

INTEGRATED RURAL DEVELOPMENT PROGRAM

FOR

SEGUENEGA, UPPER VOLTA

SUBMITTED TO:

U.S. Agency for International  
Development

SUBMITTED BY:

AFRICARE, Inc.  
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## AFRICARE/SEGUENEGA INTEGRATED RURAL DEVELOPMENT PROGRAM

### I. PROJECT PURPOSE AND DESCRIPTION

Africare is submitting this proposal to USAID for a grant of \$5.6 million dollars over a four year period. The proposal is the result of a joint effort over the past two years by Africare and the government and people of Upper Volta. This joint effort was undertaken through a series of integrated rural development workshops. The workshops were one aspect of a program undertaken by Africare through an AID/Development Program Grant.

The goal of the project is to build and strengthen the process of integrated rural development while improving the economic conditions and the quality of life of the rural poor who live in the Seguenega Sector of Upper Volta.

Seguenega, which covers 1500 square kilometers in north central Upper Volta is a densely populated area characterized by a subsistence agricultural economy with little commercial activity. With a per capita income of about \$30.00 per year, the 110,000 people who live in the area are some of the poorest in the Sahel, which itself is made up of some of the poorest countries in the world. Large populations, combined with the extremely poor resource base have made it difficult to produce enough food to adequately feed the people. Malnutrition is a serious problem. There is a high incidence of infectious disease and a high mortality rate, especially among children.

In short, the Seguenega Sector is an area where the vicious circle of poverty is most evident and a once proud people are rapidly reaching a point of despair.

To respond to these problems, Africare proposes to work directly with Voltaic officials and technicians at the national, regional, and sector levels and with the rural people at the sector level to assist in the following:

1. Increasing the production and productivity of the rural people.
2. Improving the structures for the delivery of social services.
3. Improving the planning and management capacities of the government agencies.
4. Increasing the participation of the rural people in planning, implementing and managing rural development projects.

The purposes will be accomplished through a series of development activities such as agricultural and livestock production, young farmer training, vocational education, rural health, and community development.

While these development activities may be perceived as separate entities which will lead to tangible changes at the village level, within the framework of the integrated rural development approach, they will become the vehicle for attaining the larger goals. Within the framework of the integrated rural development approach the achievements of these activities will become sign posts along the road pointing in the direction of the larger goals of integrated rural development.

The concept of integrated rural development as set forth by Africare after nearly two years of intensive working sessions with officials, technicians, and villagers of Mali, Upper Volta, and Niger is: if improvements are to be made in the economic conditions of the masses of poor rural people, if the quality of their lives is to be enhanced, and if these changes are to be sustained, then the rural people themselves, must more and more be full participants in all aspects of program development and implementation; that more and more the government at all levels must build and provide the support structures necessary for sustained change; and that finally, the two in interaction must engage in the full dynamic process of responding to the needs, directions, and priorities of the rural poor.

Thus, this Seguenega Integrated Rural Development Project will proceed at two levels. It will proceed at the short term level of undertaking and achieving specific activities and the coordination among these activities and the long term level of strengthening the process of integrated rural development--a process which in the final analysis will determine whether the people of Seguenega and the developing world in general will indeed have better lives, for themselves and their children.

## II. PROJECT BACKGROUND

### A. Africare General

Africare was created as a non-profit, tax-exempt organization in 1972, and is dedicated to improving the quality of life in rural Africa, especially in the areas of water resource development, agricultural/food production and rural health services.

Funding for Africare programs comes from four major sources: large philanthropic foundations, religious and social organizations, the U.S. Agency for International Development, and the American people through thousands of individual contributions. During the 1975 calendar year, Africare raised approximately three million dollars.

Africare's first program was a rural health program in eastern Niger. The program focused on the training of paramedics and the upgrading of nurses' skills. It was successfully completed after eighteen months.

The second Africare program was a feasibility study to design a comprehensive Maternal Child Health Care Program for the Lake Chad Basin area. This was a six month study.

While Africare was created as an organization concerned with development in all of rural Africa, its first sustained efforts were in the area of short term relief because of the drought.

In June, 1973, responding to the severe extended drought in the six countries of the Sahel, the Africare Famine Relief Fund was launched to raise funds for the 25 million people in that area. Over ten million of these people were facing death by starvation. The American people -- individuals and religious and social organizations -- responded to this drive. From the inception of the Famine Relief Drive to early 1975 when it seemed the drought had ended, Africare had received over \$350,000 for relief in the Sahel.

There were several significant aspects to this funding. First, most of the contributions came from people at the grassroots level, in the form of small donations. Secondly, while the funds came from all over the United States, over 60% of these individual contributions came from black Americans. Finally, ninety cents out of every dollar received through this relief effort directly reached the people of the Sahel. Low administrative overhead was possible because of the volunteer assistance Africare received, along with a small grant from the Agency for International Development to enable Africare field representatives to work directly with Sahelian officials and technicians. These representatives then determined the most pressing and immediate needs.

Relief funds were divided among the six countries of Mauritania, Senegal, Mali, Upper Volta, Niger and Chad, with support going also to Gambia.

With the drought coming to an end, Africare has begun to concentrate once again on intermediate and long term development programs. The Sahel is still the major geographical focus, however, since this is where the greatest need is found for recovery and restoration of the lives of the people.

Presently, Africare has twenty different programs operating in the six Sahelian countries. These projects range in costs from \$4,000 to \$3.5 million and include such activities as well construction, small and large scale irrigated farming schemes, reforestation, expansion of rural health delivery systems, nomad resettlement and integrated rural development projects.

Water Resource Development Programs: Under an initial grant of \$250,000 from the Lilly Endowment in March-May, 1974, Africare set up water development/well construction programs in the Irhazer Valley in Niger; in the Regions of Timbuktu and Goundam in Mali; and in the Chari-Baguirmi Region in Chad. With additional funding from numerous religious and social organizations and small foundations, water resource development/well construction programs were established in the Fourth District of Kaedi in Mauritania; in the Pouni District and Koudougou Region of Upper Volta; and in the Banamba Region in Mali. Water resource development/dam construction has been initiated at Kyon in Upper Volta. In these programs, wide diameter wells are constructed for sedentary villagers and nomadic livestock herders. The water supply is being

used for human and animal consumption and for the development of irrigation schemes for food production. Independent evaluations have been made of these programs. All of those listed are still on-going programs.

Integrated Rural Development Programs: In November 1974 Africare received a two-year Program Development Grant for \$500,000 from the United States Agency for International Development. The purpose of the Grant was to enable Africare to better assist the governments and people of the Sahel in finding long term solutions to the problems of development in rural Africa. Under this grant a number of activities have taken place: the creation of a Resource Information Center with selected materials on Sahelian and African development; the creation of a Personnel Data Bank comprised of people with varying experiences in Africa; the development of integrated rural development models/strategies geared to specific geographical regions of Mali, Upper Volta and Niger, but having applicability to the entire Sahel Region; the conducting of integrated rural development workshops in Mali, Upper Volta and Niger with participants drawn from central, regional and local levels; initiating interaction between Sahelian officials and technicians and representatives from selected, predominantly black universities in America; and the drawing up of integrated rural development projects. So far, three projects have been developed and funded.

THE IRHAZER VALLEY PROJECT: This project is designed to serve as a model for the resettlement of nomadic cattleherders, many of whom lost all they had during the drought. The project aims to resettle the nomads around three deep bore wells, helping to restore their herds and, by introducing them to agriculture, providing them with food as well as an alternative to livestock production. At least this assistance will make them less vulnerable to the vicissitudes of the desert.

THE SEGUENEGA PROJECT combines water development for irrigation of fields with vegetable production and reforestation. Vegetables, such as tomatoes, will be grown for local consumption and for exportation. This will also help to improve local diets. The planting of trees will serve, not only as windbreaks to protect the crops, but will begin to hold back the encroachment of the desert and eventually provide firewood for cooking.

THE TARA PROJECT will develop approximately 500 acres of land for irrigated farming along the Niger River in the Tara Basin. The project includes the construction of irrigation systems (i.e. dams, canals, etc.); the settlement of Nigerien families in the area; the introduction of intensive farming including crop rotation and multi-cropping; the development of farm to market roads; the development of cooperatives; and the

institution of health and educational facilities.

The Lilly Endowment has provided \$1.7 million for the Tara Project and is also funding the Seguenega Program, a \$50,000 effort. The Irhazer Valley Project, a \$100,000 program, has been funded by Muhammad Ali, Don King and the Lilly Endowment.

Niger Rural Public Health Delivery Program: This program is designed to strengthen the Public Health Service delivery system at the national, regional and village levels. This will be achieved through: public health curriculum development and training; improving data collection and analysis; expanding the health supervisory capability; and providing vehicle maintenance and training. The U. S. Agency for International Development has announced the funding for this \$2.5 million program.

Current Africare programs are summarized below:

MALI: Timbuktu-Goundam Well Construction, Tin Aicha Well Construction, Banamba Well Construction, Banamba Integrated Rural Development;

NIGER: Irhazer Valley Water Development/Resettlement, Tara Irrigated Agricultural PROGRAM, Niger Rural Public Health Delivery Program;

## B. Africare-Upper Volta

Africare has financed over \$250,000 in projects in Upper Volta over the past three years. The projects have been in a diversity of areas including the construction and supplying of equipment for nutrition centers, construction of village water wells, purchasing agricultural supplies and equipment, construction of dispensaires and tree planting and forestry-nursery projects.

Africare involvement in Upper Volta began in 1973 when Africare's Director of International Development attended the conference in Ouagadougou which established the Comite Inter-tats de Lutte Centre le Secheresse (CILSS). There he was able to meet privately with the six heads of state to discuss Africare's philosophy, goals, and approaches. Shortly afterwards, the Africare Famine Relief Fund and Field Relief Coordinators undertook a number of short term relief efforts. These efforts included the building of a Nutrition Center in Gourey and two maternal child health care clinics in the Circle of Yako. In early 1974, Africare placed a Permanent Representative in Upper Volta. Mr. Peter Persell, who had been a Peace Corps Volunteer in Upper Volta for nearly four years, is still the Africare Permanent Representative there. In 1975 Upper Volta's Minister of Development, Antoine Dakoure became Chairman of the Board of Africare.

Additionally, between March 1975 and June 1976, the Africare Development Team\* made three different work visits to Upper Volta. The last visit in April 1976 culminated in a twelve day integrated rural development workshop which produced the project presented here.

Past and present Africare programs in Upper Volta are as follows (not including all the Relief efforts):

Pouni Water Resource Development/Well Construction; Louda Well Construction; Tikare Reforestation; Seguenega Reforestation (with the Council of Churches and Cathwell); Seguenega Integrated Rural Development Project; Kyon Dam Construction/Irrigated Farming; Kaya Dam Construction; Markoye Dispensary Construction; and Ouahigouya Tree Nurser Project. Additionally, there have been smaller efforts with U.R.C.A.M.O. in the Ouagadougou ORD, the Centre de Formation des Juenes Agriculteurs in Tikare and Rouko, Sabee, Cissin, and Koupela.

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\*The Africare Development Team is composed of: Robert Wilson, Agricultural Specialist; Warren Enger, Rural Economist; Alameda Harper, Rural Health Specialist; Robert Baddy, Workshop Coordinator; Rhoda Rawdon-Smith, Linguist/Administrative Assistant, and Joseph C. Kennedy, Director for International Development.

### C. Integrated Rural Development

In November 1974, Africare received an AID Development Program Grant to undertake various development activities in the three countries of Mali, Upper Volta, and Niger. Among these activities was the task of working with the government officials and technicians of these three countries to develop an integrated rural development model which would have general applicability for the Sahel as well as specific applicability for selected geographical areas within the countries of the Sahel. Once the models were developed, they would serve as the format for integrated rural development workshops which would culminate in the drawing up of integrated projects for which Africare would then seek funding.

Between March 1975 and June 1976, the Africare Development Team made extended visits to the three countries. Out of these visits (three to Upper Volta, and two each to Mali and Niger), which totaled better than six months in the field, and meetings/workshops with nearly 200 Sahelian officials and technicians and other development specialists, an integrated rural development model was drawn up. The rationale for the model and its essential components are briefly presented.

## 1. RATIONALE AND ASSUMPTIONS CONCERNING DEVELOPMENT

Rural development is a process which has the twofold goal of improving the economic conditions and the quality of life of people who live in rural areas. The two goals are not synonymous and while economic growth is an essential element in improving the quality of life, it is not and must not be viewed as the sole or critical determinant. Thus, the improvement of economic conditions and the improvement of the quality of life are viewed as highly interrelated but separate entities.

Rural Development is a process designed to transform stagnant, traditional societies into productive, dynamic rural economies. Its central focus is on the masses of people who live in rural areas and on increasing the influence they have over their own lives and destinies.

The integrated approach to rural development embraces the same concepts as rural development but is further based on the premise that a combination of factors in interaction is essential to creating a balanced institutional and physical infrastructure and to bringing about harmonious rural development. The integrated approach requires the development of activities which can be sustained over time and which will lead to the creation of further activities and institu-

tions. This is a dynamic process that assures the inter-relationship of all elements of rural life.

Development often has been viewed solely as "economic development." From Africare's point of view, development as a working concept can be divided into four sections.

1. The Essentials -- those elements that make up the definition of development. In general, the essentials are economic growth, measured by GNP or Per Capita GNP, and improving the quality of life, measured by a variety of formulas.
2. The Conditions -- those elements that are required in order for development to occur. In order to have economic growth and improved quality of life, there must be production and distribution.
3. The Ingredients -- those inputs that are necessary to obtain the conditions (production and distribution). Production and distribution require inputs. These can be physical, (such as seed or fertilizer), insti-tutional (such as education) or human.
4. The Methods -- the way in which the ingredients are developed and employed. This is the project planning, implementation, etc.

Most development planning has looked at the ingredients as the targets of national planning, i.e., a certain amount of capital accumulation, a certain amount of agricultural inputs, etc., and has focused on the methods of obtaining these inputs.

Under this approach, Rural Development is simply a form of development where "rural" is the condition required to have development occur, and Integrated Rural Development simply means that "integration" is a method that more effectively utilizes the inputs in rural development. At this point, all that has happened is the coining of a new term without effectively changing the theoretical framework that has always been operating.

To move beyond this point and utilize the integrated approach as more than a methodology for employing inputs, as more than the coordinated utilization of services in project planning and implementation, integration itself must become one of the essentials of development. Now, the essentials which define integrated rural development and which must be present in order for integrated rural development to take place are the improvement in the economic conditions of rural people, the improvement of the quality of life of rural people, and the integration of rural people into the development process. Thus, while integration becomes an objective of development and increased integration an outgrowth, integration itself becomes a necessary part of the whole development process.

The model Africare has prepared in conjunction with the officials and technicians of the Sahel has three major compo-

nents. First is the rural population, seen not just as the "target" population but as part of the entire process of creating, planning and implementing development projects. As pointed out, increasing the participation of rural people in this development process becomes a central factor in integrated rural development.

The participation of the rural population in the creation, planning and implementation of development projects requires the utilization of existing rural institutions but even more likely requires the creation of new rural institutions -- rural institutions which can participate in problem solving at the rural levels and can also deal with the national levels of government (regional and central in the African context).

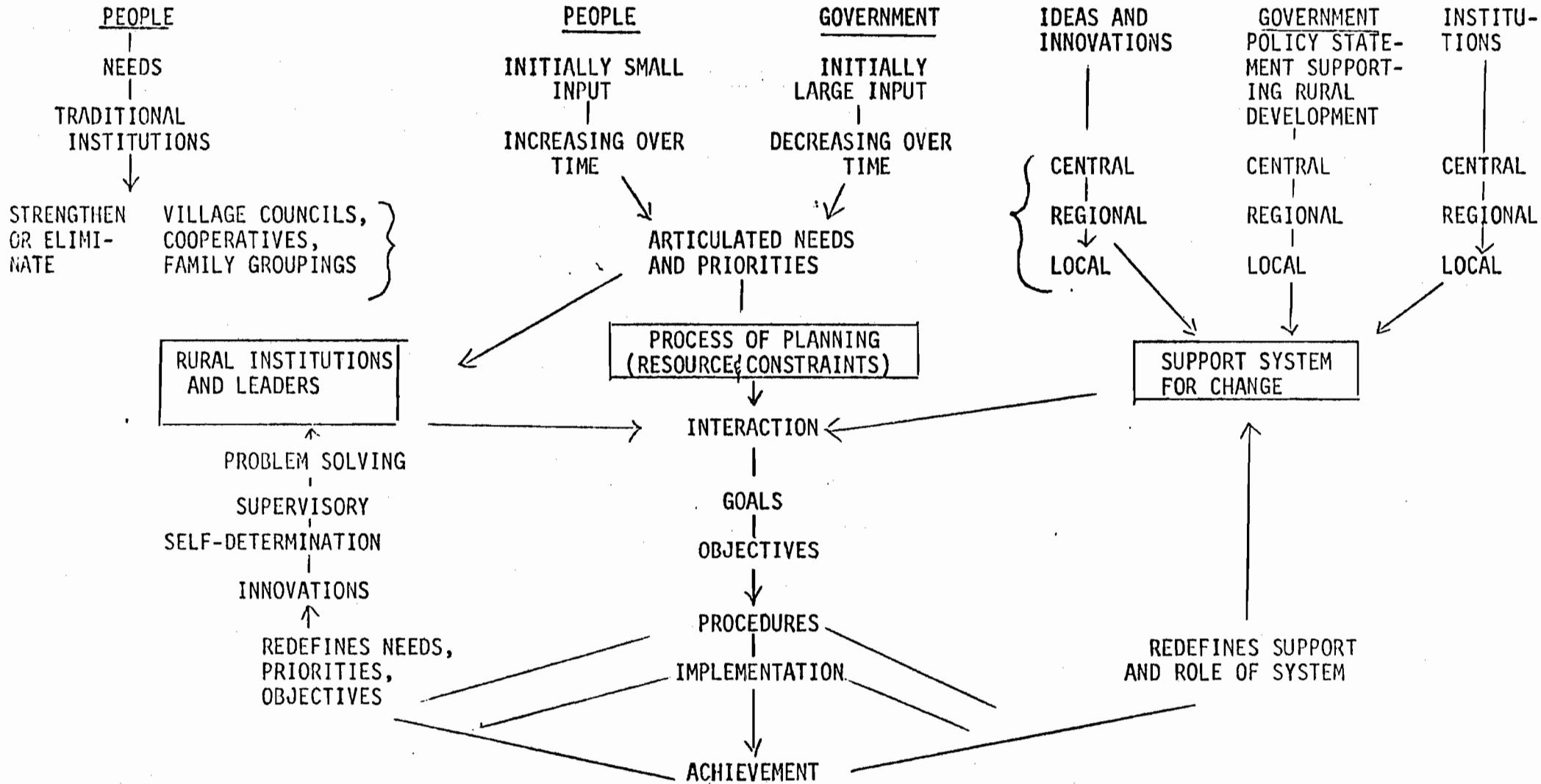
In order to create new rural institutions and strengthen existing ones, the second major component, a support system, must be established. This system must be in constant physical contact with the rural institutions, must carry on a constant dialogue with the rural people, and must have the ability and authority to call forth all of the technical and physical resources available to help the people in their problem solving. This support system must come from and be established by "the Government," that is the national government (regional and central governments).

