERSON YEARS FOR STAFF REQUIRED AT STATE LEVEL DURING 4 YEARS

REQUIRED STAFF	CLASSIFICATION			
	GOVERN- MENT CIVIL SERVANTS	EXPATS	NIGERIAN CONSUL- TANTS	SUPPORT STAFF
PERMANENT STATE LEVEL STAFF				
Data collection staff	8			
Technical staff:				
water supply/sanitation engineer	8			
Economist	4			
Community development expert	4			
Monitoring team:				
- demographer/ sociologist	4			
- cartographer	4			
STATE LEVEL BASED PROJECT STAFF				
Project manager	4	4		
Technical staff:				
water supply/sanitation engineer	4	4		
Data collection supervisor				4
Economist				4
Training materials developer/media Expert		1		4
Community development officers	4	4		
RDA-liaisoning officer	4			
Accountant				4
Secretaries/typists				8
Drivers				32
TOTAL AT STATE LEVEL	48	13	12	44

COSTS OF STAFF FOR FULLY OPERATIONAL TEAM IN
IKWO LGA, during 4 years

ITEMS	UNIT RATE \$/YEAR	TOTAL PERSON YEARS	AMOUNT US \$
Expatriate	120,000	13.0	1,560,000
Consultant	9,000	12.0	108,000
Support staff	1,300	44.0	57,200
			<u>1,725,200</u>

ALLOWANCES FOR GOVERNMENT CIVIL SERVANTS

Out of station allowance, for 50% of time spent, 50 N/day	900	48.0	43,200
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COSTS OF TRAINING FOR IKWO LGA

TRAINING	DURATION (DAYS)	NUMBER OF TRAINEES	NUMBER OF MAN-DAYS
basics for project staff	10	35	350
planning and monitoring	5	6	30
state officials seminar	2	30	60
TOTAL		<u>71</u>	<u>440</u>
cost of training per man-day (Naira)	80		
TOTAL COST IN NAIRA			35,200
TOTAL COST IN US DOLLAR (1 US\$ = 7.4 Naira)			4,757
PROVISION FOR TRAINING MATERIALS			200,000

LOGISTICS: INITIAL INVESTMENTS FOR STATE

ITEMS	UNIT PRICE	QUANTITY FOR STATE LEVEL OPERATIONS	AMOUNT INVOLVED
OFFICE EQUIPMENT:			
Radio set	3,000	1	3,000
photocopier	7,000	1	7,000
cyclo styling machine	500	0	0
PC computer	6,000	3	18,000
printer	1,000	2	2,000
office furniture (per person)	1,000	15	15,000
drawing board	1,500	1	1,500
air-conditioners	2,500	8	20,000
generator set	5,000	0	0
seacontainers for - office	18,000	0	0
- workshop, incl. equipment	28,000	0	0
FIELD EQUIPMENT:			
individual camping sets	650	5	3,250
levelling equipment	2,500	0	0
geophysical equipment	20,000	0	0
handdrill set inclu- ding testpump	12,000	0	0
laboratory equipment	10,000	0	0
hand drill survey set	6,000	0	0
well digging set with moulds and dewatering equipment	9,000	0	0
Mirror Stereoscope	2,000	1	2,000
Various equipment for hydrogeologic survey	10,000	1	10,000
TRANSPORT:			
4 wheel drive truck	15,000	1	15,000
private car	75,000	1	75,000
motorbike	12,500	7	87,500
boat	1,000	0	0
	10,000	0	0
TOTAL INITIAL INVESTMENTS			259,250

LOGISTICS: RUNNING COSTS AT STATE

ITEMS	UNIT PRICE \$/year	QUANTITY FOR STATE LEVEL OPERATIONS	AMOUNT INVOLVED
TRANSPORT:			
4 wheel drive	8,000	1	8,000
truck	25,000	1	25,000
private car	6,000	7	42,000
motorbike	500	0	0
boat	10,000	0	0
SUBTOTAL			75,000
OFFICES:	12,000	1	12,000
TOTAL/YEAR			87,000

