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ARUSHA REGION

INTEGRATED DEVELOPMENT PLAN

VOLUME FIVE

INFORMATION STRATEGY AND DOCUMENTATION

Prepared By
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With The Assistance Of
THE ARUSHA PLANNING AND VILLAGE DEVELOPMENT PROJECT

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18th December, 1982

During the four year period beginning in July 1979 Arusha Region has been assisted by the USAID-sponsored Arusha Planning and Village Development Project in the implementation of a large number of village development activities and in the preparation of the Region's Integrated Development Plan. It is a great pleasure to me that this Plan has now been completed and that I am able to write this short forward.

The Arusha Region Integrated Development Plan includes a comprehensive description of the current status of development in the Region, an analysis of constraints to future development, and the strategies and priorities that the Region has adopted for guiding its future development. It also includes a review of projects in the Region's Five Year Development Plan as well as priority projects for long term investments.

The preparation of the Plan has involved many meetings at the Regional, District and village level, and the goals, strategies, objectives and priority projects included in the Plan fully represent the decisions of the officials involved in those meetings. I am confident that the Plan will provide a very useful frame of reference for guiding the economic and social development of Arusha Region over both the medium-term five year period and the next 20 years. The total size of the identified projects and programmes is well beyond the normal scope of the financial resources of the Regional budget. Therefore, one function of this document is also to present the necessary facts and justification for attracting assistance from potential sources outside of the Region to carry out priority projects which address the specified development objectives of the Region. The Plan is by no means exhaustive, and there is room for interested organizations to explore other potential investments. Our Plan is therefore a base for future comprehensive planning.

I would like to take this opportunity to congratulate the Regional Planning Office staff and the team from Development Alternatives, Inc., which undertook the implementation of the Arusha Planning and Village Development Project, for their hard work and many accomplishments and to thank all those Regional Government, Ministry, Parastatal, and Party officials who, in one way or another, gave them the necessary assistance and cooperation.

J. A. Mhaville

REGIONAL COMMISSIONER
ARUSHA

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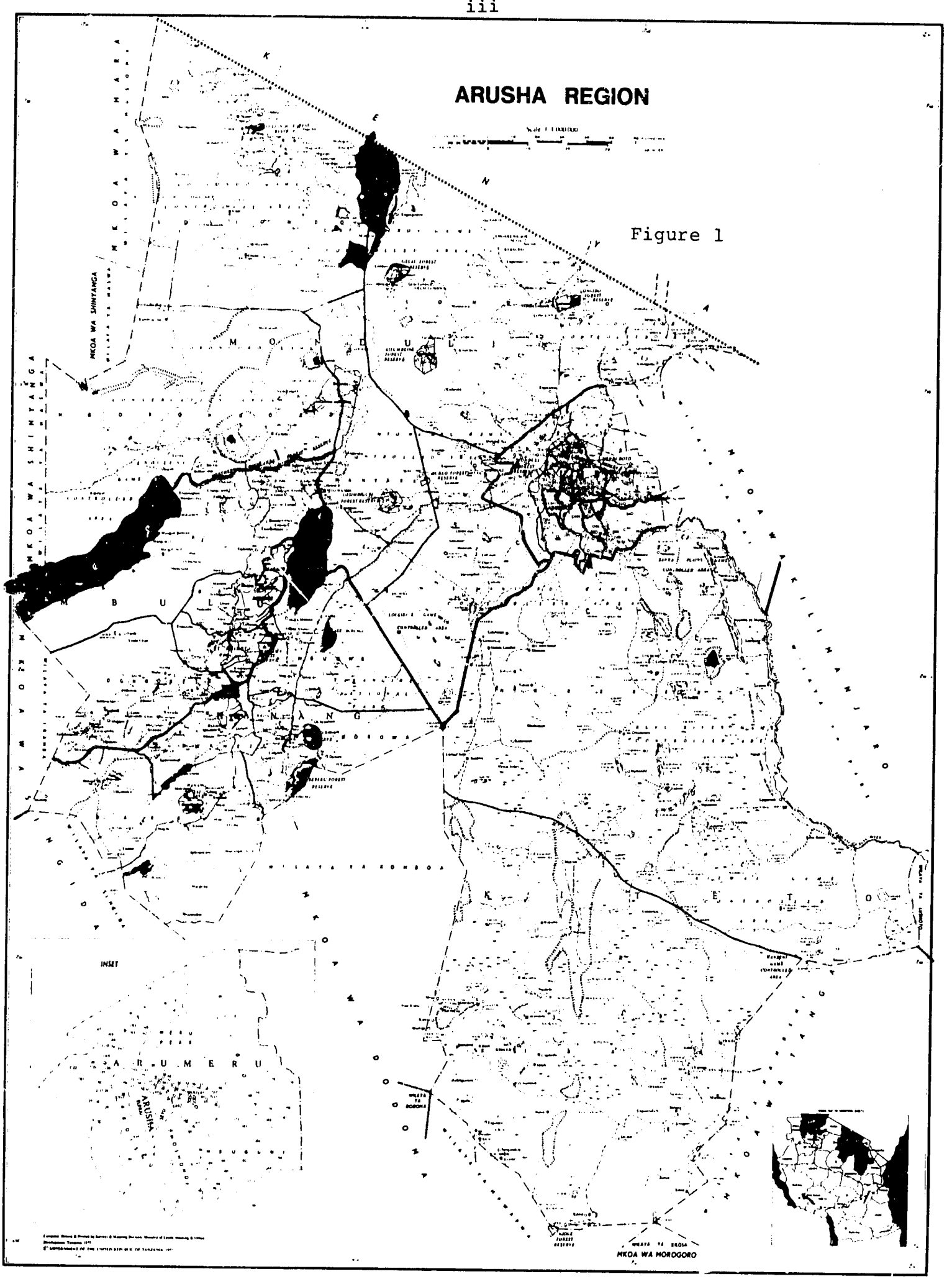
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ARUSHA PLANNING AND VILLAGE DEVELOPMENT PROJECT

Livestock, Wildlife and Land Use Survey, February 1980

ARUSHA REGION AND DISTRICTS

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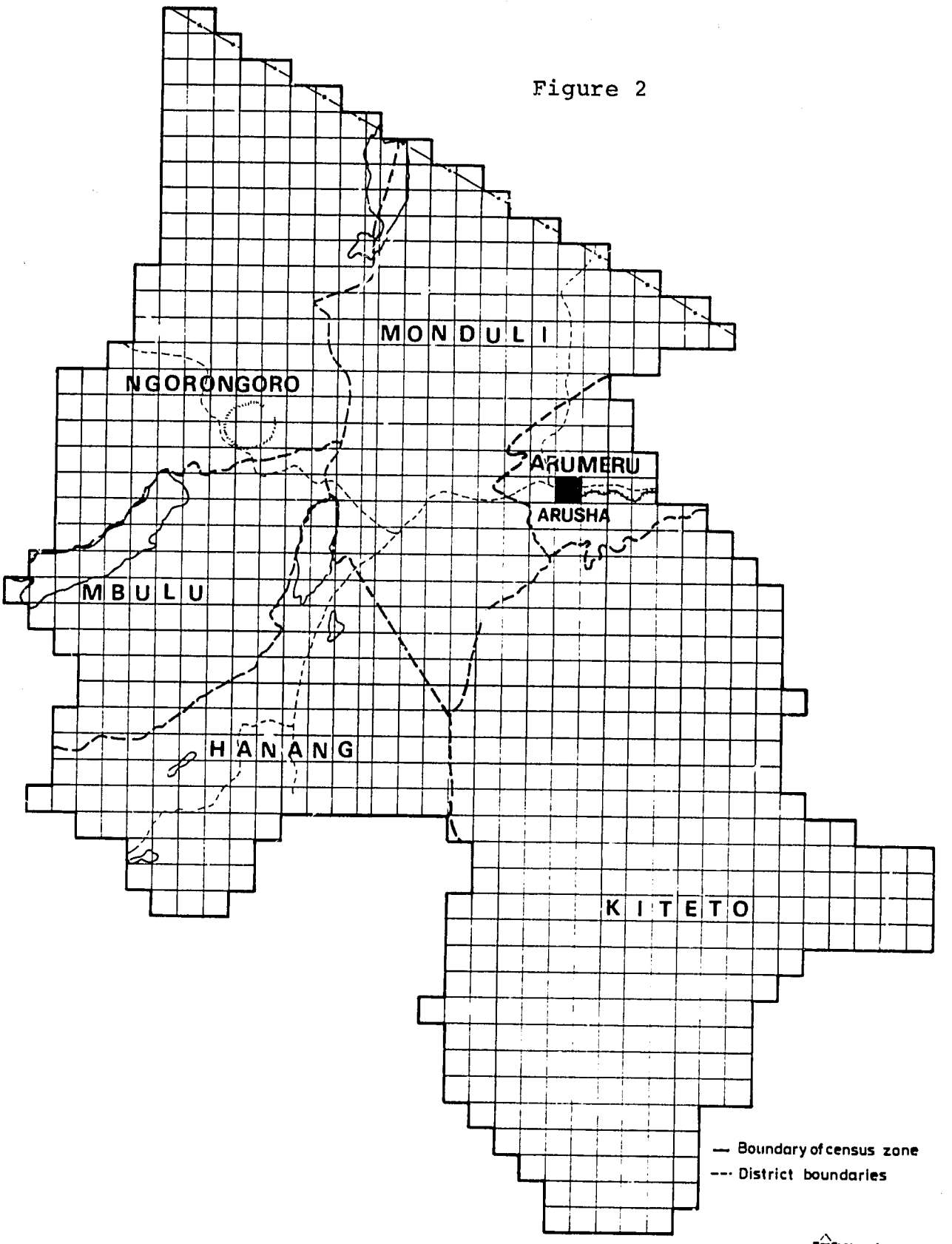

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PART ONE
INFORMATION STRATEGY

CHAPTER ONE
INTRODUCTION

The purpose of Volume Five of the Arusha Region Integrated Development Plan is to present the information strategy and documentation in support of the region's planning process. In addition to Volume Five, the plan includes:

- Summary Report: Arusha Integrated Development Plan;
- Volume One: Arusha Today: 1981, which outlines the current status, trends, and constraints in the region;
- Volume Two: Arusha Region: Development Strategies and Priorities for the Next 20 Years, which presents the region's main policy decisions to guide development to the year 2000;
- Volume Three: Arusha Region: Medium-Term Plan, which presents the projects for funding under the region's five year plan, including a detailed project proposal for the follow-on to the Arusha Planning and Village Development Project (APVDP); and
- Volume Four: Arusha Region: Long-Term Development Plan 1981-2000, which outlines the region's primary long-term investment objectives and project proposals to help achieve these objectives.

This planning exercise was supported by APVDP, which was initiated in July 1979. The project was sponsored by the Government of Tanzania and by the United States Agency for International Development (AID), with technical assistance provided by Development Alternatives, Inc. (DAI).

APVDP combined the process of regional planning with the simultaneous development and implementation of village income-generating and related development activities in the region's agricultural districts of Arumeru, Hanang, and Mbulu. The regional planning process provided a decision-making framework for

the region's future development, while the initiation of local development activities contributed to the quality of life in rural villages as well as added ideas and realism to the planning process.

DEFINING AN INFORMATION STRATEGY

Arusha Region has an area of about 82,000 km and a population of over 1 million people. Administratively, the region consists of seven districts (including Arusha town) with 463 villages. Starting with the Arusha Declaration, several government policies have been enacted that gradually devolve decision making to the region and its districts with the goal of improving the quality of life in rural villages. This devolution of decision making is particularly important in achieving this goal in an area such as Arusha Region, for the policy allows development activities to be tailored to the particular circumstances of its diverse agro-ecological zones, population, and ongoing development activities.

The design of APVDP was built on these policies and conditions, attempting to help the region formulate a long-term development perspective and at the same time address the particular development constraints of various localities. Formulating an information strategy that meets the decision-making requirements for accomplishing both aims posed special problems. At the outset of APVDP, two inter-related sets of information requirements were identified:

- The information required for the preparation of the Arusha Region Integrated Development Plan as a guide for intermediate- and long-term decision making; and
- The information required for the design, implementation, and evaluation of development activities in the districts of Arumeru, Hanang, and Mbulu.

Although inter-related, each set of information requirements called for different approaches to the collection, analysis, and dissemination of information in order to be useful for decision making. With the concurrent initiation of the regional planning exercise and of local development activities, there was a tension, sometimes creative and at other times conflicting, concerning what type, level, and amount of information is required for decision making to meet short- and long-term objectives.

Chapter Two will describe the information strategy used for the project, highlighting some of the lessons learned from this experience, and Chapter Three will present a framework for the future regional information strategy. Part Two includes an annotated bibliography of the documents prepared under APVDP, to facilitate future access to this documentation.

CHAPTER TWO
INFORMATION STRATEGY FOR REGIONAL PLANNING

The preparation of the Arusha Region Integrated Development Plan started in August 1979 and was approved in November 1982. As seen by the annotated bibliography, a massive data base was accumulated for regional and district decision making. This chapter examines the decisions, steps, and lessons that were part of this process. Particularly noteworthy about this process was that the region, through regular government forums and special workshops, decided what the process and content of planning should be, with the technical assistance team participating in these forums.

IDENTIFYING INFORMATION CENTER REQUIREMENTS

The information requirements for the regional planning exercise were established in large part by the planning process adopted by the region. This process was formulated through a comparative analysis of other Regional Integrated Development Programs (RIDEPs), study tours to four regions, and technical advice. The main elements of the strategy were:

- The planning process should be evolutionary. Rather than drawing a lengthy "blueprint" for development, the planning in the region would be done step by step, building on the lessons from project development and implementation and on problem-specific investigation and solution testing.

- The planning process should be based on a realistic assessment of the availability of future resources, with a major concentration on the better utilization of existing resources.

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- Decision making in the planning process should be done by regional and district government and party officials, with external technical assistance fully integrated into the planning structure and process.

Furthermore, in contrast to some other regional plans, it was decided that planning must examine the contributions of the parastatal and private sectors to regional development.

The definition of regional development goals provided yet another set of guidelines for the information strategy. The five specified goals were:

- Increase village self-reliance, as measured by an expansion of the capabilities of villages to solve their own problems;
- Improve equity, as measured by poorer areas receiving development benefits in a self-sustaining manner;
- Promote economic growth, as measured by increases in the gross national product and in the generation of foreign exchange earnings;
- Improve regional integration as measured by stronger linkages within the region (including commercial, institutional, and cultural) and by those with national and international sources of capital and markets; and
- Protect natural resources, as measured by the development of sustainable production systems.

These goals were considered by the region to be consistent with national goals. Although national policies and programs were viewed as important elements for decision making, the region decided that planning should be based on an assessment of current conditions and on what could be done to meet its development goals. Review of the consistency or inconsistency with national objectives would take place in the later stages of planning decision making.

Regional decision making forums recognized the diversity in the region, and after an examination of other RIDEPS, adopted Iringa Region's model, which involved the definition of planning units based primarily on agro-ecological zones. In doing so, the region emphasized that the basic development unit would be the village. The intent was to define planning units to facilitate the testing and introduction of appropriate solutions to development problems at the village level.

With the clarification of the planning approach, development goals, and main planning considerations, the information requirements for the regional planning exercises were outlined:

- Data on the physical environment for identifying major agro-ecological zones;
- Data on population growth and movement;
- Data on current village infrastructure, economic activities, and views about development potentials and constraints;
- Sector-specific background and assessment papers to identify problems and potentials; and
- Background papers that cut across sectors such as manpower, availability of financial resources, implementation problems, and historical factors that influence development.

Given the availability of APVDP resources, it was decided that information collection and analysis should be concentrated on the pilot districts and wards so that the use of these resources could be well planned. Additional information would be collected and analyzed as needed for broader decision making and with further information requirements being met for program and project development in other parts of the region as the planning process evolves.

ASSEMBLING AN INFORMATION BASE

With the definition of the parameters of the planning process and its information requirements, considerable efforts went into assembling that data base for regional decision making. The steps that went into this effort are outlined below, but it should be noted that most were initiated simultaneously.

Describing the Physical Environment

In accordance with the region's decision to define planning units based on agro-ecological zones, the region with the assistance of technical experts has developed a low-cost, multi-staged approach that includes:

- Computer-assisted enhancement of five Landsat images (covering 90 percent of the region) taken under the Maasai Range Project has been done under the sub-contract to the Environmental Research Institute of Michigan to delineate more clearly the major agro-ecological zones in the region.
- A slope-angles map of the region was prepared from 1:50,000 topographical maps.
- The region was divided into about 1,100 10-km squares and a low-level aerial census was conducted under sub-contract to Eco-Systems Ltd. that included wildlife, livestock, vegetation, physical structures, and land under cultivation by crop. During the aerial census, slides were taken of each unit. These slides added to the information base for defining agro-ecological zones.
- The above results combined with the findings of other surveys of soils and vegetation provided the University of Arizona and DAI specialists with the basis for preparing the land capabilities map that delineated 245 distinct agro-ecological zones in the region.
- Workshops were held with district officials to combine these zones into planning units, adding administrative, economic, social, and cultural factors.

- Color aerial photographs were taken for the APVDP pilot wards and parts of Arusha town to assist in land use planning at the village and ward levels.

The above work cost $120,000 and gave a detailed picture of the region; if the traditional method of earth satellite photos and ground truth survey work had been used, the cost would have been considerably more in terms of both money and time.

Describing Population Trends and Movements

With an understanding of the physical environment, the project has gathered and examined the data on population trends and movements. Using Government of Tanzania census data, the study shows high population growth rates, with an annual rate of growth of 3.8 percent for the region and with a district high of 5.5 percent in Hanang. In addition to helping to define planning units, the research dramatized the seriousness of current population pressures on land and has led to a policy decision by the region to focus on population problems. The data on migration were not available at the time of the study, so further analysis was done during the next year.

Gathering Village Data and Insights

Review of Existing Data

With the descriptions of the physical environment and population trends, the region decided to conduct a survey of villages to identify current activities and infrastructure, to find out about village perceptions and needs, and to gather further descriptive information. The first step was to review existing regional and district data, examining their adequacy for decision making, what information was already available, and what information should be collected. A sizable proportion of the government's development budget is usually set aside for survey

work; also there are national survey requirements such as the Community Development and Cooperative Development Division village questionnaire. This examination reduced the number of questions that were asked at the village level and provided an initial assessment of the conduct and use of past information activities.

Aerial Surveys

Because of the transport problem, few district officials had any idea of the size diversity of their districts. As an experiment, the project organized aerial surveys for senior district officials -- area commissioner, CCM district chairman, district development directors, district planning officers, and district functional officers. The flights over the district allowed them to examine population concentrations and village locations, land use and deterioration, and observable economic activities. The senior district officials and those concerned with the directly productive sectors (agriculture, livestock, and natural resources) were able to draw policy and program implications from the flights, but they were less valuable for those officials concerned with social services and economic infrastructure.

Village Profile

From December 1979 through April 1980, the village profile survey was conducted, with three aims:

- Collection of the data mentioned above;
- Strengthening the linkages between regional and district officials (on a cross-sectoral basis) through village-level data collection and analysis activities; and
- Involvement of villagers in the planning process through a problem and needs assessment.

A rapid reconnaissance survey methodology was employed, with a total coverage of 153 villages (out of 463 in the region). The breakout of the survey is as follows:

District	Villages	Percent of Villages in District
Monduli	18	44
Ngorongoro	15	48
Kiteto	20	44
Arumeru	32	23
Hanang	34	31
Mbulu	34	38

For purposes of village selection, the survey team, consisting of a coordinator, regional planning assistant, and one to four district officials, covered all of the villages in the APVDP pilot wards. These villages included those representative of the major agro-ecological zones initially identified through imagery processing of earth satellite photos, and those with special economic, social, and political characteristics as identified by district officials.

The survey team initially collected the information at the district level for each village (which at times was scanty) and then spent on average one day per village. Village meetings were organized by the village chairman or secretary, with most elements of a village participating (although there were difficulties in securing the involvement of women and certain minorities). Over 200 questions were asked and recorded, with at least as many follow-on questions; furthermore, through observation the survey team collected data on soils, physical infrastructure, and vegetation. The data were computerized and analyzed.

At a minimum, the village profile exercise helped bring realism into the district planning process, introduced new dimensions into the thinking of village members as they answered questions as a group (such as yearly birth and death rates), and provided some hard data that were useful in the sector assessments and background papers. For a comprehensive analysis of this approach, see The Village Profile Exercise: Background Information, Impressions and Perceptions (Peterson and Peterson, June 1980).

District Workshops

Another way of collecting and analyzing local information for planning and decision making was drawing on the knowledge of district government and party officials. In these workshops, the survey teams presented their findings from the village profile exercise, and then district officials added their knowledge and insight to help begin to identify development priorities.

Preparation of Sector Assessments

A major part of the regional planning exercise has been the preparation of sector assessments, which were grouped as follows, with a DAI staff person acting as coordinator:

- Natural Resources/Tourism;
- Agriculture and Livestock; and
- Industry/Service.

Considerable data collection and analysis have taken place, with different models used for the preparation of these assessments. As indicated above, primary attention was devoted to the APVDP pilot wards (as was done with the land use planning village profile) but with consideration of other major potentials and

constraints in the region. The annotated bibliography indicates the extent of this work, so here the concentration will be on describing the different models applied and tested.

Consultation Model

This is the model that has been traditionally used in other RIDEP's and development efforts. An outside expert reviews the existing information base and then interviews government and other officials to assess problems and to formulate recommendations. This model was used in the preparation of the wildlife, tourism, mineral resources, and fisheries sector assessments, with the result of quality papers that serve as a reference for decision making. However, the shortcoming of this approach is that government officials do not have an opportunity to think through problems and possible solutions, learning from the technical expert and then taking initiatives on their own.

Collaboration Model

In contrast to the consultation model, this approach emphasizes joint (at the region and district) problem definition and solution formulation. Working together, the technical expert and appropriate government officials examine policies and programs with an aim toward modification and improvements. This was done in the livestock and soil conservation assessments, with the result of quality papers that have already proved to be a basis for regional and district action.

Local Study Model

This model consists of hiring local Tanzanians with expertise on specific problems or sectors. Detailed terms of reference are drawn up with the local researchers who then conduct the study with periodic reviews by the region and by longer-term technical assistance staff. This model was employed for the rural indus-

tries and transportation studies, with the result of somewhat academic papers but ones that capture the thinking of local officials. The studies provide significant evidence for decision making, at a low cost in funds but slightly more in terms of time.

Of particular interest is the methodology used for determining roads priorities. The University of Dar Es Salaam transport economist developed sets of economic and equity indicators, which were given weights in order to pose a decision-making formula for regional and district officials. With a decision by the Regional Planning Committee on the weighting (or criteria for decision making), it was then possible to move to a second phase of actual road selection in accordance with available resources.

Workshop Model

This model was tested late in the regional planning exercise and involved bringing together all the functional officers in a specific sector (forestry) to examine problems and potentials. A technical expert helped prepare the agenda, pull together necessary data, and acted as a resource person and recorded for the workshop. The expert prepared the final report, using the findings of the workshop. This model allowed a sharing of knowledge and provided an agreed-upon framework for future development activity in the sector.

Regional Officer Assessments

Each regional functional officer was asked to prepare a paper that outlined past and current activities, major problems or constraints to development, and changes needed in policy. Each officer was to address how existing resources can best be utilized and what additional information and new projects are needed. The functional officers had available the results from the earlier sector assessments. The use of these results and the quality of the papers varied significantly, with the best results achieved

when a longer-term technical adviser was working directly with the staff of the regional functional officer. This approach, like the workshop model, allowed government officials to set their agenda for the future.

It is not possible to evaluate fully the different models at this time, but indications are that the more collaborative models will result, at least in the short term, in more direct action.

Cross-Cutting Issue Papers

A preliminary analysis identified several issues that were important across sectors and that deserved more thorough analysis for policy decision making. Examples of such papers are:

- Historical papers covering such subjects as land tenure and use, farming systems, resource conservation were prepared. The value of these papers were twofold: the first was an understanding of historical trends (which is important for regional and district officials because many are new to the region), and second, the papers signaled technologies and approaches (low cost) which could be tested in the future.

- A 900-page detailed analysis of the region's manpower was done which identified the problems and potentials for the better utilization of existing resources.

- The analysis of financial resources available to the region provided the basis for proposals of national policy changes such as an increase in the 10 percent of the development budget now available to the region as well as for understanding the resource limitations over the next five years.

- The assessment of the past implementation experience of the region (under the Third Five-Year Plan) allowed a clarification of the implementation problems.

Several other background papers were prepared on subjects such as village organization, the role of women, and the region's development goals. This work continues but with a more specific,

regionally defined problem focus; current studies under way include an analysis of financial institution's decision making and of the availability of fuels and petrol.

REGIONAL PLANNING DECISION MAKING

The 18 months of information collection and analysis resulted in significant documentation for policy, program, and project formulation. As studies were completed, these were given wide distribution to regional and district. From the initiation of the planning exercise, about 40 regional and district workshops and meetings were held. In addition, progress and problems have been discussed on a regular basis in Regional Development Committee, Regional Management Team, District Development Committee, and District Management Team meetings. The scope of work for any study were reviewed and approved by the Regional Planning Office. These efforts were designed to insure full involvement in the planning exercise.

Because of the mass information gathered and analyzed, the region decided that special institutional arrangements were necessary and formed regional and district planning committees, consisting of senior government, party, and parastatal officials as well as DAI staff and the appropriate members of Parliament. These planning committees were seim-permanent bodies for preparation of policy and planning recommendations and of evaluations of alternatives and progress toward achieving the region's develpment goals. Their recommendations formed the basis for decision making by the regular regional and district structure and processes.

To develop strategies and priorities for the future: The following steps were taken:

- The findings of the sector and background papers were summarized and translated into Swahili as resource material for regional and district decision making.
- With these materials and based on local knowledge, district strategy and priority papers were prepared under the supervision of district planning committees.
- A regional cross-cutting issues paper was prepared to highlight problems and potentials.
- With the assistance of the sector assessments and supporting documentation, each regional functional office, in consultation with district functional staffs, prepared sector policy and program recommendations.
- From the regional and district documents outlined above, the main policy and program recommendations were summarized.

The regional planning committee reviewed the main policy and program recommendations, debated these at length, modified and approved a set of policy decisions for future planning and development in the region. These policy decisions were presented in Arusha Region: Strategies and Priorities for the Next 20 Years (Volume Two), and the analysis of the current development status, potentials, and constraints was presented in Arusha Today: 1981 (Volume One). The regular regional forums then met, reviewed, and approved these papers for submission to the prime minister's office for final approval.