These two components--the institutions of the rural people and the government support system--through their interaction at the local level give rise to the third major component. This third component, the Process of Planning, will identify and define the needs and goals of the rural people and will lay out the design and implementation procedures. Obviously we would not expect the rural people to have a large input initially. However, as the rural institutions are developed and strengthened, their influence will increase which will be reflected in identification of needs and priorities. As this process develops the means and methods for solving problems should increasingly shift to the rural people as the government agencies develop into structures of support for rural activities.

The integration of these three components makes up the process of integrated rural development and it is the integration of these components which becomes necessary in order to achieve and sustain improvement in the economic conditions and quality of life of the people.

# THE PROCESS MODEL FOR INTEGRATED RURAL DEVELOPMENT

## DETERMINING PRIORITIES



## 2. Yatenga ORD, Seguenega Sector

Africare initiated the process of integrated planning in the Yatenga ORD with a series of workshops and seminars. These sessions were the first attempts in the Yatenga ORD to bring together all services to plan strategies for rural development. The sessions provided an opportunity for such varied services as health, education, public works, hydrology, agriculture and forestry to explain their individual plans. Thus, each program could be viewed in relationship to other programs. Possibilities for collaboration or conflict began a dialogue that previously had not been raised.

Out of these sessions at the Yatenga ORD level, it was decided that Africare should focus on one of the six sectors which make up the Yatenga ORD. That sector was Seguenega. Subsequently, a small scale project of integrated rural development for Seguenega (\$50,000) was drawn up and eventually funded. The project involves health, vegetable production, forestry and livestock production. Although the project is not fully integrated in a conceptual sense, it was designed to begin the process of integrated rural development. By introducing the approach of multi-service planning and implementation of a project, the foundations were laid for an integrated support system in the area. With the implementation of the project, which incorporates the village group approach, the process of building and strengthening of rural institutions was begun.

Following the initial workshops and the launching of the small scale rural integrated project noted above, Africare continued the development and planning sessions in Yatenga. These sessions pointed up several problems of development at the rural level:

1. At the implementation level coordination needs to be strengthened to fully integrate development activities. This is necessary because agencies are generally concerned with operational problems, long term planning being a secondary function.
2. The statistical base from which programs are planned and evaluated needs improvement. Except for those materials moving through government regulated markets, most data are estimates. These estimates are used to both plan and evaluate, compounding the problem as new projects are planned based on estimated results of previous projects.
3. Evaluative methods need to be improved. Generally, evaluations are made annually to meet requirements to report to central bureaus, or at the end of foreign aid investment periods. Thus, results are difficult to measure and the problem solving value of evaluation is lost.

4. Long term planning aimed at the most efficient use of resources and the maximization of results requires improvement. Although the ORD has a planning section, overall coordination of those plans with other agencies must be improved.

The Africare sessions were complemented by a training seminar conducted by the Pan African Institute for Development of Douala Camerouns (PAID). PAID (formerly funded by AID) carried out exercises designed to give officials the tools to undertake project planning and design. Survey taking and analysis, cost effectiveness, economic analysis, and layout and design were included.

Through the seminars and workshops with officials from the region, an overall plan of action was designed for development of the Seguenega Sector. The plan attempted to address all of the aspects of development for the sector and the activities required of all government agencies in the region. The dual goals of increased income and improving the quality of life of the rural people constituted the criteria by which the activities were assessed. Given these general objectives, the plan was modified to take into consideration the realities of the area. At the same time the plan was developed around

the rural integrated development model. Thus, the activities were designed to increase the participation of the rural people and to improve the support system. By insuring that the people would be involved in the activities and that the government agencies helped plan the project, at least an approximation of the priority listing of needs was obtained.

### III. DESCRIPTION OF PROJECT AREA

#### A. Organisme Regional de Development (ORD)

##### 1. General Description

The ORD's were established as semi-autonomous agencies covering specific geographic areas of the country. Their function is to carry out development projects in the rural areas. This embraces agriculture, livestock, rural roads, non-formal education and markets. The following is an overview of the ORD's as presented by E.K. Tapsoba, Director of the ORD of Kays.

## 2. Aims of the ORD

Generally speaking, the ORD are financially autonomous public corporations which have been set up for the purpose of "promoting within an integrated nationwide policy the economic and social development of the people under their jurisdiction."

In this capacity, the ORD take part in the formulation of rural development and are responsible for its planning, coordination and implementation (see Article 4 of ORD Bylaws. Articles 5, 6, and 7 spell out the nature of ORD duties).

### ARTICLE 5

Under Article 3 of the Bylaws, the duties of the ORD are:

- to insure that the people will be made aware and will take part in the formulation and implementation of rural development programs, in close liaison with representatives of the technical agencies concerned, with local governments, cooperatives and professional organizations;
- to administer further training and specialization to local cadres and the representatives of the technical agencies concerned;
- to provide on-the-job training in professional and managerial skills for farmers and rural craftsmen by the establishment of cooperative agencies;

- to provide graduates of rural education programs with additional training as rural "promoters";
- to adapt, popularize, and implement improved methods;
- to conduct multi-local experiments, at the request and under the supervision of appropriate research institutions;
- to assist in the spread of farm credit programs, in cooperation with and under the supervision of the National Development Bank;
- to contribute to the improvement of production, local transportation, distribution, processing, and marketing channels by employing the necessary ways and means to facilitate centralization, packaging, and storage of products;
- to prepare and, where necessary, to implement, in collaboration with rural communities, regional programs for rural infrastructure and equipment.

In the performance of their duties, the ORD are free to conduct their own operations or to delegate responsibility (under ORD supervision) to public, private, or cooperative agencies.

The ORD must be involved in the preparation and implementation of regional planning. In this capacity, the ORD shall be consulted on reports to be made in their area of jurisdiction; they shall submit to the responsible authorities all suggestions on relevant matter of interest; and they shall be notified of all public works and projects to be carried out within their area of jurisdiction.

#### ARTICLE 6

The ORD are authorized to establish and operate, either directly or indirectly, farm enterprises and farm-product processing facilities and to market the goods derived from these operations.

#### ORD Administrative Machinery

The governing bodies of an ORD are the General Assembly and the Executive Board. The composition of the General Assembly is defined in Article 8 (rev.) of the Bylaws (see Bylaws); its functions are set out in Article 13.

ARTICLE 13

The General Assembly shall:

- formulate ORD guidelines;
- put to debate annual development programs for its area of jurisdiction;
- receive information on the implementation of programs, on development methods, and on the results therefrom;
- receive from the Executive Board and the Board's rapporteur all information, explanation, and documentation it may request;
- hear, when possible, the report of the ORD Manager;
- present all suggestions of assistance on ORD activities, and make such comments as it seems advisable on the implementation of programs which have been referred to it;
- authorize inventories and accounts.

A two-thirds majority is required for amendment of the Bylaws.. The principal duties of the members of the General Assembly shall be:

- to use all the methods they deem appropriate in heightening farmer awareness of development priorities;
- to see to it that the rural communities are familiarized with the technical concepts of modernization adopted by the ORD;
- to maintain close contact with the Management and staff of the ORD with the view to lending whatever support is required to facilitate ORD work.

The composition of the Executive Board is defined in Article 14 of the Bylaws, and its functions are set out in Article 17.

#### ARTICLE 17

The Board shall be convened once a month by the Chairman of the General Assembly in his capacity as ex officio Chairman of the Executive Board.

The Board shall be in official session when two thirds of the members are present and when its decisions are made in accordance with provisions of Article 10, section 4.

The Board shall study proposals for annual programs and report on their implementation, and review annual inventories and accounts.

The Board shall take all steps necessary for the implementation of development programs.

The Board shall request reports on the problems connected with the implementation of development programs.

The Board shall recognize agreements between the ORD and the government, or any public or private agency that uses ORD services or offers goods or services to the ORD.

The Board shall appoint one of its members as rapporteur, whose functions shall be to report to the General Assembly on implementation of programs.

Members of the ORD Executive Board shall exercise a leadership role in development. It is always their function to counsel ORD management and offer guidance to the rural areas within their jurisdiction.

Members of the Executive Board shall perform their functions at monthly meetings with the Manager of the ORD which deal in depth with the human aspects of development programs and concepts, and their impact on the farm society.

Members of the Executive Board shall report on the farmer reactions to proposed development methods.

In the field of rural promotion and propaganda, the role of Executive Board members, in their capacity as members of the General Assembly defined in Article 13, has been strengthened and made permanent in nature. Moreover, their new role places an additional burden on their everyday private and public life. Board members must put their responsibilities to the ORD first and foremost.

The responsibilities and duties of the ORD manager are set out in Article 18 and 19. The Manager is appointed by decree of the Head of State on the advise of the Minister in charge (Minister of Agriculture). Under the provisions of Article 19, the Manager "in close consultation with the Executive Board, shall see to the implementation of development programs and to the administration and operation of the ORD. He shall report to the responsible authorities on the management of the ORD."

The activities of the ORD shall be financed by grants, subsidies, or by any other means provided by the central or local governments, by any person, or by any public or private entity (Article 21).

### 5. Administrative Structure (Yatenga)

As mentioned earlier, the ORD, by virtue of their aims and activities, are placed under the authority of the Ministry of Agriculture.

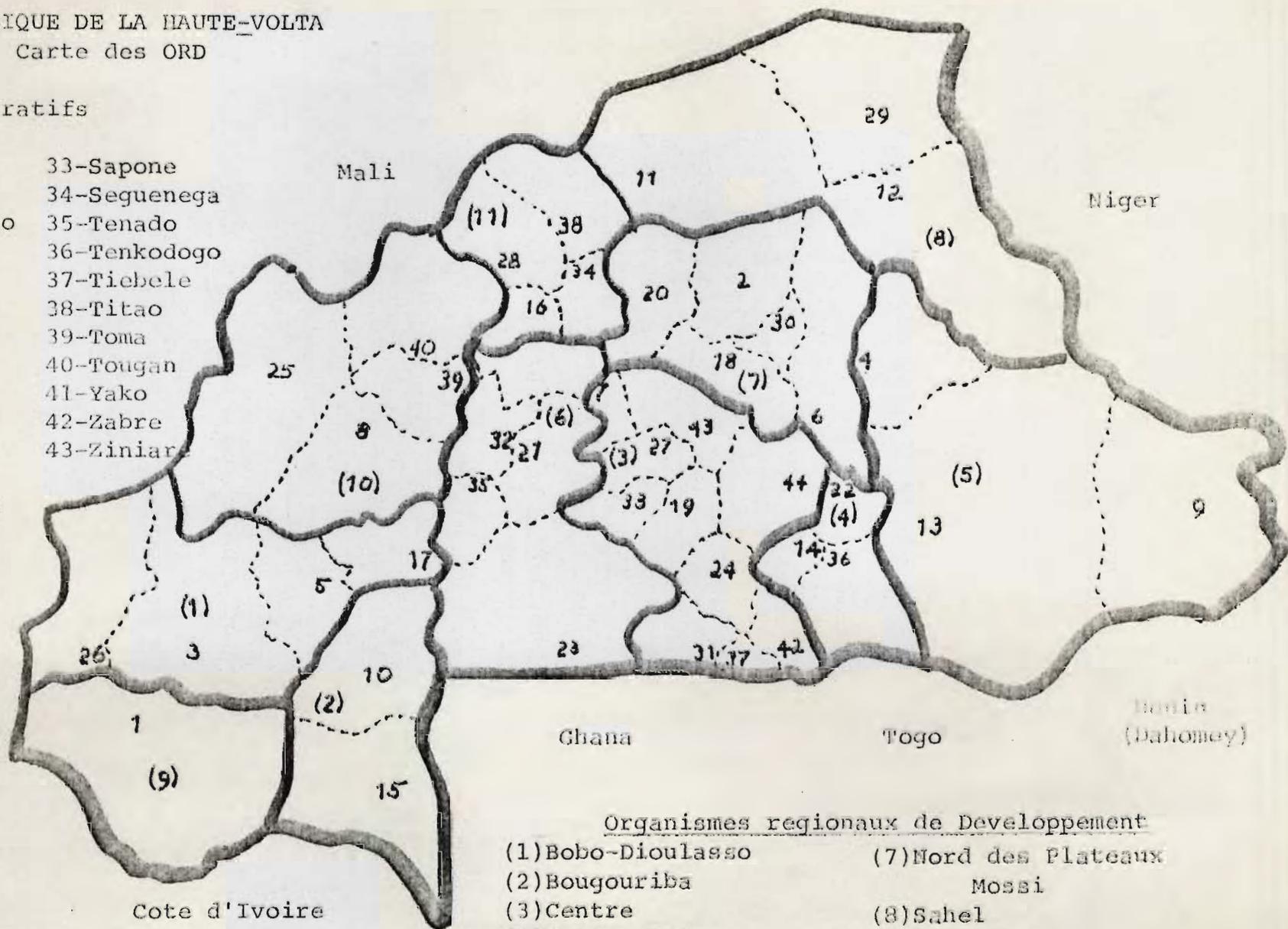
The General Assembly, whose decisions are final, is the moulder of ORD policies. The Executive Board, working under the supervision of the General Asssembly, is in charge of follow-up in the implementation of programs entrusted to the Manager.

The ORD are organized in such a way as to maintain close contact with the rural population. Each ORD is headed by a Manager, and is divided into Sectors ran by Heads of Sector. The Sector is further divided in Sub-sectors with their respective Sub-sector Heads. Sub-sectors are in turn divided into Training Units, each placed under a Unit Promoter. The number of Sectors, Sub-sectors, and Training Units may vary from one ORD to another. ORD structure thus articulates several layers of responsibility: formulation and management at the top (the manager) and day-to-day implementation at the bottom (Unit Promoters), with middle and lower levels of management in between (Heads of Sectors and Sub-sectors). The powers, duties, and responsibilities of officials at each level are spelled out in the attached documents. Programs are implemented by putting all layers of ORD structure into motion.

REPUBLIQUE DE LA HAUTE-VOLTA  
Carte des ORD

Cercles administratifs

- |                  |              |
|------------------|--------------|
| 1-Banfara        | 33-Sapone    |
| 2-Barsalogo      | 34-Seguenega |
| 3-Bobo-Dioulasso | 35-Tenado    |
| 4-Bogande        | 36-Tenkodogo |
| 5-Boroma         | 37-Tiebele   |
| 6-Boulsa         | 38-Titao     |
| 7-Bousse         | 39-Toma      |
| 8-Dedougou       | 40-Tougan    |
| 9-Diapaga        | 41-Yako      |
| 10-Diebougou     | 42-Zabre     |
| 11-Djibo         | 43-Ziniar    |
| 12-Dori          |              |
| 13-Fada N'Gourma |              |
| 14-Garango       |              |
| 15-Gaoua         |              |
| 16-Gourci        |              |
| 17-Hounde        |              |
| 18-Kaya          |              |
| 19-Kambissiri    |              |
| 20-Kongoussi     |              |
| 21-Koudougou     |              |
| 22-Koupela       |              |
| 23-Leo           |              |
| 24-Manga         |              |
| 25-Nouna         |              |
| 26-Orodara       |              |
| 27-Ouagadougou   |              |
| 28-Ouahigouya    |              |
| 29-Oudalan       |              |
| 30-Pissila       |              |
| 31-PO            |              |
| 32-Reo           |              |
|                  | 44-Zorgho    |



Organismes regionaux de Developpement

- |                    |                             |
|--------------------|-----------------------------|
| (1) Bobo-Dioulasso | (7) Nord des Plateaux Mossi |
| (2) Bougouriba     | (8) Sahel                   |
| (3) Centre         | (9) Sud-Ouest               |
| (4) Centre-Est     | (10) Volta Noire            |
| (5) Est            | (11) Yatenga                |
| (6) Kougougou      |                             |

In addition to the organization of the ORD as summerized above by Mr. Tapsoba the country of Upper Volta is also divided into administrative districts. The larger of these, the Department, is usually divided into sous prefectures and arrondissements (in some cases these are referred to as cercles, see map.). In addition, various government services such as health, education or public works, have their own geographic divisions and sub-divisions.