PLAN OF ACTION
BUDGETS

ANNEX 4 -25-

SUMMARY OF BUDGET FOR RWS&S PROJECT IN THREE LGA'S

Items	Estimated costs US \$				
	ANAMBRA	IGBO-EZE	IKWO	STATE	TOTAL
Instructions	1,502,703	2,215,405	631,622	0	4,349,730
Staff	755,100	743,000	571,850	1,768,400	3,838,350
Training	199,049	56,108	58,616	204,757	518,530
Logistics (initial purchases)	688,250	445,250	467,250	259,250	1,860,000
Logistics (running costs)	694,000	412,000	310,500	348,000	1,764,500
Facilities revolving fund	100,000	100,000	100,000	0	300,000
Aerial photographs and satellite images				200,000	200,000
TOTAL	3,939,101	3,971,764	2,139,838	2,780,407	12,831,109

Planning of activities

PROJECT ACTIVITY	YEAR				
	1	2	3	4	5
Agreement	X				
Mobilization	XX				
Baseline survey					
Anambra	■				
Igbo-Eze		■			
Ikwo					
Community mobilization					
Anambra		■			
Igbo-Eze		■			
Ikwo		■			
Construction					
Anambra		■			
Igbo-Eze		■			
Ikwo		■			
Post construction/ operation & maintenance		XX	XXXX	XXXX	XXXX

Training modules

title	BASICS FOR PROJECT STAFF
target group	all key project staff
subject	project approach, structure institutional framework basics of community development basics of small scale water supply basics of sanitation basics of health education
type of training	classroom
length	2 weeks
when	inception phase; when recruited
number of trainees (estimated)	35

title	PLANNING AND MONITORING
target group	state level staff
subject(s)	inventory of existing schemes planning on-going projects proposed projects monitoring
type of training	classroom/workshop
length	1 week
when	inception stage of project
number of trainees (estimated)	6

title	BASICS FOR LGA STAFF
target group	LGA staff who will work with or in the project
subject(s)	project approach, structure institutional framework basics of community development basics of small scale water supply basics of sanitation basics of health education
type of training	classroom
length	2 weeks
when	inception phase in LGA
number of trainees	9 per LGA

title	WATER SUPPLY TECHNICAL FEATURES
target group	LGA key job holders Works Dept.
subject(s)	basic hydro-geology source selection basic scheme designs construction supervision
type of training	classroom
length	2 weeks
when	after BLS
number of trainees (estimated)	3 per LGA

title	VILLAGE PUMP CARETAKERS
target group	village pump caretakers
subject(s)	sources and pumps pump operation daily maintenance minor repairs organisation proper water use hygiene sanitation
type of training	classroom + workshop
length	2 days general, 3 days specific pump technical training
when	during construction phase
number of trainees	2 per facility

title	VILLAGE PUMP CARETAKERS FOLLOW-UP
target group	village pump caretakers
subject(s)	refresher training plus technical inspection
type of training	workshop in LGA, on-the-job
length	2 days
when	approx. half a year after construc- tion
number of trainees	2 per facility

title	VILLAGE SPRING AND STANDPOST CARETAKERS
target group	village spring caretakers village standpost caretakers
subject(s)	proper water use hygiene minor repairs organisation sanitation
type of training	classroom
length	3 days
when	during construction phase
number of trainees (estimated)	2 for a spring captation 20 for deep borehole system
title	VILLAGE WATER ASSOCIATION BOARD
target group	members of village water board
subject(s)	proper water use hygiene sanitation introduction on administration and financial management institutional framework village pump caretaking
type of training	seminar
length	2 subsequent days
when	during pre-construction stage
number of trainees	3 per site
title	VILLAGE WATER ASSOCIATION BOARD ADMINISTRATION AND FINANCE
target group	members of village water board
subject(s)	administration & basic bookkeeping financial management
type of training	desk-to-desk
length	3 subsequent days
when	immediately after construction
number of trainees	2 per site

title	SANITATION FACILITIES
target group	LGA key job holders Works Dept. LGA environmental health staff
subject(s)	project approach, structure health and sanitation basic health precautions alternative sanitation facilities construction supervision costs
type of training	classroom
length	2 weeks
when	after BLS
number of trainees (estimated)	3 per LGA

title	FINANCIAL MANAGEMENT
target group	LGA financial/administrative staff
subject(s)	costs and cost calculation for water supply schemes revenue/contribution systems revenue/contribution collection bookkeeping financial analyses
type of training	classroom/desk-to-desk
length	1 week
when	after BLS
number of trainees (estimated)	2 per LGA

title	TRAINING OF INSTRUCTORS
target group	staff who will train/instruct others in a certain job nb. the trainees are assumed to be skilled/trained in their own job (a.o. some LGA and project staff)
subject(s)	training cycle training needs identification learning process classroom instruction techniques on-the-job instruction techniques
type of training	classroom plus practice
length	2 weeks
when	after BLS
number of trainees (estimated)	3 per LGA