The next step was to prepare the medium-term or five year plan for the region, in which the policies adopted were used to guide planning. This was followed by the preparation of the long-term or 20-year plan, where investment objectives were made more specific and proposals developed for realizing the region's development goals.

LESSONS FROM THE REGIONAL PLANNING EXERCISE

The overall regional planning exercise cost about $1.5 million, and the benefits of this investment will not be known for some time. It does appear that an evolutionary approach to planning is less costly and probably more attuned to decision making than an attempt to develop a "blueprint" for development in the region. The question then becomes one of how much information is actually needed for decision making, given the various administrative levels and the diverse conditions in the region.

The first requirement was sufficient information for formulating long-term policies and for actually securing the support necessary for making decisions. For example, while most regional and district officials recognized the importance of the problem of population growth and the resulting land pressures, the collection and analysis of large amounts of data provided the evidence needed for making some difficult policy decisions. There are several other examples where the detailed data collection and analysis allowed policy decision making, particularly in regard to finance, manpower, and sector priorities. This information has also facilitated the formulation and approval of various projects and different regional programs. This early evidence suggests that the information plan developed in August 1979 was sound, but an analysis of the benefits of these activities in relation to their costs must wait for a period of years.

If the same experience were repeated, a number of things would be done differently. The information activities would have been sequenced in the following way:

- Describe the natural environment to define agro-ecological zones;

- Analyze population trends and movement with these zones;
- Assess sectors to determine current status, major problems and potentials, and, most important, unknowns;
- With a knowledge of the planning units, population and major sectoral "unknowns," conduct a village survey or profile; and
- Identify the cross-cutting issues and problems and prepare background papers on these.

The above seems quite rationale, but there are tradeoffs. The rapid and simultaneous initiation of all of the above information activities resulted in high regional and district interest, allowed an information base for decision making to be pulled together rapidly, and established he parameters for future planning quickly. If the process had been slowed and sequenced, more effective training could have taken place.

More specifically, some lessons were:

- Decision makers should define the terms of reference for any information activity and the external expert (local or other) should conduct his research on a collaborative basis.
- Rapid survey methods (well-developed) cut time and costs and should be used for future analysis and decision making.
- The methodologists that merit further testing are:
  - The approach to defining planning units and the methodologies involved and how they can be improved;
  - The approach for establishing road priorities, with weighting systems to provide a basis for decision making;
  - The collaborative approach and its variations for effectively using external assistance;
  - The value of decision-making workshops as a method for training and for deciding what should be done;

- The importance of analyzing existing information and how the current structure and procedures can be made more effective; and

- The need for immediate feedback to the providers of information so that they have the knowledge to improve their own decision making.

Most of the above concerns are directed toward increasing the region's own planning and development decision-making capabilities. This is possible only if sufficient time is allowed for both planning and training. One problem in the design of APVDP was that only one year was alloted for the planning effort. This time period therefore forced a greater reliance of external assistance than was desirable for helping to upgrade the skills of regional and district officials. A more realistic time schedule would have been the length of the project, about four years. With this schedule, then greater attention could have been paid to developing government information gathering and analysis and other planning skills.

INFORMATION ACTIVITIES IN SUPPORT OF DEVELOPMENT ACTIVITIES

In addition to the regional planning exercise, feasibility studies and project proposals were developed to promote local development activities.

Under APVDP, 181 local development activities were undertaken, ranging from training and infrastructure development to loan investments in directly productive activities. The second set of information requirements were for the design, management, and implementation, and monitoring and evaluation of these activities, concentrated in the agricultural districts of Arumeru, Hanang, and Mbulu. These development activities were initiated simultaneously with the regional planning exercise.

The rationale for initiating local development activities at the same time as the regional planning exercise were twofold: first, it was seen that the regional planning exercise would provide a framework for dev lopment decision making and the actual development experience would add reality to the planning exercise. Second, these activities would provide an opportunity for improving the production and quality of life in rural villages. At the time of project preparation, the key areas for improvement were identified.

- Finding ways to increase village capabilities to identify and solve local development problems;
- Establishing a set of decision-making criteria for project approval that helps ensure that regional development objectives are achieved and the requirements for support in the Project Agreement are met;
- Developing a project preparation format and procedures that allow decision making on the above criteria and help to ensure that the benefits of the development effort are self-sustaining;
- Strengthening the technical support and information flow to facilitate the implementation of the development activities;
- Establishing a sound implementation plan with activities, timetable, and responsibilities specified so the specific development effort can be effectively monitored; and
- Instituting project-specific and comparative evaluations for diagnosing and correcting ongoing development activities.

Through the organization of APVDP and a definition of information requirements, these questions were addressed in the course of the project. Documentation of the structure and process as well as individual project profiles are found in Part Two.

CHAPTER THREE
RECOMMENDATIONS FOR AN INFORMATION STRATEGY IN SUPPORT OF FUTURE REGIONAL DEVELOPMENT

INTRODUCTION

Information activities require time, people, and other resources. In other words, they are expensive and should not be undertaken unless their benefits outweigh their costs. Information has no benefit unless it is relevant to policy questions and is used by policy makers. The level of resources available for development in the Arusha Region is severely constrained at this time. The question of whether to adopt new or different information activities to support development should be considered in the context of alternative possible development applications of these monies.

In these circumstances, it is clear that the region simply cannot afford to put many resources into information activities. Indeed, every attempt should be made to cut back on information activities that are not absolutely crucial to regional development. If new information activities are seen crucial, every effort should be made to build on existing information so that the additional costs are only marginal. The information needed by the region to support development can be categorized under three major headings:

- Information to provide a development perspective;
- Information to support policy, program, and project development; and
- Information to monitor and evaluate development activities.

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This paper will describe how the region stands on each of these categories; it will also set forth a plan for the future information activity of the region.

PROVIDING A DEVELOPMENT PERSPECTIVE

Over the last three years the region has, with the assistance of APVDP, amassed a large amount of information on the region.[1] While this work is not complete, it has been adequate to provide the region with a sound basis for an overall development strategy. This strategy has and will continue to be reflected in budgeting submissions and future planning exercises, for the region views planning as a continuing activity.[2]

Now, however, emphasis should shift even more from work that provides a broad development perspective to work that directly supports policy, program, and project development. This change of emphasis does not mean all of the prior perspective-building activities should stop. The region, for example, cannot engage in meaningful integrated planning if it does not know what other major development actors are planning to do. Today the region and districts receive little information on the development plans of the line ministries and parastatals until after its budgetary and planning exercises have been completed. The region should petition the prime minister's office to hold preliminary meetings at which the line ministries and parastatals will be asked to outline their future plans of activity in the region.

POLICY PROGRAM AND PROJECT DEVELOPMENT

The regional planning activities have provided a framework for policy programs and project development in the region. The time has come to focus information activities on implementing these findings.

Policy and Program Development

The region sees that highest priority should go to the collection of information needed for the formulation of development policies and programs. The emphasis should be on answering a set of specific program questions that are critical to region and district decision making. The following represents a preliminary list of questions to be addressed:

- What options are available to increase production of estate farms?
- What farm management practices should be employed in various areas of the region?
- What are the benefits and costs of NAFCO expanding its wheat production schemes into new lands in the Hanang District?
- Does salinization present a danger for the International Labor Organization-sponsored irrigation scheme?
- If MAJI were to concentrate on low-cost shallow well installations, could it maintain its existing rate of new installations and have money left over to increase significantly its efforts to rehabilitate the existing system?
- What are the potentials for fish production in the major lakes of the region?
- At what rate are the region's forest reserves being depleted?
- At specific locations within the region, are economic returns likely to be higher for agriculture or livestock activities?
- What new strategies should be employed to increase the effectiveness of agricultural and livestock extension activities?

The region cannot afford to study all important policy questions within coming years. Once the list has been expanded and refined, however, work should start immediately on issues

considered to be of highest priority. Such studies should be organized and carried out under the direction of the Regional Planning Office. While the study strategy should be customized to the issue in question, the general approach should be to assemble a three- or four-person team to conduct the study. Ideally, the team will be made up of appropriate functional officers under the direction of the Regional Planning Office. Then a concentrated attack can be made on each issue that will usually require two to four weeks of full time attention. Most of the work should be conducted on field trips to the areas where the issue is most pressing.

Project Development

Regional planning activities to date have indicated that the introduction of "bottom up" land use planning exercises that start by concentrating on specific geographic areas holds the key to the development of the region. Such land use planning activities have been started in every district of the region. Each district is following its own approach, and these will be closely monitored by the Regional Planing Office. These planning activities will undoubtedly generate a large number of technical questions. Much of the technical knowledge needed to be address these questions already exists with the region's cadre of technical officials. New strategies are needed and should be developed to make better use of this pool of expertise. Also, the region's Resource Center should play an increasingly important role in providing needed technical assistance. In the next few years, it will develop linkages with national and international technical information centers. Of perhaps greatest importance, the Resource Center should continue to develop an outreach program to acquaint government officials at all levels with the types of information that can be made available upon request.

In the last few years, the region and districts have experimented with various training methods. Some have proven extremely effective while others have been excessively expensive and time consuming. In future years, the region's training activities should be expanded, emphasizing training for lower-level government officials. New efforts will be undertaken to train cadres or paraprofessionals. These low cost, junior workers, who will be recruited from villages, will be provided to assist government officers in carrying out their duites.

The ultimate test of these land use planning activities is whether they generate sound, well-documented proposals for development projects. The Regional Planning Office already has formats for project design documentation. These formats require an implementation plan and a designation of who is responsible for implementation to specify and increase accountability. If maximum benefit is to be derived from these efforts to improve project proposal documentation, the regional officials must have time to review them carefully as to soundness and "fit" with regional policies and priorities.

The regional planning activities have identified a number of larger projects that are candidates for foreign private and public funding. A preliminary listing of these projects include:

- A large irrigation scheme;
- Planning and village development activities for the Maasai districts;
- An experimental project to provide water to 70 villages that have no apparent source for improved water;
- Agriculture and livestock farming systems research;
- A lime processing plant;
- A salt production scheme;

- An animal-seed processing plant; and
- Glass production.

Each of these projects requires further investigation before it is ready for presentation to outside donors. Attempts should be made to obtain outside funding for a series of feasibility studies for public and private support.

MONITORING AND EVALUATION

The region has a responsibility to ensure that its development initiatives are properly implemented and that they are having the desired effects. To ensure that development activities are properly implemented, the region must engage in monitoring activities; to ensure that these initiatives have the desired longer term impact, the region must engage in evaluation activities.

Monitoring

At present, all projects are monitored on a quarterly basis until they have been completed. The reporting requirements are not burdensome, and they provide important information. The region should require all projects -- including those financed by foreign donors -- to conform to these reporting requirements.

While this system works satisfactorily during project implementation, there is a real need to expand monitoring beyond the physical completion stage to guard against breakdowns and to ensure that projects are being used for intended purposes. The government cannot afford to extend its monitoring activities for now. However, efforts should be undertaken to develop simple arrangements whereby villages, on a self-help basis, provide information to higher level government authorities when problems arise.

Credit is the one area in which the region's project monitoring activities should be expanded. There is an increasing number of projects in the area that involve loans to groups or individuals for specified purposes. It is essential to have an accurate record of repayment rates on these loans. APVDP has developed a reporting system on repayment rates, and following further refinements, the region should introduce similar reporting requirements for all of its credit programs.

Evaluation

Two types of evaluation activities are needed. The first should provide the region with a general set of indicators on development progress. The second set of activities are project specific.

Development Indicators

Since a primary purpose of the regional and lower level governments is to foster development in the region, it would seem appropriate for there to be some growth information available. Indeed, the guidelines for the preparation of the 1981-1982 regional estimates call for such information.

> Every district and Region should prepare a programme of collecting and keeping data from each sector. The data should include those of previous and coming years. They should be kept carefully for future use. The data should be used to measure district and regional stage of development in order to know the contribution of each project/programme or sector financially or servicewise. (p. 2)

While a broad array of development indicators exists, the most important indicators for the region are agriculture and livestock production levels. At present, the only available data on these levels are based on what is marketed through official

channels. This information is seriously deficient because it does not include the large volume of produce sold through unofficial channels. For example, Sargent has estimated that 1979-1980 actual crop production was probably 70 percent greater than the official estimates.[3] If anything, the situation in livestock is even worse. The official estimates are not complete and are even then based on a myriad of questionable assumptions.

As important as such development indicators would seem to be, the region does not see such data as important enough to warrant the massive data collection effort that would be required to obtain comprehensive and accurate information. For the time being, it will have to rely on official marketing information and qualitative information from agriculture and livestock field extension agents. However, in an attempt to move ahead in these areas, two actions are needed. First, some experimental work should be initiatied with local extension agents in an attempt to come up with inexpensive proxies for the needed information that would improve upon the existing state of affairs. Second, efforts should be made to obtain outside funding to undertake more significant efforts in these areas. Possibilities include the World Bank Livestock System Project, USAID's Small Farmers Marketing Access and Farming Systems Research Projects.

Project Evaluation

Efforts to evaluate the longer-term impacts of projects are time consuming and expensive. The region will not have the resources to evaluate all of its projects in the foreseeable future. In recognition of this fact, an alternative strategy should be pursued. As was mentioned earlier, the Regional Planning Office should engage in a set of critical "issues studies" over the next few years. In a very real sense, these studies will be evaluations. That is, they will usually involve assessing existing or planned developing initiatives against other options.

In addition to doing the policy issue studies, the Regional Planning Office should continue to undertake project-specific evaluations. These evaluations should focus on a set of projects with similar purposes. For example, a study might be done on the impact of introducing grain-grinding mills. The study would review the impact at each site and draw up a series of recommendations that might call for changes in the program. As another example, recent courses might serve as the basis of a similar examination.

NEW INFORMATION PROCEDURES

In Arusha Region, the demands for information activities far outstrip the region's abilities to satisfy them. Because of this, the critical component in the region's information strategy should be the following process for deciding on the initiation of any information activity:

- Information needs should be specified, including a detailed description of what data are needed and how they are to be utilized;
- Existing information should be reviewed and used whenever possible;
- Only when available information is not adequate should new data collection and analysis be proposed; and
- Data collection and analysis techniques should be described along with a budget for any new activity being proposed.

The regional planning officer should then review the benefits and costs of each proposal. In doing so, consideration should be given to the possibility of cost-savings that might result from the consolidation of various information activities.[4] In every

case, the regional planning officer must weigh the benefit of the information activity against the benefit that could result if the resources needed for the information activity were used to satisfy more immediate development needs.

SUMMARY

The region recognizes that information activities are costly and that it faces severe budget constraints. New and existing information activities must therefore compete with other development activities for the limited funds available. Consequently, the region should pursue an eclectic information strategy -- that is, no large-scale information system activities are foreseen. Instead, the region should engage only in information activities that are required to deal with problem-specific questions, with an emphasis on using cost-effective activities to address these questions. With this strategy, the region will gradually increase its capabilities for information gathering and analysis, thus providing an excellent foundation for more intensive activities as development resources increase or special funding is made available for information activities.

NOTES

1 See Annnotated Bibliography for a complete listing of their work.

2 For a statement of the region's planning philosophy, see "Resources for Development" section -- Arusha Region Today -- 1981.

3 Merritt Sargent, "Agriculture and Livestock Production in Arusha Region: An Agricultural Economic Perspective," October 1980.

4 In the 1980-1981 development estimates for four village surveys were proposed costing in aggregate 1.4 million Tsh. (tsetse fly survey, livestock irrigation survey, potable water survey, and a village area survey). It is probable that with some consolidation, these information needs could have been met at a significantly lower cost.

PART II

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ARUSHA PLANNING AND VILLAGE DEVELOPMENT PROJECT DOCUMENTATION

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3) Formal Private Industry in the Arusha Region: A Survey -- Peter Schaefer, March 1980. (p. 178)

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b) Hanang District Long Term Development Strategy, December 1980. (pp. 277-278)

c) Kiteto District Development Planning Framework for 1981/82 and the Future 5 and 20 years. Issues, Strategy and Supporting Action - Area Commissioner's Office, January 1981. (pp. 279-280)

d) Mbulu District's Development Issues and Strategies - District Planning Committee, January 1981. (pp. 281-282)

e) Monduli District Development Issues, Strategies and Actions for the next 5 to 20 Years - Area Commissioner's Office, January 1981. (p. 283)

f) Ngorongoro District Long Term Development Strategies and Supporting Issues. (p. 284)

10. SEMINARS, PLANNING WORKSHOPS, PLANNING COMMITTEE MEETINGS (pp. 285)

a) Seminar on Data Analysis and Development Planning Report - Lewis, Brandford, Jones, August 1980. (p. 287)

b) Workshop on RIDEP/Arusha, September 1979. (p. 288)

c) Manyara Workshop Papers, October 1979. (pp. 289-292)

d) Ngorongoro District Planning Workshop Report - Neal Cohen, January 1980. (p. 293)

e) Maoni na Maelekeo yaliotokana na kukusanya Takwimu na Maarifa Kutoka Vijiji vya Wilaya ya Kiteto (Kiteto District Planning Workshop Report) - D. Peterson and T. Peterson, February 1980. (In Swahili). (pp. 294-295)

f) Minutes of Regional Planning Committee Meeting, 9-11 February 1981. (English and Swahili). (p. 296)

g) Report of a Study Tour Undertaken by Arusha Regional Team in Botswana, February 25-March 14, 1981.

11. REGIONAL AND DISTRICT PROJECT PROFILES (p. 297)

A. Regional Projects (pp. 299-310)

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1	Region	Regional Planning Activities (pp. 299-300)
2	Region	Facilitator Training Model Seminar (p. 300)
3	Region	Workshop on Data Analysis and Planning (p. 300)
4	Region	Graduate Training program /Regional Planning (p. 301)
5	Region	Themi Farm Implement Company (p. 301)

6	Region	Improvement of Regional Veterinary Services (p. 301)
7	Region	Procurement of 35 Landrovers (p. 302)
8	Region	Procurement of 10 Isuzu Lorries (p. 302)
9	Region	Procurement of 120 Motorcycles (p. 302)
10	Region	Regional Well Drilling Equipment Spare Parts (p. 303)
11	Region	Construction of Regional Warehouse/Garage (p. 303)
12	Region	AATP Technical Development Project (p. 303)
13	Region	Spider Tractor Testing Program (p. 304)
14	Region	Agricultural Implements Research/Development (p. 304)
15	Region	Regional Pest Control Program Support (p. 304)
16	Region	Resource Center in Regional Planning Office (p. 305)
17	Region	Computer Center in Regional Planning Office (p. 305)
18	Region	Training of Shallow Wells Survey/Construction Unit (p. 306)
19	Region	Tanga Region Study Tour For Planners (p. 306)
20	Region	Study Tour to Botswana (p. 307)
21	Region	Regional Soil Conservation Workshop (p. 307)

22	Region	Regional Irrigation Seminar (p. 307)
23	Region	Regional Community Development Seminar (p. 308)
24	Region	Regional Cooperative Development Seminar (p. 308)
25	Region	Study Tour to Agricultural Research Stations (p. 308)
26	Region	Kiteto Land Use Planning Seminars (p. 309)
27	Region	Regional Organic Agriculture Seminar (p. 309)
28	Region	Reading University Livestock Course (p. 309)
29	Region	Cornell University Communications Seminar (p. 310)
30	Region	Procurement of Regional Radio System (p. 310)
31	Region	Fruit Tree Up-Grading, Horti-Tengeru (p. 310)

B. Arumeru District Projects (pp. 311-323)

Project Number	District	Project Name
1	Arumeru	Ngarenanyuki Irrigation Rehabilitation (p. 311)
2	Arumeru	Maroroni Irrigation System (p. 311)
3	Arumeru	Pilot Agricultural Extension Program (p. 311)
4	Arumeru	Agriculture Field Staff Training (p. 311)
5	Arumeru	Irrigation Pump Procurement (p. 312)
6	Arumeru	Agriculture Field Staff House (p. 312)

7	Arumeru	Maize Production Seminars (p. 312)
8	Arumeru	Kisongo Dip Rehabilitation (p. 312)
9	Arumeru	Repairs to Livestock Dips (p. 313)
10	Arumeru	Livestock Field Staff Training (p. 313)
11	Arumeru	Spray Race Attendants House (p. 313)
12	Arumeru	Pilot Livestock Extension program (p. 313)
13	Arumeru	Grass Seed Multiplication plots (p. 314)
14	Arumeru	Olkokola Tree Nursery (p. 314)
15	Arumeru	Lekitatu Fishpond (p. 314)
16	Arumeru	Forestry Field Staff Training (p. 314)
17	Arumeru	Fisheries and Beekeeping Field Staff Training (p. 315)
18	Arumeru	Pilot Beekeeping Project - Nduruma (p. 315)
19	Arumeru	Village Tree Nurseries (p. 315)
20	Arumeru	Soil Conservation Seminars (p. 315)
21	Arumeru	Soil Conservation - Musa and Mwandet (p. 316)
22	Arumeru	Olkokola Land Use Planning Program (p. 316)
23	Arumeru	Ngarenanyuki Ox-Cart Production Unit (p. 316)
24	Arumeru	Uwiro Maize Mill (p. 317)

25	Arumeru	Ngabobo Maize Mill (p. 317)
26	Arumeru	Kisimiri Maize Mill (p. 317)
27	Arumeru	Samaria Maize Mill (p. 317)
28	Arumeru	Sakila Maize Mill (p. 318)
29	Arumeru	Kikwe Ward Building Brigades (p. 318)
30	Arumeru	Kiranyi Brick and Tile Production (p. 318)
31	Arumeru	Makumira Bakery (p. 319)
32	Arumeru	Lands Department Equipment Procurement (p. 319)
33	Arumeru	Kisongo Roads Base Camp (p. 319)
34	Arumeru	District Housing Construction and Repair (p. 319)
35	Arumeru	Field Staff Bicycle Purchase Scheme (p. 320)
36	Arumeru	Sakila Pump Attendants House (p. 320)
37	Arumeru	Community Development Assistants Training (p. 320)
38	Arumeru	Village Godowns (p. 320)
39	Arumeru	Ox-cart Purchase Scheme (p. 321)
40	Arumeru	Olkokola Borehole Water Supply (p. 321)
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42	Arumeru	Kikatiti Borehole Water Supply (p. 321)

43	Arumeru	Shallow Wells Survey and Construction (p. 322)
44	Arumeru	Village Water Supply Technician Training (p. 322)
45	Arumeru	Karangai Pipeline Rehabilitation (p. 322)
46	Arumeru	Sakila Gravity Water Supply Rehabilitation (p. 322)
47	Arumeru	Sambasha Gravity Water Supply Project (p. 323)
48	Arumeru	Oldonyosapuk Hydraulic Ram water Supply (p. 323)

C. Hanang District Projects (pp. 324-334)

Project Number	District	Project Name
1	Hanang	Pilot Agricultural Extension Project (p. 324)
2	Hanang	Qameyu Women Farmers Group (p. 324)
3	Hanang	Barley Production (p. 324)
4	Hanang	Training of Agricultural Extension Staff (p. 325)
5	Hanang	Oil Seed Production (p. 325)
6	Hanang	Magugu Irrigation Survey (p. 325)
7	Hanang	Magugu Irrigation Project (p. 325)
8	Hanang	Mapea Coconut Nursery (p.326)
9	Hanang	Groundnut Purchase Scheme (p. 326)
10	Hanang	Ox-Plough Purchase Scheme (p. 326)

11	Hanang	Livestock Extension Program (p. 326)
12	Hanang	Qash Cattle Dip Attendant's Quarters (p. 327)
13	Hanang	Pasture Grass Seed Production (p. 327)
14	Hanang	Livestock Extension Staff Training (p. 327)
15	Hanang	Tsamasi Cattle Dip Improvement (p. 327)
16	Hanang	Nangwa-Dirma Livestock Watering Project (p. 328)
17	Hanang	Forestry Extension Program (p. 328)
18	Hanang	Hanang Forestry Project (p. 328)
19	Hanang	Village Tree and Fruit Nurseries (p. 328)
20	Hanang	Fruit Tree Nurseries (p. 329)
21	Hanang	Gallapo Fishpond (p. 329)
22	Hanang	Bassotu Fish Receiving Center (p. 329)
23	Hanang	Training Course for Forestry Extension Staff (p. 329)
24	Hanang	Fisheries Training Seminar (p. 330)
25	Hanang	Training in Project Planning for Women (p. 330)
26	Hanang	Bookkeeping Training for Village Women (p. 330)
27	Hanang	Training Seminar for Village Accountants (p. 330)

28	Hanang	Gedemar Oil Seed Press (p. 330)
29	Hanang	Madunga Kati Maize Mill (p. 331)
30	Hanang	Madunga Kati Wood-Working Project (p. 331)
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32	Hanang	Qameyu Wood-Cutting Group (p. 332)
33	Hanang	Magugu Maize Mill and Rice Huller (p. 332
34	Hanang	Village Maize Mill (p. 332)
35	Hanang	Ayamango Maize Mill (p. 332)
36	Hanang	Kizakiba Ox-Cart Factory (p. 332)
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38	Hanang	Hanang Extension Transportation Project (p. 333)
39	Hanang	Shallow Wells Survey and Construction (p. 333)
40	Hanang	Ring Wells Survey and Construction (p. 333)
41	Hanang	Katesh Gravity Water Supply Rehabilitation (p. 333)
42	Hanang	Gallapo Gravity Water Supply Rehabilitation (p. 334)
43	Hanang	Village Water Supply Technician Training (p. 334)

D. Mbulu District Projects (pp. 335-348)

Project Number	District	Project Name
1	Mbulu	Labay Crop Storage Facility (p. 335)
2	Mbulu	Maghang Crop Storage Facility (p. 335)
3	Mbulu	Agriculture Training and Extension Support (p. 335)
4	Mbulu	Soil Conservation/Land Use Planning Karatu (p. 335)
5	Mbulu	Pilot Agricultural Extension Program (p. 336)
6	Mbulu	Dongobesh Oil Seed Production Project (p. 336)
7	Mbulu	Dongobesh Ox Plough Training (p. 336)
8	Mbulu	Murray Women's Vegetable Production Project (p. 337)
9	Mbulu	Mbulu Fruit Tree Orchard and Demonstration Facility (p. 337)
10	Mbulu	Dongobesh Pig Multiplication Unit Support (p. 337)
11	Mbulu	Training for Veterinary Center Attendants (p. 338)
12	Mbulu	Training Course for Dip Attendants (p. 338)
13	Mbulu	Moringa Village Slaughter Facility (p. 338)
14	Mbulu	Village Grass Seed Multiplication Plots (p. 339)
15	Mbulu	Cattle Dip Construction, Moringa Village (p. 339)

16	Mbulu	Training for Livestock Field Staff (p. 339)
17	Mbulu	Pilot Livestock Extension project (p. 340)
18	Mbulu	Karatu Slaughter Facility (p. 340)
19	Mbulu	Dongobesh Slaughter Facility (p. 340)
20	Mbulu	Livestock Disease Prevention Program (p. 341)
21	Mbulu	District Tree Planting (p. 341)
22	Mbulu	Dongobesh Fruit and Forest Tree Nursery (p. 341)
23	Mbulu	Murray-Kainam Fruit and Forest Tree Nursery (p. 342)
24	Mbulu	Daudi Ward Beekeepers Training Project (p. 342)
25	Mbulu	Daudi Ward Fruit and Forest Tree Nursery (p. 342)
26	Mbulu	Hayloto Village Fishpond (p. 343)
27	Mbulu	Forest Tree Seed Purchase and Distribution (p. 343)
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31	Mbulu	Dongobesh Ox-Cart Production Unit (p. 344)

32	Mbulu	Tlawi Tile Production Project (p. 345)
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34	Mbulu	Kuta Village Maize Mill (p. 345)
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36	Mbulu	Training for CDA's and Village Leaders (p. 346)
37	Mbulu	Shallow Wells Survey and Construction (p. 346)
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39	Mbulu	Yaeda Chini Gravity System Rehabilitation (p. 347)
40	Mbulu	Harsha Gravity Water System Rehabilitation (p. 347)
41	Mbulu	Upper Kitete Gravity System Rehabilitation (p. 347)
42	Mbulu	Kilima Tembo Gravity System Rehabilitation (p. 347)
43	Mbulu	Training of Village Water Technicians (p. 348)
44	Mbulu	Murray-Kuta Community Center (p. 348)
45	Mbulu	Maretadu Bridge Construction Project (p. 348)
46	Mbulu	Construction of Grade 'B' House, Mbulu Town (p. 348)

E. Roads Projects (pp. 349-353)

Project Number	District	Project Name
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2	Hanang	Single-Gallapo-Mamire-Babati Road (29 miles) (p. 349)
3	Hanang	Babati-Nakwa-Riroda Road (10 Miles) (p. 349)
4	Hanang	Bashnet-Madunga Kati Road (11 Miles) (p. 350)
5	Hanang	Gitting-Endasak Road (8 Miles) (p. 350)
6	Hanang	Bashnet-Ufana Road (10 Miles) (p. 350)
7	Mbulu	Karatu-Mbulu-Dongobesh-Hanang Border Road (81 Miles) (p. 351)
8	Mbulu	Dongobesh-Haydom Road (30 Miles) (p. 351)
9	Mbulu	Oldeani-Mang'ola Road (30 Miles) (352)
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11	Mbulu	Mbulu-Kainam-Hayloto-Murray Road (15 Miles) (p. 352)
12	Arumeru	Tengeru-Mbguni Road (22 Miles) (p. 353)
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APVDP ANNUAL PLANS

1.a. Arusha Planning and Village Development Project, First Annual Plan, July 1979 - July 1979 - June 1980 (46 pages)

The Arusha Planning and Village Development Project is designed to integrate the process of bringing developmental change to rural villages with the preparation of a regional plan that will provide a decision-making framework for the assessment and initiation of future development activities.