In most cases these various divisions conform to each other. The ORD of Yatenga corresponds to the Department of the North and most of the other services use this same geographic division.

The ORD of Yatenga lies northwest of Ouagadougou and borders Mali on the north. Ouahigouya, 180 kilometers from Ouagadougou, is the administrative headquarters of the ORD and serves as administrative capital of the Department of the North.

Part of the old Mossi Kingdom, Yatenga covers about 12,000 square kilometers and has a population of over 500,000. These people, living in 685 villages, are for the most part, subsistence farmers.\* The dominant ethnic group is the Mossi, particularly in the center and south of the ORD. Other ethnic groups include Dougons, Foulces, Yarcés, Marances and Peuhls. Most of these groups do some farming although there is an occupational division by ethnic group as well.

\* Reports of ORD

#### 4. ORD ACTIVITIES

Over the past several years the ORD of Yatenga has been primarily involved in rural extension services, building infrastructures and training personnel. Where financial resources have permitted, the ORD has undertaken some investment projects. The following is a brief description of activities undertaken by the ORD.

##### Supply of Production Inputs.

Mainly through efforts of its extension service, the ORD has gradually increased the sales of inputs to farmers. Fertilizer, for example, has increased from 210 tons in 1970-1971 to 525 tons in 1975-1976. Sales of farm implements, plows, cultivators and other equipment was over 1,500 pieces.

##### Well Construction.

In 1976 the ORD contracted for 16 wells. In addition, they built 657 meters of wells at 48 sites with their own wells section, and deepened six wells. They also built 20 reservoirs and installed 7 pumps in vegetable gardens.

##### Low Lying Areas.

One hundred seventy-three hectares have been prepared for rice cultivation of which 58.6 hectares were completed in the past year.

Reforestation.

Plans for 72 hectares of reforestation each year, over five years, were developed with the help of four voluntary agencies (Cathwell, OXFAM, Africare and World Council of Churches). The first year of the plan, 1975-76, 71.6 hectares were planted.

Community Development Villages.

The program was launched in five villages in the ORD in the past year. This included the training of fifty farmers and equipping them through a credit program. Ten agents were trained for these villages.

Rural Youth.

Fifty-two youth clubs (resembling 4H clubs) have been started in the ORD. This included 37 boys clubs, 8 girls clubs and 7 mixed clubs. Membership was over 1,000. Seguenega has 8 clubs with 169 members. Activities of these clubs included collective fields, vegetable gardening, poultry production and reforestation.

Cooperation.

The ORD has begun an active campaign to develop cooperatives of vegetable producers and to regroup these cooperatives in a regional program.

Functional Literacy.

A program has been designed to begin a literacy program in the ORD. Fifteen centers are foreseen under the first involvement.

Livestock production.

Activities in livestock production have been oriented towards livestock health, feeding and production systems. They include:

- a. Vaccination and parasite control
- b. Supplying minerals and cotton seed supplements
- c. Introducing forage crops, notably sorghum and stylosanthisis for hay and silage
- d. A sheep production program, of which \$200,000 has been financed in the Sector of Thiou by the World Council of Churches, and a breeding program financed by Africare in Seguenega

10) Artisan training.

This is financed by the ORD for training in the ILO center in Ouagadougou. Unfortunately, it is limited because of facilities in Ouagadougou.

The following programs are planned for the ORD for 1977.

Crop production.

Promoting increased productivity by increased use of fertilizers, improved seed and increased use of animal traction.

Rice production.

Development of 400 hectares of low areas and 30 hectares from a dam project.

Vegetable gardening.

Development of 18 hectares of gardens, including 5 hectares under this project.

Community Development Villages

Under ORD financing four additional villages will be designated for pilot projects.

The special programs noted above are in addition to the normal activities of the ORD. Those activities, which include agricultural extension, training and marketing, would be continued at the same levels. For example, the ORD anticipates marketing between 1,800 and 2,000 tons of produce from crops, and 245 tons of vegetables each year.

#### 5. ORD Financial and Technical Support

The financing of the ORD's come from their own activities (marketing, etc.), from the national budget and from foreign assistance. In addition, some personnel are provided through the budgets of the local administrative units.

The ORD of Yatenga has received the greatest amount of foreign aid from the FED (Fonds European de Developpement). This has been through three agreements:

- 1) FED, 1960-1965 soil conservation program  
Total amount: \$4,090,935
- 2) FED, 1965-1970 Development of Infrastructure and support of ORD. Total amount: \$974,886
- 3) FED, 1970-1974, Continuation of support of ORD  
Total amount: \$1,340,000

The greatest amount of expenditures under the second and third FED have been for personnel, vehicles and ORD operating expenses. This aid has helped the ORD to expand its extension base and permit it to lay the foundation for further development activities.

In addition, the ORD receives about \$360,000 from the national budget and about \$100,000 in support of personnel from the Departmental budgets. The following table shows the breakdown of personnel supported under various funds in 1976.

	ORD (National Budget)	Depart.	FED	TOTAL
# Personnel	46	24	113	183

In addition, funds from other sources have supported specific project activities.

German Government -- warehouses and mechanic shop  
World Council of Churches -- sheep production in Thiou  
Peace Corps, U.S. -- Technical assistance  
German Peace Corps -- " "  
Dutch Peace Corps -- " "  
French Peace Corps " "  
Cathwell -- Forestry  
OXFAM -- "  
World Council of Churches -- Forestry  
Africare -- "  
U.S.A.I.D. -- Equipment, animal traction  
OXFAM -- Technical assistance, Vegetable production  
Africare -- Integrated development

B. SEGUENEGA

Seguenega is one of the six sectors of the ORD of Yatenga. It is a sous prefecture of the Department of the North. The town of Seguenega lies about 65 kilometers southeast of Ouahigouya, and is the administrative capital.

Seguenega, an area of 1,500 km<sup>2</sup>, has about 110,000 inhabitants. With the exception of Koudougou, Seguenega's population density of 68/km<sup>2</sup> is the highest in the country and one of the highest in West Africa.

YATENGA ORD ESTIMATION OF THE POPULATION

Sectures	Area km <sup>2</sup>	Rural Pop. Inhabitants	Pop. Density people/km <sup>2</sup>	Labor Force	Nombre Villages	No. of Farms
Ouahigouya	2.217	129.012	58.3	64.506	193	15.051
Bourcy	2.003	109.426	54.6	54.713	144	12.763
Seguenega	1.519	104.262	68.6	52.131	144	12.043
Titao	3.884	63.910	16.4	31.955	99	26.735
Koumbri	600	33.395	55.6	16.697	51	3.945
Thiou	2.074	33.392	16.1	16.696	54	3.943
Total ORD	12.297	473.397	44.9	236.698	685	74.480

The physical environment of Seguenega is characterized by a rolling landscape with very poor and fragile soils. The extremely dense population, has put tremendous pressure on the land. With no more than 30-40% of the soil cultivable, population pressure has virtually eliminated the traditional long fallow and creates further deterioration of the soils.

Pressure for farm land has forced livestock into less productive areas which accelerates the destruction of the natural vegetation. In addition, the use of livestock manures to maintain soil fertility declines as animals are forced away from cultivated areas. The result is a declining production of the land and outmigration of people, especially young men, seeking more rewarding employment elsewhere. This problem was accentuated by the drought years. For example, it was estimated that population dropped 67,000 over the ORD from 1971 to 1973 or 12.6%. Seguenega lost almost 11,000 people.\*

Scattered throughout the region are low areas (bas fonds) which are either temporary streams or natural depressions. These areas are generally more fertile and are natural water retention areas. Much of this area goes unused at present because of the inundations during the rainy season.

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\* ORD Reports.

The economy of the area is a subsistence agriculture based on the production of millet and sorghum. These cereals cover 75% of the cultivated area. A small amount of sesame and peanuts are grown for cash crops. Some vegetable production has been started.

Livestock production is relatively important in the area. 15,000 to 20,000 cattle and 80,000 sheep and goats make up the bulk of the livestock herd. Generally speaking, the livestock is of poor quality, inferior races with low productivity and minimal economic generating capacity.

The area has a Sahelian climate in the 23 to 27 inch rainfall belt. Rains fall from June to September. It is a heavily populated area with poor soils which are declining in fertility. It has a subsistence economy dependent on cereals with some livestock and poultry production. Although no data is available it would not be surprising if its greatest economic activity is the export of its labor force to the coast.

The people of Seguenega are grouped into 144 villages of 500-1000 inhabitants dispersed throughout the sector. The town of Seguenega is the center of administration and development activities. A sous prefet heads the administrative post and a chief de sector coordinates ORD activities in the area. Other departments and agencies such as health and education, forestry and livestock have sector heads. All services report to their headquarters offices at the ORD (or Department) center in Ouahigouya.

The health situation in the ORD of Yatenga (which corresponds for health to the Department of the North), is typical of the Sahelian Zone of West Africa. With malnutrition being common, particularly among children, disease wrecks havoc on weakened bodies. From a population of 500,000 people, official figures list 2,500 cases of measles causing 130 deaths in 1974. Health officials note that this is only about 1/4 of actual cases. Meningitis cases reported were about 150 with 30% mortality; a high incidence of respiratory diseases, particularly affecting young and old; 6,000 cases of trachoma each year and a serious problem with T.B. Leprosy continues to be a problem with 250 new cases each year and over 4,500 lepers in the area.

Malnutrition, classed as serious for those with 60% or less of body weight for age, and medium serious for those with 60-80% of weight by age group, is common. Eight percent of children under 5 years of age are considered serious cases and 25-30% as medium cases.

The medical department covering the ORD of Yatenga is divided into 4 subsectors, one of which is Seguenega. The Department has 1 hospital at Ouahigouya with 180 beds and a maternity with 40 beds. The hospital had 46,000 patient days and the maternity had 1,400 deliveries last year. In addition, over 450 major surgical operations were performed plus numerous minor operations.

The personnel of the Department includes four doctors, one dentist, four specialty nurses, four registered nurses and twenty ordinary nurses, most of who are assigned to the hospital or Department administration. In addition, there are four registered nurses and fourteen ordinary nurses in outlying regions.

In addition to the hospital, health facilities include two urban dispensaries and 2 mother/child clinics. Each sub-sector has a dispensary and a mother/child clinic. There are 12 "bush" dispensaries with mother/child clinics but most of these are in bad repair, have little equipment and few medical supplies.

Two mobile units consisting of three nurses, two pharmacists and drivers carry out systematic inoculations and immunizations and examinations for smallpox and T.B. Reaching about 180,000 people per year, they cover the Department every three years.

Medical supplies for the Department total about \$30,000 or \$.06 per person per year. Another \$12,000 is usually obtained for medicines and equipment, \$8,000 for operating the hospital and \$2,000 for cash purchases. Personnel, mobile units and occasional grants for construction are supported by foreign aid.

In Seguenega there are four dispensary/mother/child clinics, each staffed by one nurse. In addition, there are midwives assigned to the mother/child clinics. In 1975 these clinics treated 22,000 people in 104,000 consultations, or an average of 71 consultations per day per nurse.

In summary the health situation in the Department is characterized by low life expectancy (less than 35 years) and high child mortality (over 2 in 5 children die before reaching age 5.). These conditions are created by qualitative and quantitative insufficiencies in diet, unsanitary living conditions, lack of potable water and inadequate health measures. The four health centers in the area are in a general state of disrepair, lack even basic equipment, and receive few medicines and supplies.

One all weather gravel road services the Sector from the ORD capital of Ouahigouya. This road crosses the sector, through the town of Seguenega, and proceeds to Kongossi to the east. Telephone and mail service are available in the town of Seguenega. The rest of the sector remains relatively isolated, served only by dirt tracks which are frequently impassable.

Education in Seguenega consists of two types. The first is the classical system which is based on a primary system of 9 schools with a student population of 1,472. This represents seven percent of the school age children. The large majority of these fail to reach higher education levels. Only five percent will finish high school and only one percent will get to the university. Thus, for a child from Seguenega, only .04% chance exists to reach university, .02% to finish high school. Becoming "dropouts" they migrate to the cities joining the ranks of the unemployed.

A non-formal education system of training young farm men and women has been created. Aiming at the 16 year olds and over, this system is attempting to prepare rural youth for a more rewarding rural life. There are ten centers with an enrollment of 330. Post graduates are grouped in the villages to receive further assistance from government agents and to participate in cooperative activities.

At present there are no vocational training or adult education activities in the sector.

#### IV. PROJECT DESIGN

##### A. General Description

The Seguenega Integrated Rural Development project is designed to strengthen the process of integrated rural development, increase the income of the people of Seguenega and improve their quality of life. In the discussion of the integrated development model above, Africare perceives the integrated process as composed of three components: (1) the participation of the rural population in the identification, planning and implementation of development projects; (2) the development of a support system which can call forth the technical and physical resources necessary to support the activities of the rural people; (3) the interaction between the support system and the people to seek solutions to the problems in the rural areas.

The building and strengthening of this process is the key undertaking of this project. The heart of this process is the full participation of the rural people in development.

In this project a series of specific activities will be undertaken. These activities will be the vehicles for attaining the goals. Consequently, the achievements made in these activities will be intermediate measurements of the progress toward the long term objective.

Therefore, the Seguenega Integrated Rural Development project must be looked at from three interacting view points: the extent to which the process of integrated rural development is strengthened; the extent to which the specific sectoral activities accomplish their goals; and the extent to which the sectoral activities are coordinated and enforce one another.

## B. Project Description

In order to generate the production that is required to improve the conditions of life of rural people and insure a sustained development, several ingredients are needed. Some of these include: innovations to generate productivity, systems to introduce innovations and systems that can receive innovations, credit and marketing facilities that allow for the most efficient utilizations of productive factors, and the flexibility to adjust over time to changes in the total environment of the rural area.

For purposes of considering the methods for development of the Seguenega sector we have grouped them into four major categories:

- Human Development
- Institutional Development
- Development of Infrastructure
- Spatial and Physical Planning

### 1) Human Development

In order to attack the problems of rural peoples and to insure some success in solving those problems, it is essential that the rural people participate in the development plans. This approach is taken both pragmatically and ideally as the only way to insure that rural development projects succeed. Given the resources that are at the government of Upper Volta's disposal, it will be impossible to base development activities on the trained, paid agent approach. For example, the present situation of one multi-purpose extension agent for each 800 families spread over eight or nine villages will never effectively spread new technology. Similarly four or five nurses cannot

adequately supply medical services to 100,000 people. One approach is to group people at the village level and work through village selected volunteers.

While financial limitations dictate this approach it is also ideally more acceptable. Cultural and social conditions are at play in the acceptance or rejection climate of a rural village. Thus a participating member of that society should be a better facilitator of acceptance of innovations. This member will introduce innovations with methods that are conditioned by his own cultural bias and experience in that village. Village selection of these participating members helps insure that he/she is a trusted member of the group. Obviously this approach requires a tremendous effort to educate and organize the rural people.

## 2) Institutional Development

Rural institutions, groups or volunteer agents must be supported to be effective. The concept of self-generated change is rejected. Even should the spark of change occur it would soon die without effective support. Technical, material and financial support must be available when it is needed. A coordinated effort will be required of all services to maintain an omnipresence at the rural level.

This "support system" is one of the key elements in strengthening the participation of rural people in development. Hence it is one of the key elements in integrated rural development. To be effective in its role, this support system must have several elements.

- 1) It must be a coordinated system operating within the framework of a general overall plan.
- 2) Its efforts must be directed at encouraging local participation and initiative. This means development decisions must be mutually agreed upon not unilaterally taken.
- 3) It must have the flexibility and the capacity to respond to local initiative. This requires that it have the authority to call forth all of the physical and technical means available to respond to the rural people.
- 4) The emphasis must gradually shift to where the support system works for the rural people as opposed to working for higher authority. Ideally the progression would result in agents paid by the rural people and responsible to them as opposed to paid by and responsible to the "government."
- 5) It must have the support of the higher governmental authorities.

### 3) Infrastructure

To insure that the support system is able to meet the requirements of responding to the rural people, adequate infrastructure must be developed. In Seguenega this will take the form of rural roads, health facilities, training facilities, market facilities and material support. This infrastructure, however, is to be considered necessary only if it aids those programs that encourage local participation and training, or are helping to establish the foundation for these types of projects.

### 4) Spatial and Physical Planning

Regional integrated development requires a coordinated planning effort. In order to insure the most efficient utilization of resources and avoid the detrimental impact of development, planning will be essential. This requires short term planning for identifiable production projects such as vegetable production, as well as long range land use planning or training programs. This does not mean that detailed plans must be established for every aspect of development, down to its minutest part. Rather it means that the overall guidelines must be established to insure that adequate resources will be available to meet objectives determined by those guidelines. Indeed plans must contain the flexibility which will permit a growing participation by the rural people.

V. PROJECT IMPLEMENTATION

A. Management, Coordination, Planning and Evaluation.

Coordination, management and evaluation will be incorporated as an integral part of the overall project. This approach stems from the very nature of integrated rural development and its requirement to create a long term impact on development processes. Therefore, the design and support of the management system is built around the management concept.