title	HANDPUMP MAINTENANCE
target group	LGA staff from Works Department (skilled labourers)
subject(s)	types of pumps daily maintenance minor repairs major overhauls/repairs spare parts: logistics and stocks
type of training	classroom and workshop (hands-on)
length	1 week
when	during construction stage
number of trainees (estimated)	2 per LGA

title	COMMUNITY APPROACH
target group	community mobilisers health educators
subject(s)	principles of mobilisation and education cycle of village level activities target group identification objectives/aims of mobilisation and education message development communication and use of AV
type of training	classroom, workshops , practice
length	2 weeks
when	after completion BPS
number of trainees (estimated)	4 per LGA

title	VILLAGE BASED WORKERS
target group	village based workers
subject(s)	health and hygiene diseases, causes, prevention and treatment sanitation nutrition treatment of minor ailments ORT MCH latrine construction communication skills
type of training	classroom plus practice
length	2 weeks
when	after BLS
number of trainees (estimated)	2 per village 400 per LGA

title	VILLAGE BASED WORKERS FOLLOW-UP
target group	village based workers
subject(s)	refresher training
type of training	workshop, practical, on-the-job
length	2 days
when	approx. one year after first training
number of trainees (estimated)	2 per village 400 per LGA
title	OPERATORS
target group	operators mechanized systems
subject(s)	borehole water sources operation and maintenance of pump operation and maintenance of genset hygienic practices operation and maintenance distribution system
type of training	classroom plus workshop, on-the-job
length	2 weeks
when	during construction phase
number of trainees (estimated)	2 per borehole system
title	LOCAL OFFICIALS SEMINAR
target group	traditional rulers councillors officials of town/village unions officials of development committees
subject(s)	RWSS development: importance and objectives project approach
type of training	seminar
length	1 day
when	early during project initiation in a certain LGA
number of trainees (estimated)	100 per LGA

title	LOCAL OFFICIALS INDUCTION
target group	chairmen and councillors of LG secretary of LGA, heads of department of LGA
subject(s)	RWSS development: importance and objectives project approach
type of training	seminar
length	2 days
when	early during project initiation in a certain LGA
number of trainees (estimated)	15

title	STATE OFFICIALS SEMINAR
target group	commissioners director-generals/directors of relevant state level agencies chief executives of relevant organisations (a.o. ANSWC, RDA)
subject(s)	RWSS development: importance and objectives project approach
type of training	seminar
length	2 days
when	early during project initiation
number of trainees (estimated)	30

Results of baseline interviews in sample communities

1. Local Government Area: ANAMBRA (Riverine area)
2. Community: NZAM
3. Number of villages: 8 (village visited Uda)
4. Projected population for 1990: 7.980
5. Discussions conducted with:
 1. Nzam Development Union
 2. Agaba I Age Grade
 3. Udoka Nzam Women's cooperative Society
6. Main source of income: Agriculture and Local Trade. Main produce rice and additional produce yam and cassava.
7. Estimated annual income: People claimed their income to be 1000 N per individual. Resource persons said this estimate was low and 2000 to 4000 N was more realistic. Income is seasonal according to the agricultural cycle.
8. Local Leadership and administration:

The Agaba Age group is presently in charge as community supreme council. The executive committee is responsible for daily affairs. After four years of leadership the next age-grade will take over this responsibility. Since the age grade is combining the complete community, the villages are represented in the age grade and supreme council.
9. Role of specific groups in community life:

The Development Union is responsible for initiating and implementing communal development efforts. Women, young women particularly, are responsible for water source management. Older titled men (NDICHIE) and titled women (IJOM) are in charge of guarding tradition. The Ruling Age grade is assisted by the young men age grade (UMUOTO) in enforcing decisions taken.
10. Present water supply conditions and practices:

During the dry season water is collected from ponds and a nearby river. During the rainy season rainwater is harvested and used. Women and children are responsible for water fetching. Water sources are just outside the borders of the community. Water is not treated or boiled before drinking.

11. Problems in water supply:

The poor quality of water is the main problem in the dry season according to the inhabitants. Palatability is one problem, but contamination will probably be another. Occasionally the quantity of water is insufficient due to drying of ponds.

12. Contribution to be expected and willingness to pay:

Inhabitants are prepared to contribute in terms of sand, stone and labour for improved water supply. A VWA would to their opinion be a good idea for operation and maintenance. Women as well as men should be members. Women are willing to contribute 50 N/year and men 5-10 N per month.