The project has four major components:

- Strengthening the planning, implementation, and evaluation capabilities at the regional, district and village levels;
- Improving agricultural production;
- Identifying and promoting other economic activities; and
- Improving the social and economic infrastructure directly related to productive activities.

Working through the existing institutional structure of the Tanzanian Government, the project will attempt to define and implement a rural development strategy and action program that ensures the flow of development benefits to rural people in a self-sustaining manner.

The purposes of this first annual work plan are twofold. The first is to describe in sufficient detail the activities of the project during its first year to allow the obligation of FY79 funds by AID/Tanzania. The second purpose is to provide an initial planning document as a basis for discussing and refining project approaches and activities. Orginally several months were programmed for the development of this work plan, but due to delay in project start-up it was done over a three-week period.

By component, the work plan describes proposed activities, along with a budget for their implementation. These costs are consolidated into a project budget, which constitutes the request for FY79 funds. The annexes provide the documentation necessary to meet AID funding requirements.

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1.b. Arusha Planning and Village Development Project, 2nd Annual Work Plan, July 1980-June 1981, May 1980 (103 pages)

The main objectives of this Second APVDP Annual Plan are to briefly assess progress to date in each of the main project components, and from the lessons learned, to identify areas of concentration for the coming fiscal year. Further, the plan provides a budget for the projected FY1980 obligation by AID of $4,353,000 (Tsh 34,824,000). It also highlights areas of assistance from the Government of Tanzania for the achievement of the project objectives.

To carry out the activities for the First Annual Plan and to cover longer-term funding commitments, AID obligated $7,320,433 (Tsh 59,295,507) as of FY79. During this first year, in accordance with the First Annual Plan, APVDP has concentrated its initial efforts on planning. The region set forth a strategy for preparing the regional plan, which it is now implementing. This strategy has involved the definition of agro-ecological zones as planning units, a survey of 189 villages (about 40 percent of the villages) to determine current stage of development and potentials for and obstacles to development, the holding of preliminary district planning workshops to identify cross-sector priorities, the preparation of sector assessments, and the compilation of background information on factors (such as availability of funding) that influence the development process. Major research and preliminary drafts of papers will be completed about the end of June, to be followed by a review and by an intensive analysis for strategy and program formulation.

Concurrent to the regional planning exercise, initial approaches to village development have been tried in the 12 pilot wards of the three project districts - Arumeru, Hanang, and Mbulu. The dialogue with these villages (and wards) has resulted in the identification and first funding of development activities falling in the directly productive sphere. Initial road rehabilitation is under way using labor intensive methods, with the bulk of the roads equipment scheduled to be in the districts by mid-June. Preliminary surveys of water systems development potential have been conducted, and a shallow wells survey and construction program planned.

The Second Annual Work Plan includes a separate chapter outlining the year's work plan for each of the four major project components, a preliminary list of district projects, and a detailed budget for Project Funding for FY 1980.

1.c. Arusha Planning and Village Development Project, Third Annual Plan Submission, July 1981-June 1982 (Supplement to the Arusha Regional 1981/82 Annual Plan Submission), March 1981 (44 pages)

The Third Annual APVDP Work Plan consists of five components.

- A detailed briefing paper prepared for the Regional Development Director and the joint AID/Government of Tanzania Evaluation Team describing the progress of the project to date (June 1981) and highlightining future priorities.

- A summary description of the status of the district and village development activities funded by the project as of June 1981.

- A summary evaluation of project activities that highlight lessons learned so far, generally and under specific components (including specific district and village development activities for which there is sufficient history to begin to draw some conclusions). This document refers to the joint AID/Government of Tanzania midterm evaluation of APVDP and the Information Strategy paper, which present more in-depth assessments. Combined they constitute the requirement for an evaluation of current activities.

- A supplement to the Regional 1981/82 Annual Plan that describes the activities to be funded by APVDP and the rationale behind these decisions.

- A list of the proposed district and village development projects (with dollar amounts), which require AID certification, along with one-page summaries of these projects.

The total cost of the village development activities to be funded in the three project districts -- Arumeru, Hanang, and Mbulu -- is $1,011,738 (Tsh 8,296,250) including projects in the following sectors: Livestock, Agriculture, Works, Water, Natural Resources, and Ujamaa and Cooperative Development. The total budget for APVDP for 1981/82 including local currency and foreign exchange costs is Tsh 25,942,250 ($3,163,689).

Highlights of the APVDP Second Annual Plan period include significant progress in the regional planning exercise as well as in the development and testing of approaches to district and village development. The main shortcomings were progress on the roads component with higher costs and less progress tl anticipated for various reasons and on the development of ag. altural activities due to macro-policy constraints and to the initial planning orientation of the project.

The Third APVDP Annual Plan takes account of the project's past implementation experience and the policy decisions made during the regional planning exercise. It was also recognized that APVDP funds are limited, necessitating a determination of which activities APVDP would fund and implement directly and which ones APVDP would use its resources for the preparation of project proposals and for securing external (that is, foreign donor and other) funds.

The policy decisions of the Regional Planning Committee may be divided into four categories:

- Land use planning, including consideration of pressures resulting from population growth;
- Emphasis on directly productive activities;
- Better utilization of existing resources; and
- Generation of new resources.

Broken out by these categories, the Third Annual Plan outlines priorities for the 1981/82 fiscal year, followed by a detailed statement of activities and financial requirements.

1.d. Arusha Planning and Village Development Project, Fourth Annual Plan 1982/83, March 1982 (81 Pages)

The APVDP Fourth Annual Plan consists of three major components:

1. A review of the status of current activities of APVDP, including both general APVDP planning and training activities as well as the specific village and district activities supported by the project.

2. An evaluation of the current activities supported by APVDP, drawing lessons from the joint AID/Government of Tanzania midterm evaluation of APVDP, a paper on Information Strategy prepared in May 1981, and direct evaluation of the progress of APVDP projects during the past year. This evaluation covered both the four major components of APVDP as well as a detailed consideration of the role of planning and evaluation in the identification of future development activities, including identification of projects for the 1982/83 Annual Plan, the design of a follow-on project to APVDP, and the leveraging of APVDP financial and technical resources.

3. Identification of new activities for the Fourth (1982/83) APVDP Annual Plan. The plan detailed specific village and district activities to be supported by APVDP in the three project districts -- Arumeru, Hanang, and Mbulu. The total budgeted for village and district projects was $510,060 (Tsh 4,259,000) including projects in the following sectors: Livestock, Agriculture, Works, Water, Natural Resources, and Community Development and Cooperatives. These projects were also included in the region's 1982/83 Annual Plan. Section Three also included one-page summary descriptions of each of the projects to be supported by APVDP.

   The total APVDP 1982/83 budget including local currency costs and foreign exchange amounted to Tsh 13,937,700. The Government of Tanzania contribution for 1982/83, inlcuding trust fund payments for technical assistance, support for roads personnel, and APVDP administrative support after January 1, 1983, amounted to Tsh 1,888,500.

ARUSHA REGION INTEGRATED DEVELOPMENT PLAN

2.a. Arusha Region Integrated Development Plan: Summary Report (125 pages)

This Summary Report discussed the findings of the five volumes that make up the Arusha Region Integrated Development Plan as well as the 350 supporting documents prepared under APVDP. The five volumes are:

- Volume One: ARUSHA REGION TODAY: 1981, which focuses on the current development status, trends, and constraints in the region;

- Volume Two: ARUSHA REGION: DEVELOPMENT STRATEGIES AND PRIORITIES FOR THE NEXT 20 YEARS, which presents the region's main policy decisions to guide development to the year 2000;

- Volume Three: ARUSHA REGION: MEDIUM-TERM PLAN 1981/82-1985/86, which outlines the projects for government and donor funding under the region's five year plan, including a detailed proposal for the follow-on project to APVDP;

- Volume Four: ARUSHA REGION: MAJOR AREAS FOR LONG-TERM INVESTMENTS, which presents the long-term investment goals for the region, critical medium-term projects that require external funding, long-term project proposals, and the ideas to be developed; and

- Volume Five: INFORMATION STRATEGY AND DOCUMENTATION, which includes an analysis of the information strategy for development decision making in the region and an annotated bibliography of the documents prepared under APVDP.

Arusha Region is located just south of the equator, near Mt. Kilimanjaro, in north-central Tanzania. The region covers 82,428.5 sq km and has a population of more than 1 million people, almost 95 percent of whom are dependent on the region's natural resources for their livelihood. The region is endowed with natural beauty; diverse topography; varied climate and vegetation; and potential to develop its agriculture, livestock, and natural resources.

The Arusha Declaration, a national policy of agrarian-based socialism as a model for development, was proclaimed in the region. The policy's principal goal is to improve the quality of life in rural villages. To attain this goal, the government has devolved responsibility for development decision making to lower administrative levels, increasing local government responsiveness to the particular needs of rural villages. In support of this

devolution of authority, the government has initiated Regional Integrated Development Programs (RIDEPs), funded by external donors, to improve the efficacy of planning and development activities.

In July 1979, the Arusha Planning and Village Development Project was initiated to:

- Help the region prepare its long-term development plan; and

- Test and carry out development activities in the directly productive sectors of agriculture, livestock, natural resources, and rural industries and in the supporting economic infrastructure through improved rural water supply and road systems.

The planning exercise provided a framework for the region's development decision making, and the implementation of development activities added realism to the region's planning and helped provide the knowledge for future project development. APVDP was a four-year, $21 million effort ($14.5 million from donors and $6.5 million from the government); it was sponsored by the Government of Tanzania and by the United States Agency for International Development (AID). Primary implementation responsibility for the project was contracted to Development Alternatives, Inc. (DAI), a U.S.-based rural development research and consulting firm.

Arusha Region is endowed with rich natural resources. Almost 95 percent of its population is dependent on its land and water for survival and improved quality of life. At the outset of its planning and development effort, Arusha Region defined five main development goals:

- Village self-reliance;

- Improved equity;

- Economic growth;

- Regional integration; and

- Protection of natural resources.

The region undertook an extensive planning effort. It complemented this effort with the testing and implementation of development activities, primarily in the three agricultural districts of Arumeru, Hanang, and Mbulu. Based on these efforts, Arusha Region identified a set of policy strategies to guide its development:

- Strategy One: Integrated development activities that emphasize village-level land use planning and reduce population growth rates;

- Strategy Two: Highest priority given to directly productive activities;

- Strategy Three: More efficient use of existing manpower, equipment, materials, and finances in support of regional development activities; and

- Stategy Four: New efforts to obtain additional resources for development.

These strategies were incorporated into the region's medium-term (five year) plan. For the long-term plan (20 years), the region identified eight long-term investment objectives, highlighting the medium- and long-term projects that required external funding. These objectives and estimated funding requirements in millions of Tanzanian shillings are as follows:

- Objective One

  Increase food crop supplies to feed adequately the growing population of Arusha Region and to continue to provide a surplus for national consumption in a self-sustaining way.

Medium-Term Plan	Long-Term Plan
79.5	559.0

- Objective Two

  Develop the livestock industry for local and national consumption and for export.

Medium-Term Plan	Long-Term Plan
52.5	425.0

- Objective Three

  Generate revenue, including foreign exchange, and employment through export crops, tourism, and industries that add value to the region's natural resources.

Medium-Term Plan	Long-Term Plan
20.6	3,160.0

- Objective Four

Develop and maintain a communications network that contributes to economic development.

Medium-Term Plan	Long-Term Plan
44.8	394.4

- Objective Five

Establish and maintain water supply systems to promote productivity and quality of live in rural villages.

Medium-Term Plan	Long-Term Plan
36.0	360.0

- Objective Six

Increase the availability of energy supplies through the development of forestry, hydroelectric, and other resources.

Medium-Term Plan	Long-Term Plan
16.0	367.0

- Objective Seven

Develop the capabilities of district councils and villages to make investments that improve self-reliance and the quality of live in villages.

Medium-Term Plan	Long-Term Plan
35.4	352.0

- Objective Eight

Improve and protect the environment of the region for accomplishing the above objectives through the conservation and better use of its natural resources and the slowing of its population growth rates.

Medium-Term Plan	Long-Term Plan
137.5	38.0

TOTALS:	Medium-Term Plan	Long-Term Plan
	420.0	5,502.4

The projects included for external funding consist of Tsh 422.3 million for medium-term projects (which lay the groundwork for long-term development) and Tsh 5,655.4 million for long-term projects. These represent major investments that will help the region realize its development goals.

2.b. Volume One: Arusha Region Today; 1981 (66 pages)

Volume One of the Arusha Region Integrated Development Plan focuses on a description of the current development status, trends, and constraints in Arusha Region.

Arusha Region is situated just south of the equator in the north-central part of Tanzania. The region is endowed with great natural beauty; diverse topography, climate, and vegetation; and potential for the development of its agriculture, livestock, and natural resources.

Tanzania became an independent country in 1961, and Arusha was established as a separate region in 1963 (Annex A includes an historial chronology of Arusha Region). Since independence, the Government of Tanzania has adopted agrarian-based socialism as a model for development. Its main goals are the elmination of privilege and exploitation and improved quality of life for rural villages. To accomplish these goals, the government has intitiated a program of villigeization to improve local decision making and access to government services, the concept of ujamaa where rural villages share in the process and benefits of development, and the decentralization of authority so that government is more responsive to the needs of rural villages. The underpinnings of the government's philosophy of development were articulated in the Arusha Declaration in 1967.

This document sets forth where Arusha Region is today; it begins with a statistical summary of Arusha Region and its six rural districts -- Arumeru, Hanang, Kiteto, Mbulu, Monduli, and Ngorongoro. It then reviews the natural resources of the region, taking into consideration current population growth trends and the resulting land pressures. A detailed description is provided of current development activities in each of the sectors, followed by an analysis of the resources available for the development of the region.

2.c. Volume Two: Arusha Region: Development Strategies and Priorities for the Next 20 Years (64 pages)

Volume Two of the Arusha Region Integrated Development Plan presents the region's main policy decisions to guide development to the year 2000.

The integrated regional development planing exercise for Arusha Region commenced with the intitation of the Arusha Planning and Village Development Project. Sponsored by the Government of Tanzania and the United States Agency for International Development, this project combines the process of regional planning with the simultaneous development and implementation of local income-generating and related activities. The regional planning process provides a decision-making framework for the region's future development, with the initiation of local development activities adding ideas and realism to the planning process while contributing to the well-being of rural villages in the region.

The region sees the planning process as evolutionary; lessons and knowledge from past implementation experience will contribute to the development of future priorities, programs, and projects. Also the region recognizes the importance of macro-economic factors that will affect the availability of resources for the future. Considerable research and discussions have taken place over the past 20 months, culminating in a set of policy decisions which will provide a framework for future planning and development.

This volume begins with an analysis of the planning process that was followed and that led to the policy decisions and strategies. It then includes a macro-economic overview of the national and regional economic situation within which these policy decisions were made and must operate. Finally it includes a detailed discussion of the major strategies which were adopted by the region, and the 30 specific policy decisions that were adopted. These are organized according to the four main strategies that incorporate the policy decisions:

STRATEGY ONE:	Integrated development activities that emphasize village-level land use planning and reduce population growth rates.
STRATEGY TWO:	Highest prioity given to directly productive activities.
STRATEGY THREE:	More efficient use of existing manpower, equipment, materials, and finances in support of regional development activities.
STRATEGY FOUR:	New efforts to obtain additional resources for development.

2.d. Volume Three: Arusha Region: Medium-Term Plan 1981/82--1985/86 (166 pages)

Volume Three of the Arusha Region Integrated Development Plan covers the Medium-Term Plan for the five-year period 1981/82 to 1985/86. It has two components:

1. The Fourth Five Year Development Plan 1981/82 - 1985/86, Arusha Region.

2. The Arusha Rural Productivity Project.

The Fourth Five Year Development Plan 1981/82-1985/86 for Arusha Region was prepared by the Regional Development Directorate and approved by the Regional Development Committee at a meeting on January 13, 1982; it was subsequently approved by the government. The plan includes a review and evaluation of the implementation of the Third Five Year Development Plan in Arusha Region and details the projects to be carried out during the Fourth Five Year Plan for each of the sectors. The total budgeted for the Fourth Five Year Development Plan is Tsh 331,610,900.

The Arusha Rural Productivity Project is a four-year development program designed to improve the productivity and well-being of the villagers in the six rural districts of Arusha Region. This project is a follow-on to the Arusha Planning and Village Development Project sponsored by the Government of Tanzania and by the United States Agency for International Development. It is a proposal for foreign donor funding, and is thus an amendment to the Fourth Five Year Plan, specifiying a series of integrated sub-projects under the Five Year Plan to be implemented using foreign donor funds. The total budget for the Arusha Rural Productivity Project is Tsh 203,751,680.

2.e. Volume Four: Arusha Region: Major Areas for Long-Term Investments (178 pages)

The purpose of Volume Four of the Arusha Region Integrated Development Plan is to outline the major areas for investment over the next 20 years. Volume Four builds upon the findings and development decisions incorporated in Volumes One to Three. Within the development framework established by the region, this part of the plan outlines the region's critical investment objectives and the priority projects and project ideas for accomplishing these objectives. As a prelude to the long-term projects, a quick review is made of the critical medium-term projects under each development objective to give the background for the long-term projects and to show the basis that is being laid for them during the medium-term plan.

In the process of preparing its long-term plan for the next 20 years, the region has defined a set of investment objectives that take account of the main strategies for regional planning and development set out in Volume Two and the findings of its planning process and development experience. These specific investment objectives include:

- Increase food crop supplies to feed adequately the growing population of Arusha Region and to continue to provide a surplus for national consumption in a self-sustaining way.

- Develop the livestock industry for the purposes of local and national consumption and export.

- Generate revenue, including foreign exchange earnings, and employment through the production of export crops, tourism, and industries that add value to the region's natural resources.

- Develop and maintain a communications network that contributes to economic development.

- Establish and maintain water supply systems to promote productivity and the quality of life in rural villages.

- Increase the availability of energy supplies through the development of forestry, hydro-electrical and other resources within the region.

- Develop the capabilities of district councils and villages to make investments that improve self-reliance and the quality of life in villages.

- Improve and protect the environments of the region for accomplishing the above objectives through the better use and conservation of its natural resources and the slowing of its population growth rate.

In the following sections of this part of the plan, the region briefly analyzes each objective, identifying the anticipated contribution from the five year plan (highlighting projects that still require external funding), and presents the long-term investment proposals and ideas to be developed for its long-term development. A total of 32 medium-term projects are identified requiring external funding of Tsh 422.3 million; and 32 long-term investment proposals are identified and summarized requiring a total of Tsh 5,655.4 million. These represent major potential investments that will help the region to realize its development goals.

2.f. Volume Five: Information Strategy and Documentation (235 pages)

Volume Five of the Arusha Region Integrated Development Plan includes an analysis of the information strategy for development decision making in the region along with an annotated bibliography of the documents prepared by APVDP.

The first part of the volume analyzes the information strategy followed by APVDP and the lessons that have been learned by the region for its future information activities. It defines the role of an information system in development planning and administration, and describes the process followed by the region with assistance from APVDP in assembling a data base for the preparation of the Integrated Development Plan.

One of the key accomplishments of APVDP has been to assist the region to put together a comprehensive data base for regional planning. This data base, along with analysis of issues and recommendations, is incorporated in the 350 documents prepared under APVDP. The second part of this volume presents an annotated bibliography of the documents prepared by APVDP, divided into the following categories:

1. APVDP Annual Plans
2. Arusha Region Integrated Development Plan
3. APVDP Progress Reports
4. Issue Papers
5. Issue Paper Summaries
6. Regional Sector Papers
7. General Policy Papers
8. Evaluation Papers
9. District Strategy and Priority Papers
10. Seminars, Planning Workshops, Planning Committee Meetings
11. Regional and District Project Profiles

APVDP PROGRESS REPORTS

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3.a. <u>First and Second Quarter Progress Report</u> July 9-December 1, 1979 (14 pages)

I. Preparation of First Annual Work Plan; approval in September at Arusha Workshop.

II. Management and administrative systems developed including financial management and accounting, vehicle control, procurement and logistics.

Once numbers I and II were done numbers III and IV could proceed.

III. At the Arusha Workshop it was decided to approach preparation of Regional Integrated Development Plan through the following steps:

A. Analysizing regional planning in Tanzania through study forms and reviewing other regional plans -- Iunga, Kilimanjaro, and Linde.

B. Defining planning units by agro-ecological zones.

C. Gathering and examining data on population trends and movements.

D. Emphasizing the process of preparing district development plans, with district workshops to determine priorities and how they could be integrated into the plan.

E. Collecting data and analyzing them.

1. Assemble and assess available data and form Regional Resource and Data Center.

2. Develop data collection instruments -- village profile village, survey, and log.

F. Preparing sector assessments that evaluate past development efforts and future potentials and constraints in agriculture and livestock, natural resources, and industries and services.

G. Preparing background papers -- history, financial resources, regional integration, and parastatals.

H. Formulating a training program.

IV. Implementation of village development activities at Monyara Workshop by decisions made on policies and procedures for supporting village development activities.

3.b. Third Quarter Progress December 1, 1979 - March 30, 1980 (21 pages)

I. Preparation of the regional plan -- assembling of data base for regional planning exercise.

A. Definition of planning units (agro-ecological zones).

1. Environmental Research Institute did digital enhancement of 5 Landsat scenes covering 90 percent of region.

2. Eco-Systems, Ltd. did on aerial census of region (3 percent coverage) at 300 ft.; Maps prepared showing livestock and wildlife concentrations, water resources, agricultural production patterns, and other ecological features.

3. Aerial photography in 50 percent of pilot wards and Arusha town in support of small industries study.

B. Population study completed showing annual growth rate in region of 3.8 percent.

C. Village profiles completed in 181 villages.

D. District planning workshops held in Monduli, Kiteto, Ngorongoro, and Hanang districts.

E. Sector Assessments.

1. In progress for natural resources: forestry, agro-forestry, wildlife, fisheries, beekeeping, water resources, mineral resources, soil erosion and conservation, tourism, land use, and land tenure.

2. In agriculture and livestock, eight major constraints to improved production defined and being investigated as basis for sector assessment.

3. In industry and service sector a study of Arusha-based industry done. Also transport planning and Comworks being studied, and public health and manpower.

F. Background Papers.

1. Land tenure and landlease, farming systems, urban development and growth of communications, resource conservation, tsetse fly control, etc.

G. Resource and documentation center being developed.

II. District development activities.

A. Mbulu -- district-level support activities proposed Arumeru -- small industry projects proposed and special training programs held using facilitator/training approach.

B. Survey of possible water systems projects and feasibility studies in Hanang, Arumeru, and Mbulu.

C. Road rehabilitation activities in Hanang and Mbulu.

III. Supporting activities.

A. Long-term academic training program formulated for the region with Cornell as the cooperating institution.

B. Criteria and procedures for securing approval for development activities and feasibility studies developed.

C. Project Implementation Unit established to schedule and monitor inputs and outputs for development activities and feasibility studies.

3.c. Fourth Quarter Progress Report April 1, - June 30, 1980 (10 pages)

I. Preparation of Second APVDP Annual Plan.

II. Preparation of regional plan.

A. Definition of planning units.

B. Sector assessment work in agriculture and livestock, natural resources, industry and services.

C. Initiation of computer-assisted analysis of data.

III. Cornell University training.

A. Selection of Paul Chikua, Mbwiga Mwalende, Castor Tinguawayuma, and Allen Jimy Yessaya for Master's degree training.

B. Intensive, in-country training program for 90 regional and district officials in planning and project development, implementation, and evaluation planned.