1. The Management Concept.

One of the most important objectives of integrated rural development is to establish the capacity at all levels to plan and implement projects. Ideally this should be a pyramiding system from the village to the sector, which would be combined at the regional and national levels. This process should be a two way flow so that reasonable goals can be set with obtainable objectives given the resources available. This requires competent management at all levels operating with adequate information.

The model of development that Africare employs is designed around expansion of management capabilities. Involving rural people in the process expands the information base as well as the resource base. The process taps the indigenous knowledge because plans must respond to rural people's ambitions which reflect their understanding of their environment. At the same time involving rural people expands their management capacity as they learn through involvement.

By the same token the support system must increase its management capabilities in order to respond to the ambitions of rural people as well as to directions from governmental structures. It cannot be assumed, however, that this process is automatic. Management at all levels will gain the most out of experience if that experience is systematically planned, monitored and evaluated.

The development program that is designed for Seguenega incorporates management training as a functional part of planning and implementing the specific development activities. It is therefore essential that flexibility be designed into the overall project so that management can respond both to the changes that will occur due to the interventions of the project and to the increasing capacity acquired to manage those interventions.

## 2. The Management Design

The Seguenega Integrated Rural Development project incorporates a wide variety of activities that will be carried out by several government agencies. To insure that these activities are effectively implemented and the objectives are reached will require an effective coordination system. To insure that this coordination occurs, the project will be implemented through the ORD and its General Assembly and Executive Board. It will

be responsible for overall design and policy making. It will review all plans, insure coordination at the regional level and generally supervise the project.

The day to day activities of coordination will be centered in the Planning Section of the ORD. Therefore, the expansion and strengthening of this section will be of first priority. Its functions will include the monitoring and evaluation components of the program. It will serve in a management advisory function. The Planning Section will perform liason functions between agencies, and will coordinate between Africare and the ORD. This section will undertake the following specific activities:

- 1) Collect and evaluate existing information on Seguenega (and the ORD).
- 2) Establish a system for collection and evaluation of additional information. This information will be oriented specifically toward the overall philosophy of the program including information needed to more fully involve the rural people in the development process.
- 3) Development of an overall land use and resources employment plan. This process will involve topographic and soils studies, water resources, and remote sensing techniques. Its objective is to arrive at a long term regional land use plan balanced against the needs of the individual farmer. It will consider road placement, growth poles, market place development and placement of government infrastructure.

- 4) Development of an overall implementation plan for Segueñega.
- 5) Development of a monitoring system leading to reviewing and revising project plans.
- 6) Development of an ongoing program to evaluate the project. Naturally growing out of this process, progress and financial reports will be developed.
- 7) Development of a manpower study and a plan to meet manpower needs.

The ORD has requested FED to supply an economist to this Section.

At the Sector level a coordinating and planning body will be established. This body will be composed initially of the various service technicians and advisors responsible for project implementation. Ideally it would have representation from the local groups such as cooperatives. This, however, would not be expected for several years.

This body will meet regularly to review plans and discuss implementation schedules. It should report regularly to the ORD Planning Section on progress, and recommend changes when necessary. It should have periodic training sessions which would be conducted by the ORD Planning Section dealing with problems of policy, management and coordination.

Both the ORD and Sector level bodies should have a Center where up to date information on all aspects of the project can be brought physically together. These should be "Operations Centers" where information on planning, monitoring and evaluation can be summarized and briefings can be held.

### 3. Support Of The Management System

The project plans for a full-time advisor to this section, as well as three local personnel. In addition, consultants will be employed on short term basis for research, design and training. Consultants include:

- 1) One person 6-9 months in applied anthropology. This person will assist in adapting plans to fit the local cultural system. Primary emphasis will be on the use of ethno-science.
- 2) One person 3-6 months in sociology. This person will assist in adapting plans to fit local social institutions with particular emphasis on the role of youth and women in the changing society.
- 3) Remote Sensing. In conjunction with the Laboratory for Application of Remote Sensing (LARS) of Purdue University, ERTS data will be used to develop overall land use plans.
- 4) PAID will be used to carry out seminars in techniques of project design and evaluation, particularly relating to cost benefit and PERT techniques.

- 5) Additional consultants on a short term (2-3 weeks) basis have been projected for areas of health, animation, cooperative development and construction engineering.

## B. Sectoral Activities

### 1. Agricultural Production

The sector of Seguenega covers over 1500 square kilometers. Its population of 110,000 live in about 144 villages. These are serviced by 17 multi-purpose ORD agents. With the exception of the head agent (Chef de Secteur) these agents have received six years of primary school and a six month training course in extension. Each agent covers 8-10 villages and is responsible for about 800 farm families.

Because of the logistical and financial problems of operating an extension program on an individual basis, the ORD has introduced a group approach. These groups, a form of pre-cooperative, are organized for various rural development programs. These may include farm to market roads, building and repairing wells, or developing rice irrigation or vegetable gardens. Groups have been formed among farmers, women and rural youth.

Using the group approach for introducing new innovations and channeling development projects, this project will expand the participation of rural people. A system will be introduced whereby the villagers will select group members that will receive training in appropriate new technics and will then be the extension agents for their peers. Presently this approach is used by the ORD for a model village program but this program has not been implemented in Seguenega.

The model village program is an adaptation of a model for rural development that the UNDP developed in Matourkou. Again this approach utilizes the voluntary participation at the village level to establish a progressive farm climate. Working through the village group this model centers around the individual farm family. An appropriate package of inputs is designed around an ideal farm size. This is then supported technically through village agents and financially through a credit program. In the UNDP program this is built around eight hectare farms. In Seguenega less than three hectares are available.

The model farm program therefore is being adapted to the conditions found on the Mossi Plateau in Yatenga. It will require an appropriate farm plan that can support a farm family beyond the subsistence level. It will embrace a program for rural village women and youth.

Working with the ORD and the Development Center, to be established at Seguenega, this model will be adapted to fit the area. During this development and adaptation period the groundwork will be laid at the village level. In many cases systems or projects have already been developed. For example, women's groups have been formed that will be given credit to purchase grain mills for grinding cereals in the villages. These groups will establish a system to repay these loans on a time installment basis.

Other projects will be built around vegetable gardening, sheep and poultry production and rice cultivation. All of these will use the village group as the organizational structure through which techniques will be channeled, management will be trained and credit will be extended.

A. COMMUNITY DEVELOPMENT VILLAGES

Building upon the experience of the model village program now being tested in other parts of the ORD, the program will be expanded to include Seguenega. The approach used by this model will be the foundation for all of the activities in the Sector. In selected villages this approach will be intensified and concepts tested for broader dissemination through the area. The project will begin with five villages in FY 1978 and add five villages each year, or a total of fifteen by the end of 1980.

Many of the activities described in this document will be aimed at these model villages as well as other villages in Seguenega. That is health, education, food production and livestock may be implemented in these villages. The activities that will be specific to these villages are described below.

(1) Intensified Extension Activities.

Each village will have one male and one female extension agent. These agents, Animateurs and Animatrices, will function as facilitators to organize village activities and set the stage for community problem solving.

(2) Training of Village Participants

Each village presently selects ten of its members to receive a short but intensive training course. The course includes basic community organization and community participation concepts. In addition, accepted practices in new farming methods are taught. This training session will be refined and expanded to include training for women and youth.

(3) Self-Help Funds

This fund would be provided to allow the ORD to be able to respond to self determined needs of the village. This response must be timely to enhance the growth of initiative in the village. It should be governed by mutual agreement between the ORD and the village and as much as possible should be a credit-revolving fund.

B. VEGETABLE GARDENING

Vegetable gardening is being promoted by the ORD as a substitute for the traditional cash crops of peanuts and cotton. There are several reasons for this:

- (1) Markets have been developed with air shipped fresh vegetables to Europe and an expanding local consumption.
- (2) The dry season climate is ideal for vegetable production in the area.
- (3) Vegetable production allows a lucrative off season employment for area farmers. Net returns of \$1200/acre from potatoes are common, giving returns of \$300 per family.

Consequently the ORD has made plans for a major expansion of this program. Vegetable producers cooperatives are being established and through assistance from OXFAM these are being grouped at the ORD level for some organizational and promotional activities.

There are three major constraints to expansion of vegetable production in Seguenega. First the cost of developing gardens is high. Wells, fencing and equipment must be supplied on credit to farmers. Secondly, technical support and inputs must be readily available to the villagers. Third, a more efficient marketing structure must be developed.

Presently vegetables are marketed through the National Cooperative in Ouagadougou. This has created several problems. Coordinating harvesting and transport has been difficult, leading to spoilage of crops. Without storage facilities the local farmers are at the mercy of the National Cooperative markets, in some cases leading to loss of the entire crops due to seasonal marketing problems. Finally, the National Cooperative purchases the produce but delays payment to the regional groups for three or four months. Thus farmers are forced to carry the financial burdens of production long after harvest is completed.

Therefore, the project will help to strengthen local and regional co-ops, improve storage and marketing facilities, and supply credit for marketing in addition to credit for production and development. About 25 acres of vegetable gardens will be developed initially under this project. As repayments are made for this credit, further expansion of gardening will be possible.

#### C. IMPROVEMENT OF LOW LYING AREAS

As an alternative to the reliance on millet and sorghum cultivation the ORD is promoting intensive cultivation in the soils of the lower areas where natural depressions occur. These areas, usually subject to seasonal flooding are being improved principally for the cultivation of rice. The ORD has already surveyed almost 7000 acres of these areas for a

long term program to increase food production. In Seguenega approximately 550 acres have been surveyed.

The technique established by the ORD is to build small retention dams and dikes that will hold enough water after the end of the rainy season to complete the growing cycle of a rice crop. The ORD surveys the land to determine where dikes should be placed. Villagers build the dikes by hand with occasional assistance by an ORD tractor. The construction is supervised by the ORD.

Average costs are \$100.00/acre and normally produce 3000 lbs. of rice per acre. The project will include the development of 250 acres of this land over a two year period. This will increase cereal production in the area by 375,000 pounds.

D. EARTHEN DAM

Near the town of Seguenega the ORD has identified a site for the installation of a small earthen dam. This would dam up waters that follow a natural water course. The purpose is to hold back the waters of the rainy season to be used during the dry season. In addition to supplying water for livestock, the reservoir would furnish waters for irrigating gardens and orchards above and below the dam.

Further studies will be completed for the placement of the dam and spillways. An irrigation system will be installed and fields laid out in the area. Depending upon cost data derived from further study, the work will be either offered for contract bid or be accomplished by the ORD with assistance from the hydraulique service. Villagers will participate in the construction.

The lands that will be available for irrigation will be assigned to local farmers. Following the same principal as with other vegetable gardening, a cooperative will be formed through which credit, marketing and technical assistance will be channeled. It may be possible to utilize some of the irrigated land for the training and development center in Seguenega.

E. LIVESTOCK

Livestock production is important in the Seguenega sector. It is estimated that there are 20,000 cattle and 80,000 sheep and goats in the sector. At present the livestock industry is disorganized, the productivity is low and it contributes only a small fraction of its potential as a source of income. With the exception of animal health, nothing has been done to improve the situation. Lack of control over grazing has led to overgrazing of many areas causing a destruction of the natural vegetation. The poor quality of the local animals has meant inefficient utilization of available feed. Forage is not preserved for the dry season and little supplementary feeding is done. Consequently low birth rates in the breeding

herds and high mortality rates are the norm. Additionally, long birth to market time has required maintaining too many animals on the pastures, ascentuating the over-grazing.

To correct this problem it will be necessary to improve the calving percentages of the cow herd and the lambing percentages of the flocks. Quality of animals must be improved to increase the feed efficiency and carcass weights. A supplementary feeding program must be developed. Finally, control over the grazing lands must be established. Any effort in the production of cattle and sheep must be aimed at these. It is particularly crucial that control over grazing lands be established. Obviously this will be one of the most difficult aspects in livestock production.

The project will undertake several activities in solving these problems. First, in conjunction with a land use survey that will be undertaken, determination will be made of appropriate grazing areas. The carrying capacity of these areas will be determined. Using this information, pilot projects will be undertaken for the production of cattle and sheep. Through an educational campaign with the livestock and animation services the voluntary cooperation of the stock raisers will be sought. The areas will be fenced, water will be developed and a rational grazing scheme introduced. A system of supplementary feeding will be introduced combining forage crops with by-products such as cottonseed.

(1) Cattle Production

There are areas in Seguenega where pasture has gone unutilized during the dry season due to lack of water points. The livestock service would like to put these areas into production through the supply of water. The service estimates ten wells would need to be dug at a cost of \$65,000.00. Although this could increase production in the short run, it does not provide a solution to the two main problems of cattle production in Seguenega. Namely the low productivity of the herds and the deliterious effects uncontrolled grazing has on the environment. We can optimistically estimate the productivity of the herd under the present system at about eight percent (which corresponds to studies by the CILSS).

If we estimate a 50% calving rate and a 40% death rate over the first year, we would have 30 surviving calves/100 cows each year. At the present rate of eight years to reach market weight, assuming no further death losses, we would have 100 cows plus 240 calves before we reach a sales of 30 hd/year. In other words we must maintain a capital of 340 head to have sales of 30 hd/year. If the calving rate could be raised, death rate lowered and growing time shortened, the stock of cattle needed to produce the same beef could be drastically lowered. For example, if our combined calving and death rates would produce 50 calves/100 cows and growing time could be reduced to three years, 30 slaughter animals could be produced with a stock of 140 herd, or a 20% offtake. Conversely the same number

of animals would produce 2½ times as much meat each year. Obviously this has tremendous potential for increasing income and protein availability in Upper Volta.

At the same time this heavy population of low producing cattle has led to serious overgrazing in much of the area. Wherever water is available, cattle have concentrated. These areas, within grazing distance from the water, become completely denuded during the dry season when the grass is gone, trees, shrubs and bushes are destroyed by the animals. With people cutting trees for firewood and animals using trees for fodder, many areas are now subject to wind and water erosion. Thus, reforestation programs are now necessary at a cost of up to \$300 per acre.

The solution to these problems is a controlled grazing program combined with rational management, feeding and breeding programs. It is proposed, therefore, to establish a pilot project of controlled grazing that will utilize a cooperative producers association to modernize cattle production.

Working with a group of farmers, semi-sedentary nomades, a form of producers association would be established around a potential (but presently unexploited) grazing area. The area would be fenced to control grazing and limit the numbers of livestock in the area. Water and facilities for veterinary work would be supplied. A feeding program would be established through a credit system and a feedlot program would be established through a credit system and a feedlot for calves would

would be built. Improved bulls would be provided on a rental basis.

Grazing controls would limit the number of animals in the area and calves would be sold to other feeders or returned to the members. After production of crossbred calves starts, selective culling could be practiced by substituting old cows for cross-bred heifers.

An extension program would be initiated that would aid at teaching producers improved methods of management and feeding. An adult literacy program would be aimed at aiding producers in managing the system, in calculating credit and marketing problems.

The project will require an extensive program of animation to reach a voluntary agreement by producers. The area will have to correspond to overall land use principles and traditional land use rights. It would be expected that groundwork and planning will take two years. Construction would begin in the third or fourth years. Management would have to rest with the livestock service through the initial years of production. Eventually the cooperative would manage the system or hire a manager. Work of handling cattle would be the producers responsibility.

There are three main objectives:

- (a) Rational use of lands for grazing that are generally unsuitable for cultivation.
- (b) Improving the quality and quantity of livestock produced.
- (c) Introduction of rational livestock production through a producers cooperative.

The implementation schedule of the project will be over four years.

- Year 1.
  - a) Survey of sector - part of overall land use plan.
  - b) Determination of possible grazing reserves.
  - c) Begin discussions with producers.
  - d) Introduce improved bulls.
  
- Year 2.
  - a) Continue organizational work with producers.
  - b) Initial discussions of co-op.
  - c) Identify area.
  - d) Continue improved bulls.
  - e) Start supplementary feeding program.
  
- Year 3.
  - a) Order materials.
  - b) Organize co-op.
  - c) Explain credit program.
  - d) Build system
  - e) Select cooperators and cattle.
  
- Year 4.
  - a) Initiate rational grazing.
  - b) Continue extension program.
  - c) Start calf feeding program.

(2) Sheep

The Bali Bali race of sheep, also introduced from Niger through Markoye will be introduced. In this case both ewes and rams will be purchased and sold on credit to producers. This scheme will group about ten producers in a village under a cooperative system. The cooperative will have fenced, controlled grazing lands and utilize a supplementary feeding program. Africare has already participated in a pilot project introducing Bali Bali sheep into the area. That program will be expanded to 6-8 villages in the sector.

The sheep program will introduce over 1,000 head of improved sheep into the area over the project period. In addition, almost 1,500 acres of land will be put under controlled grazing and eight producers association will be established.

The project will be introduced through a credit scheme. This will allow recuperation of investment funds to use for expansion of the program to other villages.

(3) Poultry

A hatchery established in Ouagadougou introduced improved races of chickens into Upper Volta several years ago. Unfortunately, the diffusion of these birds into the rural areas has had limited success. An adequate system to get these birds into the rural areas was not developed. Often birds were put into villages with no effort at training farmers, establishing disease control or feeding. The ORD has now made an effort

to correct this situation. A hatchery and poultry center is planned for the ORD at Ouahigouya.

In Seguenega a poultry farm will be established at the training center. It will receive chicks (initially from Ouagadougou, later from Ouahigouya) and raise them. This center will identify volunteer farmers who are interested in poultry production and train them at the center. These farmers will then receive chickens and equipment on credit. In addition, the center will sell birds to farmers interested in purchasing them to replace local races. The center will also operate as a poultry disease control center for the sector.