13. The issue of sanitation:

Presently approximately 15% of the houses has a local type uncovered pit latrine with concrete slab. Sanitation is not regarded a priority problem and people are not prepared to set aside money for latrines.

14. Health conditions and degree of sensitization:

People are aware of a dependency of poor health on water quality, but actual cycles of water borne diseases are not known. The same goes for sanitation-health connections and personal-hygiene and health. People say they suffer from: diarrhoea, measles, malaria and convulsion.

15. Comments:

Development efforts in the past were: construction of bridges, schools and markets. Houses and buildings in the community are built very dense, because the surrounding field flood during the wet season and the higher areas are limited. During the agricultural peak season people live in huts near the field and return to their house in the village only occasionally.

1. Local Government Area: Anambra (upland)
2. Community: Nkwelle-Ezunaka
3. Number of villages: 5
4. Projected population for 1990: 9.684
5. Discussions conducted with:
 1. Town Union
 2. Elders
 3. Nkwelle-Erunaka Youth Association (age grade organization).
6. Main source of income: A large population of the (male) work-force works in Onitsha on a wage-labour basis. In addition agricultural activities and trade are important occupations.
7. Estimated annual income: People claimed their annual income was 500-600 N (yet this is unrealistic considering minimum wage already amounts to 3000 N annually for people in wage labour).
8. Local leadership and administration:

The Town Union is the ruling body. All adults of the community are a member. Every three years an Executive Committee is chosen in an open election. The Town Union is the equivalent of a Development Committee to their opinion. Women are not allowed to participate in Town Union meetings. The traditional ruler is respected but the TU is supreme to him.
9. Role of specific groups in community life:

The TU is in charge of community affairs, development efforts included. Women were interfering with the TU and becoming too powerful, therefore they were officially forbidden to enter the town hall. The elders are to watch that traditional ethics are maintained. The Youths are to implement development efforts decided on by the TU.

10. Present water supply conditions and practices:

During the dry, and to a lesser extent also during the wet season, water is collected from spring captations. Captations are found inside the community and near to it. Hygienic conditions around the captation can be improved. Women and children fetch water and young women are responsible for captation maintenance.

11. Problems in water supply:

Insufficient quantity of water during the dry season and long waiting times, both due to low spring capacity.

12. Contributions to be expected and willingness to pay:

Age Grade representatives are prepared to contribute to construction with manual labour and materials. The community as a whole has a communal fund out of proceeds of leased land. Available is 100.000-200.000 Naira per year! Part of it can be used for water supply. A VWA would be helpful. People can contribute a monthly water rate of 10 to 20 N per family.

13. The issue of sanitation:

The estimated coverage of latrines is 70%. The popular type having a concrete slab. Compared to many other communities sanitation is regarded more important, but reserving money for improved facilities is not a priority.

14. Health conditions and degree of sensitization:

People in Nkwelle community regard themselves as more enlightened and certainly have a better awareness of the connection between health and sanitation. But whether detailed knowledge on health is present can be doubted. Unfortunately discussions with a women's organization were impossible. So information on that aspect among women is not obtained. Some people claimed there were no diseases or at least no serious diseases, while others mentioned prevalence of: malaria, tuberculosis and measles.

15. Comments:

Nkwelle community is a wealthy community. On an individual as well as communal basis a lot of cash is available. The town recently engaged on projects like: building a bank (!), building two schools, building a post office, etc. Nkwelle is one the few communities having their own electricity scheme. Many of its inhabitants are traders in Onitsha, which explains the wealth. Striking was the fact that women were not allowed to express their views in TU meetings anymore.

1. Local Government Area: Anambra (Riverine)
2. Community Ezi-Agulu-Otu
3. Number of villages: 3
4. Projected population for 1990: 10.534
5. Discussions conducted with:
 1. Ichie (Council of Elders)
 2. Women's Association
 3. Anaruagu (Age Grade)
 4. Ofu Ifunanya (social club).
6. Main source of income: Agriculture accounts for the income in this community. The most important crops are: rice, yam and cassava.
7. Estimated annual income: Women estimated their average annual income between 800 and 3200 Naira. The men estimated their income to be annually 600-1000 N, but this is an underestimate. Average annual incomes of 2000-4000 N are a good guess.
8. Local leadership and administration:

The NDICHIE (Council of Titled Elders) forms the supreme council in this community. Since the elders are from one age grade combining the villages, all villages are thus represented in the NDICHIE. In development matters the elders take decisions and assign tasks to other groups.
9. Role of specific groups in community life:

The NDICHIE (Titled Elders) are the ruling council. The younger age grades are assigned specific duties for implementation in the community. Older titled women (NDICHIE) rule the women's association. There is no Development Committee in Ezi Agulu Otu.
10. Present water supply conditions and practices:

During the dry season water is collected from three ponds. Ponds are designated for either bathing or drinking. Women and children fetch water. Women are responsible for sweeping and clearing the ponds. When the pond dries water is collected from a far river. During the wet season rainwater is collected in pots and used for drinking. Water is never treated before drinking.

11. Problems in water supply:

The problems are: insufficient water in the dry season, when ponds are drying and poor quality of water. Poor palatability of water is considered the main quality problem.

12. Contributions to be expected and willingness to pay:

Any manual labour and local materials required will be contributed. VWA are useful in case of water supply facilities. Contribution according to men should be around 10 to 15 N per family per month, while women preferred to pay maximally around 50 N per annum.

13. The issue of sanitation:

Virtually nobody has latrines at the moment.

14. Health conditions and degree of sensitization:

Both men and women sense a relationship between health and water. One pond is only occasionally used for drinking, because drinking water every time leads to diarrhoea.

Women decided not to use that particular pond for drinking water. Yet they do not know how diseases can be transmitted through water. The population now and again suffers from: malaria, measles, diarrhoea, weeping rough and chicken pocks.

15. Comments:

The community is built on a slight elevation which is not flooded during the wet season. Since the area is limited, houses are built close to each other. In the farming seasons, people spend their days and nights in the field in huts built on hills. During periods of peak labour they visit the town only occasionally.

1. Local Government Area: Igbo-Eze
2. Community: Umu-Ozzi (Umuopu village)
3. Number of villages: 22
4. Projected population for 1990: 93.631
5. Discussions conducted with:
 1. Oynishi (Council of Elders)
 2. Igaala (Assisting Council Elders)
 3. Age Grade group
 4. Christian Mothers Group
 5. Community Development Committee
6. Main source of income: Agriculture and local trade. Most important products are yam, cassave, palmoil and palmwine.
7. Estimated annual income: People estimate their annual income at 1000 N for men and 400 N for women.
8. Local leadership and administration:

A council of elders (Oynishi) is ruling over the community of Umu-Ozzi, but since it is very large, the council of elders at village level of Umuopu village is in charge of the village. Each kindred in the village is represented by the eldest member in the council. The Igwe is the traditional leader of Umu-Ozzi community as a whole, but the Oynishi are supreme rulers.
9. Role of specific groups in community life:

The Community Development Committee has been founded recently and is to initiate and supervise development efforts. The Oynishi rules the village. The Igaalu group is a group of older men assisting the council of elders in their ruling. Age Grades are assigned implementation tasks by the Oynishi.
10. Present water supply conditions and practices:

The dry season's water supply relies on run-off water reservoirs and springs in a distant valley. Water sellers (tankers) occasionally distribute water in the village. In the wet season water from direct rainfall is collected and used. Water storage is in pots. The springs are far (4-5 miles distance). Women and children fetch water. Time spending can mount up to a half or even a full day towards

the end of the dry season. Water is generally not treated before drinking. The springs are open and unprotected. Women have to scope water out of a pit and next wait for recharge. Surroundings of the springs are not swept.

11. Problems in water supply:

The most pressing problem is the insufficient quantity of water in the dry season and secondly the distance to the springs. The capacity of springs diminishes and therefore waiting time is prolonged. In addition due to disputes with neighboring villages that also use the springs, the springs are not properly maintenance and consequently polluted.

12. Contributions to be expected and willingness to pay:

Manual labour, sand and stones will be contributed by community members. In addition a monthly contribution of 1-2 N per woman and 3-5 N per man are affordable for operation and maintenance. A VWA will be a good idea for management of water affairs. VWA per facility are preferred above a comprehensive community level Water Committee.

13. The issue of sanitation:

Approximately 30% of the houses has a local type pit latrine with a concrete or mud slab. Willingness to reserve money for latrine construction is virtually non-existent. People do not have latrines because of the prohibitive cost.