C. Rhoda Madulu and Harold Kombe chosen to attend Cornell University Seminar on Communications Planning and Strategy.

IV. District and village development activities.

A. Initiation of Kikwe Building Brigade Project.

B. Training for livestock/veterinary officers in Mbulu.

C. Production of ox-carts in Mbulu and Hanang.

D. Development of plans for maintenance and development of water systems in Mbulu, Hanang, and Arumeru.

E. Rehabilitation of Dareda-Karatu Road begun.

V. Technical Information and Support Unit established with officers from Agriculture, Natural Resources, and Livestock secunded to the unit.

A. Primary objectives -- design and testing of media for extension, development of training programs for extension agents and farmers, and provision of technical support with functional offices to village projects.

3.d. Fifth Quarter Progress Report July 1, - September 30, 1980 (21 pages)

I. Preparation of regional plan.

A. Completion of main documentation including a detailed look at government manpower resources, an agricultural economics analysis of major crops, livestock and milk production, an analysis of wildlife population, analysis of the formal and informal industrial sector, a transport economics study, and background papers on beekeeping, forestry and range management.

B. Workshop for regional and district forestry personnel to discuss forestry in Arusha Region.

II. Cornell University training.

A. Seminar in data analysis and planning for 90 regional and district officials.

B. Three participants started one year program in planning at Cornell.

III. District and village development activities projects approved:

A. Arumeru -- Olkokola Forestry Project, Training Program for Ujamaa and Cooperative staff Kikwe Building Brigade.

B. Mbulu -- Ox-Cart Production Project, Forest and Fruit Tree Nursery in Murray -- Kainem, Dongobesh Forest and Fruit Tree Nursery.

C. Hanang -- Madunga kati Grain Grinding Mill Project, Training Program for Ujamaa and Cooperative Staff, Qumeyu Village Woodcutting Project, Madunga Kati Woodcutting Project.

D. Region -- Research and Development Work with AATP, Ox-cart Production Project.

E. Initiation of shallow wells program with equipment and training provided by Dutch technicians.

1. Construction of four shallow wells.

F. 20 miles of road north from Dareda and 20 miles north from Endabesh completed.

3.e. Sixth Quarter Progress Report October 1, - December 31, 1980 (23 pages)

I. Preparation of regional plan.

A. 14-member Regional Planning Committee appointed by regional commissioner met and approved schedule and procedure for regional planning exercise.

B. Guide for preparation of district strategy and priority papers prepared and reviewed by district development directors.

C. Guide for preparation of regional sector papers reviewed by regional functional officers.

D. Issues papers (population, land use, and conservation, financial resources, etc.) and sector abstracts (agriculture, livestock, transport, etc.) translated into Swahili and distributed.

E. Reorganization of Regional Planning Office to integrate APVDP resources with regular administrative structure and processes.

II. District and village development activities.

A. Strategy and priority papers written and approved.

B. Progress continues in planning, implementation, and monitoring of development activities in three project districts.

C. Five shallow wells installed.

1. Hainu River Study Prefeasibility Report completed.

D. APVDP technical assistance and inputs integrated with SIDO.

1. National Bank of Commerce board of directors has approved APVDP suggested loan guarantee program for support of rural small industries in Arusha Region.

E. TISU -- initiation of pre-feasibility study of soil conservation in Karatu/Oldeani area of Mbulu District.

F. Slow progress in road construction due to procurement problems and lack of staff.

3.f. Seventh Quarter Progress Report January 1, - March 31, 1981 (73 pages)

I. Regional planning exercise.

A. Regional Planning Committee made major policy decisions based on district strategies and priorities papers and sector assessments of regional functional offices.

1. These decisions incorporated into Strategies and Priorities for the Year 2000.

B. Information activities of region and districts examined.

II. APVDP planning for coming fiscal year integrated into regular regional and district planning exercises.

III. Assessment of Cornell University training program with the decision to continue the program.

IV. District and village development activities.

A. Development of an approach to land use planning at ward and village levels, mainly Alkokola Ward, Arumeru.

1. Prefeasibility study for Karatu/Oldeoni area outlining major soil conservation problems.

B. Initiation of construction of Agricultural Implements Facility by Covi Construct with fixed price Tsh 1,025,000.

1. Approval for funding Ox-cart program given and training seminar for their production held.

2. Project preparation and pre-feasibility work in brick making, soapmaking, weaving, light-weight tractor field trials, and maize mill booklet.

C. Installation of two shallow wells, preliminary report on large scale gravity supply system for Dongobesh, preliminary work on rehabilitation of Gallapo gravity water system, completion of hydrogeologic investigation report for Kikaliti borehole and purchase of second set of shallow wells survey equipment.

D. Completion of a total of 75 miles of road, establishment of capability to fabricate concrete culverts and procurement of 200 tons of cement.

E. Preparation of district annual plans.

1. Completion of Kikwe Building Brigade evaluation.

2. Study tour to Botswana for regional and district government and party officials to examine planning process and procedures and directly productive sector action programs.

3. Tree distribution from Dongobesh Fruit and Forest Tree Nursery has reached all 24 villages in Dongobesh, and fruit tree sales are over the 20,000 mark.

Appendixes

A. Information Strategy; Past and Future

Annex A: Documentation List;

Annex B: Summary of Policy Decisions.

B. Summary of Appropriate Technology and Rural Industries Activities of APVDP.

C. Local Currency Accounting Statement.

D. Contract Accounting Statement.

3.g. <u>Eighth Quarter Progress Report</u> April 1, - June 30, 1981 (37 pages)

I. Regional planning exercise.

A. Joint AID/Government of Tanzania Midterm Evaluation of APVDP including review of documentation, interviews, and site visits to projects.

1. Draft of evaluation report reviewed in Arusha.

B. Reports completed on revenue generation, financial infrastructure, road priority determination, fuel availability, and availability of building materials.

C. Return of Mwalende and Tingirawanguma from Cornell to do field work and work with Division of Planning and Evaluation.

D. Design of an integrated development project for the Maasai districts.

E. Land use planning -- initiation of land use planning activities in Ga .apo Ward.

1. In Olkokola Ward, information collected to develop a list of extension recommendations.

2. In Mwandet and Olkolkola, public dry season grazing reserves set aside.

II. District and village development activities.

A. Two Arusha Regional Livestock personnel established course in Reading University -- "Economics of Animal Health in Livestock Production."

B. Soil Conservation Workshop for district and regional land management staff.

C. Construction of brick and tile factory at Kiranyi Village started.

1. Ministry of Industries endorsed proposal for TRDB to undertake procurement of tools and equipment from Zimbabwe.

D. Three shallow wells installed, in Vilenia Vitaty, Ayamango, and Gidomar.

1. Arrival of six seven-ton Isuzu trucks.

2. Investigation of Mogugu/Kiru Valley area's irrigation and production potential.

E. Other activity in districts centered on village tree nurseries, water rights for Mararoni irrigation scheme, maize mills, and grass seed plots.

3.h. Ninth Quarter Progress Report July 1, - September 30, 1981 (79 pages)

I. Planning and evaluation.

A. Development of an integrated training program for 1981/82 in planning, evaluation, and productive sectors.

B. Paul Chikira completed his Master's degree at Cornell and returned to Tanzania. Thesis: "Education and Training for Health Planning in Arusha."

1. G. Khawange of Regional Water Department and G. G. Mwanga, DPLO, Kiteto, left to begin graduate work at Cornell.

C. Initial development of population program in Arusha Region.

1. John Burdick, AID/Tanzania population officer, visited the region and three districts.

2. Dr. Wilfred Meay and Dr. C. Kamuzora, demographers from the University of Dar es Salaam, undertook consultancies on migration and population growth.

II. Village and district development activities.

A. Agricultural seminars completed in Hanang and Mbulu for field extension officers.

1. A series of "field guides" for various crops begun.

B. Two wells completed in Labai Village.

1. New survey equipment and a new surveyor hired.

2. Phase I of Gallapo gravity water supply pipeline realignment completed.

3. Training course for village-level water supply technicians.

4. Three "Drought Projects" approved and procurement begun -- Maasai Districts Water and Transport Development, Mbugwe Division Water Supply, and Kisongo Water Catchments.

C. Construction of agricultural implements factory continues with operating group for the factory selected.

   1. NBC has approved loan guarantee program proposed by project.

D. Arumeru -- training designed in agriculture, livestock, natural resources, and Ujamaa and Ushuruka; initiation of Olkolkola Juri Tree Nursery.

   1. Mbulu -- Soil conservation Team began work in villages of Bashai-Karatu and Gongali, three more nurseries established.

   2. Hanang -- four maize mills proposed, shallow wells program evaluated, three village tree nurseries established.

E. Village land use planning seminars conducted in 10 villages in Kiteto.

   1. Continuation of land use planning exercise in Gallapo.

F. Work continues on road south of Mbulu toward Hanang and on the Senge to Gallapo road.

3.i. Tenth Quarter Progress Report October 1, - December 31, 1981 (38 pages)

I. Region: general.

A. Preparation of project design for Phase Two of APVDP.

B. Arrival of 60 motorcycles for district personnel.

C. Commitment of Finnish Aid to finance the feasibility study for the Hainu Hydroelectric Power Project.

D. Completion of five-year plan as part of regional planning exercise.

II. Arumeru -- Implementation of Annual Plan 1981/82. Projects -- Ox-cart production, Kisongo dip rehabilitation, Olkolkola Tree Nursery, and preparation work for village godowns and fishponds.

A. Completion of training courses for extension staff.

III. Hanang -- Ox-Cart Factory building completed, pilot agricultural extension program begun in three wards, two week forestry seminar.

IV. Mbulu -- Soil conservation in Bashai-Karatu and Gongali continues with preparation of contour bunds and planting of sisal, grass seed, and trees.

A. Five nurseries have more than 600,000 forest tree transplants under way and 150,000 fruit trees.

V. Two shallow wells completed in Endahara Gedtk, Mbulu.

A. Water supply technician training course in Mbulu.

B. Rehabilitation of Olkolkola gravity pipeline system commenced.

VI. Agricultural implements facility completed.

A. NBC agreement to loan guarantee fund with Tsh 500,000 being available annually to each district.

VII. Planning and evaluation.

A. Study tour to Tanga to review implementation of the Tanga RIDEP and discuss approaches to development of the productive sectors.

B. Development and submission to AID of a PID for funding on Integrated Population/Family Planning Program For Arusha Region.

C. Evaluation of Gallapo Dairy Multiplication Unit.

D. Initiation of newsletter from the Resource Center providing regional and district officials with information on holdings and recent acquisitons of the center.

VIII. The Technical Information and Support unit put major emphasis on development of a proposed agricultural extension pilot project for three agricultural district

A. Support and assistance provided to organize training for district-level field officers in crop production, livestock and pasture managment, and forestry activities.

IX. Road from Karatu to Dongobesh via Mbulu completed.

A. Work continuing on Senge to Gallapo to Babati road.

B. Arumeru road superintendent arrived and work started on Tengeru to Mbuguni road.

3.j. Eleventh Quarter Progress Report January 1, - March 1982 (39 pages)

I. Region: general.

A. RDD, Arusha; commissioner for planning and control, prime minister's office; and regional planning advisor, Arusha, went to Europe to discuss possibilities of IFAD funding (in cooperation with AID) for the second phase of APVDP.

1. On basis of discussions with IFAD and AID, preliminary design for second phase of APVDP being revised.

B. Fourth APVDP Annual Plan (1982/83) prepared.

C. Charles Sweet completes tour of duty, with Michael Sarco taking over as acting chief of party.

1. Strategy paper approved by AID to extend technical assistance to March 31, 1983.

D. Arrival of more motorcycles and initial shipment of equipment for regional veterinary center project.

II. Arumeru -- all three productive sectors involved in plans and projects to improve extension services.

A. Progress in following projects -- Kisongo Dip reconstruction, Ngarenanyurki ox-carts, Somaria maize mill, Lekitatu fishpond, and Kiranyi brick and tile.

B. With APVDP irrigation consultant, Maroroni Irrigation Project examined.

III. Hanang -- progress in following projects: Gallapo fishpond, fish-receiving station at Basotu, tree nurseries,
maize and Gallapo Ward Oil Seed production.

A. Agriculture and livestock extension programs continue.

1. Bicycles purchased to supplement motorcycles for field staff.

B. APVDP irrigation specialist made preliminary survey of Kiru Valley area.

IV. Mbulu -- construction of Mayloto fishpond, establishment of Mbulu Fruit Tree Orchard, establishment of 10 one-acre village grass seed production plots.

A. APVDP irrigation specialist reviewed and planned irrigation work in Dongobesh and Mongola.

V. Water -- Drilling moved from Monduli to Olkokola and drilling begun on borehole.

1. Nine shallow wells installed in Hanang.

VI. Equipment continues to be installed at agricultural implements facility -- sufficient to undertake production of basic ox-cart components.

A. Push planter for maize developed.

B. Maize mill houses complete at Kata, Ayamango, Orngadeda, Mapea, Mawemairo, and Sareme.

C. Ox-cart production begun in Hanang, building completed for Dongobesh ox-cart unit, Ngarenanyuki completing building.

VII. Planning and Evaluation.

A. Participation of seven regional officials in three-week management seminar conducted by AID's Training for Rural Development Project.

1. Development of a Regional Training Action Plan for Arusha Region.

B. Two-week seminar for Community Development assistants to discuss new role of Community Development Department.

C. Mr. Tingiea Wonyoma and Mr. Mwalende completed studies at Cornell and returned to Tanzania.

VIII. Productive Sectors.

A. Posture seed multiplication plots initiated in all three project districts.

B. Planning of Pilot Livestock Extension Project in Hanang and Mbulu and preparation of extension guides and program materials.

C. Identification of Pilot Agricultural Extension Project personnel and establishment of demonstration plots on contact farmers' fields.

IX. Roads.

A. Completion of Dongobesh to Haidom road.

B. Continuation of work on Bablu-Gallapo and Tengeru-Mbugreni roads.

3.k. Twelfth Quarter Progress Report April 1-June 30, 1982 (56 pages)

I. Region.

A. Tony Barclay, DAI vice president for operations, visited for three weeks to provide management assistance to APVDP.

B. Fourth Annual Plan for APVDP approved by AID.

C. Detailed implementation plan for APVDP projects 1982/83 was prepared and discussed with regional and district officials.

D. Discussions were held with regional officials and representatives of PMO regarding preparation of the Arusha Region Long-Term Development Plan. The plan will include five volumes and a Summary Report.

II. Districts

A. The following projects were completed in Arumeru: Kisongo dip, Lekitatu fishpond, soil conservation seminars, field staff bicycle purchase scheme, and Somaria Maize Mill; farmers' field day held.

B. In Hanang: detailed land survey of site of 1,000 acres for irrigation project in Magugu completed, 50 hectares of sunflower planted in Gallapo, women's study tour to Singida for village implementors of women's projects, district farmers' field day held.

C. In Mbulu: distribution of all forest trees and all mature fruit tree transplants from nurseries at Dongobesh, Murray-Kainom, Daudi, and Gidomba, 3,000 bag capacity Maghang Crop Storage Facility completed, soil conservation work initiated in Daudi, Sunflower Oil Production Project at Dongobesh now ready to begin.

III. Sectors

A. Water: survey for shallow wells in Olchorouus and Engalasni, village water supply technician training conducted in Arumeru, drilling of borehole in Olkokola continued.

B. Productive sectors: Hanang Pilot Livestock Extension Project launched, illustrated field guides produced, 20 livestock extension leaflets produced, pasture grass seed multiplication plots

organized in Hanang and Arumeru, demonstration plots begun as part of the Pilot Agricultural Extension Project.

C. Small Industries: start-up of three ox-cart production units, factory start-up for agricultural implements production, implementation under way on Geddemai oil-milling project and Guemayu maize milling project.

D. Planning and evaluation: Land use planning evaluation completed, Resource Center moved from basement to Rm. 36 in Regional Block and a planning officer, Ms. Mkonyi, assigned full-time responsibility for the centre. Project on Development of Strategies and Policies for Dealing with Population Pressure in Arumeru District completed.

E. Roads: Work begun on Babli to Riroda Road, Oldeani to Mongola road nearing completion, work on Tengeru to Mbugreni road nearly completed.

3.1. Thirteenth Quarterly Progress Report (July 1982-September 30, 1982) (58 pages)

Region

I. Completion of draft of the Arusha Region Integrated Development Plan for submission to the Regional Management Team and Regional Development Committee. The plan consists of a Summary Report and five volumes.

II. Preliminary preparations for a final report on lessons learned by APVDP were begun. This report will consist of an internal evaluation of project activities, a compilation of project profiles and a statistical summary, and individual team member reports.

Districts

I. Arumeru -- Survey work continued on Maroroni Irrigation, Ngarenanyula Ox-cart Production started, Implementation of Village Godowns continues, and Maweni and Uwiro Village Tree Nurseries begun.

II. Hanang -- Genamar Oil Seed press building construction under way, 23 villages contributed Tsh. 2,000 each to begin Village Fruit and Forest Tree Nurseries, land survey completed for Magugu Irrigation Project, bookkeeping seminar for women village leaders held.

III. Mbulu -- construction of slaughter facility, Morenga; construction of carts begun at Dongobesh Ox-Cart; production and training unit, oil extraction machine installed, Dongobesh; implementation plan developed for second phase of Karatu Soil Conservation Program.

Water Sector

I. Survey and construction of six tubewells in Mbulu District.

II. Village water supply technican training conducted in Mbulu.

III. Storage tank construction and pipeline training begun in Gallapo and Katesh.

IV. Inventory work for village water supplies finished.

Small Industries

I. Installation of new hullers at Magugu.

II. Completion of "Spider" tractor testing program.

Planning and Evaluation

I. Regional Planning Model for Arusha Region Apple II Micro-Computer installed in the Regional Planning Office.

II. Evaluation of computer operations of Regional Planning Office.

Productive Sectors

I. Mbulu Pilot Livestock Program begun.

II. Irrigation seminar led by Dr. Bishay.

III. Organic agricultural methods consultant, Doug Maher, arrived.

IV. Pilot Agriculture Extension Project in all districts concentrated on the harvest of crop demonstration plots.

Roads

I. Serious delays in work occurred because the fuel was not delivered.

II. Work completed on Oldeoni to Mangola road and on Boslenit Modunga road.

ISSUE PAPERS

4.A.1. Arusha Region Agricultural Sector Review, Donald Humpal, May 1980 (92 pages)

Arusha Region encloses an area of 83.5 thousand square kilometers. The Regional Agriculture Office estimates that 300,000 hectares of land are used for food and cash crop production. This paper discusses the natural environment of Arusha Region; primary agricultural production on small, medium, and large-scale farms; the secondary agricultural sector of parastatals, private enterprise, and unofficial agricultural commodity traders; and the agricultural service sector.

Constraints to improving production fall into four categories: natural, technological, organizational, and policy. Natural constraints include rainfall and temperature variability and soil fertility. There is a need to adopt an agricultural planning and research strategy that examines the stability of production practices over the annual cycle and their sustainability over time in view of the inherent risks of a given location. The available technologies being promoted in the region suffer from an approach that assumes the region is fairly homogenous across environments and has led to the promotion of non-adapted technologies. Local adaptive testing is recommended in representative sites to focus crop breeding on drought and pest resistance. To prevent loses between harvest and consumption, go-downs should be constructed, pesticides made available, and moisture and condition control improved. The organizational constraints consist mainly of administrative layering resulting in duplication of administrative manpower; aggregated national accounting, which vitiates branch ability to evaluate its unit costs, fiscal health, and operational efficiency; long delays in final accounting that remove the possibility of developing management and personnel accountability procedures; increased material handling costs, and delay in response to orders.

The general thrust of the organizational recommendations is that by reducing parastatal and service costs, greater flexibility in providing inducements to farmers can be achieved, either in the subsidy of production inputs or in the provision of more attractive producer prices. The policy constraints include producer prices, perceived risk of asset expropriation with little compensation, personnel policies that permit frequent shifts in posting, and lack of land use policy guidelines. Recommendations include establishing prices that influence crop and livestock mixes on the basis of comparative and economic advantage, permitting local processing and marketing of low-grade or non-export crops, and establishing guidelines for post-occupancy, thus providing enforceable performance incentives.

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The annexes to this paper include a crop inventory and profiles of the following parastatals: National Milling Corporation, National Cold Chain Operations, Tanzania Seed Company Limited, General Agricultural Products Export Corporation (GAPEX), National Agriculture and Food Corporation (NAFCO), Coffee Authority of Tanzanian Cotton Authority, Tanzania Dairies Limited, Tanzania Pyrethrum Board, and Tanzania Extract Company.

4.A.2. Agricultural and Livestock Production in Arusha Region: An Agricultural Economic Perspective, Merritt Sargent, October 1980 (62 pages)

This paper presents an overview of regional agricultural and livestock production and marketing and an improved base-line information bank. It discusses the major crops, indicating their relative costs and returns. The regional gross value product is estimated, and its relative contribution to the national economy in terms of food supply and foreign exchange savings and earnings is discussed. The paper raises major issues of policy concerning production strategies, pricing policies, and the role and performance of parastatals.

The following are some of the recommendations given to contribute to the five regional development goals:

1) The region should place a strong emphasis on soil conservation, balanced crop rotation, and oxen cultivation.

2) All uses of motorized cultivation should be costed and charged at their real economic costs.

3) Price adjustments should be made for maize, wheat, coffee, and paddy.

4) The region should promote the expansion of rice and groundnut production.

5) The official price of beef should be raised.

6) The import licenses for National Dairies, Ltd. should be withdrawn as unnecessary, and the price of fresh milk raised.

7) The region should invite NAFCO and CIDA to discuss their production technologies with special reference to soil conservation.

8) A commercial storage technician should be brought in to study, advise, and train MNC's commercial storage facilities, management, and staff.

9) The region should support through NDL a rural network of stationary milk collectors.

10) The region should promote through TRDB a credit program for village-level primary processing.

11) NMC district procurement officers should receive training to improve their ability to function.

12) NMC should use a basic commodities transportation model to use owned and rental rolling stock more efficiently.

13) A stratified farm survey aimed at production and marketing practices according to scale of enterprise should be undertaken based on ecological zones.

14) A mechanism for measuring the feed value of range should be devised.

15) A study should be undertaken to determine the costs and returns to livestock production.

This paper has 32 tables concerning agriculture and livestock in Arusha Region with detailed explanations of sources and definitions for each.

4.A.3. Regional Agricultural and Livestock Activities in Relation to Arusha Region Development Objectives, I. C. Walton, December 1980 (69 pages)

This paper describes sector activities, contributions to development goals, constraints, issues/trade-offs for strategy formulation, and major recommendations for agriculture in Arusha Region and then for each of the districts -- Arumeru, Hanang, Mbulu, Ngorongoro, Monduli, and Kiteto. The same topics are also covered for livestock in the region and in the six districts.

4.A.4. Back to Basics, Some Thoughts Concerning the Agricultural Sector in Arusha Region, Robert Dodd, November 1981 (17 pages)

This paper deals with two major trends leading toward a declining economic viability of the region -- declining agricultural production and the land degradation problem. It suggests moving toward balanced, organic farming using locally available resources as opposed to capital-intensive, high technology agriculture. It outlines in detail a pilot agricultural extension project to introduce on the smallholder farms more intensive, mixed crop and livestock production practices. It describes regularization of extension support to farmers, establishment of intensive farming systems demonstrations, support for and supervision of Bwana Shambas, production and dissemination of extension publications and materials, and expansion and improvement of the pilot extension project.

Mixed crop and livestock-intensive farming systems make better use of available land, labor, and other resources. An outline is presented of the elements that should be considered in developing such a system.

The "livestock problem" in Arusha Region is too many animals on the existing land. The task is to define a livestock strategy and then to work out a detailed plan of action to achieve a reduction of the region's livestock herd to a level consistent with sound and sustainable land use practices. A description of a long-term livestock development strategy is presented.

4.A.5. Extension Agent's Field Guide, Robert Dodd and Beth Jackson, February 1982 (21 pages)

Small farms averaging about 2.2 hectares each account for some 80 percent of Arusha Region's cropland. The level of agricultural technology in use on these smallholder farms is low; yields of staple food crops such as maize, sorghum, and beans are static or falling. Because of shortages of commercial fertilizers, improved seeds, farm equipment, and chemical pesticides, food production systems that make full use of locally available resources should be developed to halt the decline in food production.

Agricultural specialists should develop and introduce alternative, low-cost energy-efficient farming systems in the Region. Small-scale, ecologically balanced organic farming concepts that stress mixed livestock and cropping practices and crop rotation are needed. At the same time, field extension officers must introduce conservation farming concepts that emphasize a whole series of inter-related village practices such as contour and alternate strip-cropping, terracing, minimum tillage, and afforestation to reduce serious soil erosion. Because such farming systems do not depend on foreign-produced materials or equipment, they can be expanded and improved using resources available in the region.

This "guide" includes basic technical information in the form of "leaflets" for major crops and other subjects important in Tanzania. The use of organic farming concepts and local resources is emphasized. Field extension officers should use the guide in their advisory work with village leaders, farmers' extension groups, and individual farmers.

Food value, adaptation, varieties, and culture are described for the following crops: maize, groundnuts, sorghum, sunflower, pigeon peas, intensive farming systems, wheat, field beans, barley, rice safflower, millet, cowpeas, mungbeans, soybeans, chickpeas, sesame, lentils, cassava, onions, and potatoes.

4.A.6. Mwongozo wa Kilimo cha Mazao Mbali Mbali (Guidelines for Various Agricultural Crops), 15 Crops (Swahili), P.N. Msabaha, Hanang District Agricultural Extension Program and Regional Resource Center, June 1982 (distributed during the quarter) (48 pages)

For many years Hanang District has been a leading district in agricultural production despite poor agricultural practices. Large agricultural production figures have been the result of very fertile soil and the large acreage under cultivation. Recently a new trend has emerged, however, one of declining yields per acre cultivated.

The reasons for this decline in productivity per acre are the persistence of poor agricultural practices, soil erosion, increases in disease and insect damage, and delays in providing farmers with important agricultural extension information.

If there is agreement on the above problems, then there is a need to address the problems of agricultural production as a whole. Although this problem should be addressed by all government and party officials, as well as farmers, a large part of the burden for providing information and training rests on the Department of Agriculture. This is the reason that these guidelines for production of agricultural crops have been produced.

These guidelines are addressed to the average farmer with a farm of less than 2 hectares to enable him to obtain the largest harvest possible from his land while preserving the fertility of the soil.

The guidelines were produced as a joint effort between the Pilot Agricultural Extension Project in Hanang District and the Regional Planning Office Resource Center.