As production of improved birds increases, the ORD will undertake a marketing program for poultry and eggs.

#### (4) Overall Livestock Support

The improvement of livestock production in the Sector of Seguenega requires an effort of animation, education, extension credit and marketing. It is therefore necessary that the ORD structure be reinforced so that new innovations will have the proper climate in which to grow. This will require several actions:

- (a) Upgrading the technical capacity of the agents through periodic inservice training sessions.
- (b) Improving the capacity of the ORD and livestock services to provide supplies and services to the producers.

Therefore, a center for supplying feed and other items will be provided with facilities to diagnose and control

animal diseases. This will include a mobile unit for vaccinating and treating animals, and equipment for the veterinary center in Seguenega. In addition, funds for feed and medicines will be supplied as revolving funds for the area.

- (c) Six slaughter houses will be built around the principle markets. This will improve the sanitary control of meat and aid in improving the hides and skins for market. Attempts will be made to organize the butchers and aid them in improving their markets for meat and by-products.

### Improved Races of Livestock

In addition to controlled grazing and improved feeding, new races of cattle and sheep will be introduced. Cattle will be upgraded through cross-breeding with Asawak bulls. These bulls were introduced to Upper Volta from a research ranch in Niger that was managed by the Germans in the 1960's. The improved cattle as well as production techniques were brought to Upper Volta by an AID financed ranch at Markoye in the 1960's.

### Breeding Center

In order to insure the proper introduction of animals to the region a sheep farm and bull stud will be established at the Seguenega training center. The farm will serve as a control center for Asawak bulls and a center for multiplication of Bali Bali sheep. In addition it will operate as a training center in livestock production and a testing center for new techniques.

Bulls from the Markoye ranch will be purchased and kept at Seguenega for rental to cattle producers. To insure their health and proper care, they will be kept at the Seguenega center during the offseason and will go out during the breeding season. The center will also establish a purebred breeding flock of Bali Bali sheep for dissemination through the area.

2. HEALTH DESIGN

The design of a health delivery system for Seguenega must reflect a realistic approach to the health needs of the area, within the present constraints. It also must reflect a long range approach which will establish the foundations upon which an ideal system can be built.

Obviously, the financial limitations of the Government of Upper Volta will not permit the continuation of a system designed around curative medicine delivered through classical health centers. For example, studies in Niger have shown that at a distance of 10 kilometers from a health center only 30% of the medical problems reach the health centers.\* In fact, one can only expect 100% coverage within five kilometers of a center, a recommendation made for health delivery in the ORD of Koupela in Upper Volta.\* Using this formula we would need fifteen additional facilities in Seguenega. The minimal physical structures alone would cost \$500,000 to \$700,000 to build, or over ten times the annual health budget for the Department as a whole. In addition, personnel, equipment and medicines would require more than the present budget.

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\*Belloncle and Fournier, Sante et Developpement en Milieu Rural Africain.

\* Projet ORD Koupela

An adequate health system must, therefore, be designed to go to the health problem as opposed to having the health problem come to the system. In addition, it is essential to aim at the source of health problems, i.e. nutrition, sanitation and education. Given the state of roads in the region and the costs of vehicles and their operation, mobile health units would not satisfy this need. Therefore, the program must be designed around the villager as the ultimate promoter and guardian of good health.

The system that will be designed for Seguenega will attempt, through health education, nutrition and sanitation at the village level, to prevent medical problems at their source. It will begin to establish the diagnostic and treatment functions at the village level. The program will include the following major activities:

- a. Village health workers, selected by the villagers, will be trained in concepts of nutrition, sanitation and health education.
- b. Trained health workers return to their villages and function as volunteer health workers.
- c. Health workers would be given periodic training to enable them to diagnose and treat some diseases, particularly those commonly occurring, for which treatment is not overly difficult.
- d. Health workers would be trained to watch for serious epidemics and to refer those and other complicated problems to the local clinics.

- e. Midwives from the villages would be trained in improved techniques of child delivery.
- f. Women who have received some instruction in nutrition at the recuperation center would be visited to insure that they continue to follow the advice received at the center.
- g. Health workers, midwives and recuperation center graduates would be visited every two weeks by a nurse to further their training, offer encouragement, supply technical advice and review the problems and progress in the village.
- h. The animateurs and animatrices would receive special health training and be visited by nurses (see activities under Community Development Villages.).
- i. Programs in Functional Literacy would be geared toward health education, particularly in some of the lesson materials. (See Adult/Functional Literacy.)

Three things will be necessary for such a system to work. First, it is essential that a program of this nature be understood by the villagers and receive their support. This will require extensive campaigns by animation and health people. It will be absolutely necessary that the villagers agree to participate, chose their own volunteers and pay part of the cost (if only for initial medical supplies).

Secondly, the support system must be established. This requires health surveys, preparation of training programs for rural volunteers and constant and frequent visitation by health personnel. Finally, it will require an adequate supply and referral system. This will include local clinics, a regional health center and education facility and Departmental cooperation. The support system must also include the complete

cooperation by all other governmental services in the area and an integration with and reinforcement of all activities with health.

This approach will not replace the present health system. Rather, it will reinforce that system and extend it in area and scope. It will permit basic health in every village, and allow a greater focus on preventive health and health education. It will orient the system away from the welfare approach to health needs and toward an approach emphasizing village responsibility for health care. Finally, it will encourage village participation in health care and its financial burden.

The specific activities to be undertaken as listed below will be fully designed and implemented in this project. These activities are designed to develop and test the program and make refinements to fit the situation in Seguenega. They will enable the program to be implemented in 60 of the 140 villages in the sector. It will allow training of 120 village health workers with three-stage training completed for 40 and two-stage training completed for 40 volunteers.

- Overall survey to determine health needs and health comprehension of rural people.
- Design of a rural health delivery system and training program for village health workers. Follow-up design for midwives.

- Improvement of the physical structures and health delivery capacity, and establishing this as the health referral system.
- Hiring additional health personnel and orientation of all personnel.
- Extensive campaign, "animation," at the village level to develop acceptance of the program.
- Selection of village participants.
- Training of health workers.
- Follow-up support of health workers, midwives and "graduates" of recuperation centers.
- Supplying equipment and medicines.
- Coordination with personnel of other services, i.e. agriculture, education, functional literacy, to reinforce the village workers.

### 3. EDUCATION

In addition to educational activities that will be undertaken under other project areas, four specific education projects are planned. These include vocation education, primary education, functional literacy and young farmers training.

#### A. Training and Development Center

A training and development center will be established at Seguenega. This center will embody training and development activities in one physical center in coordination with present facilities in the area. It will incorporate the following facilities.

- 1) a vocational training center for rural people;
- 2) a center for the development, testing and supply of appropriate technologies for the area;
- 3) a center for non-formal education;
- 4) a production center aimed at evaluation and applied training in such areas as vegetable production, cereal production, livestock and poultry production;
- 5) a center for inservice and further training;
- 6) a supply center for inputs;
- 7) a marketing center for farm production;
- 8) an operations center for coordinating and monitoring project activities.
- 9) a center that can furnish facilities for social and organizational functions such as cooperatives and youth and sports.

## B. Vocational Education

The training center at Seguenega will have as its core a Vocational Training Center. The major part of this training will be aimed at providing useful skills to rural youth who have been eliminated from the classical school system. The center will provide training in such areas as wood working, mechanics, blacksmithing, masonry and agricultural skills as well as sewing, nutrition, child care and business and secretarial skills. The main emphasis of the curriculum will be toward those skills needed in the ORD of Yatenga. The training will be primarily practical courses.

The courses will be 1, 2, or 3 years depending on the skill. For example, training masons for village well construction could be a 1 year course combined with one year apprenticeship with the ORD. A mechanic's course to prepare a student to repair water lifting pumps and motors or mobylettes may require 3 years. Courses will be designed specifically to train rural women in skills that will be marketable in Upper Volta. These include secretarial skills, tailoring and weaving, arts and crafts and programs in health, nutrition, food and child care.

The operation costs of the school will initially be paid by the project funds. However, it is intended that the center be self-sustaining through a combination of productive activities, gardening or livestock production, selling furniture, etc., and tuitions.

To insure that graduates are able to make the adjustment into active employment, a follow-up program will be established. This will also enable the center to adjust its curriculum to the needs of the employment market. This will consist of visitations to graduates by center staff.

### C. Primary Education

The present primary school system has often been criticized for contributing to the nonfunctional semieducated unemployed in Upper Volta. Two reasons support such criticism: (1) the quality of education at the primary level does not prepare students adequately for the rigorous national exams, especially in rural areas; (2) no system has been installed to channel the nonachievers into a functional education program.

The project will attempt to address these two problems. First an effort will be made to improve the present system. This will require improving the physical plant, meeting the need for school supplies and improving the inservice training and support of the teachers. The physical plant will be improved through repairs to existing school buildings and supplying them with furniture and black boards. In addition, wells will be dug by the ORD where feasible to allow the schools to have vegetable gardens for their school lunch programs.

School supplies will consist of purchasing adequate text books, now non-existent, and setting up a supply store for student materials in Seguenega.

The training center at Seguenega will provide facilities for regular teachers meetings. This will permit upgrading teachers skills, as the center will have audio-visual, functional literacy and pedagogical services.

#### D. Adult Literacy - Functional Literacy

The proper development of village participation will require that the rudiments of literacy be introduced to the area. Although initially programs can be designed for illiterate villagers, the increasing complexity of more sophisticated rural health, agricultural extension or rural cooperative development will, in the future, require literate members.

A two staged campaign will be developed: (1) preparation of literacy materials and teachers to reach some villages; (2) after an initial campaign - 1 or 2 seasons, taking village volunteers who will be trained at the Seguenega Center to be village literacy teachers. These would be supported and assisted by the original teaching staff.

As there is presently no functional literacy program the project would support (1) coordinating director; (2) three additional staff trained in functional literacy; (3) material support and (4) transport.

Adult literacy is coordinated at the National level by the Organisation Voltaic pour l'Education des Adultes. The ORD acts as an arm of this agency to undertake adult literacy programs.

The program will be heavily oriented to supporting other activities. Thus, materials will be developed for use in teaching that will contain extension materials from other services. Materials in agricultural techniques, health and nutrition, forestry or livestock will be produced at the center in Seguenega for use in literacy classes.

#### E. Centers for the Training of Young Farmers

Upper Volta has a serious problem with its rural youth particularly the 17 to 30 age group. With minimal incentives for productive activity in the rural villages, many migrate to the Ivory Coast or Ghana to seek employment. This often depletes villages of their most productive work force, further lowering their agricultural output.

To attack this problem the government established a program to train young farmers in the rural areas in improved methods of agriculture and help prepare them for a greater participation in village affairs. The program has two parts. First a training program is established in a center in the village. Second, a pre-cooperative grouping of center graduates is formed within the village. The village supplies land for fields for the schools and the pre-coops. Students usually build the schools with traditional building materials, getting some financial help from the ORD. The ORD is responsible for providing equipment and materials for the centers and pre-coops.

There are presently ten training centers with 330 participants. One center is for training farm girls. There are ten pre-coop groups formed with a total of 688 members.

The project will directly support this program through equipment for the training centers and credit for materials for the pre-coops. Funds will be used for both existing and new centers. Indirectly, the Seguenega training center will provide short term technical training for members of the program and technical support for their activities. In addition, the functional literacy and village support programs will aid this program.

A credit system will enable centers and pre-coops to purchase materials for training and production and as repayments are made more centers can be equipped.

## 7. RURAL ROADS

The most important factor in moving from a subsistence agricultural system to a dynamic modern economy is communication with the outside world. The flow of inputs and ideas into the rural community and the flow of products and expressed needs out must be continuous and economical. As A.T. Mosher states:

As each farm moves from subsistence farming toward being part of a modern agriculture it increasingly becomes more and more only the place where inputs from the land, from the farmer, and from the wider economy are brought together and combined. Thus, it is comparable only to the "assembly line" in factory production. Just as an assembly line can operate only as it is constantly fed with components brought to it, and with efficient means of taking the finished product away, so a farm business can increase in productivity only as an increasing number of off-farm activities providing farm inputs are readily available nearby and nearby markets can move farm products away efficiently.<sup>1</sup>

To determine the placement of structures and services Mosher considers "farming localities".

By a "farming locality" we shall mean a rural area sufficiently small that a farmer anywhere within it can, with the means of transport available to him, go from his home to a market center where the off-farm facilities he needs are available and return home certainly within the same day.<sup>2</sup>

Therefore, the priority of communication systems is to connect "farming localities" with regional and national centers. As development proceeds and farms increase production and the quantities of materials from farm to market and the reverse,

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A.T. Mosher, Creating a Progressive Rural Structure, A.D.C., N.Y., 1969

there will be an increasing need for "farm to market" roads.

As Mosher continues:

Obviously, a network of rural access roads within each farming locality is only slightly less important than roads to connect market centers and the outside world.<sup>5</sup>

As it is obvious to anyone familiar with West Africa, road and transport networks are the single most important impediment to development. Any plan for development, particularly in the rural areas, must immediately face the problem of costly transport and inadequate contact due to lack of rural roads. Until a better method of transport is developed, rural roads will continue to be a top priority need.

Using the concept of what is necessary and sufficient as opposed to ideal, our first effort is to plan a road structure that will permit contact with the majority of the people in the impact area. The sector of Seguenega is an area about 50-60 kilometers long and 20-30 kilometers wide. At present an all-season road crosses the sector in the narrow sense, through the town of Seguenega, which is centered in the northern 1/3 of the sector. This road links the town of Seguenega with the Ouahigouya, administrative center of the ORD. All other roads are only dirt tracks.

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A.T. Mosher, Creating a Progressive Rural Structure, A.D.C., N.Y., 1969

In order to insure year round contact with the rural people in Seguenega a rural road system is planned. That system includes two roads, roughly parallel, running in a north-south sense through the sector from Seguenega town. Totalling about 100 kilometers, these two roads will bring the majority of the people within 10-15 kilometers of an all-weather road. (See Map).

A third road of about 20 kilometers will connect the southern end of the sector to the national Ouagadougou-Ouahigouya road. This connection, which will save over 100 kilometers on transport between Seguenega and Ouagadougou, will serve primarily as a route for the transport of materials and produce in and out of the sector.

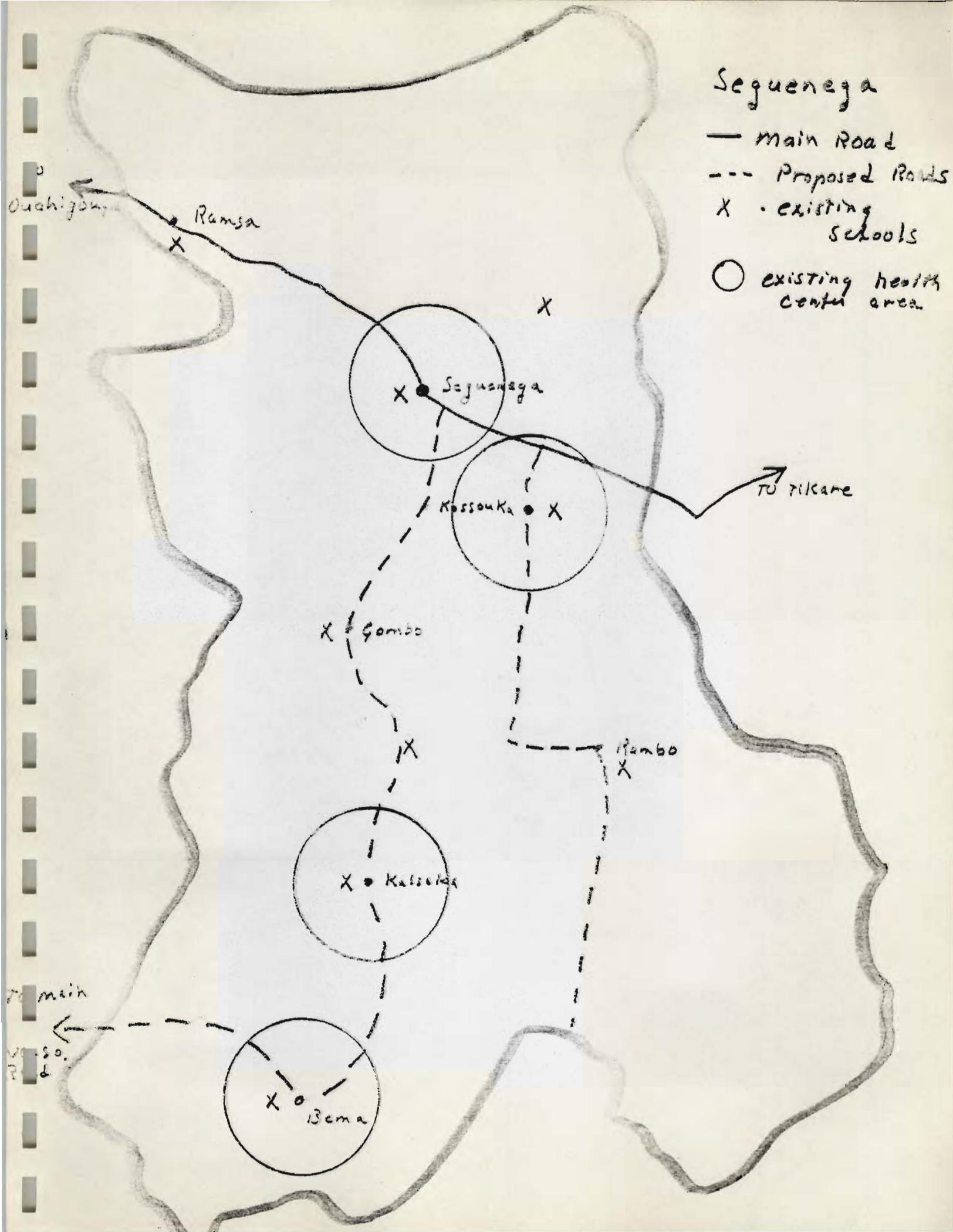
With the two roads as growth axis, centers along these roads will serve as growth poles and market centers for smaller villages. Thus, clinics, schools and agricultural centers will service the surrounding areas and be connected to the administrative center of the sector.