14. Health conditions and degree of sensitization:

People report to suffer from diarrhoea, measles, headache, tetanus and yellow fever(?) Prevention of diseases and even causes of diseases are not known. Poor quality water has an adverse effect on health, but this relation is not known in detail.

15. Comments:

Omuopu village is a part of Umu-Ozzi community, the largest in this LGA. The villages have an autonomy nearly comparable to other communities.

1. Local Government Area: Igbo-Eze
2. Community: Itchi
3. Number of villages: 8 (village visited Umugba-Itchi)
4. Projected population for 1990: 12.507
5. Discussions conducted with:
 1. Oynishi (Council of Eldest)
 2. Anudu Social Club
 3. Young Farmer's Club
 4. Women's Group
6. Main source of income: Agriculture and local trade. Important products: palmoil, palmwine, groundnuts and yams.
7. Estimated annual income: Estimated annual income according to men is 1000 N and for women 200-400 N. However according to resource persons this is underestimated.
8. Local leadership and administration:

The Oynishi (Council of Eldest) are the ruling people in Itchi, assisted by the assisting Council of Elders. Each village is represented by its Oynishi.
9. Role of specific groups in community life:

No specific Community Development Committee is responsible for Development projects, the Age Grades and Social Clubs are managing these affairs instead.
10. Present water supply conditions and practices:

Itchi community is located in a hilly area and has several springs and spring captations, which form the dry season's water supply. In the wet season this is supplemented by water from direct rainfall. Captations are in need of rehabilitation and more captations could be constructed. Women and children are responsible for fetching water. Young women are in charge of spring maintenance (clearing and sweeping of surroundings).

11. Problems in water supply:

The most important problem is the insufficient quantity of water during the dry season. The diminished capacity of springs leads to long waiting hours and less water.

12. Contributions to be expected and willingness to pay:

People are prepared to assist during construction in terms of labour, sand and gravel, and can spend 5 N per women per month and 10 N per man per month for operation and maintenance. A handpump is regarded as not sophisticated enough for the present level of development.

13. The issue of sanitation:

A coverage of 30% is estimated for local type pit latrines with concrete or mud slabs. The prohibitive costs of local latrines prevents people from constructing one. The pit alone costs 120 N to be dug.

14. Health conditions and degree of sensitization:

People report to suffer from: measles, malaria, yellow fever, diarrhoea and tuberculoses. Degree of sensitization to health relationships with water and sanitation is medium to low. There is a vague awareness but no detailed knowledge of the connection between health and water and sanitation.

15. Comments:

1. Local Government Area: Igbo-Eze
2. Community: Uhunowerre
3. Number of villages: 14 (village visited Umugbabe Odicha)
4. Projected population for 1990: 4.162
5. Discussions conducted with:
 1. Oynishi (Council of Elders)
 2. Community Development Committee
 3. Women's Group (Christian Mothers)
 4. Kanayo Chukwn (Age Grade)
 5. Trader's Union
 6. Abroad Union
6. Main source of income: Agriculture, local trade and small scale industry. Yams, Palmoil and Palmwine as major produce.
7. Estimated annual income: Men estimated their income at 1000 N annually and women on 200-600 N.
8. Local leadership and administration:

Leadership is according to age. The Council of Elders (Oynishi) has the eldest of each family in it. The eldest (Oynishi) is the supreme authority in the community. The Council of Elders rules the community. The Igwe is a member of this council.
9. Role of specific groups in community life:

A Community Development Committee was founded recently to be in charge of development efforts. The Age Grades of younger men perform assigned tasks in community development and general affairs.
10. Present water supply conditions and practices:

In the dry season people rely on run-off water reservoirs. Also occasionally people buy water from water from water sellers or tankers. In the rainy season people collect rainwater from direct rainfall. Water is generally not treated before drinking, except that some women use alum.

11. Problems in water supply:

The quantity of water is insufficient during the dry season. Only a few people can afford to rely on expensive tanker water. Secondly the quality of water is very poor. Not only water is contaminated initially (since it is run-off) but in addition pits are unprotected and open to additional contamination, infestation and pollution. Quality problems however for the population are restricted to poor palatability.

12. Contributions to be expected and willingness to pay:

People are prepared to contribute ... labour, sand and gravel for construction. For operation and maintenance monthly contributions of 1-2 N for women and 3-5 N for men is regarded reasonable. A VWA for maintenance is a good idea. Men as well as women should have tasks in it.

13. The issue of sanitation:

Approximately half of the houses are fitted with traditional pit latrines with either mud or concrete slabs. The willingness to pay for improve sanitation is very low.