Guidelines are included for the following crops:

1.	Maize	(Mahindi)
2.	Mtama	(Millet, Sorghum)
3.	Uwele	(Bullrush Millet)
4.	Ulezi	(Eleusine Millet)
5.	Muhogo	(Cassava)
6.	Maharage	(Beans)
7.	Viazi Mviringo	(White Potatoes)
8.	Viazi Vitamu	(Sweet Potatoes)
9.	Kunde	(Runner Bean)
10.	Mbaazi	(Pigeon Peas)
11.	Alizeti	(Sunflower)
12.	Karanga	(Groundnuts)
13.	Nyonyo	(Castor Bean)
14.	Ufuta	(Simsim)
15.	Choroko	(Green Gram)

4.A.7. Developing Irrigation in Arusha Region Tanzania, Bishay G. Bishay, May 1982 (45 pages)

Irrigation in Arusha Region is the responsibility of the Irrigation Division of the Ministry of Agriculture and the Water Division of the Ministry of Water Resources Development. The farmer is concerned with on-farm irrigation water use and irrigated farming practices, and the latter is involved with domestic water availability. No overall regional irrigation planning and water resource development program exists. Basic technical facilities are lacking at the regional and district levels.

To improve the region's capabilities to make effective use of the available water resources for improved irrigated farming, the the author proposes following:

1) Develop a master plan for irrigation at each district.

2) Assign irrigation specialists of the Ministry of Agriculture to plan, design, and supervise the implementation of specific irrigation schemes.

3) Restrict the activities of farmers, village leaders, and party officials to the construction and maintenance of irrigation schemes planned as part of a district master plan.

4) Provide an intensive one-month in-service training program on irrigation and drainage for all irrigation technicians and land surveyors.

5) Provide assistance for completion of a detailed design for one or two of the selected three pilot irrigation projects.

6) Establish an irrigation/drainage laboratory in Arusha.

The potential for increased irrigated crop production is reviewed for the following proposed irrigation projects: Kiru Vally, Mangola area and Mbuguni Moshano area, and Maroroni. The following pilot irrigation projects are suggested: Mogugu-Matufa-Mapea, Dongobesh, and Mangola. These projects will operate entirely by gravity surface water flow. Feasibility studies for large irrigation projects in Kiru Valley and Mangola are suggested.

The establishment of water-users' associations to provide effective management of irrigation systems should be considered. To increase rice production in the region, proper water control, and management, improved varieties of rice and rice culture practices should be introduced into existing use production areas.

4.A.8. Strengthening Arusha Region Extension Services in the Productive Sectors, Bruce Lundeen, August 1982.

The Arusha Planning and Village Development Project has as one of its main objectives the promotion of improved agricultural production. Extension activities in the areas of crops, livestock, and natural resources have increasingly become the focus of development activities involving the technical assistance staff. The realization of the importance of supporting these development efforts with extension communication materials has led to the current effort to establish a Regional Resource Center production capability. To support this effort, the present study was undertaken with the following specific tasks:

- Examine with district officials including the rural development specialists possible methods for conveying extension messages in support of specific productive sector activities based on low cost media technology and the experience of the Arusha Appropriate Technology Project (AATP).

- Develop prototype media presentations for two APVDP activities for field testing and use by district extension workers.

- Propose steps for developing a regional capability for preparation of similar extension communication materials taking account of the availability of local resources.

There are essentially two distinct issues that arose as a result of undertaking these tasks. Information materials production within the limits of local sustainability (after APVDP technical and financial assistance ends) implies the utilization of local media, thus immediately excluding cinema, colour printing of illustrated materials, and other such technically demanding and costly processes. All the proposed processes are locally sustainable.

The major question that caused concern with regard to information materials was not how to produce them, but what to produce, keeping in mind the means of delivery and how the information should affect the villager's production practices.

After considering how the information content is determined and how the information materials would be distributed, the paper addresses a third issue, that of the need to encourage communication and adult education skills to create an atmosphere of mutual respect between the extension agent and the villager, taking into consideration each other's knowledge and experience. Following the review of materials' production, the author proposes a manpower training program that would expand the capabilities of the productive sectors' field staff to facilitate community action.

4.A.9. A Four Week In-Service Training Program in Agricultural Irrigation and Drainage, Arusha, Tanzania, Bishay G. Bishay, August 1982.

Rain-fed agriculture embraces farming in Tanzanian areas where rainfall is believed to be sufficient to permit sustained production of crops and pasture. The amount of water that the soil can store in a form available to plants can be treated as a bank account, rainfall as an input, and evapotranspiration as a withdrawal. When more rain falls than the soil can store, it is treated as excess, and when evapotranspiration exceeds rainfall for a sufficient time to exhaust soil water, it is treated as a deficit or drought.

Water excesses often occur with sufficient frequency during the two rainy seasons of Arusha Region, increasing erosion hazards and drainage problems in soils with shallow hydrological profiles. Droughts of sufficient duration to reduce crop yields are common during the long dry spells between the rainy seasons with their erratic rainfall patterns as well as during the regular long dry season every year. The floods and droughts as they are encountered constitute the main reasons behind the reduced crop yields commonly obtained in Arusha Region. Even though current acceptance of irrigation and drainage is modest in general, the demand for controlled crop quantity and quality will make them in future years an absolute necessity in Tanzania. This will tend to shift production to locations where water resources are available, where good crop land is available, and where the management system is extremely efficient. There is every reason to believe that irrigated agriculture will be an essential practice for the required system of production in future years in Tanzania.

An optimum irrigated agricultural system requires efficient irrigation and drainage systems on both "off-farm" and "on-farm" levels. Irrigation and drainage are two subjects of a unified nature since the soil supporting plant growth must contain air and water in just the right quantities. Developing irrigation and drainage programs requires the consideration of both the agricultural and engineering aspects, and the subject matter of the curricula can be strengthened by coordinating the activities of engineers and agronomists.

Accordingly, this in-country training program on "Agricultural Irrigation and Drainage" is planned to meet the interest of Tanazanian agriculture. It is designed in such a way that a great deal of theoretical and practical material is easily covered in an intensive carefully structured four-week course. The course covers design studies, implementation, and maintenance of irrigation and drainage systems with their comparative principles, and practices in terms of localities and inter-relationships.

The following are advantages of an in-service training program on "Agricultural Irrigation and Drainage":

- Training can be given to many people and at less cost than sending them overseas;
- Training will be effective because it is specialized and relevant to Tanzanian agriculture, theoretically and practically;
- The different governmental sectors involved in irrigation and drainage will not lose the services of their staff for any period since the program is aimed at finding solutions to their technical problems, which are treated in the program as case studies; and
- Trainees can be selected on the basis of their ability to profit from training and not only on their grade, seniority, or academic qualifications.

4.B.1. Financial Resources Available for Development of the Arusha Region: A Look into the Future, Elliott Morss, May 1980 (32 pages)

More effective use of resources already available to the region has the potential of contributing more to its development than what can be realized from use of the limited additional resources that will be forthcoming over the next few years. Specifically, increased development impact can be realized from:

- Greater efficiency in government and parastatal institutions;
- An increase in operation and maintenance outlays relative to development expenditures; and
- A greater degree of coordination in development planning among government and parastatal institutions.

Little expansion in recurrent monies can be expected over the next few years because of the country's economic situation and the agreement it will have to enter into to obtain needed financial support. The increase in development expenditures will be limited by the country's ability to coordinate and broker foreign assistance.

The parastatal sector offers considerable potential for development, but data needed to analyze future prospects are not available.

There is some potential to mobilize intra-regional resources through government charges and levies. There appears to be little potential to mobilize further internal domestic savings without some significant changes in government policies. The private foreign investor is unlikely to serve as a significant source of funding for the region in the foreseeable future.

4.B.2. Kitabu cha Mikopo na Misada Vijijini (Village Loan and Grant Paper), Arumeru District Office, (in Swahili) July 1980 (100 pages)

This booklet is a result of a request by villagers of Kikatiti Ward for information on grant and loan resources for village projects. It is an attempt to provide all villagers of Arusha Region with useful information that can further assist them in planning and implementing village-selected projects.

Each section provides a brief description of the organization offering the loans or grants to the village and a discussion of the types of projects the organization will assist, including sample copies of the organization's loan/grant application forms. The booklet concludes with two examples of loan/grant procedure for a grain-grinding mill and a village shop to assist villagers in seeing the process from start to finish.

4.B.3. An Assessment of the Revenue Generation Capabilities of Villages, Districts, and Arusha Region: Some Policy Options, Larry Schroeder, June 1981 (with Executive Summary) (122 pages)

In its strategy planning for the next 20 years, Arusha Region has specified as one of its priorities the generation of additional resources for development purposes. This paper provides a set of possible policy options that could be implemented now or in the future to help achieve that goal. The revenue instruments examined here include user fees and charges, contributions and taxes, credit financing, and intergovernmental grants.

This study of revenue generation in Arusha Region was sponsored by the Regional Planning Office with support from the Arusha Planning and Village Development Project and the Local Revenue Administration Project at Syracuse University. The report is based primarily upon interviews and data supplied by regional, district, and village personnel as well as individuals in organizations such as the parastatals directly associated with the issues addressed. It is intended to generate a series of policy options for discussion by officials in the region. The paper first describes briefly the setting for each revenue instrument and then outlines the kinds of issues that should be considered when discussing the relative merits of the policy alternatives. Many of these issues are regional or even national in scope and, for some, the solutions will take time, with further study necessary before they could be implemented. For others, implementation is the immediate task, and the region could take the initiative in ensuring that the steps are carried out.

The list of policy options is a long and diverse one containing possible initiatives in four specific areas:

(1) User fees and charges;

(2) Contributions and taxes (with a specific focus on the Village [Revenue] Act of 1979);

(3) Credit financing; and

(4) Intergovernmental aid (particularly central government development grants). In addition, policy options are outlined on organizational and management issues and on a regional strategy to realize the intent of the Villages (Revenue) Act.

4.B.4. The Financial Infrastructure in Tanzania: Perspectives, Problems and Policy Strategies with Policy and Program Implications for Arusha Region, M.S.D. Bagachwa, June 1981 (with Executive Summary) (98 pages)

The importance of providing adequate credit facilities to assist development has been fully understood in Tanzania, and a financial infrastructure has been developed to meet this goal. The Regional Planning Office and the Arusha Planning and Village Development Project developed this study with two objectives. The first was to focus specifically on the functions, problems, and potentials of the financial institutions in the Tanzanian economic environment and to analyze their present and future development roles. The second was to explore ways and means the region could use for securing, providing, and administering institutional credit for project development. The first part of the report describes the historical development of the financial institutions: Tanzania Housing Bank (THB), Tanzania Rural Development Bank (TRDB), National Bank of Commerce (NBC), Tanzania Investment Bank (TIB), and Bank of Tanzania (BOT). Recommendations regarding the financial infrastructure are made in the third part, and part four outlines policy and program implications and recommendations for Arusha Region.

The rationale for undertaking this study included two major factors. First, the report presents evidence that the majority of rural farmers and villages and the informal and small-scale urban communities have been relatively excluded from the institutional market for credit. As a result they lack the dynamism to take advantage of the development credit policies that exist. Second, the report also represents evidence that indicates that the problem is not so much lack of technical and financial resources for promotion of the neglected sectors as a lack of a clearly defined structure through which credit can be channeled to the targeted groups. General recommendations include a clear division of responsibility among the financial institutions to avoid duplication of efforts; arrangements for coordination and financial collaboration among the institutions; an increase in the Government's role in creating favorable conditions for the neglected sectors; and a strengthening of the supporting infrastructure in supervision, management, and extension. Specific short- and long-run recommendations for Arusha Region include arrangements for the utilization of APVDP resources in establishing village credit records, regional options for securing alternative sources of finance and technical support, and the strengthening of financial management and administrative capabilities at all levels.

4.C.1. A Survey of the Health Services in Arusha Region, Edith Alger, May 1980 (145 pages)

Assessment of the health services in the Arusha Region requires a comprehensive view of government, parastatal, and industrial, voluntary agency, and private sector operation of health care facililities and programs. This survey started with the regional medical officer and followed with interviews and on-site visits to major health facilities and administrative headquarters. Data were collected at the district and regional levels to aid in defining health problems as well as in providing basic attendance statistics. A physical description of all facilities in the region was obtained through actual inspection of hospitals and selected health centers and dispensaries. Services such as outpatient, minor surgery, and laboratory and special capabilities of staff were noted, and needs for equipment and supplies were listed. Manpower strengths were recorded and training programs evaluated.

Because of the Government of Tanzania's emphasis on preventive medicine, the public health programs operated by district officials were described and impediments to their success indicated. Since 92 percent of the population of Arusha Region lives in rural areas, this survey investigated the adequacy of health care delivery outside of urban centers. The use of traditional medicine as an alternative was also investigated.

The use of village health workers with basic medical training to provide simple care at the village level is the approach being used by several government, foreign donor, and voluntary agency projects to improve village health care. These projects are described.

Throughout the survey, actual accomplishments in the region were measured against Government of Tanzania objectives in the Third Five-Year Plan. These include stressing preventive services, construction and expansion of rural health facilities, and development of training programs for health workers.

Without fail, transportation and communication difficulties were noted as the largest obstacles to providing health care in Arusha Region. Administrative problems, lack of information, and shortages of drugs and supplies are all intensified by the lack of supervision and contact with staff in outlying areas. The other deficiency most often cited was the acute shortage of trained medical workers in preventive services and rural dispensaries. Poor maintenance practices have led to the deterioration of buildings and equipment in health facilities. In spite of the government policy to place greater emphasis on preventive services, in practice curative services are still given greater funding and higher staffing levels. Despite goals to improve services to the rural population, health care is still most accessible to urban dwellers.

To improve health care delivery, Arusha Region must overcome problems in transportation, communications, and staffing. The construction of additional dispensaries and rural health centers and the repair of existing facilities should be completed so that the rural population will be better served. Preventive services and MCH work should be strengthened to decrease the incidence of preventable disease.

4.C.2. APVDP Health Component, Stan Yoder, September 1980

Project Title: Arusha Planning and Village Development Project - Health Component
Cost of Project: $8,500,000 (A.I.D. - $5,800,000 and the GOT - $2,700,000)
Period of Project Implementation: Five years from October 1, 1980, through September 30, 1985
Terms: Development Assistance Grant Funding

This project was designed as the health component of the Arusha Planning and Village Development Project. It intended to provide two long-term technicians, a facilitator/trainer for six months, and several months of short-term technical assistance to the Tanzanian Government in the Arusha Region to collaborate in developing a process for forming, training, and supporting the work of village health committees.

During the first six months, technicians would conduct a series of meetings, seminars, and workshops designed to familiarize regional, district, and division officials with the project and its objectives and to involve them in its implementation. Then two candidates would be selected by each of the region's 23 divisions to be trained as facilitators to work with village health committees. Adult educators (Waratibu), health assistants (Bwana Afya), and agriculture extension agents (Bwana Kilimo) would be selected as facilitators and given three weeks of initial training.

One village would be selected from the home area of each facilitator, and the facilitators would begin working with their respective villages once their initial training had been completed. The facilitators would guide the villagers through a "process" including: 1) examination of common health experiences in order to achieve group recognition of existing patterns of health problems and the responses taken to them; 2) health education directed at one or two of the principal health problems identified by the villagers, and activation of a village health committee; 3) selection of health interventions to be attempted, their implementation and monitoring; and 4) involvement of local health workers in the villages' health sector deliberations and activities.

The project would provide material support to selected village health initiatives; however, this would be held to a minimum since the "process," as a tool of self-reliance, is the project objective and not a target number of village initiated activities. Once the process had been established in one village, each facilitator would include one or more new villages in the project as time permitted. It was expected that the project would be working in at least two villages per facilitator, or a total of 92 villages, by the end of the project.

4.C.3. Health Sector Assessment of Arusha Region, Stanley Yoder, October 1980 (15 pages)

Most diseases in Tanzania (and Arusha) relate to malnutrition, environmental hygiene, and infectious disease. In addition, there is a high incidence of eye diseases and periodic outbreaks of cholera. Malaria is a major problem in Arumeru and Manang districts as is Schistosomiasis. Respiratory dieseases are prevalent in the higher and cooler parts of the region. The health care system is equipped to treat these diseases when medication is available and cases are brought to the health care facilities.

This paper reiterates the evolution of Tanzanian health policy from 1960-1980.

Arusha Region has at least one hospital in each district, 10 rural health centers, and 146 dispensaries. Health care is currently geared toward curative services, and services and personnel are concentrated in the urban areas. The major obstacles to providing good health care in Arusha Region are lack of transportation; poor communication; distribution and training of staff, particularly in the rural areas; behavior that keeps exposure to infectious agents at a high level; and lack of hard currency to buy basic supplies and medicines.

Investing primarily in the health care system as it now exists may not be the best way to improve health status in Arusha Region. Measures that improve nutritional levels, reduce exposure to infectious agents, or improve environmental sanitation will improve health status.

Investment priorities of the Tanzanian government emphasize preventive rather than curative services and accepting foreign donor support only if it contributes to self-sufficiency in medical care in the long run. These priorities run counter to the interests of medical personnel in general, consumers, and the regional administration, all of whom want more dispensaries, more drugs, more equipment, and better transportation.

Assuring a supply of basic medicines should precede construction of more facilities. Funds for capital expenditure should go for rural health clinics rather than dispensaries. The position and responsibilities of health officers should be upgraded.

Annex A compares Arusha Region with other regions in terms of a number of specific variables thought to be relevant to health status and regional health expenditures.

4.C.4. Education and Training for Health Planning in the Arusha Region, Tanzania (with abstract), Paul Chikira, August 1981 (Thesis presented to Cornell University for the degree of Master of Professional Studies-International Development) (104 pages)

This thesis provides an in-service training guide for health personnel who are currently involved in the planning and implementation of health care activities at the regional and district levels. The type of training that health personnel normally receive from traditional medical institutions does not adequately prepare them to carry out the health planning function, which has become an added responsibility as a result of the decentralization of the national planning administration in 1972. The decentralization of the planning process did not include the transfer of health planners to the regions, nor the institution of appropriate in-service training.

A broad review of the health environment in Arusha Region shows that the health status of the people is poor. The health of the population is threatened by malnutrition, infectious diseases, and poor environmental hygiene. Health personnel at district and regional levels should be trained to cope with demographic and epidemiologic variables and with the existing limited human, physical and financial resources. To enable them to do so, they should be exposed to analytical tools.

A survey of training institutions within the country and some selected developing countries shows that health planning courses are not a common feature of their program. Due to the shortage of health personnel in the region and the scarcity of funds, long-term courses for the region's health staff are neither appropriate nor desirable at this time. Instead a regionally based in-service training program lasting two weeks has been proposed for key health workers.

Extensive needs and competing demands suggest that systematic planning, careful monitoring, and critical evaluation will become a common feature in the undertaking of health programmes in the region, and that training of sectoral personnel will become a continuing necessity. Thus the in-service training guide for the Arusha Region's health personnel is likely to find applicability to other sectors and areas of the country.

4.D.1. Four Discussion Papers, Henry Fosbrooke

I. Land Tenure and Land Use (11 pages)

In Arusha/Arumeru the dominant groups are the Arusha and the Meru. Arusha town has several African groups of non-Tanzanian origin, Europeans, and Asians. In Mbulu/Hanang the Iraque group dominates followed by the Tatog. In the Maasai area the dominant people are Maasai with some Sonijo and Doroho. The types of land use by these tribes in terms of husbandry, forestry, and wildlife prior to the arrival of the Europeans are discussed.

The arrival of Europeans changed systems of land tenure and land use and resulted in the increase and spread of population. Figures indicating population increases are given.

The land does not increase. What are the answers? Decrease the rate of population growth by population control or movement of people from highland to lowland areas or increase production from the available land.

II. Farming Systems (12 pages)

This paper looks at the farming systems that each group developed in response to the varying environments in which they found themselves. It discusses how suitable they were and how they must be adapted to changed environmental and socio-economic circumstances.

The main factors leading to change in farming systems have been population pressure, the introduction of new crops or new techniques, and the change from a subsistence to a money economy. Also adaptation is necessary when people have to change environments due to population pressure.

Animal husbandry systems among the Maasai are discussed.

III. Urban Development and the Growth of Communications (13 pages)

This paper discusses the growth of Arusha town. It was established first as a military center by the Germans. It then developed into a trading center, service center, and tourist center. Other urban developments in the region include Mbulu, Olbeani, Babati, Monduli, and Kibaya. Their development is discussed.

The caravan routes of the region are described under the growth of its communication system along with the beginning of the modern road and rail network. The early European travelers, scientists, and sportsmen followed the old caravan routes on foot. Developments in aviation and telecommunications are also discussed.

IV. Resource Conservation (14 pages)

Consideration of some principles of indigenous resource use and control reveal certain principles that can help to control the man-land relationship today. Controls have been exercised when individuals or groups claim a resource as their property and these property rights emerge when a resource is scarce.

This paper discusses government controls over conservation of natural resources in the pre-independence period. In Arusha Region elimination of tsetse fly in peripheral areas of Mbulu was a main activity. Post-independence abandonment of conservation measures is attributed to the large-scale of projects that were no longer feasible. The control and conservation of natural resources is best done by local groups. Population pressure is the biggest threat to game reserves and national parks.

Production of energy in the rural setting is what these discussions basically deal with. Suggestions for use of manpower and animal power as energy for food production are given.

4.D.2. Soil Degradation and Conservation in the Arusha Region, Rorke Bryan, March 1980 (106 pages)

Soil degradation includes any change in soil character that leads to reduction in productive capacity. Rational planning for soil conservation at regional or local levels should be based on accurate measurements of the extent, rate, and severity of degradation. While the problem of soil degradation in Arusha Region appears to be severe, there are virtually no quantitative data on which planning can be based. This report attempts to piece together partial and incomplete information into a coherent assessment of the severity and variation of soil degradation.

The main body of the report includes descriptive and analytic material directly related to the Arusha Region. It describes soil characteristics, climatic characteristics, and erosion, and suggests conservation measures. It also describes the nutrient status of surveyed soils and cropping experiments in Arusha Region.

The objectives of Arusha RIDEP, as far as soils are concerned, are to increase productivity and prevent degradation. This involves enhancement of nutrient status by fertilizers or manures, possibly alteration of tillage practices and cropping systems, and extensive implementation of soil conservation practices. This report concludes that measures adopted over the next two to three years will provide an appropriate information base for future management decisions.

Aside from first priority specific recommendations for Karatu-Oldeani, Northern Maasai Range, Musa-Ardai Plains-Kisongo, Kingori-Kikatiti, and Basotu Wheat Farm, the following measures are recommended for application throughout the region: (1) discing should be eliminated as soon as practicable; when tillage equipment is replaced, farmers should be advised not to renew discs; and (2) greater attention should be paid to guttering and culvert construction by road engineers.

Appendix 1 describes processes causing soil erosion and factors influencing its severity. Appendix 2 describes various methods for assessing erosion rates.

4.D.3. Information for Rural Land Planning in Arusha Region Tanzania, Christopher Dunford, David Mouat, and Dana Slaymaker, June 1980 (9 pages plus 30 pages of annexes)

Villages are the fundamental unit for development planning. Because the predominant economic activity in the region is subsistance agriculture and herding, regional and district planning officials decided that villages should be grouped into "agro-ecological zones." A two-step procedure to collect land and water resource information was designed. The first step was to make a rapid reconnaissance of the whole region to provide enough data to determine reasonable planning units to allow planners to identify those units that should have priority for land development projects. The second step was to survey the planning units given high priority to provide data for project design, implementation, and evaluation.

The initial map product of this procedure delineates land unit boundaries based solely on physical data. The combination or division of land units into planning units requires recognition of existing administrative boundaries and inclusion of social and economic information. The determination of planning units must be made by Tanzanian officials who will use the units in their work.

The land planning materials available for the region are described in this paper. They were presented to district officials in three workshops for Arumeru, Hanang, and Mbulu districts in May 1980. These officials reviewed and altered the preliminary land units. The revised land units have been grouped into land planning units designed to facilitate collection, organization, and interpretation of data relevant to land development and rehabilitation.

Vertical aerial photographs were made of a portion or all of eight pilot wards. The resulting prints and photomosaics should be used to initiate dialogue between district officials and villagers for development of general land use plans or specific land development projects for villages.

A procedure is recommended for a rural land information system to be obtained by moving from district to land planning units and from these units to villages.

Annex A describes the materials for the Regional Resource Center. Annex B describes the 245 preliminary land units of Arusha Region. Annex D contains maps showing the land planning units in each district and a listing of the profile villages in each unit.

4.D.4. Livestock and Wildlife, and Land Use Survey Arusha Region

4.D.5. Tanzania Final Report Vol. 1: Text (103 pages); Volume 2: Figures and Tables (84 pages)

Between January 16 and February 7, 1980, a total of 85,500 square kilometres comprising Arusha Region were surveyed by two aircraft using standard systematic reconnaissance flight methods. The objectives of the aerial survey were to quantify the distribution of domestic stock and wildlife, the major types of settlement and land use, the major vegetation zones, and the surface water sources. The flight lines were oriented east-west to cut across the major environmental features of the region, and they were spaced 10 kilometres apart. The aircraft were flown at 300 feet above ground level and at a mean ground speed of 168 kph. The sampling strips averaged 304 meters in width to give an overall sampling fraction of 3.04 percent.

This report discusses the environment of Arusha Region covering topography, soils, vegetation, natural water resources, and soil erosion. The data collected on the aerial survey were analyzed for the region as a whole and for each district. The distribution of settlements, agriculture, domestic stock, and wildlife is described. The estimated number of mahati roofed houses in the region is 53,000. Thatched roofed houses are more widespread, with 124,000 in the region. Nineteen percent of Arusha Region supports agricultural activities, with maize the most widely grown crop. The region contains 4,660,000 head of domestic stock including cattle, sheep and goats, donkeys, and pigs. It also contains 1,870,000 head of wildlife, 83 percent of which are in Ngorongoro District.

The distribution and abundance of agricultural and pastoral settlements were analyzed with respect to the political subdivisions within the region and to environmental factors such as soils, topography, surface water, and vegetation. The majority of agricultural settlements were in Arumeru, Mbulu, and Hanang while districts with pastoral settlements were in Ngorongoro, Monduli, and Kiteto. The density of agricultural settlements was lower in areas of no water resources and in areas containing only surface pools, compared with areas with river pools and lakes. Pastoral settlements were significantly associated with the areas of surface pools.

The interactions between stock, settlements, wildlife, and erosion were also analyzed. The numbers of cattle, sheep, and goats per occupied house declines as house densities increase, and wildlife densities also decrease as house densities increase. Erosion is primarily associated with heavy settlement pressure and heavy utilization by stock. Densities of wildlife show no significant association with soil erosion.

Volume 2 contains the figures and tables generated by the analyses of the data collected in the aerial survey.