The high density of people in the area permits us to build these access roads at a cost of \$5.00 to \$8.00 per person. Construction of the roads will be the responsibility of the ORD. Plans call for considerable participation by the rural people. Therefore, the construction will cover a three year period.

Funds will be provided for some heavy equipment and trucks to supplement that available to the ORD and public works department. In addition, operating costs for vehicles and machinery and repairs will be covered by the project. Some culverts and bridges will be required and these will be either contract built or done by the public works department.

# Sequeneza

- main Road
- - - Proposed Roads
- X . existing schools
- existing health center area



## 5. ORD SUPPORT SYSTEM

In order to meet the timetables of the project as well as to prevent disruption of the present ORD functions, some support is necessary at the ORD level. In addition to the planning section noted above the following support is necessary.

### a) Vehicles

A revolving credit fund will be established to allow the ORD to make loans to service personnel for the purchase of motorcycles. This fund will be maintained on a three year loan basis, permitting a permanent source of credit.

One truck will be purchased to facilitate the transport of materials throughout the ORD and to aid in marketing operations. Operating costs will be paid through 1980.

### b) Topographic Equipment

Funds will be provided for the purchase of topographic survey and design equipment. This will be necessary to undertake land use plans, placement of rice areas, road building and placement of dams in Seguenega. It will also aid the ORD throughout Yatenga.

### c) Agricultural Equipment

Small equipment such as threshers, mills, hullers, plows and hand tools will be sold on credit or rented to farmers. A credit fund will be provided for this equipment.

d) Equipment for Artisans

Graduates of the vocational education institute, as well as other artisans in the area, will be given credit to buy essential tools to equip their shops. This fund will be a permanent revolving fund of the ORD.

e) Housing

Adequate housing in the Sector of Seguenega has continued to be a problem. Under this project some housing, notably for health and the training center has been provided. However, with the addition of several more agents for various parts of the project, additional housing will be needed. Funds will be provided to permit the ORD to construct houses where needed in Seguenega. These houses will be of "semi-dur" construction, using local made mud brick, plastered with a layer of cement and roofed with metal. This will provide a house of a cheap but durable construction. It is also a type of construction that can utilize unskilled village labor.

f) Grain Storage

Large grain storage units for emergency supplies have been provided throughout the ORD by USAID and the German Government. A major problem still exists for village stored grain. In some areas spoilage may reach 50%. Research and development costs, including test models are included to solve this problem.

g) Water Pumping

Better and more economical means of lifting water will be needed as livestock, gardening and village wells are dug. Testing of hand pumps, windmills, animal traction lifting systems will be done through the Seguenega Center.

h) Wells Section of the ORD

The ORD has a section for the construction of wide diameter wells. In order to meet the demand for well construction under this program, this section will be strengthened. Approximately 79 new wells are planned for the various projects. To insure that these wells can be installed in a timely manner with the yields required, new equipment will be needed. Of the 79 new wells, 50 will service special projects and are budgeted separately. The other 29 wells are for village water supplies in villages demonstrating community participation for self-help projects. These will be particularly important in supporting the village health program as sanitary water will be a key to improved village health. From Africare's experience, these wells will cost \$4,000 each.

The equipment for the ORD consists of hoists, compressors, pumps and a truck. In addition, salaries for an additional crew will be provided over the first three years.

Wells 29 x \$4,000	\$116,000
Equipment	65,000
Salaries	<u>11,200</u>
	\$192,200

VI. EVALUATION/LOGICAL FRAMEWORK MATRIX

Evaluation has been built into the program through the management coordinating, monitoring and evaluation component. This will be centered in the ORD Planning Section. The Section will use a modified PERT system to monitor the project at all times. A natural outgrowth of this analysis will be the evaluation of the project. It is anticipated that this system will generate quarterly progress and financial reports and retargeting of inputs and outputs.

The overall project will be evaluated according to the implementation plan as laid out in that section. The following is the Logical Framework which summarizes the project and identifies overall inputs, outputs, goals and objectives. The combination of the implementation plan and logical framework will be used to produce brief quarterly and annual project evaluations.

AGRICULTURE

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE  
INDICATORS

MEANS OF VERIFICATION

IMPORTANT  
ASSUMPTION

Sector Goal

Self-sufficiency in food production, livestock and cash crops for improvement in the economic condition of life in Upper Volta.

Purposes:

1. Increase level of self-sufficiency in food production in Seguenega Sector by 1980.
2. Increase by 100% the income of small farmers through cash crops and livestock production by 1980.
3. Creation of precooperatives for the realization of rural development of programs.
4. Establish community development "model villages" in Seguenega Sector.

Measures of Goal Achievement

Decrease in importation of staple foods.

Increase in exportation of agricultural/livestock products.

Increase in grain stored in 109 villages for local consumption by 1980.

Average farm income increased from \$30 to \$60 per year in Seguenega Sector.

Small farmers have institutional access to means of production, financial systems, market and agriculture knowledge by 1980.

15 villages demonstrating problem-solving capability by 1980.

ORD Reports.

Village Graineries.

Small farmers investment in agriculture production.  
Quantity of manufactured goods in Seguenega Sector.

ORD Credit Reports.

Village projects submitted to ORD and other support agencies.

No major disasters, i.e. drought, insects invasions.

Magnitude of production in Seguenega Sector will not affect national market.

ORD will permit pre-coops to become self-managing.

Government agents will have respect for knowledge and leadership as demonstrated by rural people.

AGRICULTURE

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
Project Outputs	Measures of Goal Achievement		
Production of Vegetables.	50 acres of irrigated vegetable gardening in Segucnega town by 1980.	ORD Reports	
Cultivation of low lying areas for rice production.	25 acres of vegetable gardening in 10 villages in Segucnega Sector by 1980.		
Creation of 3 pilot cattle farms.	250 acres of rice-land by 1980.	3 cattle farms.	
Creation of 8 pilot sheep farms.	25,000 acres of controlled grazing in three villages by 1980.	8 sheep farms	
Creation of a pilot poultry farm training center at Segucnega Vocational Training Center.	1,500 acres of controlled sheep grazing by 1980.	Vocational Training Center Reports.	
Establish 60 precooperatives in Segucnega Sector.	1,000 chicks, 1,000 laying hens and 700 eggs/day by 1979.	ORD Reports	
Organization of villages into community development pre-cooperatives.	8 sheep, 5 cattle, 30 model village, 10 young farmers, and 7 vegetable precooperatives by 1980.	ORD Community Development Reports.	
	5 villages in 1978 5 villages in 1979 5 villages in 1980		

AGRICULTURE

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE  
INDICATORS

MEANS OF VERIFICATION

IMPORTANT  
ASSUMPTION

Project Inputs

Africare

Implementation Targets

Upper Volta

Technical assistance in design, management, evaluation.

Salaries 271,920

Earthen Dam \$150,000

Ag Extention  
Personnel

Credit 402,710

Training, Supervision 41,650

Wells 91,000

Livestock 12,000

Construction 277,000

Vehicles 125,500

Equipment and Supplies 360,050

HEALTH

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE  
INDICATORS

MEANS OF VERIFICATION

IMPORTANT  
ASSUMPTION

Sector Goal

Measures of Goal Achievement

Improve and safeguard the health of the people of Upper Volta thru their participation in preventive educative, as well as curative health care delivery.

Decline in incidence of reported communicable diseases.

Reduction of malnutrition in young children.

Increased community participation in public health practices.

Ministry of Health Reports

ORD Community Development Reports.

Health personnel will embrace and support village level public health care delivery.

HEALTH

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTION

Project Purpose:

End of Project Status

Institutionalize community participation within the rural health delivery system through the delivery of preventive health care at the village level.

Increase the number of health providers delivering preventive health care in Seguenega Sector with 60 trained village volunteer health workers including traditional healers and traditional midwives by 1980.

Ministry of Health Reports.

Villagers will be sufficiently motivated to participate on voluntary basis.

Design a model for training village health workers in Upper Volta.

Training model for village health workers with applicability to other rural areas by 1979.

Existence of model.

Program designers will have sufficient insight into the application of teaching-learning process as it relates to the villager dweller.

Establish and support the health related activities of community development model village program in the Seguenega Sector.

Community identifying and articulating health needs.

Self-help facilities constructed.

Animation will be effective in motivating the rural population.

Villagers resolving health needs thru self-help activities.

Community Dev. Reports

Facilitation of village health workers' activities as a result of animation.

Reports of mobile health teams.

HEALTH

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
Project Outputs	Magnitude of Output		
Trained cadre of volunteer village health workers including traditional healers and traditional midwives.	16 trained in 1979 32 trained in 1980 48 trained in 1981	Ministry of Health Reports. Africare Reports.	Villages will be successful in recruiting health personnel on voluntary basis.
Development of training curricula and visual aids for village volunteer health workers.	1 curriculum for traditional midwives. 1 curriculum for traditional healers and hygienists. 1 package of visual aids.	2 curricula Visual Aids	
Organization of community development model village health committees.	5 health committees in 1978. 5 health committees in 1979. 5 health committees in 1980.	Community Dev. Reports Africare Reports.	
Operation of preventive health programs in Seguenega Sector.	16 villages by 1979. 32 villages by 1980. 48 villages by 1981.	Ministry of Health Reports.	

HEALTH

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE  
INDICATORS

MEANS OF VERIFICATION

IMPORTANT  
ASSUMPTION

Inputs:

Africare

Implementation Targets

Upper Volta

Technical assistance in design and implementation of public health programs.

1 technical advisor and 3 short term consultants  
\$152,700

Technical assistance in design and implementation of health survey, program evaluation, training and inservice ed.  
Commodities (med and non-med equip and supplies) \$86,000

Consultant salary, travel

Vehicle and maintenance  
15,900

Vehicle Maintenance

Audio visual aids and equip.  
\$3,600

Training, Inservice Ed. Supervision \$8,232

Training Personnel

Salaries \$42,000

Wells (29)

3 Buildings/remodeling  
\$77,000

Construction

1 Building/construction  
\$44,000

EDUCATION AND TRAINING

NARRATIVE SUMMARY

OBJECTIVELY VERIFIABLE INDICATORS

MEANS OF VERIFICATION

IMPORTANT ASSUMPTION

Sector Goal

Provision of a cadre of trained personnel for the economic and social development of Upper Volta.

Measures of Goal Achievement

Increase number of trained Voltaics participating in planning, implementing and evaluating development in Upper Volta.

Number of Voltaics in responsible positions in development.

Purpose

E O P S

1. Primary Education:

Removal of physical constraints to student achievement in primary schools.

Physical environment of primary schools conducive to learning by 1980.

Ministry of Education Reports  
Schools

Physical condition of the school is a major influence on student achievement.

2. Vocational Education:

Increase the cadre of semi-skilled laborers in Yatenga ORD.

Supply of semi-skill labor needed for development by 1980.

Vocational Training Center Reports

3. Functional Literacy:

Provide villagers with communications skills for increase of participation in their development.

Villagers exhibiting strong capability in articulating needs and resolving problems by 1980.

ORD Reports  
Africare Reports

4. Center for Young Farmers

Provide improved means of agricultural production technology for young farmers.

Young farmers applying modern techniques to agricultural production in Seguenega Sector by 1980.

ORD Reports

EDUCATION AND TRAINING

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
Project Outputs	Magnitude of Output		
Reparation of school buildings	9 rural elementary schools repaired by 1978.	9 repaired schools Ministry of Education Reports.	
Production of food for school lunch program.	9 rural elementary school 1 acre vegetable gardens by 1979.	9 vegetable gardens	
Establish vocational training center in Seguenega Town.	Multipurpose training center by 1979.	1 multipurpose center.	
Cadre of semi-skilled laborers	80 trained semi-skilled laborers by 1980.	Training Center Reports Africare Reports	
Trained village aides in Seguenega Sector by 1979.	60 trained village aides.	ORD Reports	
Trained villagers in 60 villages in Seguenega Sector.	1800 trained by 1980.		
Adoption of animal traction by 10 pre-cooperatives.	500 young farmers in 10 villages by 1980.	ORD Reports.	
Establish a credit system at 10 centers for young farmers.	5,000 revolving credit fund in 1977. 5,000 revolving credit fund in 1979. 5,000 revolving credit fund in 1980.	ORD	

EDUCATION AND TRAINING

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTION
Inputs:			
<u>Africare</u>	<u>Implementation Targets</u>	<u>Upper Volta</u>	
Equipment and Supplies \$37,000		Technical Assistance	
School Gardens and Wells 56,250		Self-help Labor	
Repairs 10,800			
Construction and Equipment 374,800			
Technical assistance in development of center.	Technical advisor 4 teachers Salaries 160,100		
Salaries 14,925			
Equipment/Supplies 9,400			
Training 6,000			
Credit 15,000 Equip. 15,000			

PUBLIC WORKS

NARRATIVE SUMMARY

Sector Goals

To provide a network of farm to market roads which would facilitate the communications needed for the social, economic and political well being of the nation.

Purpose

To facilitate communications, commerce and the delivery of services within Seguenega Sector.

Outputs

Network of 75 miles of improved farm to market roads in Seguenega Sector.

Inputs - Africare

Technical assistance in engineering  
 Construction \$ 400,000  
 Equipment 120,000  
 Topographic Studies 78,000  
 Pre-contract Cost 2,000

OBJECTIVELY VERIFIABLE INDICATORS

Measures of Goal Achievement

Substantial increase in commercial activities in Seguenega Sector.

Reduction in constraints to availability and accessibility to services.

E O P S

Communications, transportation of commodities, and the delivery of services occurring year-round by 1980.

Magnitude of Output

Seguenega-Bema 37.5 miles repaired by 1978.  
 Kossouka-Tangaye 25 miles repaired by 1979.  
 Bema-Berenga 12.5 miles repaired by 1980.

Consultant 22,120

MEANS OF VERIFICATION

ORD Reports.

Reports of Gov't Agencies.

ORD Reports

Improved farm to market roads.

Inputs - Upper Volta

Self-help labor 300,000 mandays.  
 Technical Advisory Service - \$200,000  
 Equipment and Maintenance - \$100,000

IMPORTANT ASSUMPTION

Lack of farm to market roads is a major constraint to the well being of the nation.

Successful coordination by ORD of Public Works and community self-help labor.

## VII. Project Analysis

The nature of integrated rural development projects do not readily lend themselves to traditional techniques of economic analysis. Normally, an internal economic rate of return analysis would be employed to measure the value of the increased productivity generated by the investment. There are three reasons why this technique is difficult to employ for integrated development projects.

1. Measuring value of outputs (production as benefits).  
In a program with such diverse interventions as agricultural production, health services, management training and education, quantifying outputs is somewhat arbitrary. How, for example, do you quantify in dollar terms the value of a life saved? Although techniques exist to measure returns for roads, health services and education, combining these benefits with tons of meat and potatoes for purposes of analysis would be an exercise in mathematical manipulation at best.
2. The value of the "rate of return" as an analytical measure.

The rate of return is primarily a measure of comparing investment opportunities. That is, given a limited amount of resources where will they produce the most

output. In order to use such a comparative analysis a similar investment opportunity must be available. In this case another integrated project would need to be analyzed using identical techniques. It is not permissible to compare the returns of this project with returns for a mining project or an agricultural plantation project. The integrated development project is oriented toward long-term results. In economic analysis we are measuring the returns by asking "how much will it cost me to buy this future stream of income?" or conversely, "how much will my money return to me in the future?". This discounted rate naturally biases us towards those projects that give early returns. Therefore, unless we are looking for profit, we cannot compare an integrated rural development project with a non-integrated project. The proper question is "is this the most economical way to reach the project goals?"

3. The measurement of previous investments, "sunk costs." In rate of return analysis we are making a "with" and "without" comparison. Consequently, the analysis will usually be biased toward those areas where basic investments in infrastructure have been greatest. The hypothesis here is that where investment in education, health or agricultural extension have previously been made, the marginal productivity in investments in

other activities would be greater (or the marginal cost of producing the same output would be less).

Thus, future investments would be placed where previous investments have been made and the poorest areas would continue to be neglected.

In the development of the project one of the goals is clearly stated as the improvement in the economic conditions of the rural people of Seguenega. This goal is not only meant to stand on the merit of helping the poor. It is also clear that other activities such as health and education service must be paid for. Therefore, we must be certain that productivity increases to pay for such services and that this increase has a multiplier effect to generate further production to support further increases in social services.

One of the major mechanisms to insure this multiplier effect is the incorporation of credit into as much of the program as possible. In no case is the project or its sub-components design to "give" the rural people the means to improve their condition. In some cases these "means" will be subsidized. However, the major portion of inputs are designed to be paid for by the recipients.

The total direct cost of the project is \$4,471,580. This means a per capita cost of \$40.65 for the 110,000 people in Seguenega, or \$10.16 per person each year of the four-year project.