14. Health conditions and degree of sensitization:

People are vaguely aware of the hazards of drinking water from unprotected sources, yet they do not know how contamination could occur. Any water, no matter the quality, is welcome during the dry season. They do prefer to drink rainwater when it is available.

15. Comments:

The water problem, both from a quantity as well as a quality perspective is very acute.

1. Local Government Area: Ikwo
2. Community: Ekpelu
3. Number of villages: 5
4. Projected population for 1990: 4.024
5. Discussions conducted with:
 1. Community Development Union
 2. Oguzaronweya Age Grade
 3. Ameka Women's Task Force
6. Main source of income: Agriculture and Local Trade are the main occupations. Most important produce is rice, yam (males) and cassava (women).
7. Estimated annual income: Men said their annual income to be on the average 4000-5000 N. Women could (or would) not give such an estimate.

8. Local leadership and administration:

In Ekpulu community the Community Development Union (CDU) is the supreme council. The five villages effectively work as three. Each village group appoints three representatives to the CDU, amongst which the officials are chosen for a two year period. The Igwe (traditional ruler) is a special member but does not have special power. In each village group a sub-committee exists.

9. Role of specific groups in community life:

The CDU is responsible for development project concerning the whole community. Village branches take care of development projects in their respective villages, and are responsible for village contributions to the CDU. The Age Grades form work parties for the CDU.

10. Present water supply conditions and practices:

Ekpulu community has 5 ponds from which inhabitants fetch water. The ponds were constructed with help of a bulldozer. People are not allowed to wash nor launder in the ponds. Women are responsible for caretaking of the ponds. This involves sweeping and weeding. When a pond dries one year, it is subsequently redeepened. Both men and women form work-parties. In the rainy season local shallow wells and water from direct rainfall are also used. Shallow wells dry after the rains stop. Generally ponds are at the outskirts

of the villages, but some ponds are further than two miles away.

11. Problems in water supply:

The main problem with water to the population's opinion is the drying of some ponds during the dry season and secondly both the inconvenience and large time spending of fetching water (dry season) and the poor quality of water from ponds.

12. Contributions to be expected and willingness to pay:

People assured the interviewers that they would assist a water project with labour, sand and stones. VWA could be organized best on a village basis, because each village has its own way of arranging things. Women should participate in these because they feel more responsible for maintenance of facilities than men. A caretaker should receive a remuneration paid by the users. A monthly contribution of 3 N for women and 5 N for men is the minimum. Women would prefer an annual levy.

13. The issue of sanitation:

Only very few houses were fitted with a latrine, approximately 10%. The latrines are being of a local uncovered trench type. People do not regard improved sanitation as a priority, although they see no objections for latrines.

14. Health conditions and degree of sensitization:

Ekpelu community is situated in the Guinea Worm affected area. Other diseases prevalent are: diarrhoea, measles, scabies and malaria. People know that Guinea Worm has a relationship with bad water, but do not know the details and do not know simple methods to prevent transmission. People are vaguely aware of a relationship between sanitation and health, but this does not lead to hygienic practices.

15. Comments:

Community efforts in the past concerned: building of roads and bridges and construction of improved (deeper) ponds. A borehole equipped with handpump is present in one of the villages. But unfortunately after it broke down nobody could be found to repair it. The borehole was part of the Task Force programme and commissioned in 1987.

1. Local Government Area: Ikwo
2. Community: Echialike
3. Number of villages: 9
4. Projected population for 1990: 5.242
5. Discussions conducted with:
 1. Community Development Committee
 2. Ezumezu Age Grade
 3. Echialike Women's Development Union
6. Main source of income: Agriculture and Local Trade are the main occupations. Rice, yam and cassava the most cultivated products.
7. Estimated annual income: Women estimated their average annual income on 4500 Naira, and men theirs on 600-1000 N (!!). A realistic estimate of male incomes to resource persons would circle around 6000 N.
8. Local leadership and administration:

The Community Development Committee, formed by the Echialike Brotherhood Welfare Association, feels that its executive committee is the ruling council in the community. The Igwe (traditional ruler) insists the council of elders is still in charge. This dispute illustrates the existing disruption in the community. Leadership at community level is unclear. At the village level each family arranges their own business and village level groups of the CDC try to execute some development activities.
9. Role of specific groups in community life:

The Women's Development Union is according to the women the only organization at community level that is still meeting on a regular basis and is not being disrupted by internal differences like male organizations. Taking into account the difficulties the field-team met in interviewing male groups, this seems to be true, despite men denying it. The Igwe claims to act as the supreme ruler at the moment.