4.D.6. Land Resource Survey and Planning Arusha Region Tanzania (9 pages)

This paper explains in detail with color illustrations the two-step procedure decided upon by APVDP and Arusha Region to obtain the information needed for land planning. Step One was a rapid reconnaissance of the entire region to provide data needed to divide the region into practical planning units. Once these units were defined, officials could determine which units should have high priority for land development projects. Step Two was to provide the detailed survey data needed for project design, implementation, and evaluation within the high priority planning units.

4.D.7. Land Information Materials Available to Arusha Planning and Village Development Project Arusha, Tanzania, Christine Dodson, December 1980 (45 pages)

This report summarizes the land information materials available to APVDP and describes current and anticipated uses by APVDP staff, government officials, and villages. Topographic maps provide the major base for information about the region, although since compilation roads have changed considerably and village locations may be inaccurate after villageization. The Ramani ya Vijyi and the individual base maps for districts with overlays of land units and the satellite images are available for use in the districts.

Color aerial photography was flown for eight pilot wards and Arusha town and put together as photo mosaics at a scale of 1:25,000. The existing black and white photography is of limited use due to the scale of 1:40,000 or smaller.

This paper describes the storage of the land information materials and a system for loaning them.

Appendix A lists the maps -- topographic, base and miscellaneous, satellite imagery, aerial photography; black and white and color prints and mosaics, Ecosystems, Ltd. survey data material -- oblique landscape slides, computer analysis reports, survey data sheets, soil color, dominant ground cover, and project designed materials; preliminary land units of Arusha; and land planning maps and overlays available in the Resource Center.

Appendix B describes the aerial photography available for Arusha Region and where it is located.

Appendix C gives information for accessing and ordering reference materials. And Appendix D gives cost comparisons for photo mosaicing options.

4.D.8. Proposed Land Planning Units for Arusha Region, Tanzania, Christopher Dunford, December 1980 (71 pages)

In planning for the land-based sectors (agriculture, livestock, forestry, fishing, fish culture, beekeeping, and wildlife), it is most efficient to first divide the region or district into areas that have distinctive resources, problems, and potentials. In the APVDP, these delineated areas are called land planning units. The units are proposed on a district-by-district basis recognizing the importance of planning at the district level. They were designed to organize land information about the districts.

Maps of each district with the land planning units delineated are presented in this paper with a survey data sheet for each unit describing: area, vegetation, soils, livestock, wildlife, houses, and crops.

4.D.9. Recommendations for Soil Conservation in Karatu Division, Mbulu District, Tanzania, Rorke Bryan, February 1981 (in English and Swahili) (16 pages)

The rapid expansion of agriculture during the past 20 years in Karatu division has been associcated with marked soil erosion. This paper examines the different types of soil erosion and makes recommendations about protective and reparative methods to be adopted.

The major soil erosion problems fall into four categories which require somewhat different treatment.

1) Major gully systems -- There is a series of very large gullies extending into cropland in the western part of the division near Sangarawa Mill, just south of Oldeani. Because of the scale of these gullies, control and restoration will require quite elaborate techniques. A detailed feasibility study of the 60 Km2 area of intense gullying will be necessary before a reclamation project can be designed and budgeted.

2) Sheet and rill erosion -- It appears that the complete agricultural area of the division is affected by sheet and rill erosion, and in many cases poor agricultural practices exacerbate the problem. Measures to be taken to control this erosion include (a) intercropping beans with maize and surface mulching with organic matter and (b) adoption of contour ploughing supported by contour grass bunds.

3) Overgrazed hill slopes and crests -- Virtually every hill crest and steep hillslope in the area shows evidence of heavy overgrazing. Measures are necessary to rehabilitate severely degraded slopes and prevent further damage to agricultural land on lower slopes. A closer balance between carrying capacity and stocking levels must be established and a policy of innovative agroforestry introduced.

4) Minor gully control -- A large number of minor gullies exist throughout the division. A mobile gully control unit should be formed to construct small temporary check structures, divert water flow by simple ditches, grade slopes, and establish sisal in and around stabilized gullies.

Other recommendations include acquisition of essential data on precipitation, soil erodibility, and soil fertility and establishment of a district soil conservation supervisory committee to review and plan soil conservation activity.

4.D.10. Change in Cultivated Areas and Erosion Gullies in Northern Mbulu District, Tanzania 1958 to 1972. A Report and Maps, Christopher Dunford, May 1981 (4 pages with abstract)

Mapping of cultivation and erosion gullies from aerial photography of two dates, February 1958 and January 1972, shows that cereal cultivation expanded greatly in the Karatu-Oldeani-Endabash area in the intervening 14 years, but erosion gullies remained fairly stable. In 1972 cultivation had just recently expanded into the vicinity of the already existing extensive gully systems, so there had been little time for the gullies to respond to the changes in runoff from surrounding lands. Since 1972, rates of gully expansion have probably increased dramatically. Therefore, up-to-date aerial photography must be obtained to provide expansion rate measurements that are useful for design of gully control projects.

A base map and two overlays have been prepared. Cultivation and erosion gullies were the two principal land features mapped on the overlays. (These maps are located in the Resource Center.)

4.D.11. Promotion of Land Use Planning In Arusha Region, Francis G. Finda, June 1981 (12 pages)

Land use planning for the sustainable development of the productive potential of Arusha Region is a major focus of the region's long-term development plan. This paper discusses the implications of population growth and the resulting land pressures in Arusha Region, as well as the actions that are being taken to formulate land use planning policies and activities that maximize production in the region while preserving its productive resources. Specific land-related issues that are addressed include livestock development initiatives, wildlife potentials, and the implications of current land use and population growth trends. The experience of introducing a methodology of land use planning in Olkokola Ward of Arumeru District is reviewed and analyzed in terms of its potential for replication elsewhere in Arusha Region and in Tanzania.

Current efforts in the development of land use planning and resource conservation as basic components of Arusha's long-term development planning include the following:

- Promotion of an extension effort to build the land use planning capabilities of villages where the major decisions are made;

- Establishment of regional and district land use planning committees to formulate policies and land use plans;

- Development of technical capabilities for training, assessing the rates of return from alternative land uses, developing programs in soil conservation, and making technical recommendations for land use by competing interests;

- Development of projects for those areas that are severely affected by soil erosion as well as the introduction of better land management practices to the villages and other land users;

- Educational campaigns on the problems of population growth and the resulting land pressures, support for traditional and modern family planning education programs, study of migration control policies and planning, and encouraging and assisting the movement of people into areas where economic development can be sustained; and

- Development and testing of alternative approaches for ward and village-level land use planning in pilot areas selected by the districts in Arusha Region.

4.D.12. APVDP Soil Conservation Workshop, Summary and Conclusions, Rorke Bryan and Tom Dunne June 1981 (13 pages)

The Soil Conservation Workshop was recommended in response to the following problems:

- Soil erosion in the region results from complex interaction of numerous factors, and effective conservation initiatives require cooperation between government officers with varied training and background;
- The effectiveness of field officers is limited by lack of opportunities for them to discuss mutual technical problems with their counterparts in other areas; and
- Although some of the technical requirements for soil conservation are known and understood, the major obstacles to effective action are often administrative, economic, or social.

The workshop stressed a number of fundamental points:

- The need for effective conservation to involve multidisciplinary communication and cooperation;
- The need to develop flexible conservation strategies adapted closely to individual erosion problems at village or even individual shamba level; and
- The desirability of basing conservation measures on field observations and data collected rather than on blanket text-book solutions;

Obstacles to effective conservation activity were identified:

- Failure of field officers to get out into the field and maintain close effective contact with bwana shambas and villagers;
- Lack of enthusiastic and continuing encouragement from senior officials to stimulate effective action; and
- Lack of basic agricultural data, which hampers rational planning of conservation measures.

Conservation initiatives are discussed for Arumeru, Mbulu, and Hanang.

4.E.1. The Livestock Sector in Arusha, Ian Walton, December 1980 (138 pages)

To assist in meeting the rising demand for food in both rural communities and rapidly expanding urban areas, output from the livestock production sector must be increased and, at the same time, the efficiency of sector support services maximized. This paper identifies positive and negative elements operating in the sector, suggests possible areas for investment, and provides a background for discussion of livestock and livestock-related activities among regional and district personnel. It discusses the livestock population in Arusha Region; husbandry practices and farm management; and livestock production including meat, milk, hide, and skin production. Livestock support services are described. These include veterinary services, water supply, input supply, livestock marketing organizations, processing of livestock and livestock produce, and research and extension in relation to livestock production.

Under the section on Livestock Sector Planning, major recommendations are listed.

- Competition for land among livestock, agriculture, wildlife, and tourism is severe, and to date livestock often appears to have taken last place in allocations. Two major approaches are suggested: (a) representatives of the livestock division be full voting members on regional and district land advisory committees and (b) survey and research work should be conducted to identify current range use patterns throughout the extensive range areas.

- Little is known of on-farm livestock husbandry practices, their relationship to total production or individual animal productivity, or how they fit into overall farm systems. A production systems research program should be initiated that would identify areas in which farmers could improve production from herds and flocks and enable support services to be designed to meet locally felt requirements.

- Programs should be designed to train and equip livestock support service staff at all levels to better carry out their roles in the service.

- To meet the need to destock and/or increase offtake, the reasons for sale of stock need to be examined and were possible means found for generating cash requirements in rural areas. It is therefore recommended that the possibilities of payments being made for use and maintenance of veterinary and water supply facilities be examined.

- A feed mill separate from NMC responsibility should be established to mill crops for livestock consumption. Livestock feed requirements should be integrated with reforestation and soil conservation needs and with crop production and crop by-product utilization.

- Land advisory committees should devise development plans on an integrated multi-sector basis, before expansion into new areas. In the past, areas cleared of tsetse for livestock rearing to relieve pressure on overgrazed areas have quickly been taken over by crop cultivators.

4.E.2. Maasai Motivation and its Appliction. A Study of Maasai Organizational Ability as Applied to the Cattle Marketing System 1938-1959, Henry Fosbrooke (8 pages)

The Maasai possess a social system that is capable of ensuring that a large group can take concerted action to achieve a desired objective. The age-set system is maintained through this social system, and the young men still seen in their traditionaal hair style are a visible manifestation of this functioning social system. Can the discipline and communication in this system be applied in the achievement of objectives arising from modern circumstances, or is it confined to the continued functioning of the traditional system?

Two examples show its strength in modern circumstances. One is the establishment of functioning cattle markets in the early 1930s. The other is the Maasai "gift stock" scheme in which the Maasai contributed 27,000 head of cattle to the war effort.

Maasai cattle sales are down now, and ranching associations have failed to gain Maasai support. Could the Maasai social system have been harnassed to obtain the objectives of the AID scheme?

Annex I contains two tables showing cattle sales from Maasai and Mbulu districts from 1938 to 1959. Both tables show an increase over the 22-year period. A quota system was introduced in 1955; it pushed the average from 15,000 to 27,000. It is not clear what sanctions were employed to enforce the quota, but a resolution at the annual council would be sufficient to bring into play the tribal disciplinary system whereby the force of public opinion ensures obedience.

4.E.3. Maasai Motivation and its Application Annex II. The Maasai "Gift Stock" Scheme 1940-1944, Henry Fosbrooke (9 pages)

This case study is recorded to exemplify how an indigenous socio-political system can function and adapt itself to a set of extraneous circumstances which it had not been developed to handle. It concerns the contribution of the Tanzania Maasai to the war effort in the 1939-1944 period. The background is drawn from Henry Fosbrooke's own recollections, but the course of events is recorded verbatim from the provincial commissioner's annual reports.

The Maasai govern themselves through an age set system that produces in each set leaders who are responsible for the execution of tribal, administrative, political, and religious policy. The Tribal Council (Ol Kiama) made the decision concerning the "gift stock" scheme, but the action arising out of this top level decision was taken by the leaders of the various age sets concerned.

The scheme proposed that the Maasai should contribute, without payment to the owners, 6,000 head of cattle per year for the duration of the war for conversion into canned bully beef to provision the fighting forces. A grand total of 27,308 head were contributed. This tallies closely with the aim of the scheme.

To what extent does the Maasai socio-political system retains the functional capacity today that allowed implementation of this scheme, and how can it be harnessed to achieve the present day objectives of the party and the people?

4.E.4. Tsetse Clearing in Mbulu District, 1936-1952, Henry Fosbrooke (10 pages)

The people of Mbulu District (now Mbulu and Hanang) were increasing beyond the capacity of their country to carry them in the 1930s. The greatest constraint to expansion was the tsetse fly, for all the people of the area were herdsmen. In 1936 the majority of people in Mbulu turned out in connection with anti-tsetse work by felling trees and clearing bush. In 1940 the D.O. in Mbulumbulu organized tsetse clearing with communal labor.

In 1943 sleeping sickness broke out in the Kiru area and acted as a great stimulus to anti-tsetse work in the area. This paper illustrates how a people, given leadership and adequate technical advice, can respond to a threat. Between 1943 and 1952 large areas were made available for settlement and grazing. In all, 337 1/2 square miles were cleared and the regenerating bush on a further 138 1/2 square miles of previous clearing was reslashed.

Cleared land should be settled at a density high enough to keep regeneration of bush under control. If a clear barrier of at least one mile is maintained between infested and uninfested areas some regeneration can occur without reinfestation. The newly cleared land must be used properly, especially, proper soil and water conservation measures must be taken.

This paper concludes that today, with the population of Mbulu now double what it was in 1948, a similar or even greater effort than that produced for tsetse clearing from 1943 to 1952 is possible without disruption of village life. And in today's circumstances adequate machinery exists to effect similar action through the DDD, his planning officers, and the party.

Thus, if the motivation is fostered, the technical advice made available, and the existing administrative machinery employed, there seems to be no reason why the people of Mbulu (and elsewhere) should not make ample tsetse-free country available for their surplus population.

4.E.5. Assessment of the Arusha Livestock Situation and Recommendations for Use in the Arusha Region 1980-1985 Livestock Plan, M. Jacobs, J. Malewas, and G. Sumari, April 1980 (63 pages)

The purpose of this paper is to formulate a draft of livestock constraints, potential, recommendations, and financial costs for use in the regional livestock five-year plan. It includes an assessment of rainfall in the region, a discussion of animal health, overstocking, water resources, breeding constraints of ruminants, poultry and swine production, and a description of secondary constraints to livestock production.

The recommended purpose of the Arusha Regional Livestock Plan is to provide animal protein to meet future regional human daily protein growth requirements and to continue exporting animals for slaughter or sale to other regions. Specific goals recommended are:

- By 1980-1985 build up infrastructural support and delivery systems to minimize disease and water resource constraints and improve marketing facilities;
- By 1985 begin de-stocking an estimated 1,300,000 sheep, goats and cattle in Mbulu, Hanang, and Arumeru districts at the rate of 130,000 animals per year;
- Complete de-stocking by 1995;
- By 2000 increase average animal productivity by 25 percent for sheep and goats, 20 percent for cattle, and 25 percent for milk production. Average herd offtake rates increase to 9.5 percent for sheep and goats and 8 percent for cattle; and
- Begin to increase swine and chicken production.

Inputs needed prior to de-stocking and inputs needed to reach the specified goals are listed. Management guidelines for breeding stock and suckling young ruminants, ruminant breeding program guidelines, and range management guidelines are presented.

4.E.6. Range Management in Arusha Region. A Discussion Paper by D. D. Peterson and T. T. Peterson, July 1980 (72 pages)

Range Management in Arusha Region deals mainly with the range resource as it relates to livestock production in the traditional sector. The paper draws heavily on experience and information deriving from the village profile exercise, a village information gathering effort in which the authors participated (see Village Profile Exercise).

An overview of regional demographic, settlement, and land use patterns and trends is initially presented as background information that has direct bearing on the current livestock and range situation. This is followed by a description of current range practices and trends divided into two broad categories: subsistence pastoralism based on transhumance, and livestock husbandry in association with crop production.

The second major section summarizes land use and demographic statistics by district. These indicators of land use intensity are then used to aid interpretation of resource and environmental parameters drawn from the village profile data.

Livestock sector research, training, and services only minimally deal with the ecological problems and dynamics of the semiarid extensive range lands on which the larger share of the region's livestock depends. As a means of remedying this situation, it is recommended that: (a) closer links be established between the regional livestock department and the Serengeti Research Institute; and (b) the Rural Training Center at Monduli be revitalized and reoriented to conduct applied research as part of their extension outreach program.

A major constraint limiting sound range management practices is the lack of institutionalized rights and control of communal grazing lands compared to the individual control and direct property rights associated with cultivated land. This has precipitated the rapid diminution of grazing lands throughout the region, disrupted ecologically sound transhumant systems, and led to unplanned foreclosure of the livestock option to the dismay of livestock owners in mixed farming villages.

A basis for villager identification with and organization and planning within a land unit has been established throughout the region through villageization. The authors recommend that land use planning and resource management at the village level be initiated by multidisciplinary teams of technicians from the district with full participation by the villages concerned.

To alleviate the shortage of technical range management expertise, a training and extension program should be organized and coordinated through the Rural Training Center, Monduli. The function of such a program would be:

- To provide village level technical expertise and support for initiation and follow up of resource plans;

- To initiate and coordinate simple rangeland monitoring by villagers; and

- To establish a resource center for compiling and consolidating traditional range knowledge (including an herbarium) as well as for collecting relevant scientific reference literature.

Under policy contraints the following recommendations are made:

- There is a need for clear cut land use policy guidelines similar to those the Range Act of 1964 was intended to provide. There is also the need for a clear definition of large scale land allocation policy;

- Greater flexibility within villagization policy is desirable and, in some cases, necessary for more productive and sustainable resource use; and

- Range burning should not be completely prohibited but rather controlled in order to allow for its use as a range management tool.

4.E.7. Livestock Leaflets, 20 Subjects (Swahili). Regional Livestock Development Department and Regional Resource Center, June 1982 (distributed during the quarter)

Twenty leaflets on various livestock production topics have been prepared for distribution as part of the extension communication activities of the APVDP-sponsored Pilot Livestock Extension Project. Topics covered are as follows:

- Guidelines for improved livestock feeds;
- Relationship between livestock and pasture management;
- Use of hay as a dry season feed;
- Guidelines for use of Leucaena;
- Guidelines for soil conservation;
- Guidelines for general prevention of livestock diseases;
- Anaplasmosis disease;
- East Coast Fever;
- Heartwater;
- Red Water, Piroplasmosis;
- Trypanosomiasis;
- Anthrax;
- Guidelines for care of calves:
- Guidelines for proper milking technique;
- Guidelines for care of piglets;
- Guidelines for castration;
- Guidelines for removal of horns;
- Guidelines for marking cattle;
- Guidelines for preparatin of hides and skins; and
- Guidelines for drying of hides and skins.

4.F.1. Profile and Analysis of Government Manpower in Arusha Region, Liz Wily, September 1980 (868 pages)

Volume One:	Introduction, Summary of Findings, Summary of Recommendations, Background, Development of Government Manpower
Volume Two:	The Training, Administration and Management of Government Manpower in Arusha Region
Volume Three:	Constraints and Incentives, Discussion and Recommendations
Volume Four:	Appendices

Manpower is one of the key resources the regional government has at its disposal to implement its responsibilities. Arusha Region has 10,000 officers, or one for every 106 citizens. Considering nearly half of these are primary school teachers, this is a low ratio. Two-thirds of the work force are not formally trained for the job they hold. They are qualified only by years of experience. There are only 57 university degree holders among the region's staff, and only 134 staff with diplomas.

However, the severest problem facing the region in regard to manpower is one of staff management. The region is not making the most of the staff it already has, cutting productivity and capability in half. Three main elements in undermanagement are:

- The way in which the work force is distributed within sectors, among the districts, in the field, and among sectors is often unproductive;
- The work force is inadequately managed resulting in massive loss of work time, lowering of morale, the underutilization of existing expertise and experience, and diffused commitment and effort; and
- Existing staff members are poorly supported, both in relation to personal welfare and professionally.

It is strongly recommended that the region concentrate its efforts on developing the capability and productivity of its existing workforce. Several key elements in such a programme would be:

- The improvement of overall administration of the region's work force, ranging from more efficient handling of staff welfare matters to tackling the problem of staff housing;

- The improvement of staff management, within the context of sectors and of district directorates. All elements of manpower management should be tackled, including development of staff, programming of work, alignment of work programs with district or regional objectives, and strengthening of support systems; and

- The development of the technical capability of the existing work force.

4.F.2. General Conclusions and Recommendations of a Profile and Analysis of Government Manpower in Arusha Region, Liz Wily, October 1980 (31 pages)

This paper lists the broad conclusions from the four-volume report on manpower in Arusha Region. It then goes on to summarize the findings under the following headings:

- National manpower planning and policies;
- Manpower planning in Arusha Region;
- Recordkeeping on manpower data;
- The dynamics of a decentralized system of administration;
- The facts and figures of manpower development in the region;
- Training;
- The department of manpower management;
- Manpower administration;
- Housing;
- Transfers;
- Promotions;
- The management of manpowe;
- Village managers;
- Transport; and
- Areas of overall constraint.

Strategies for developing the manpower capability of the region are listed in the following categories:

- Commitment and responsibility for improved manpower development in the region;
- Feedback;
- Manpower planning and plans;
- Improvement of manpower administration in Arusha Region;

- Improvement of the management of the region's manpower; and
- Improvement of the training of the region's manpower.

4.G.1. Agro-forestry and Its Relevance to the Arusha Region, Henry Fosbrooke (17 pages)

Agro-forestry is the "rational and sustained use of a unit of land area for the harmonious production of both agricultural crops and the forest species, together or in sequence, primarily for the benefit of the local community." Indigenous agro-forestry in Arusha exists on the foothills of the Meru (trees grown with bananas, coffee, beans and vegetables), in coffee plantations further down the slope, and in the practice of bush follow and use of fodder trees. Due to increased population pressure, it is unlikely that areas will be found in the region where bush follow on the same lines as the old indigenous system can be maintained.

The possible applications of agro-forestry in each of the three major ecological zones in the region are as follows. In the forest reserves cultivation or glade grazing by farmers may be allowed. Will such uses increase the farmer's interest in preserving the forest or make him more determined to get the forest for his own unrestricted use? In the high potential areas the practice should be improved or introduced and the potential for fruit trees developed. In the semiarid areas much land is already devastated by misuse. Establishment of trees in devastated areas is difficult and expensive, but information is available on the experience of others.

The part played by agro-forestry in newly cultivated areas must be carefully considered. It should also be considered in areas where large-scale mechanical production of beans is found (along Arusha-Moshi road). In unoccupied areas agro-forestry principles should be applied prior to the establishment of a village or large scale mechanical cultivation.

Conflict between agro-forestry and the necessity to clear land of tree cover to prevent infestation of tstse must be considered. Tsetse can be controlled by discriminative clearing rather than clear felling and much can be learned from a study of past clearings that are now reverting to bush. (List of 14 relevant publications.)

4.G.2. Fisheries in Arusha Region, Tanzania, Phoenix Development Services, Ltd., May 1980 (47 pages)

This paper describes fishing and fish culture in each of the following districts in Arusha Region: Arumeru, Monduli, Mbulu, Hanang, and Kiteto. Commercial fishing areas include Lake Monyaro in Monduli district, Lake Tlawi in Mbulu, Lakes Babati, Basotu and Manyara in Hanang, and Nyremba ya Mungu, Nomelock and Olkilikiti in Kiteto. In Monduli and Mbulu fish is sold fresh at the local market, in Hanang it is smoked and dried and sold fresh, and in Kiteto it is sold smoked or fresh. Problems with the expansion of fishing and fish culture include low acceptability of fish as a food item, overfishing producing declining fish yields, difficulties in assessing stock, poor equipment such as lack of nets and transport, past harvest losses, and lack of management techniques.

The following recommendations are presented:

- An introduction to and the implemention of the Frame Survey Method for obtaining fishery statistics;
- No upgrading of fishing equipment and techniques at present;
- Adequate distribution of nets and thus regulation of mesh sizes;
- Establishment of a hatchery to produce a reliable supply of quality fry;
- Employment of an aquaculturalist to establish a hatchery, upgrade fish culture in the region, and train Tanzanians; and
- Expansion of the existing fisheries training course.

4.G.3. Forestry in Arusha Region, Tanzania, T. J. Synott, July 1980 (76 pages)

This report provides a summary of information about forests and forestry in Arusha Region covering such aspects as forest laws, forest reserves, forest areas and timber resources, forest protection, tree nurseries, wood production, pit sawing, saw mills, forestry staff, and revenue and expenditure of the Forest Department.

A forestry workshop was held at Olmotonyi Forestry Training Institute on July 8-12, 1980. The participants identified great potential for improvement and felt the main impact on resources and development of the region could come from:

- Increased control of tree cutting on public land;
- A broader approach to rural forestry, covering all kinds of trees and shrubs and integrated with agriculture and livestock production;
- Greater efforts to supply fuel needs of Arusha and other large towns from plantations;
- More information about stocking and production in Meru plantations and the catchment forests and about needs of large and small wood-using enterprises; and
- Long-term management planning to match supplies and demands.

Recommendations for information required, planning and policy decisions to be made, and action to be carried out relevant to forestry in Arusha Region are presented in the last section of this report. They include:

- Villages should be encouraged to manage their own communal nurseries;
- The Forest Department should encourage establishment and maintenance of village woodlots and promote private tree planting and self-sufficiency at the family level;
- Township plantations should be established;
- Forest Division extension service should be broadened;
- Tree planting of all kinds to protect soils should be promoted;
- Higher priority should be given to the water catchment functions of forest reserves;

- Resource surveys should be carried out;
- A management plan should be devised covering the Forest Reserves and plantations to satisfy all commercial markets as fully as possible;
- Legal provision should be made to allow the Forest Department and village authorities to control charcoal burning and firewood cutting on public and village land;
- Transport should be provided for DFOs and extension staff; and
- Relevant training should be provided for district staff, for bwana shambas, and at Olmotonyi.

4.G.4. Beekeeping in Arusha Region, Tanzania, Christopher Dunford, July 1980 (16 pages)

Bees are a widespread and valuable resource in rural Tanzania. The common African race of honey bee, Apis Mellifera Adansonii, is highly productive and well adapted to tropical wet-dry seasonal cycles and frequent depredation by honey hunters. In Arusha, the honey collecting season is June and July and again in December.

Honey is collected from colonies in naturally occurring cavities in trees, from traditional man-made log hives, and from modern hives. The honey is used as food and medicine, and (the largest use) to make honey beer. Beeswax was traditionally used for making torches. Pollen and brood are used as food, and propolis is used as a glue.