The project has been designed so that within a ten-year period all of the people in the sector will receive some benefits. Approximately 50 per cent will receive some benefits within the first five years.

The project will create a rural health delivery system for less than \$4.00 per person. It will bring all weather roads to within 15 kilometers of everyone in the area for \$5.65 per person. It will bring some form of education, primary education, functional literacy or young farmers training to 25 per cent of the population for \$6.67 per person.

In the financial analysis of these components the question has been constantly asked "is this the most economical way to bring these services to the rural people?"

In addition, the project was designed to begin a process that would continue. Consequently, every attempt was made to insure that either the cost of operating these programs would be provided by increased production or would be able to be substantially reduced after the foreign aid has ended.

The following is a brief analysis of the financial returns on the direct production components of the project. These are analyzed with the assumption that all the components would be done. Without them the results will be different.

Poultry

The poultry project will attempt to establish a pilot program consisting of a few flocks of improved birds with village farmers. Flocks can be either broilers or layers. The investment costs and returns are based on the following calculations.

a) Building for 100 birds - 5m x 3.5m =	38,400
Estimated =	40,000

b) Material-Equipment

1) Material for Broilers	4,000
2) Material for Layers	17,100

Investment for Broilers	44,100 CFA
Investment for Layers	57,100 CFA

c) Operating Costs (includes birds)

1) Broilers	40,840
2) Layers	172,800

Returns for Layers are based on 1/3 depth loss, i.e., 67 live birds, kept for 10 months and then sold for slaughter. Average production would be 21 eggs/day or 11,390 eggs sold at 25 CFA or 284,750 CFA.

Layers

Production Costs (includes amortization)	<u>172,800</u>
Returns (gross)	<u>284,750</u>
Net	\$466

Broilers

20% death loss, i.e., 80 birds for Sale,  
@ 500 CFA/bird.

Production costs, (including amortiza-  
tion of investment) =

Returns 80 x 500 CFA

32,530 CFA
40,000 CFA
<hr/>
7,470 CFA
44,820 CFA

Times 6 groups/year = net  
or \$186.00.

The farmers would be given credit in the first year and would be expected to repay the loan over 3 years.

In the first year 10-20 farmers would be involved in the program. This would permit expansion of the program by 5 farmers per year over the second through 4th years and 10 farmers per year after that. Thus approximately 90 farmers would be involved in ten years, producing over 20,000 broilers per year and over 2,000 dozen eggs per year.

SHEEP

The project proposes to establish improved breeding flocks in eight villages for a total of 1,120 head by the end of 1980. It is assumed that ewes will produce .75 lambs the first year, 1.25 the second year and 1.5 lambs thereafter. It is also assumed that lambs will require 2 years from birth to market.

The program calls for the introduction of sheep over three years, 140 head the first year, 280 head the second year and 700 the third year. Based on our lambing estimates (and for each flock of 14 head, one will be male), our expected lamb production would be:

<u>GROUP</u>	<u>1978</u>	<u>1979</u>	<u>1980</u>	<u>1981</u>	<u>1982</u>
#1	98	162	190	190	190
#2		195	325	240	240
#3			487	812	975
TOTAL	98	357	1,002	1,242	1,405

Assuming 20% death loss, our sales would be:

<u>1980</u>	<u>1981</u>	<u>1982</u>	<u>1983</u>	<u>1984</u>	<u>1985</u>
78	285	800	993	1,124	1,124

or a total of 4,404 head. Valued at 10.000 CFA per head, this will total 44.040.000 CFA or \$183,500. Sales would then stabilize at 1,124 head/year for a gross return of 11.240.000

CFA per year or \$46,833. Inventories would total 3,649 head with an average value of 5.000 CFA or 18.245.000 CFA or \$76,020.

Production costs should run about 25% of annual sales. This will leave \$35,124 net reutrns over production costs for the 80 farm families, or \$439/family.

Total investment costs would be \$245,000 or \$3,062 per family, which would be repaid over a 10-year period. Recovered funds would be used for expansion of the program within the ORD.

RICE PRODUCTION

One hundred hectares of rice land will be prepared in the Seguenega Sector under this project. This land should produce one ton of rice per hectare the first year and increase to 1.5 tons thereafter. Production costs would total 9.000 CFA per hectare assuming no labor costs. Assuming a value of 50 CFA/kg. for rice, our returns would be as follows:

YEAR	# HECTARES	X PROD. COST =	TOTAL COST	YIELD KGS	x 50 = TOTAL RETURN	NET RETURN
1977	50	9.000	450.000	50,000	2.500.000	2.050.000
1978	100	9.000	900.000	125,000	6.250.000	5.350.000
1979	100	9.000	900.000	150,000	7.500.000	6.600.000
1980	100	9.000	900.000	150,000	7.500.000	6.600.000

Assuming a market and transport cost of 4.000/CFA ton, our net to the farmers would equal 6.000.000. If each family cultivated 1/2 hectare the return would equal 30.000 CFA per family or \$125.

Part of the investment costs will be recovered through loan repayments after 1979. These funds will be used for further expansion of the program. An expansion rate of 10 hectares per year should be possible.

VEGETABLE PRODUCTION

To calculate the returns on vegetable production, the data for the cooperative near Ouagadougou was used. This data is summarized in the table below:

ESTIMATIONS OF RETURNS PER HECTARE  
FOR VEGETABLE PRODUCTION (IN CFA)

CROP	PRICE/ KG	YIELD/ HECTARE (KG)	PRODUCTION COSTS	LABOR COSTS	10% RETAINED BY COOP	NET RETU TO FARME
Green beans	105	6.000	34.000	12.000	63.000	521.000
Potatoes	60	20.000	221.000	30.000	120.000	829.000
Eggplant	40	25.000	47.900	8.000	100.000	844.100
Peppers	35	25.000	87.500	8.000	87.500	692.000
Cauliflower	250	10.000	87.500	30.000	250.000	2.133.000
Tomatoes	75	20.000	41.080	12.000	150.000	1.296.920
Squash	60	30.000	43.800	12.000	180.000	1.544.800
Onions	30	20.000	51.00	8.000	60.000	541.000

If we assumed that an even distribution of types of crop were planted on each hectare we would have a net return, after production costs (and retained costs for the cooperative), of 1.050.227 CFA per hectare or \$4,375. Assuming that transport and marketing costs per hectare would be \$375 and returns were 25% lower in Seguenega, our net return would be \$3,000 per hectare. Based on this calculation, our returns each year would be as follows:

<u>YEAR</u>	<u># HECTARES</u>	<u>RETURNS TO FARMERS</u>
1978	5	\$ 15,000
1979	10	30,000
1980	30	90,000
1981	30	90,000
1982	30	90,000
1983	30	90,000
1984	30	90,000
1985	30	90,000
1986	30	90,000

This assumes that the market costs of \$375/hectare as noted above, or a total of \$11,250/year, would cover operations and amortisation of trucks and labor costs to cover marketing and transportation. The net amount then would give \$225 per farm family to 400 farm families in the area. Retained funds to the cooperative would average 126.312 CFA per hectare or \$526. This would provide a total of \$15,780 per year for operations of the cooperative including salaries, and should allow capital accumulation to provide for expansion. Although the initial capital investment will be in part a capital subsidy to the farmers, approximately \$4,000 per hectare would be in the form of intermediate loans. Given a 4 year repayment schedule, \$1,000/hectare in development costs should be available for expansion capital starting in 1980. Thus, added to cooperative funds, we should be able

to obtain a 2.5 hectare/year expansion of production starting in 1981.

### VIII. IMPLEMENTATION PLAN

The integrated rural development project requires a more complex management system than would be the case for single activity or single sector projects. Several government agencies will be involved in the various phases of implementation of this project. Each of these agencies has its own management system, including budgeting and expensing systems, personnel management systems, and a technical language. As was noted above it will be the responsibility of the coordinating body at the ORD to insure that these various services function together smoothly so that objectives are reached.

More importantly, however, is the need for continuous reassessment and redesign of the project activities and work flows to respond to the speed with which the system is able to cope with project implementation. This process, which we call the integrated management system, will lay out the details of project design and implementation.

The implementation schedule that is laid out in this proposal is a general framework of anticipated activity flows and required financial inputs. It was developed as the natural outgrowth of the planning process undertaken by Africare and the technicians of Upper Volta. The schedule attempts to reflect the time and activities necessary to expand the managerial capacity of the ORD, the development of an adequate

support structure and the increasing participation of the rural people. Using this model the planning process went through the following steps to determine the implementation schedule.

1. Determine needs and priorities. This assessment was made in light of overall national objectives and regional considerations. As much as possible the expressed needs of the rural people were incorporated into the assessment.
2. Assessment of the services' plans to meet the determined needs. Consideration was given to the short, medium and long term plans.
3. These plans were assessed against the overall goals of the integrated model.
4. An assessment was made of the resources and constraints available. Included in this was a modified cost-benefit analysis.
5. Planned an overall program that would fulfill the needs and meet the criteria of integrated development. Activities were categorized as:
  - a. Those that met the criteria of the model and were ready for implementation.
  - b. Those that would strongly support the approach to integrated development but required prior events.
  - c. Those that would be required to support future planned activities.
  - d. Those that had high long range impact but required attitudinal change to occur first.

Using a modified program evaluation analysis the activities and events were ranked by priority in a time frame that

they would ideally occur.

6. Adjustments were made to avoid system overloads, i.e. too many activities at one time required by a given technical service.
7. Adjustments were made to reflect:
  - a. seasonal constraints
  - b. workloads
  - c. attitudinal changes required
  - d. assumed availability of personnel and supplies

It will be essential that this process be continued as an integral part of the implementation plan. Therefore, a form of Program Evaluation and Review Technique (PERT) will be utilized in the coordinating and management component. Thus the implementation plan will be adjusted to insure that activities are planned to meet objectives and that the required events occur according to the overall design.

IX. BUDGET SUMMARY

1. Regional Management and Planning	\$ 282,360
2. Health	437,432
3. Vocational Education Center	534,900
4. Education, other	183,375
5. Community Development	154,570
6. Poultry	77,250
7. Cattle	554,550
8. Sheep	275,010
9. Bas Fonds	46,000
10. Vegetable Production	515,850
11. Veterinarian Service	128,600
12. Roads	622,120
13. ORD Support	339,200
14. Direct Administrative Support	<u>321,863</u>
Total Direct	4,473,080
Overhead (27% provisional rate)	<u>1,207,731</u>
	\$5,680,811

BUDGET CALCULATIONS

A. Management--Planning--Coordinating--Evaluating  
Committee Staff/Center

1) Operations Center

- a) Building at ORD  
6 x 10m (20x32) 10,000
- b) Equipment (Furn., type., reprod., etc.) 5,000
- c) Supplies
  - set-up \$100/quarter 200
  - operation \$200/quarter 2,600
  - reports \$400/year 1,600
  - set-up equipment 500

2) Personnel

- a) Assistant Director @ \$300/month  
= \$300 x 3 = \$900/quarter 13,500
- b) Accountant @ \$200/month  
= \$200 x 3 = \$600/quarter 9,000
- c) Secretary @ \$100/month  
= \$100 x 3 = \$300/quarter 4,500

3) Transportation

- a) Vehicle 1 @ \$10,000 10,000
- b) Operations & maintenance =  
est 500 kms @ .20/km = \$100/month  
= \$300/quarter 4,500

4) Technical Advisor

- a) 1 @ \$30,000/yr start & annual  
increase = (15 quarters) 123,000
- b) housing \$500/month x 3 = \$1500/quarter  
x 15 quarters = (const. a furnish house) 22,500
- c) vehicle 1 @ \$10,000 10,000
- d) vehicle maintenance & operations  
\$100/month x 45 months 4,500

5) Consultants

a) Anthropologist

(1) 9 months @ \$2,000/month	18,000
(2) per diem \$300/month (housing & food)	2,700
(3) transportation \$2,000	2,000

b) Sociologist

(1) 6 months @ \$2,000/month =	12,000
(2) housing & food \$300/month =	1,800
(3) transport. \$2,000	2,000

c) Management and Design

(1) 2 x \$100/day x 21	4,200
(2) per diem \$30/day x 2 x 21	1,260
(3) air travel - \$1,000 each	2,000

6) Land Use Planning

a) LARS - Purdue Center & computer time 4,000

b) Travel

(1) 2 international	4,000
(2) in-country	1,000

c) Other

(1) Ground verification	3,000
(2) Topographical surveys	3,000

3,000  
\$ 282,360

B. MODEL VILLAGES

1. Personnel

a) Animateurs/Animatrice

16,000 CFA/mo=\$66,66=\$200/Quarter  
x 10 people = 2,000, x 4 Quarters = 8,000  
x 20 " = 4,000, x 4 " = 16,000  
x 30 " = 6,000, x 4 " = 24,000

b) 1 Coordinator

56,000 CFA/mo = \$233.33 = \$700/quarter  
x 13 quarters 9,100  
57,100

2. Training For Staff

\$60/per year x 60 staff years 3,600

3. Transportation .05/km x 1000 km =  
\$50/quarter/person x 240 man quarters 12,000

4. Training Villagers

20/village x 2 wks x \$1/day  
Yr 1 5 villages = 1,400  
Yr 2 10 villages = 2,800  
Yr 3 15 villages = 4,200  
8,400 8,400

5. Credit For Equipment

339,000/village = \$1,415 x 5 villages  
Yr 1 7,075  
Yr 2 14,150  
Yr 3 21,225  
42,450 42,450

6. Self-Help Credit For Villages

Yr 1 4,000  
Yr 2 8,000  
Yr 3 12,000  
24,000 24,000

7. Consultants

See Health Budget Above  
2,340/yr x 3 7,020  
154,570

C. VEGETABLE PRODUCTION

1) Truck		\$ 25,000
2) Warehouse		
a) construction	\$ 50,000	
b) refrigeration units	50,000	
c) special equipment	25,000	
d) Generator	25,000	
e) Operation/Maint.	<u>20,000</u>	
	170,000	170,000
3) Gardens/hectare		
a) wells, 2 @ \$4,000	\$ 8,000	
b) fencing 400 m x 600 CFA/m	1,000	
c) tools	500	
d) seed (average)	2,000	
e) fertilizer, insecti- cide, etc.	200	
f) Pump	500	
g) fuel	<u>300</u>	
	\$12,500	
times 10 hectares	=	125,000
4) Credit fund for marketing		25,000
5) Transport		
a) Truck, 2,500 kms/month x .20/km = \$500 x 3 = \$1,500/quarter x 13		19,500
b) Mobylette 1,000 kms/month x .05 = \$50/month x 3 = \$150/quarter x 13 quarters		1,950

6) Personnel

a) Vegetable gardening/cooperative	
1 person @ \$1,000/quarter x 13	\$ 13,000
b) 1 warehouseman	
\$300/quarter x 12	3,600
c) 1 truck driver	
\$600/quarter x 13	<u>7,800</u>
	\$ 24,400

7) Dam

Estimated cost of construction plus irrigation facilities	<u>125,000</u>
	\$ 515,850

D. LOW-LYING AREAS -- RICE

1) 100 hectares @ \$250/hectare	25,000
2) Credit for rice and fertilizer	6,000
3) 1 tractor and plow	<u>15,000</u>
	<u>46,000</u>

Maintenance and operation of tractor is figures into per hectare cost.