10. Present water supply conditions and practices:

During the wet season water from direct rainfall is collected and used. In the wet season water from ponds or, in case of emergency, from the river Ebonyi is used. Women and children fetch water. Ponds are maintained by women and one woman per pond is elected to act as supervisor. Water storage is done in day pots.

11. Problems in water supply:

There is insufficient water for bathing in the dry season (water use is restricted when ponds are nearly dry). Another problem is that water transmits Guinea Worm and Diarrhoea. That is why women prefer rainwater in the wet season.

12. Contributions to be expected and willingness to pay:

Women said to contribute in terms of labour, gravel and sand during construction of a new facility. At least would be paid per women per month but 5 N could be managed if this was urgently necessary. Women would prefer one borehole per village, since that would work best. A VWA would help in that case. Men said they would contribute identically, only they were prepared to pay 3-5 N a month. The men insisted a reservoir must be constructed, because they foresaw management problems with boreholes and pumps.

13. The issue of sanitation:

Seven out of ten houses have a place to go for toilet. However six out of these are simply trenches, while only 10% of the houses has a pit latrine with slab.

14. Health conditions and degree of sensitization:

People knew perfectly well that water transmits Guinea Worm as well as diarrhoea. No preventive measures are taken against Guinea Worm. In discussions it was clear people did not know the details of disease transmittance through water. Prevalent diseases are: Guinea Work, diarrhoea, measles, malaria and convulsion.

15. Comments:

Disputes are disrupting community life completely. The CDC claimed to have completed community projects which were never executed. Striking was the plea of women to the field-team to please tell the men to stop their disputes at least for the sake of a water project.

1. Local Government Area: Ikwo
2. Community: Ndufu Alike
3. Number of villages: 14 (village visited Agalagu) acting in 6 village groups
4. Projected population for 1990: 5.847
5. Discussions conducted with:
 1. Community Development Committee
 2. Women from Agalagu Village
 3. Ezemezu Age Grade (Agalagu)
6. Main source of income: Agriculture and local trade are the main occupations. Main products are: rice, yam, cassave and groundnuts.
7. Estimated average annual income: Women claimed to have an average annual income of 200 N, because they only cultivated groundnuts. Men said their average income to be 4000 N.
8. Local leadership and administration:

At the community level a Community Development Committee is in charge. However in an interview the CDC gave the impression not to do much about leadership, administration or development. At village level much more active Community Development Sub-committees are present. In discussions the CDC members frequently explained that they did not want to make any statements, because each village would probably have its own opinion about several matters. Consequently it can be concluded that the community level administration and leadership is not operational. Villages take care of development decisions at that level. Per village a branch of the DC exists.

9. Role of the specific groups in community life:

As explained community level governing is virtually non-existent. At village level the local CDC branch may rule or an executive body of an Age Grade. At Agalagu village for example, the Ezumezu Age Grade is concerned with daily village affairs and development projects. The Age Grade system is very strong also among women. The groups serve as labour exchange groups but also savings groups.

10. Present water supply conditions and practices:

The community has a total of 12 ponds from which they collect water in the dry season. Some of them are natural ponds, others constructed with a bulldozer. During the wet season water from direct rainfall is also used. One of the ponds is fenced, has a paid caretaker and has opening hours. Water is not treated before drinking. Women are responsible for clearing and sweeping the surroundings of ponds. The caretaker is a man, but also here women still have to do the maintenance of the pond.

11. Problems in water supply:

The main problem is that during the dry season people have to drink pond water, which causes Guinea Worm. Also some of the local ponds dry, and people have to go further to fetch water.

12. Contributions to be expected and willingness to pay:

People are willing to contribute in terms of labour, materials and cash. Monthly contributions of 1-2 N for women and 3 to 5 N per man are thought reasonable. VWA will work provided they are autonomous at the village level. Men and women can both be members.

13. The issue of sanitation:

Out of 10 houses six have a trench type latrine. Latrines with concrete slabs are not in use. Few houses have pit latrines with wooden bars as a slab.

14. Health conditions and degree of sensitization:

People regularly suffer from Guinea Worm, diarrhoea, measles and head-ache (malaria). The connection between bad water and Guinea Worm is known, although not in detail.

15. Comments:

Villages take care of affairs without forming a close organization at community level.