Modern beekeeping emphasizes the capacity to harvest honey without destroying the bee colony. Two types of moveable-comb box hives are manufactured in Tanzania -- the Tanzania Commercial Hive and the Transitional Long Hive. Commercial use of bee products is limited to honey and beeswax. Most honey changes hands between local collectors and local consumers. Most beeswax is exported through GAPGX.

An aerial survey sighted a high concentration of beehives in Hanang and Mbulu while government statistics indicate more widespread beekeeping concentrated in Kiteto. Production from traditional log hives far exceeds that from modern hives, both in total and per hive.

The Beekeeping Division of the Ministry of Natural Resources and Animal Production is responsible for policy development, training of staff, and research on bee biology and beekeeping techniques and equipment. In 1979, there were 14 beekeeping staff in Arusha Region, 5 of whom were assigned to Kiteto.

The potential contribution of bee products, especially beeswax, to the national economy as foreign exchange earners is hardly exploited at present. In Arusha the primary constraint is lack of an efficient marketing system. Incomes of beekeepers could be increased by the use of moveable comb hives. Lack of awareness of their value and cost hinder their adoption.

The goal of the Beekeeping Division is to develop beekeeping projects in villages, within district development corporations, and as part of school programs. The division is assuming direct responsibility for beekeeping activities in Kiteto District. This is presumably because of its proximity to the Mandeni processing facility and its higher potential as a beekeeping area. A strategy for the other five districts of Arusha Region should

emphasize marketing of beeswax, the four divisions of Mbulu and Hanang which are most important, and integration of marketing and extension services to improve flow of new ideas to producers.

4.G.5. Prefeasibility Assessment of Geothermal Resources in Northern Tanzania, Kathleen Crane (13 pages)

The area near Arusha is split by the Gregory Rift, which is a segment of the great East African Rift. Three major geothermal regions are associated with the rift. These are located in the three largest soda lakes in the Tanzanian Rift -- Lake Natron, Lake Monyara, and Lake Eyasi.

Ol Doinyo Lengai, an active volcano, lies just south of Lake Natron. Interaction between the alkaline lavas of Lengai and a ground water reservoir beneath Lake Natron is probably responsible for the generation of the soda brines in the lake. There is probably a deep rift channel feeding the hottest springs along the steep western scarp and a much shallower reservoir on the east that is heated by Ol Doinyo Lengai.

Lake Manyara is bordered on the west by a major set of fault scarps. The largest spring, Maji Moto, is located on the western shore with temperatures greater than 72 degrees centigrade. Thus there is definitely a major thermal source along the fault.

On the eastern escarpment bordering Lake Eyasi is another, but much cooler (37 degrees centigrade), source of hot water spring.

In addition to hydrothermal spring sites, two likely volcanic sources of geothermal energy exist in northern Tanzania, Ol Doinyo Lengai and Mt. Meru.

Hot brine has the greatest potential for development as a long range geothermal energy supply.

The locations of volcanic energy are not necessarily the same as where man lives. Thus the concept of developing geothermal plants in Tanzania should include thoughts about storing and distributing the volcanic energy to the energy demand centers of Tanzania. If there is to be a serious study of geothermal resources in northern Tanzania, the following methods of investigation should be carried out: electrical resistivity surveys, magnetic surveys, seismic refraction surveys, hydrogeologic analysis of water supplies, and infared surveys by air or satellite. The feasibility for extracting geothermal energy from northern Tanzania is great, but it will require intensive surveying in the region involved.

4.G.6. Notes on Forestry in Hanang District, T. J. Synott, June 1981 (4 pages)

There are three government nurseries in Hanang -- at Mrara, Madunga Kati and Magara, and APVDP proposes to finance two new nurseries, at Jorodom and Madunga Kati. Both new nurseries will produce a wide range of species. Initially they will aim at 50 percent fruit trees and 50 percent for poles, fuel, timber, etc.

Due to the impossibility of supplying the needs of all villages from a few central Forest Department nurseries, APVDP should promote small, cheap, village nurseries as widely as possible. Costs can be reduced by planting in banana-fiber pots or open beds and using voluntary village labor.

On hill slopes east of Babati in Riveri village, the Forest Department has planted Cassia Siamea and Grevillea for soil protection and wood production. Funds are provided each year for new planting, but funds are not provided for adequate weeding and protection. High production plantations of eucalyptus, more suitable for township fuel and pole plantations, are needed.

Management of Forest Reserves should include new timber plantations and selective cutting of mature large timber trees. Poles and fuelwood would be better provided from trees grown within farms and villages in the future. APVDP should help and influence the management proposals being prepared by the Forest Department.

Poor distribution of staff is one of the main factors reducing effectiveness of the Forest Department in promoting village forestry and in protecting natural resources. In Hanang, staff members are concentrated in Babati rather than in the rural areas.

Trees to be grown for fruit, fodder, hedges, timber, poles, and fuel are recommended for Arusha Region.

4.G.7. Proposals for Forestry Projects in Arusha Region, T. J. Synott, June 1981 (4 pages)

The increasing shortage of fuel, poles, and timber and the degradation of livestock fodder resources are among the most serious problems identified in Arusha Region. Successful tree planting and the forestry activities of most villages and the Forest Department are practically insignificant. Projects described here are part of district, regional, or national policies, but action is prevented due to lack of funds, encouragement, coordination, initiative, incentives, and lack of experience in getting things done.

A rural forestry and forestry extension program is proposed to promote small village and ward nurseries throughout the region, to promote the establishment and management of trees and shrubs in farms, villages, schools, etc., and to establish an active and effective Forestry Extension Service.

Township fuel and pole plantations are proposed to increase the supplies of firewood, good quality building and scaffolding poles, and perhaps charcoal at reasonable prices; to reduce the destruction of trees and shrubs and consequent local shortages; and to prevent environmental deterioration in the rural areas from which towns are currently supplied.

A management and conservation plan for indigenous forests is proposed that would include compiling basic information about the forest resources of Arusha Region and their environmental importance and drawing up a plan and work program for protecting the forests and controlling the removal of trees, contributing to local needs without producing deterioration.

The requirements and implementation of these three projects are discussed.

4.H.1. Population Profile of Arusha Region, Alan Johnston, January 1980 (143 pages)

Between 1967 and 1978 the population of Arusha Region grew at an annual rate of 3.8 percent compared with a rate of 3.3 percent for the Tanzanian mainland as a whole. The current estimated annual growth rate of 3.8 percent is composed of a rate of natural increase of 3.3 percent and a net in-migration rate of 0.5 percent. At this rate of growth the population of the region will increase from 928,478 in 1978 to 1,256,000 at the end of the Fourth Five Year Development Plan in 1986, and will double by the end of the century.

The main objective of this report was to assemble a demographic profile of Arusha Region to be used in planning for the long term development of the region. The report was one of the first steps in assembling the background information required for the preparation of the Region's Long-Term Development Plan.

The population profile of Arusha Region was prepared using three primary sources of demographic information: the 1967 Census, the 1973 National Demographic Survey, and the 1978 Census. The 1978 Census figures are the most important source of information for planners, and since publication of the figures by the Central Bureau of Statistics was likely to be delayed, the report includes three sets of data as aappendices: 1978 population figures for all villages in Arusha Region, district summaries, and population breakdowns by age group and sex for the APVDP pilot wards. It is recommended that the regional authorities press for early release of the data and for early analysis of the data from the detailed questionnaire as this will provide the most accurate source of demographic data for planning.

The data required to make reasonable population projections was also assembled and a series of population projections made for Arusha Region and for each of the districts by age groups for five year intervals from 1980-1995. Additional projections for Arusha Town and Arusha District were carried out using a range of assumed rates of growth. The report includes a chapter on a simplified method for making population projections for sub-regional populations, for use by district planning officials using hand calculators.

The final sections of the report review the policies of the Government of Tanzania on the various aspects of population growth and movement, the demographic implications of the development approach adopted by the Arusha Planning and Village Development Project, and recommendations for a regional strategy for dealing with population planning.

4.H.2. Monitoring Population Growth in Arusha Region: Population Data Collection Systems and Suggestions for Improvement, C. Lwechungura Kamuzora, October 1981 (49 pages) (Summary in English and Swahili)

In the formulation of long-term development strategies for Arusha Region, rapid population growth has been identified as one of the most serious constraints to development. The design of a system for providing accurate information on population size and the components of population growth has been seen, therefore, to be crucial for planning purposes. This study was designed to assist the Regional Planning Office in the development of a village level data collection and reporting system; to assess currently available data and provide district-specified estimates of the components of population growth (fertility, mortality, and migration); and to assess the prospects for developing a pilot vital statistics collection system.

Presently there are two existing systems of data collection at the village level: the national census and the CCM party village reporting system. This report recommends improvement of the village reporting system through the provision of reporting forms for the ten cell leaders and village secretaries to accurately record population and migration information. It is suggested that an enumeration be carried out once a year, but that births and deaths be reported by the ten cell leaders to the village secretaries as they occur.

From available data and impressions from discussions with party and government officials the best possible current estimates were made of the components of population growth for Arusha Region and for each of the seven districts. An overall population growth rate of 3.8 percent per year was estimated for Arusha Region. Regional and district estimates are given below:

DISTRICT	CBR (PER 1000 POPULATION)	CDR (PER 1000 POPULATION)	RNI %	NMR %	POPULATION GROWTH RATE %
Arumeru	50	12	3.8	-0.5	3.3
Hanang	49	14	3.5	+0.6	4.1
Mbulu	49	14	3.5	0.0	3.5
Monduli	42	16	2.6	+2.0	4.6
Ngorongoro	42	16	2.6	0.0	2.6
Kiteto	42	16	2.6	+1.8	4.4
Arusha (Urban) District	40	12	2.8	+2.2	5.0
REGION	47	14	3.3	+0.5	3.8

Key: CBR - Crude Birth Rate; CDR - Crude Death Rate; RNI - Rate of Natural Increase; NMR - Net Migration Rate.

If this rate of population growth persists, the population of Arusha Region will double in 19 years. The population of Arusha Region will grow from a current (mid-1981) size of 1,035,761 to a population of 1,256,036 (by mid-1986), giving an increase of a quarter of a million people during the current five year plan period.

This report also includes a review of the evolution of vital registration in Tanzania.

4.H.3. Assessment of Inter- and Intra-Regional Migration in Arusha Region, Wilfred Mlay, October 1981 (Summary in English and Swahili) (28 pages)

Knowledge of the movement of population across administrative boundaries is essential for effective development planning. At the regional level it is important to know the volume and direction of migration in and out of the region as well as the pattern of inter- and intra-district migration. From such information, the contribution of migration to the growth of the population in the region and its districts can be assessed. In addition, policies and procedures can be instituted either to encourage migration to areas with available land and high potential for development or to discourage migration to areas with land pressure.

The purpose of this assessment of the magnitude, direction and determinants of inter- and intra-regional migration in Arusha Region is, first, to assist the Regional Planning Office in assessing the extent of migration and its effects in the six districts of the region, and second, to suggest policy options which can be used to regulate migration in order to enhance the development of the districts and the region.

Data on migration is limited and no firm estimates of current migration can be given for the region or its districts. However, this report presents the best estimates possible based on available information and on discussions with regional and district officials. For long-term planning it is recommended that: 1) data on migration from the 1978 Population Census be made available to the region as soon as it is processed, in order to facilitate its use; and 2) the proposed format for the collection of CCM data be discussed between party and government officials and the format be adopted and distributed to the villages in order to ensure that the information will be available for use in planning for next year.

Part two of this report includes a review of present policies and procedures for regional, district, and village regulation of migration, including a review of the relevant legislation. The following actions are necessary if existing policies are to be effectively applied to solve migration problems in the region:

- The problem of migration in and out of districts must be handled and planned for at the regional level;
- A comprehensive assessment of the existing migration problems is required;
- Districts with problems of land pressure should provide an assessment of the potential volume of outmigration, by listing those desiring or willing to move;

- Districts with "room" for in-migrants should assess their capacity to absorb migrant populations;

- Districts with no migration problems should invest in resource conservation and land use planning to stem future need for out-migration;

- Districts should invest in non-traditional but economically viable activities which require little land but employ a lot of the available human resources;

- The region will have to consider the ecological requirements for each of the various farming systems and the growing conflict between pastoralists and in-migrants who are increasingly expanding cultivation;

- The region should assist the districts and villages to implement existing regulations and policies that can check migration;

- Villages should keep a record of all school leavers and plans for their productive employment in the villag; and

- The Regional Planning Office should give the migration issue priority attention and aid in the implementation of these actions.

4.H.4. Population Pressure in Arumeru District, Development of Strategies and Policies for Dealing with Population Pressure in Arumeru District, Wilfred Mlay, May 1982 (In English and Swahili) (81 pages)

Population pressure has been identified as one of the main constraints to development in Arumeru District. Rapid population growth, maintenance of large numbers of livestock, and consequent deterioration of soil fertility are some of the key factors which influence the magnitude of the problem. The most conspicious evidence of population pressure includes: diminution of household plots, land fragmentation, soil erosion, overstocking, high agricultural densities, decline in land productivity, eradication of fallow, and increase in outmigration.

This project was undertaken in order to assist the district to develop strategies and programmes to deal with the problem and to assess the extent and pattern of population pressure. This involved collection of basic demographic and land use data using a village population count supplemented by a sample survey of selected villages. The analysis of this information and data from the 1978 Population Census have made possible the estimation of current and probable future demographic trends and their likely impacts on land resources.

The fertility rate in Arumeru District is 50 births per thousand, while the mortality level is the lowest in the country (crude death rate of 12 deaths per 1000 people). Out-migration exceeds in-migration, and this difference is 0.5 percent. Thus, the population is growing at a high rate of 3.3 percent, and the population of the district is increasing by about 8,800 persons per year. Outmigration is a possible solution to the problem of rapid population increase, but this solution is dependent on availability of large investments to improve marginal lands in the district and elsewhere or to develop industry.

Although the average density figures indicate a modest concentration of population, in actual fact over 50 percent of the population lives in areas of very high densities (over 200 persons per square kilometer). Population pressure exists in most parts of the district and varies only in degree from one ecological zone to another. Even in low density areas, the existence of very high livestock densities in areas of generally poor land resources put such areas under severe pressure in real terms.

The pattern of land use shows that land is generally a scarce commodity in the district. Land is most scarce in the coffee-banana belt, but good agricultural land is equally in short supply in the pastoral lowlands. There is a growing tendency for agriculture to encroach on land that is more suitable for grazing. This process, if unchecked, will result in the destruction of

pasturelands without necessarily raising agricultural productivity. The local people are aware of this problem but feel that land outside village areas should be made available for redistribution.

In an attempt to deal with these issues, it is necessary to identify the specific problems and to spell out measures to deal with them. The last part of this report covers both the problems identified and the strategies proposed to solve them.

4.I.1. A Possible APVDP Strategy for Small Industry/Appropriate Technology Activity in Arusha Region, Hugh Allen (5 pages)

The most effective vehicle for research, demonstration, field testing, and dissemination is some form of center that has as its prime and most visible function a manufacturing capacity focused directly on the local market place. Such a center is certain to be moderately selective and practical in its choice of products and technologies and provide training that is intensive, realistic, and comprehensive.

Centers would be established at a site in each district which provided access to project wards. A product would be identified that is widely felt to be in demand, preferably one that increases agricultural output. After production, start up, and basic field tests and evaluation of the product, a marketing system should be established. Next the center should seek a village context into which the production process can be transferred.

These centers would be designed to absorb feasibility risks of new production initiatives and prove them to be viable in a commercial context. They would develop village-level capacity to purchase and manage a production package. These centers would also help identify the most suitable areas for technical and commercial initiatives in the countryside as they would be a sensitive link in a two-way chain of information.

4.I.2. The Urban Informal Enterprise Sector in Arusha Region, M.S.D. Bgachwa and S.S.A. Ngware, January 1981 (70 pages)

The urban informal enterprise sector of Arusha Region consists of firms employing usually less than 10 people. The dominant industries are textiles (tailoring and shoemaking) and wood processing activities, and the firms are predominantly privately owned. Production is exclusively (94 percent) carried out with the help of manual labor. The gross output of this sector is mainly generated by sales of principal products (63 percent), work done for others (34.5 percent) and secondary products (2.5 percent).

Three quarters of the capital in this sector is in the form of fixed capital and one quarter is working capital. Capital productivity is highest in firms employing three to four persons. Output per worker is highest in the food processing industry and lowest in the tourist industries.

The informal sector firms sell very little to the formal sector but buy a lot of their inputs from the formal sector. Three out of four units produced are sold directly to consumers. This sector is isolated from the institutional market for credit. Personal savings constitute more than 80 percent of the sector's capital funds. As for labor, family input is significant and wages are low. Rapid expansion has been experienced in tailoring, furniture, and tourist industries.

The informal sector is constrained by underutilization of capacity, inadequate supply of raw materials, intermediate and spare parts inputs, inadequacy of capital finance, and low levels of managerial capability. To alleviate these bottlenecks, the following are recommended:

- Formation of voluntary seller and buyer unions;
- Supervision of credit, making credit available on the assumption it will lead to expanded production;
- Wider publicity and research to identify domestic consumption centers for goods produced;
- Improved tools and a program for appropriate technology; and
- In-plant training and technical counseling to the artisan industry.

In summary, the generally lower wages and output per worker as well as low capital intensity reflect the basic and distinctive problems of this sector.

The formal enterprise sector in Arusha is compared with the informal sector.

4.I.3. Formal Private Industry in Arusha Region: A Survey, Peter Schaefer, March 1980 (101 pages)

Industry in the Arusha Region is relatively unsophisticated. The major means of production are controlled by the state. Private industry has to a large extent primarily developed within three sectors: wood-based industry, agro-industry and cosmetics-related industry.

A major focus of APVDP effort is aimed at encouraging productive activities in Arusha Region. The primary task of this report is to provide an industrial census of Arusha Region. This information is to help planners understand the impact and role of industry in Arusha Region. It describes the process of data collection and defines the terms used in the census. It then describes the firms in each of the categories defined. The structure and operations of the industrial system are described and the problems with the system discussed. Suggestions for industrial growth are presented.

For the economy to grow, Tanzania must find practical replacements for the market economy's regulatory mechanisms. The economy is in serious trouble, as of early 1980. The suggestions listed in this paper are tactical shifts aimed, primarily, at stimulating private industry. The private sector has a contribution to make to the economic growth of Tanzania without losing sight of the fundamental goals of equity participation, and self-reliance.

A summary of suggestions is given and Appendix 1 lists the industries surveyed in Arusha Region.

4.I.4. The Availability and Distribution of Selected Building Materials in Arusha Region, W. E. Maro, August 1981 (41 pages)

The construction industry provides an important infrastructural base on which social, economic, and industrial development depends heavily. However, at present quite a number of development projects are lagging behind because of the scarcity of construction materials. Hence the necessity of looking into their availability and distribution pattern in Arusha Region, determining the factors that the regional authorities have to consider when setting up their construction plans and forecasting future demands at various stages of development in the region; and indicating steps that the region might take to improve both the availability of building materials and the allocation and distribution system with the region.

The following major building materials are dealt with in this report: cement, steel and reinforcing rods, roofing sheets, floor and wall tiles, sanitary ware and fittings, electrical fittings, paints, and water pipes. Roofing sheets, reinforcing rods, water pipes, cement, and paints are produced locally while the rest are imported. This report documents trends in production and importation of the materials as well as the system for allocating the materials nationally and the problems that have been encountered. Consumption of the building materials within Arusha Region is documented by contractor and government department, with analysis of the availability of the materials in urban and rural areas.

Although many of the shortages result from shortages of foreign exchange for purchasing either the materials themselves or the raw materials for local production, there are a number of measures which the regional authorities could consider for improving the availability of essential building materials in the region and for improving the present system of allocating and distributing the materials within the region. Recommendations include:

- The region should work with the Board of Internal Trade to ensure that preferential allocations to Dar es Salaam are eliminated and that allocations are based on the criteria set by CMU. The region should coordinate with the various consumers in the region to ensure that regional requirements are fully documented;

- The region, working through the Government Stores, should also collect exact information on the types of building materials needed for development in the region and provide this information to the importers to ensure the importation of appropriate appliances/items;

- The region should explore the possibilities for extending credit facilities to the RTC's to improve their position with major suppliers and should devote available resources to upgrading the management and accounting capabilities of the RTCs;

- The region should carefully monitor the allocations of major building materials to Arusha Region and the means of transport available for bringing these materials to and distributing them within the region. Particular attention will have to be paid to the movement of cement, the supply of which should increase dramatically during the current year; and

- The region should support and encourage exploration and development of alternative building materials based on locally available raw materials and should strongly encourage efforts to identify local sources of raw materials.

4.I.5. Formal Industries in Arusha Town (63 pages)

This paper is a listing of 184 formal industries in Arusha town. The industries are divided into the following categories:

I. Timber work

II. Agricultural processing

III. Cosmetics

IV. Tourist articles

V. Capital goods or machinery

VI. Other consumer goods

VII. Construction and building material

VIII. Mining

For each industry the following are listed: name, location, activities, size, tax base, category, condition, inputs, market, and source.

In Arusha there are 40 industries in Category I, 16 in Category II, 5 in Category III, 8 in Category IV, 28 in Category V, 72 in Category VI, and 17 in Category VII.

4.I.6. Formal and Informal Industries in Rural Arusha Region (24 pages)

This paper is simply a listing of formal and informal industries in rural Arusha Region. The industries are divided into the following categories:

I. Timber work

II. Agricultural processing

III. Cosmetics

IV. Tourist articles

V. Capital goods or machinery

VI. Other consumer goods

VII. Construction and building materials

VIII. Mining

For each industry the following are listed: name, location, activities, size, tax base, category, condition, inputs, market, and source.

Under formal industries, 7 are listed in Category I and 9 in Category II. Under informal industries, 15 are in Category I, 4 in Category II, 2 in Category IV, 6 in Category V, and 40 in Category VI.

4.I.7. Agricultural Implements Factory at Njiro Hill Arusha, Project Report for APVDP - SIDO Arusha, September 1981. (40 pages)

The agricultural implements project at Nijiro Hill was conceived by APVDP as an attempt to meet the growing demand for farm implements in Arusha Region that cannot be met from existing sources of manufacture and supply. The most serious shortfall was for ox-drawn carts and ox-drawn ploughs. Ox-cart production units were established in Babati, Dongobesh, and Ngarenanyuki. A factory for the production of the steel components of ox-carts and for the production of ox-ploughs was proposed for Arusha. This factory is now located in the heavy industrial area of Arusha. The site offers good road connections; access to water, electricity, and telephone; and is close to the railway.

This paper discusses the production process for ox-cart axles, wheels, brakes, clamps, and hitches and for plough tool bars. It also discusses the board of directors and ownership of the factory. The appendices list plans for the first five years of operation and loan repayment schedule, the machinery and tools at the factory, and the detailed material and direct labor costs for each project.

4.I.8. The Spider Tractor in Tanzania, John Kilgour and C. R. Crossley, National College of Agricultural Engineering, Cranfield Institute of Technology, Silsoe, England, October 1982. (6 pages, 3 photos)

The Spider small tractor is a development of the SNAIL winch cultivation system, prototypes of which have been tested in Malawi and Kenya during the period 1975-1981. The principle of operation of the SPIDER is based on that of winch cultivation for high draft tasks such as ploughing, and direct traction for lower draft work like weeding and transport. The advantage of using a winch-based system for heavy work is that a high pull can be obtained from a small machine, and full utilization is much more efficient than that of a "normal" small tractor of similar size. The SPIDER small tractor was developed at the National College of Agricultural Engineering (NCAE), Silsoe, Bedford, U.K.

A one month test of the SPIDER tractor in Tanzania was arranged through and funded by the Arusha Planning and Village Development Project. The objective of the test was to determine if the machine would meet the technical requirements of the small farmer, or groups of small farmers, and to make recommendations for any future development. The tests were supervised by John Kilgour, a senior lecturer from NCAE.

The machine was sent to the Themi Farm Implement and Engineering Co., Ltd. in Arusha where it was assembled and a suitable driver trained in its operation. It was then sent to Kambi ya Simba, a village near Karatu where it was used for two weeks. Following this preliminary test it was returned to the factory where some minor changes were made, then it was sent to a site near Oljoro for one week. On both sites the machine was driven initially by the test supervisor and, after a suitable demonstration period, by the local farmers. They had some difficulty in learning to drive the tractor due to the characteristics of some of the controls, but soon developed a reasonable degree of competence. Most of the farmers, on the other hand, could operate the plough very well straight away.

The overall average rate of work on primary cultivation was 29.4 hours/hectare (11.9 hours/acre) at an average fuel consumption of 21.7 liters/hectare. After discussions with the farmers, agricultural machinery officers and others, the general opinion was that the principle of operation of this machine was excellent but that the work rate was too slow. If the machine was increased in power to enable it to work with a two furrow plough it would have about twice the output in hours per hectare at about the same fuel consumption -- 22 liters per hectare. This is approximately the same fuel consumption as that of a full-sized conventional tractor.

No formal economic analysis of the machine was made but many farmers said they would be able to afford the machine if it was improved as suggested for a total purchase price of 6,000 pounds. Clearly a much more detailed study would have to be carried out by an agricultural economist for the whole of the country using official and other pricing scenarios before a definite conclusion as to the machine's potential could be reached.

The SPIDER prototype, as tested in Tanzania, appeared to offer significant advantages over a conventional small tractor of similar size and power. It is proposed that the preliminary test experiences be extended into a larger project, based on the design, manufacture, and test of a number of improved machines over a three-year period.

This report consists of two sections: a report on the field test of the SPIDER tractor in Tanzania in September 1982, and an outline proposal to develop the SPIDER system and to set up a pilot production facility in Tanzania to meet the farmer's needs.

4.I.9. Prefeasibility Study on Brick and Tile Making for Village Development Projects, Ajit Pal Singh, November 1980 (10 pages)

Arusha Region has four brick and tile units, which were imported for village development projects. This paper presents a technical feasibility study and a full project proposal to establish a brick and tile industry. Ten sites were visited to determine whether the clay available was suitable for making bricks. The earth of Arusha Region is composed of clay soil that is suitable for making bricks when mixed with sand. Firewood is available in all districts. There is a wide market for bricks among government institutions, parastatal organizations, individuals, and other corporate bodies because of the shortage of cement and galvanized sheets for housing construction. Prices of bricks will differ in districts due to cost of raw materials and transportation.

Production capacity of one machine is 5,000-10,000 per day. Local people can be trained within one year to bring production up to capacity.

Bricks can be molded by hand or by machine. Bricks are molded by machine by either a dry process or a wet process. Tiles can also be molded by a wet or dry process. After bricks are molded, they are dried to rid them of excess moisture before they are burned in either a clamp or a kiln.