E. CATTLE PRODUCTION

1) Cattle and Calves

a) Equipment

1. Truck	25,000	
2. Portable Corrals	<u>15,000</u>	
	40,000	40,000

b) Construction

1. Warehouse	25,000	
2. Wells 11 x 5000	<u>55,000</u>	
	80,000	80,000

c) Fencing

1. Wire 90 kms = 17,895 rods = 447 40 rod rolls barb wire x 4 strands = 1788 rolls @ 26.65		47,650
2. 18000 posts x 2.25		40,500
3. Wire 4kms = 4772 rods = 119 40 rod rolls x 26.65		3,171
4. 800 posts @ 2.25		1,800
5. Stays, staples, etc.		2,000
6. Tools		<u>2,000</u>
7. Construction Costs		<u>25,000</u>
		122,121

Estimated Cost 125,000

8. Transport Costs		<u>20,000</u>
		145,000

D) Facilities for calves

1. Well & Reservoir	10,000	
2. Feeders - Waters	3,000	
3. Shelter 300m <sup>2</sup> @ 5000 CFA/m <sup>2</sup>	6,250	
4. Fence	<u>5,250</u>	
	24,500	24,500

e) Feed

Credit system, cattle-calves	20,000	
Village feed program-credit	15,000	
	<u>35,000</u>	

f) Bulls 50 \$500

324,500
<u>25,000</u>
349,500

2) Bulls

a) Construction

1) Stable	5,000	
2) Corrals-Fence	<u>10,000</u>	
	15,000	

15,000

b) Livestock

1) 20 bulls		
@ \$500 each	10,000	

10,000

c) Feed

\$3100/year x 3 yrs.	9,300	
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9,300

d) Vet. Costs

\$10/yd./yr.	400	
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400
<u>34,700</u>

3) Personnel

1 Director @ \$300/mo + benefits =		
\$1,000/quarter x 14		

14,000

2 assistants @ 20000 CFA =		
83.33/mo = \$250/quarter x 12		

6,000

1 worker, bull stud, 250 quarter x 11		
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<u>2,750</u>
22,750

4. Transport

Operations and maintenance of:

a) <u>Truck</u>		
2500 kms/mo @ \$.20/km = \$500/mo		
= 1500/quarter x 14 quarters		21,000
b) <u>Mobylettes</u>		
\$.05/km x 1000 kms/no = \$50/mo =		
\$150/quarter		
1x2 quarters = 300		
3x12 quarters = 5400		
	<u>5700</u>	
		5,700
		<u>26,700</u>

5) Technical Advisor

a) <u>Salary</u>		
4 quarters @ \$6,000	24,000	
5 quarters @ \$7,000	35,000	
4 quarters @ \$7,500	<u>30,000</u>	
	89,000	89,000
b) <u>Housing</u>		
36 months x \$500		18,000
c) <u>Transport</u>		
1) <u>Vehicle</u>		10,000
2) <u>Maintenance and Operations</u>		
\$100/mo = 300/quarter x 13		<u>3,900</u>
		<u>120,900</u>
		<u>554,550</u>

F. SHEEP PRODUCTION

1) Fencing

a) sheep wire 315 rods = 16 40-rod rolls @ \$65.00	=	1,040	
b) 320 posts @ 2.25		720	
c) Stays		50	
d) Barb wire (\$432.40)		432.40	
e) Shipping		<u>1,000</u>	
		3,242.40	
4 pastures/village x 8 villages + Seguenega farm = 33 pastures x 3,242.40 =		106,999.20	
plus misc. tools		<u>1,000</u>	
		107,999.20	TOTAL 108,000

2) Farm Facilities

a) Corral	25	
b) Manure Pit	100	
c) Silo	12	
d) Hayshed	<u>100</u>	
Per Farmer	237	
Times 10	2370/village	
x 8 villages =		18,960

3) Regional Equipment

a) Corral and Chute	1,000	
b) Dip Tank	<u>1,000</u>	
	2,000	
Two Installations		4,000

4) Tools for Farmers

a) Donkey Cart	145	
b) Donkey	40	
c) Hand Tools	<u>125</u>	
	310	
1/2 per farmer		
= 155 x 10 = \$1,550		
Times 8 villages =		12,400

5) <u>Forage Crops</u>		
\$145/hectare =		
\$1115/village x 8 =		8,920
6) <u>Fert. \$125/village/year</u>		
after first year		1,000
7) <u>Sheep</u>		
14 head/farmer x 10 x 8		
@ \$40/head		44,800
50 head for Center		2,000
8) <u>Wells</u>		
1/village + 1 at center		
\$4,000 x 9		36,000
9) <u>Facilities at Center</u>		
a) Shed	1,000	
b) Corral Chute	1,000	
c) Dip Tank	1,000	
d) Silo	500	
	<u>3,500</u>	3,500
10) <u>Tools and Equipment for Center</u>		2,500
11) <u>Mileage For Agents</u>		
4000 kms/quarter @ .05		
\$200/quarter x 15		3,000
12) <u>Personnel</u>		
a) Director = 80000 CFA/mo		
(includes benefits) = \$1,000 quarter		
x 15 =	15,000	
b) 1 Assistant = 40000 CFA/mo		
(includes benefits) = \$500/quarter		
x 13 =	6,500	
c) Laborer at Center = 20000 CFA/mo =		
\$250/quarter		
x 13	3,250	
	<u>24,750</u>	24,750

24,750

13. Vet. Supplies  
\$500/year x 3 years

1,500

14. Feed

Salt and minerals  
8000 lbs @ .46/lb.  
= 3,680

3,680  
275,010

G. POULTRY

1) Construction

a) 3 portable chicken brooders @ \$1,000	3,000
b) 4 portable community houses @ \$500	2,000
c) Laying House	6,000
d) Warehouse	15,000
e) Feed Center	20,000
	<u>46,000</u>

2) Equipment

a) Freezer & Refrigerator	1,500
b) Equipment-Feeders-etc.	2,000
c) Fencing	2,000
	<u>5,500</u>

3) Supplies

a) Vaccines	1,000
b) Feed	4,000
c) Chickens 1000 @ .75	750
	<u>5,750</u>

4) Personnel

a) Director - Poultry man \$300/month + benefits = \$1000/quarter x 15	15,000
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5) Credit

For farm program	5,000
	<u>77,250</u>

H. SUPPORT FOR VETERINARIAN SERVICES

1)	2 portable corrals and squeeze chutes @ \$5,000		\$ 10,000
	Shipping		5,000
2)	1 landrover		10,000
3)	1 trailer (local made)		1,500
4)	slaughterhouses, 6 @ \$6,250		37,500
5)	Veterinarian supplies, equipment		
	Refrigerators, 2 x \$800	\$1,600	
	Freezer, 2 x \$1,000	2,000	
	Small equipment--syringers, elastrators, dehorners, leaders, ropes, tatoes, knives, etc.	<u>5,000</u>	
		\$8,600	8,600
6)	Funds (revolving for supply of medicines)		12,000
7)	Materials to treat parasites		12,000
8)	1 truck		25,000
9)	Gas and oil for vehicles		<u>7,000</u>
	TOTAL		\$ 128,600

I. HEALTH

1) Buildings and Equipment

a) Seguenega health center

(1) Increase Dispensary	12,000
(2) Hospital rooms (6)	8,000
(3) Recuperation center	4,000
(4) Rebuild maternity/PMI	8,000
(5) Medical equipment and supplies	12,000
(6) 1 house	8,000
(7) 1 house	5,000
	<hr/>
	57,000

b) Village clinics (3)

(1) Repair three clinics	2,000
(2) Construction of hospital rooms	6,000
(3) Construction of 3-room PMI & 3 maternite	9,000
(4) Medical equipment and supplies	12,000
(5) 3 houses	15,000
	<hr/>
	44,000

c) New clinic

est. construction cost for new clinic at Ramsa (FY 1980)	44,000
	<hr/>
	44,000

d) Ambulance for sector

(1) vehicle	12,000
(2) Maintenance & operation 500 kms/month x .20 = \$100/month = \$300/quarter x 13	3,900
	<hr/>
	15,900

e) Maintenance, \$500/year/clinic x 4 years	8,000
2) Medicines (clinics, village workers, schools) \$5,000/quarter x 5	25,000
4,000/quarter x 4	16,000
3,000/quarter x 7	<u>21,000</u>
	62,000
3) Salaries -- Personnel -- Nurses	
4 at \$200/month = \$ 2,400/quarter x 4 quarters =	9,600
4 at \$250/month = \$3,000/quarter x 4 quarters =	12,000
5 at \$250/month = \$3,750 quarter x 5 quarters =	<u>18,750</u>
	40,350
Benefits @ 4%	<u>1,650</u>
	42,000
4) Travel support for nurses	
.05/km x 2,000 kms/month = \$100/month x 3 = \$300/quarter x 14	<u>4,200</u>
	4,200
5) Consultants	
3 x \$150/day x 21 days =	\$ 9,450
Transportation, 3 x \$2,000 =	6,000
Per diem, 3 x \$30 x 21 days =	<u>1,890</u>
	\$17,340
Prorated:	
Health =	10,000
Adult Literacy =	5,000
Animation =	<u>2,340</u>
	\$17,340
Three visits =	30,000

5) Technical Advisor

(a)	1 person at \$40,000/year to start	
	= \$10,000/quarter x 4 quarters	40,000
	second year, 1 @ \$44,000	
	+ 11,000/quarter x 5 quarters	55,000
(b)	Housing, \$1,666/quarter x 9	
	(build and furnish)	15,000
(c)	In-country travel	
	(1) Vehicle	10,000
	(2) Operation & Maintenance	
	\$100/month x 27 months	<u>2,700</u>
		122,700

7) Training

Village Volunteers

(a)	40 Volunteers/session + 8 staff	
	Food = \$1/day x 14 days x 48 =	\$672
(b)	Printing and Reproduction	
	\$5/trainee	= 200
(c)	Materials \$10/Trainee	= 400
6 Sessions (1 + 2 + 3)		<u>7,632</u>
TOTAL		\$ 437,432

J. EDUCATION

VOCATIONAL EDUCATION

1) Construction

a) Well-water system	10,000
b) Dormitorys	20,000
c) Office	25,000
d) Kitchen-dining	10,000
e) classroom buildings 2x10	20,000
f) Shops 2x10	20,000
g) Home EC-Women's Center	10,000
h) Meeting Center	20,000
i) Houses - 2x8	16,000
"    - 2x5	10,000
j) Community and Cooperation Center	20,000
	<u>181,000</u>

2) Vegetable gardens-Farm land	
2 hectare garden includes wells and fencing	25,000
	<u>25,000</u>

3) Materials-Equipment	
a) Class Materials	10,000
b) Equipment for Home and Business/ Secretarial	20,000
c) Equipment/Tools for shops	30,000
d) Materials for shops (wood-metal, etc.)	5,000
e) Oxen and Farm Machinery	5,000
f) Fencing Farm	10,000
g) Furniture - Office, Dorms, Classrooms, etc., includes A.V.	20,000
h) Fencing School	10,000
i) Kitchen and dining equipment	10,000
	<u>120,000</u>

4) Personnel	
a) Director 80,000 CFA/month = \$333 per month	
= \$1,000/quarter x 7	7,000
8 quarters at \$500/month	12,000
b) 4 Teachers. @\$200/month = 2400/quarter + benefits = \$2500 x 11 quarters	27,500
	<u>46,500</u>

5) Technical Advisor	
a) Salary	
Year 1 24,000	
Year 2 28,000	
Year 3 <u>30,000</u>	
	82,000
b) Housing \$500 month x 36 months =	\$ 82,000 18,000
c) Vehicle	10,000
d) Maintenance and Operation	
\$100/month	<u>3,600</u>

103,600

6) Education Support

a) student needs -- meals	
year 1 = \$2700/quarter	10,800
year 2 and after =	
4500/quarter	27,000
b) Office materials	
300/quarter	3,000
c) training materials	
500/quarter	5,000
d) Misc- maintenance, etc.	
300/quarter	3,000
	<u>48,800</u>

48,800

\$534,900

K. EDUCATION (OTHER)

PRIMARY EDUCATION

1) Repair nine existing schools @ \$1,000/school	9,000
2) Supply Furniture for Schools 20 classrooms @ 1250 each	25,000
3) Textbooks Approx., \$8/student x 1500	12,000
4) Supplies for schools, revolving fund	4,000
5) School Gardens, 9 @ \$6,250 each	56,250
6) Latrines, \$200/school x 9	1,800
	<u>108,050</u>

FUNCTIONAL LITERACY

1) Personnel		
a) Coord @ \$200/mo = \$600/quarter x 15	9,000	
b) 3 teachers (part-time) @ \$100/quarter = 300 x 12	<u>3,600</u>	12,600
2) Transportation		
.05/km mileage 1500 kms/quarter		
1st 3 quarters 3500 kms/quarters		
after 12 quarters		2,325
3) Set-up centers, village		
lamps, petronax, notebooks, pencils, blackboard, chalk, fuel, etc., \$100/center		
10 in ft 78 = 1,000		
20 in ft 29 = 2,000		
30 in ft 86 = 3,000		
	<u>6,000</u>	6,000
4) Special Training		
Courses for selected students after first year village vol.		
\$1/day meals = \$90/T		
\$5/T/session materials		
\$5/T/session Misc. Costs		
= \$100/Trainee/session		
FY 79 20T's x 00	2,000	
FY 80 40T's x 00	4,000	
	<u>6,000</u>	6,000
5) Materials at center (Seguenega)		
a) Reproduction machine 500		
b) Typewriter 300		
c) Furniture 1000		
d) Office Supplies 200		
	<u>2000</u>	2,000
e) Materials - paper, etc.		
\$100/Quarter x 14	1,400	
	<u>3,400</u>	3,400

3,400  
30,325

CENTERS FOR YOUNG FARMERS TRAINING

1) Equipment Centers	
360,000 CFA/Center = \$1,500 x 10	15,000
2) Young Farmers Pre-Cooperatives	
360,000 CFA/Coop = \$1500 x 10	<u>15,000</u>
	30,000

CONSULTANTS

Functional Literacy Consultants (refer to health budget above)	15,000
\$5,000 per year x 3 years	<u>          </u>
	\$ 183,375



2) Consultant

a) Salary

1 at 21 days per year  
@ \$150/day

4 years \$12,600

b) Per diem

\$30/day x 21 x 4 2,520

c) Air fare

4 x \$2,000 8,000

\$22,120

\$ 22,120

Equals \$5,530/year

M. SUPPORT OF ORD

1) Credit Fund for mobylettes		
\$400 purchase price, agent pays 1/4 down. Credit extended \$300 repayed over 3 years.		
Credit funds for 50 mobylettes 50 x \$300 =		\$ 15,000
2) Topographic equipment		7,500
3) Credit for agricultural equipment		10,000
4) Credit to equip masons, carpenters, blacksmiths, etc.		5,000
5) Wells section		
29 wells x \$4,000	\$116,000	
pumps, compressors, truck	65,000	
salaries 1 crew @ \$700 per qtr x 6	4,200	
1 1/2 crews @ \$1,000 per quarter x 7	7,000	
	<u>\$192,200</u>	\$192,200
6) Credit for housing throughout the sector		50,000
7) Truck		
purchase	\$ 25,000	
operation \$300/qtr x 15	4,500	
	<u>\$ 29,500</u>	\$ 29,500
8) Grain storage		
research & development	\$ 50,000	
test models	50,000	
	<u>\$ 10,000</u>	\$ 10,000
9) Water pumping		
pumps windmills animal traction devices research, development and testing costs		
		<u>20,000</u>
		<u>\$339,200</u>

N . DIRECT ADMINISTRATIVE SUPPORT

1) Project Administrator

1 year @ \$16,000  
1 year @ 18,000  
1 year @ 20,000  
9 mos @ 16,500  
          \$70,500

8 70,500

2) Secretary

1 year @ \$ 2,400  
1 year @ 2,800  
1 year @ 3,200  
9 mos @ 2,700  
          \$11,100

11,100

3) Housing, Project Administrator

\$500/mo x 45 months

22,500

4) Office

rental @ \$500/mo x 45 months

22,500

5) Office Supplies and Equipment

\$200/mo x 45

9,000

6) In-country Transport, Project Administrator

a) vehicle

7,000

b) gas & maintenance \$200/mo x 45

9,000

7) Overseas Travel

a) International travel  
15 people x 48 trips  
@ \$1,000/trip  
(includes home leaves)

48,000

b) emergency travel  
1 R.T./yr @ \$2,000

8,000

c)	per diem		
	(1) U.S. pre-departure		
	30 days		
	9 @ \$35/day	\$ 9,450	
	6 @ \$14/day	<u>2,500</u>	\$ 11,970
	(2) U.V. 30 days		
	9 @ 30/day =	\$ 8,100	
	6 @ 14/day =	<u>2,520</u>	10,620
d)	unaccompanied baggage		
	over 5 x \$1,000	\$ 5,000	
	return 5 x \$1,000	<u>5,000</u>	10,000
8)	Predeparture Expenses		
	a) storage \$1,500/yr/family		23,625
	b) language		
	5 x \$1,000		5,000
	c) U.S. travel		
	(1) transport 15 x \$200		3,000
	(2) per diem		
	15 x \$100 (3 days)		1,500
	d) medical exam 15 x \$100		1,500
	e) training 30 days 15 x \$1,000		15,000
9)	In-country Travel		
	away from site		
	est 20 days/staff member		
	per yr @ \$30/day		
	total: 315 days		9,450
10)	Education		
	\$1,000/year/child		
	9 fiscal qtrs @ \$1,500 =	\$ 13,500	
	6 fiscal qtrs @ 1,000 =	<u>6,000</u>	
		\$ 19,500	19,500
11)	Home Leave and Return		
	per diem		1,598
12)	Return Health Examination		
	15 x \$100		<u>1,500</u>
			\$321,863

O. HOST COUNTRY CONTRIBUTIONS

Personnel

ORD

Central

planning section	\$ 15,000
wells	20,000
drivers	6,000
livestock	4,000
youth section	2,000
admin	25,000
	<u>\$ 72,000</u>

Section

17 agents	\$ 20,400
livestock	6,000
	<u>\$ 26,400</u>

Education

central	\$ 12,500
sector	13,500
	<u>\$ 26,000</u>

Health

central	\$ 25,000
sector	7,200
	<u>\$ 32,200</u>

Public Works

\$ 50,000

Construction

planning & labor	\$ 500,000
office equip & supplies	40,000
repairs (garage & mechanics)	10,000

Training

in-service for personnel	50,000
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Travel and transportation

50,000

Land

Seguenega center	5,000
grazing (public lands)	200,000
	<u>\$ 855,000</u>

Village Labor

25000 x 10 days per year	
x 4 years = 1,000,000	
man days @ \$1.00/day	\$1,000,000

TOTAL CONTRIBUTIONS U.V.

\$2,061,600

P. THIRD PARTY CONTRIBUTIONS TO ORD

1) Voluntary Agencies	technicians	
Peace Corps - U.S.	10	
Dutch volunteers	2	
German volunteers	5	
French volunteers	2	
	<u>19</u>	
@ \$10,000/year each		\$ 760,000
= \$190,000 x 4		
2) FED - Common Market		
\$2 million support for		
ORD 1976 - 1980		\$ 2,000,000
3) Other Voluntary Agencies		
Church World Service, Oxfam,		
Catholic Relief Services, World Council		
of Churches		
Council of Churches		
sheep and pig production		
forestry		
vegetable production		
health (est)		\$ 400,000
4) Unicef - nutrition and		
recuperation centers (est)		100,000
		<u>\$ 3,260,000</u>

equally divided among 500,000 people  
@ \$6.52/capita x 110,000 in Seguenega  
= \$717,200 over 4 years