Investment in this project is estimated at Tsh 395,3000, and annual operating costs are estimated at Tsh 430, 800. Projected income for the first year is Tsh 381,452.

4.J.1. Planning Roads for the Arusha Region, Edward Holland, December 1979 (16 pages)

The bad condition of most roads in Arusha Region is a serious problem that holds back development of all parts of the economy. Priority should be given to the repair of existing roads. Further planning involves answering the following questions:

- Where should roads be built and improved to handle increased traffic from new agricultural schemes and other projects?
- In what year will new roads and improvements be needed?
- Should all district roads be maintained in their present alignment?
- Is an adequate share of regional investment earmarked for transportation and roads?

To answer these questions, a 12 step analysis is presented and each step is discussed in detail. Next, a diagram showing where new roads should be and where old roads should be improved, rehabilitated, or allowed to deteriorate is provided. This diagram is based on information collected concerning the tonnage of goods to be moved on roads, number of truck trips per day required, other traffic, etc.

The method described pertains primarily to agricultural areas. For other areas which are primarily for livestock grazing, a different method for preparing a road diagram is discussed.

4.J.2. Transportation in the Arusha Region, E. P. Holland, January 1980 (13 pages)

The needs for transport in Arusha Region fall into four categories:

- Distributing agricultural inputs and collecting agricultural products;
- Supplying consumers with goods not produced locally;
- Transporting inputs to industrial plants and building materials to project sites; and
- Personal travel.

The modes of travel available include buses, trucks and cars on roads, landrovers, tractors, and ox-carts on trails and roads, air travel, and rail.

The most important mode of transport is by road, and roads in the region have been allowed to deteriorate through lack of maintenance so they are very rough in the dry season and impossible in the wet. This paper discusses the effects of inadequate roads on the economy and lives of the people and why the roads are so poorly maintained.

The following recommendations are presented:

- Necessary funding should be allocated for road rehabilitation and maintenance;
- Costs should be kept as low as possible through use of local labor and resource;
- Decisions on which roads should be upgraded must be carefully assessed;
- Construction of any new roads should have low priority;
- A study should be done to determine how peak demands on the transport system can be spread out or reduced; and
- Consider more use of rail transport.

The most important recommendations in this paper concern rehabilitation and maintenance of roads. The development of a labor-intensive maintenance organization and training of managers for the labor involved will require technical assistance. The type of technical assistance required is described.

4.J.3. Problems of Agricultural Transportation in Rural Areas (A Case Study of Seven Villages in Mbulu District), W. E. Maro, September 1980 (42 pages)

In December 1979, Kwermusl Village in Murray Ward requested the government to provide a 7-ton lorry to lesson the transportation problems in the village and the surrounding areas. This paper investigates the present and future capabilities in agriculture and livestock, non-agricultural activities, personal mobility, road conditions, and transport facilities in seven villages in Mbulu District. The transportation requirements and problems are assessed. The paper concludes that the present need for crop transportation is negligible. Animals should be driven on foot to the market center in Mbulu. The need is for increased availability of passenger transport.

The present level of development in Kwermusl and the other villages studied indicates that a loan to buy a lorry may not be viable. There are apparently no goods to ferry in and out of the villages. Yet an improved transport system will facilitate agricultural and industrial activities in the area. The request should be reconsidered, emphasizing the multi-uses of the vehicle as a ferry for people and goods. Possibilities for ownership and management of the vehicle are also discussed.

4.J.4. Road Transport Infrastructure Planning Project, Arusha Region, Dr. Benno J. Ndulu (50 pages)

Within Arusha Region, road transport is the single most important mode used to convey passengers and freight between different points. The flow of agricultural produce from the rural areas to the regional centre and the flow of consumer commodities and agricultural inputs to the rural areas are dependent on road transport.

This report describes the road network inventory of the region including length, classification by maintenance jurisdiction, and quality of each road. It then discusses the inter-regional and intra-regional road connections. The third section describes the vehicular and commodity flows on the road network. The fourth part discusses the methodology for ranking roads for improvement. The actual ranking based on economic and equity criteria is listed. The last section compares the choices made by financial institutions according to the ranking produced in this report.

At the inter-regional level, the main artery of the region is the Arusha-Moshi road with an average daily traffic of 1,000 vehicles. There is a need to look at the possibility of widening this road and improving its surface.

Mbulu District is the least accessible considering its agricultural potential. Road improvement should be of top priority in this district. Hanang District, with the largest crop tonnage sold in the region, has a poor intra-district road network. The improvement of the top 20 district roads should facilitate the collection of crops and distribution of agricultural inputs and necessary commodities. Arumeru has the best road network in the region. This district should receive the least road improvement financing among the three agricultural districts.

Transport requirements in the predominantly pastoral districts are less than in the agricultural districts. The road networks in Monduli, Kiteto and Ngorongoro, if properly maintained, could be regarded as adequate.

4.J.5. Arusha Regional Works Issues for Discussion, John Morrison, October 1980 (13 pages)

The issues in this paper are summarized from the report entitled "Assessment of Arusha Region Works Organization and Management."

The first issue discussed is organization of the Regional Roads Section including construction and maintenance responsibility, maintenance program guidance and support, and road camps versus individual contract labor.

Issue two is the organization of the Regional Mechanical Section. The Arumeru roads, building and mechanical shops should have separate facilities from the region. The Electrical Section should be part of the Building Section not the Mechanical Section.

Issue three is the organization of the Regional Building Section. The Regional Building Section should be responsible for new construction and the district building units responsible for maintenance of buildings.

Issue four is general organization of Works. District supervisory positions, district works managers versus district engineers, and adding an engineer to the district planning staff are discussed.

Personnel requirements for the roads and mechanical sections are also discussed.

There is a need for a functional classification system for all roads in Arusha Region for planning and maintenance purposes. Roads to be maintained with regional funds need to be designated.

Current road maintenance capabilities are limited by inadequate financial and equipment resources. Surplus equipment from the Maasai Project should be transferred to Works where it can be utilized in road maintenance or construction programs.

Strategies for completing rehabilitation of roads as designed in the project agreement are discussed.

The recurrent budget for roads will have to include $15,000,000 to maintain each 1,600 kilometer of road.

4.J.6. Assessment of Arusha Region Works Organization and Management, John Morrison, October 1980 (137 pages)

The Ministry of Works is responsible for national projects including trunk road maintenance, regional Works programs assistance through provision of central technical services and advice, sectorial manpower development, and work development strategy guidance for the regions. Under decentralization, Works is one of several functional departments under the authority of the regional development director (RDD).

The current Works organization is not effective; accountability is lacking. For example, theoretically all road maintenance is to be accomplished with district forces, but it is not being done. Thus the ministry has created a trunk roads maintenance team for trunk roads, the regional engineer has created a regional organization to maintain regional roads, and the districts are left with minimal resources for maintenance. The author recommends that the district road and mechanical (vehicle) maintenance sections be made accountable to the region and, in the case of roads, the responsibility of maintaining regional roads in a district should be returned to the district roads supervisor.

The existing Works staff has minimal management capability. Engineering and virtually all middle management positions are vacant or staffed with untrained (unqualified) personnel. This situation is most critical in roads and mechanical sections. The author recommends that to implement the suggested management of the planning process for roads and the maintenance management process a commitment from Works and from APVDP to provide adequate personnel is required.

All units of Works -- roads, building and mechanical -- need to train skilled workers, foremen, superintendents, technical, management, and administrative staff. The need for formal training beyond on-the-job training is evident.

Works resources are not adequate. Deadline rates average 20 percent for equipment and 40 percent for heavy vehicles due to lack of spare parts and qualified mechanics. Transportation for field supervisors is non-existent as are vehicles for the building and mechanical sections. Building materials are in short supply. The author recommends that the entire procurement system be revitalized. There is a need to ensure supplies of spare parts for U.S. manufactured-made equipment. An adequate budget also needed to maintain existing buildings and roads.

4.J.7. Road Priority Determination: Arusha Region, Dr. Benno J. Ndulu, June 1981 (21 pages)

The objective of this project has been to develop a road maintenance priority plan for Arusha Region. The project has proceeded in a series of phases. The first phase involved an assessment of the road maintenance capacity of the Regional and District Works organizations (Morrison, 1980). The second phase involved the determination of an initial priority listing of roads for each district in the region based on economic and administrative criteria (Ndulu, 1980). These initial priority listings were discussed in a series of meetings with regional and district officials, and agreement was reached on the priority lists included in this report. The present report is intended to serve as the basis for a regional meeting to consolidate a regional integrated road maintenance plan. The report also includes a summary of discussions with regional and district officials regarding the collection of detailed road inventory information, an assessment of the present and expected trunk road maintenance capacity, and potential for self-help village maintenance of non-priority roads.

In the initial assessment the Regional Works' capacity to adequately maintain road infrastructure was determined to be between 1,000 and 15,000 kilometers, taking into account current physical capacity in terms of equipment, materials, and manpower. It was decided that as a basis for the discussions each district would decide on priorities within 200 kilometers of road network, and that additions above 200 kilometers would be determined on the basis of productivity, condition of the road stock, and additional resources available to the districts (such as from the Coffee Authority of Tanzania or other parastatals). An additional 100 kilometers for the region would be included in a reserve list as secondary priority roads. The priority listings for each of the six districts are included in the report. In all a total of 1,345 kilometers (or 34 percent of the total regional network) were designated as first priority. Of these, only 6 percent were included for purely administrative reasons, the rest were either purely economic or ranked high on both economic and administrative grounds. An additional 624 kilometers were designated as second priority roads. Since only 50 percent of the regional network would be included in this priority plan, the report also discusses the potential for partial self-help maintenance of the non-priority stock.

4.J.8. Rural Road Planning: A Training Program for District Engineers in Arusha Region, Tanzania, C. Tingirawanyuma, May 1982 (Thesis presented to Cornell University for the Degree of Master of Professional Studies-International Development) (113 pages)

This report proposes an in-service training program for district engineers charged with planning and implementing rural roads improvement. The Tanzanian government's 1972 decision to decentralize its administration was aimed at improving the regions' planning process, reducing distortions in the economy and making efficient use of the nation's resources. The Ministry of Works, like many other ministries, faced a shortage of suitably qualified manpower to meet these goals. The result was that many people with very limited technical training were transferred to the districts as district engineers. Road planners were not transferred to the regions, so that district engineers had to assume responsibility for transportation planning, a task for which their background was limited. In the case of Arusha Region, this constraint together with very scarce financial resources resulted in limited planning for the improvement of rural roads. No appropriate in-service training program for district engineers has yet been instituted by the region to cope with this low level of planning skills. This report, therefore, suggests a training program aimed at improving planning skills of district engineers toward an efficient planning and execution of rural roads improvement programs.

A general overview of the rural roads situation in Hanang District shows the very poor state of rural road transportation. The improvement and maintenance of most rural roads has been greatly neglected. If an improved rural roads situation is to be accomplished with very limited financial resources, their efficient use must be ensured. This objective can be achieved by giving district engineers training which will enable them to execute their responsibilities efficiently with the existing human and limited financial resources.

To decide on the approach for the training of district engineers, the author reviewed training institutions in other countries to learn how they conducted training of road engineers and transport planners and their forthcoming results. India and Brazil have consistently trained their road engineers and transportation planners through short-term programs. Among the more developed nations, the Netherlands and USA offer both short-term and long-term pre-service and in-service training to transportation planners and engineers. Courses are typically conducted in institutions of higher lerning with specialized transportation planning departments.

The proposed training is intended to enable the district engineers to learn the application of analytical planning tools, vital for more consistent, efficient and predictable results of their activities. Although long-term training is desirable in order to present these analaytical tools appropriately, personnel shortages and limited funds make long-term training difficult at this time. Thus, this report proposes a two week regionally-based training program for district engineers. The evaluation accompanying it seeks to assess its impacts and potential replicability both within and outside the region.

4.K.1. Hainu River Study Pre-feasibility Report (21 pages)

Interest in the investigation of the hydroelectric potential of the Hainu River in Mbulu District of Arusha Region dates back to 1963. In 1979 the area commissioner of Mbulu again emphasized the importance of this potential and requested APVDP to assist in the investigation of this project.

Preliminary investigation of the hydroelectric potential in the vicinity of Mbulu town is technically encouraging for eventual service to this district center. In flying over the many rivers and streams which flow over the rift escarpment, one concludes that the Hainu and Nambisi rivers offer the most potential for development and are also well situated in relation to Mbulu. Should these two rivers be fully developed in terms of the complete fall of water down the escarpment, the potential also exists for service to Babati, the district center for Hanang.

Four alternative hydropower schemes are considered in this pre-feasibility study. Each scheme is described, and the firm power generation of each is estimated. Before any final decision can be made regarding selection of any of the proposed schemes, a more detailed power market survey has to be conducted. Projected small industrial growth must be evaluated and considered in power usage estimates for the future.

4.K.2. Report on Hydrogeologiccal and GGO-Electrical Investigation for Borehole Sites at Kikatiti Arumeru District, P. K. Guha Roy, February 1981 (20 pages)

Hydrogeological and geo-electrical investigation was carried out in and around Kikatiti, Arumeru District, for selection of borehole sites for meeting an additional water requirement of 360,000 litres per day. The village is situated on the Arusha-Moshi road, about 35 kilometers east of Arusha. The granular and fragmented nature of the geologic formation together with fairly high average annual rainfall (3,000 mm) on the slopes of Mt. Meru hold out good prospects for ground water in the area. Resistivity soundings were carried out at 12 sites up to a depth of 200 milometers, and the results indicate presence of groundwater at a relatively shallow depth. Sites recommended for exploratory-cum-production drilling are located about 250 meters south of Arusha-Moshi road, about 1 kilometer southwest of the spring in Kikatiti village, as first choice, and 750 meters north of the Arusha-Moshi road about 750 meters east of the village road, as second choice. The depth of the borehole and diameter of the well assembly are 120 meters and 20 centimeters respectively. Boulders of basalts are likely to be encountered at shallow depth; therefore, rotary-cum-hammer drilling is recommended.

The appendix to this paper presents the results of the resistivity survey at Kikatiti.

Cost estimates for a borehole (depth 120 meters, diameter 20 centimeters is Tsh 270,000.

4.K.3. Hydrogeological Investigation for Selection of Borehole Sites at Lengjawe: Arumeru District, P. K. Guma Roy, August 1980 (17 pages)

In response to a request from the regional water engineer of Arusha Region, hydrogeological and geophysical investigations were carried out around Lengjawe, Arumeru District, for selection of a borehole site. The area is inadequately supplied by a Maji pipeline from an intake high up in the hills. The borehole is intended to supplement the present supply for human and cattle populations. It was felt that a medium capacity borehole producing about 22,500 liters per hour would meet the requirement.

The geologic and geomorphic setting of the Lengyawe area appears favorable for moderate groundwater development. Resistivity survey results also indicated possible groundwater storage in the area. The first site recommended is 400 meters east of the Arusha-Namanga road near Nd. Njoolai's house adjacent to a dry stream bed. The second choice site is 200 meters east of Arusha-Nomangaa road, about 2 Kilometers north of the first choice station adjacent to Nd. Sayelois' house. These sites are recommended for exploratory-cum-production well drilling. The recommended depth and diameter of the boreholes are 100 meters and 30 centimeters respectively. In view of the prepondernace of clay in the subsurface formations in the adjacent areas, at least a 6 centimeter thick gravel pack with natural gravel is strongly recommended. The cost of a borehole (depth, 100 meters, diameter, 20 centimeters) is estimated at Tsh 230,000. This estimate does not include the cost of the pump, storage tank, and other installations.

Appendix I of this paper presents a lithological log of the borehole 79/80 at the Arusha Seed Farm. Appendix II presents the results of interpretation of resistivity probes taken at Lengyawe Ujamaa village.

4.K.4. Dongobesh Gravity Rural Water Supply Scheme (Proposed) (24 pages)

This is a preliminary invest' on into the possibilities of providing a clean, reliable wat. pply to Dongobesh, Maghang, and Moydom wards of Mbulu district. The district development director and the district planning officer have placed the water needs of this portion of the district as very high priority for future development plans. Sixteen villages would be served under such a scheme, bringing potable water to a design population of 73,540 people (present population of 36,770).

The Mongahay River has been selected as the source of water for this scheme. A measurement of the source was attempted in March 1980, and it was estimated to be above the 50 liters/second year 2000 design consumption. Water samples were taken, and Ubungo Laboratory approved this as a source of potable water supply.

This paper presents a preliminary system design in detail. It includes a description of the pipeline from:

- The Mongahay River source to storage tank No. 1;
- Branch lines to Dongobesh, Ghaloda, Gidihim, Ngorat, and Endamasak;
- The trunk line from storage tank no. 1 to storage tank no. 2 at Labay serving Huslur, Endomilay, Labay, and Moretadu;
- Storage tank no. 2 at Morar, Endaharghadat, and Tewaden; and
- Cost estimates for labor, transport, piping, and operation and maintenance.

The project will deliver water by gravity and has a proposed capacity of the pipeline of 4,392 cubic meters per day of water from the Mongehay River. Total estimated cost of the project is Tsh 80,000,000.

4.K.5. Planning for Operation and Maintenance of Rural Water Supply Systems in Tanzania: Arusha Region Case Study (Cornell University Masters Thesis), Gwabe M. Khawango, August 1982

Planning for the operation and maintenance of rural water supply schemes has received relatively little attention in Tanzania. As a consequence inefficient and ill-conceived operation and maintenance programs have contributed to the unnecessary disruption and deterioration of existing rural water supply schemes. Construction of new schemes has not kept pace with the loss of capacity in existing schemes. The number of people served by new schemes has been declining since 1975-1976, in part due to limited implementation capacity. The net result is an annual net decrease in the number of people served by safe water schemes and systems. The situation has been influenced by a number of issues and constraints including limited funding and institutional manpower and planning process constraints.

The purpose of this thesis is to analyze the planning approaches taken for the operation and maintenance of rural water supply schemes in Arusha Region, Tanzania, at the regional and district levels, and to develop a set of improved procedures that can be utilized in Arusha Region (and can also be applied to other regions in Tanzania) based on the demonstrated need to:

- Shift emphasis toward the operation and maintenance of existing rural water supply systems and away from the planning and development of new water systems;

- Develop a rationale for the concentration of limited resources on the operation and maintenance of existing rural water supply systems even if this curtails the development of new systems; and

- Develop improved planning procedures that include consideration of and make allowances for operation and maintenance of existing and new rural water supply systems.

The introductory chapter considers policy, planning and technological issues as well as the present organizational setup and manpower, and financial issues. Following chapters present a detailed assessment of rural water supply schemes in Arusha Region followed by a proposed organizational design for the Arusha Region Rural Water Supply Program. This includes detailed levels and an evaluation plan for the proposed Rural Water Supply Operation and Maintenance Plan for Arusha Region.

4.L.1. Sector Assessment of Tourism in the Arusha Region of Tanzania, Victoria Morss, May 1980 (202 pages)

Arusha Region is unique in its contribution to the development of tourism in Tanzania. The town of Arusha has always been the gateway to the Northern Wildlife area of Tanzania which is one of the major tourist attractions of the country. The area has four of the nine national parks -- Arusha, Lake Manyara, Serengeti, and Tarangue -- as well as the Ngorongoro Conservation Area, which coordinates the interests of wildlife preservation and those of the pastoral Maasai who inhabit the area.

Given the expanding market for tourism in Arusha Region, this paper discusses two factors that affect the potential size and quality of the market and the benefits that could accrue to the region. These are the border situation with Kenya and the over valued Tanzanian shilling. Three principle impediments to expanding tourism in Arusha Region are a national policy which focuses tourism development in and around Dar es Salaam, problems with the region's tourism infrastructure, and a limited marketing strategy. These are discussed in detail along with the question of whether expansion of tourism is consistent with regional objectives and what the costs and benefits of tourism expansion are to Arusha Region.

This analysis of tourism in Arusha Region has led to recommendations in four major areas:

- National policy changes
  - -- Expansion of tourism should include the Northern Wildlife Area;
  - -- The existing infrastructure should be repaired and maintained; and
  - -- Hotelkeepers should be allowed to purchase food and beverages locally rather than from the natinal distribution network of parastatals. In addition, the border with Kenya should remain closed and the Tanzanian shilling should be devalued.
- More efficient use of existing resources
  - -- Efficiency and management of Air Tanzania should be improved;
  - -- The transportation and communication network needs regular repair and maintenance; and
  - -- Hotel staff and employees need training.

- Initiatives requiring outside funding

  -- The Hotel and Tourism Training Institute to be constructed and equipped by World Bank should be located in Arusha Region;

  -- Rehabilitation of hotels owned by Tanzania Tourist Corporation should be phased to include Arusha Region; and

  -- Emphasis of any tourism project in Arusha should include training for maintenance of the supporting infrastructure.

- New initiatives to be sponsored by the region

  -- It is not recommended that any region monies be allocated for tourism projects in Arusha Region.

4.L.2. The Status and Utilization of Wildlife in Arusha Region, Tanzania, Ecosystems Ltd., September 1980 (82 pages).

Sixty-five percent of Arusha Region lies in some form of wildlife management area. The three national parks -- Lake Manyara, Arusha, and Tarangie -- cover 2 percent of the region. Ngorongoro Conservation Area covers 8 percent of the region, and 46 percent lies in the 11 game-controlled areas. Data on land use, cultivation, stock, and wildlife within these areas have been obtained from the low-level aerial survey carried out in January and February 1980. This paper presents in detail the numbers and distribution of wildlife within the region. In general, wildlife densities declined as settlement densities increased. The interaction between wildlife and domestic stock is of great importance due to competition for grazing and from disease transfer. Cultivation also has a strong impact on the distribution of wildlife.

Although wildlife cropping does not produce cheap meat, the Tanzania Wildlife Corporation (TAWICO) does some cropping to produce dried, salted meat and skins. Hunting safaris (overseas) and local hunting permits produce some revenue for the region. There is also a market for live animals, especially birds.

The infrastructure dealing with wildlife includes TAWICO, which provides hunting safaris for overseas tourists, the Regional Game Division, which carries out anti-poaching activities and enforces the game laws, and the Tanzania National Parks which runs the parks.

Annex 1 to the paper is "Perspectives on Game Cropping" by I.S.C. Parker. He concludes that pheasant hunting is the simplest form of game cropping and the use that may confer the greatest benefits upon society. Nowhere has using game in the modern sense of animal production been a simple or cheap way to produce meat. Success has most frequently occurred on developed land and not in wilderness. The management of complex, multi-specied ecosystems has yet to be achieved, but must be if large-scale cropping is to become successful with plains game. Disturbance is a factor which could bring about disaster on open plains animals which run in "mega-herds." Carcass meal production may be the most suitable use of game carcasses and warrants examination in depth.

ISSUE PAPER SUMMARIES

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5. Issue Paper Summaries (In English and Swahili)

These papers are all abstracted from the issue papers listed on the Documentation List.

5.A. Agriculture (6 pages) abstracted from papers by Humpal, Maro, Ecosystems Ltd., Sargent, and Fosbrooke.

5.B. Beekeeping (4 pages) abstracted from "Beekeeping in Arusha Region" by Dunford.

5.B. Financial Resources (2 pages) abstracted from "Financial Resources Available for the Development of Arusha Region" by Morss.

5.C. Fisheries (4 pages) paper by Sally Wilton and Keri Dickie-Clark.

5.D. Forestry (4 pages) abstracted from "Forestry in Arusha Region" by Synnott.

5.F. Health (6 pages) abstracted from papers by Yoder and Alger.

5.G. Implementation of Development Initiatives (2 pages) abstracted from papers by IDS, Peterson and Peterson, Wily, and Seminar on Data Analysis and Planning.

5.H. Land Use and Conservation (7 pages) abstracted from reports by Johnston, Bryan, Peterson and Peterson, Fosbrooke, Ecosystems, Jacobs, et al, Humpal, Synnott, Dunford et al, Sargent, IDS, and Walton.

5.I. Livestock (6 pages) abstracted from papers by Sargent, Peterson and Peterson, Walton, Jacobs et al.

5.J. Manpower (21 pages) abstracted from report by Liz Wily.

5.K. Population (2 pages) abstracted from report prepared by Johnston.

5.L. Small Industries (3 pages) abstracted from papers by Allen, APVDP staff, and IDS.

5.M. Transportation (14 pages)

5.N. Water (4 pages)

5.O. Wildlife/Tourism (4 pages) abstracted from papers by Ecosystems Ltd. and Victoria Morss.

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REGIONAL SECTOR PAPERS: SUMMARY OF THE CURRENT STATUS, CONSTRAINTS, AND PRIORITIES FOR FUTURE DEVELOPMENT

6.A. Agricultural Sector, Arusha Region: A Summary of the Current Status, Constraints and Priorities for Future Development - Agricultural Development Division, December 1980 (20 pages)

Eight major crops are grown on 95 percent of the cultivated land in Arusha Region. These are maize, seed beans, mixed beans, wheat sorghum, coffee, pigeon peas, and finger millet. The three most important cash crops are seed beans, wheat, and coffee. They occupy roughly 33 percent of the cropland.

The basic objectives of this sector are to:

- Achieve self-sufficiency in staple food stuffs;
- Generate surplus for sale to meet village financial requirements and contribute to the strategic national food reserves and buffer stock;
- Raise cash crops to generate income for further village development and maintenance of existing infrastructure; and
- Raise specific crops on large scales, contributing towards national internal requirements and import substitution and earning the country much needed foreign exchange.

Sector specific activities include:

Coffee improvement program, commercial wheat production, commercial seed bean production, national maize program, pyrethrum production, irrigation and flood control, tractor hire service, soil conservation, and extension services.

The major problems and constraints to sector development are general -- such as resource constraints and administrative and organizational problems -- and sector specific. The latter include:

- Lack of adaptive testing of varieties;
- Lack of knowledge in the mechanism of soil erosion;
- The use of auto-farm machinery which has adverse cost/benefit effects;
- Lack of appropriate agronomic practices to increase and sustain soil fertility and potential for development;
- Quantitative and qualitative extension staff shortage;
- Crop losses in the field and post harvest crop losses;

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- Lack of reasonable prices offered to farmers and efficient marketing mechanisms;
- Falling production as a result of nationalization of estates;
- Value added on agricultural production is under parastatal control with few opportunities for generating working capital at the village level;
- Lack of revolving fund;
- Lack of input support service;
- Limited organizational support to agriculture from government extension service; and
- Lack of synchrony between government and parastatal budgetary cycles in the realm of input delivery schedules.

Priorities for better utilization of existing resources include:

- A better balance between recurrent and development funds;
- Improved utilization of development funds; and
- Cross-sectoral cooperation and integration.

Priorities for the next five to 20 years include:

- Lobbying the central government to make policy changes and increase producer prices;
- Controlling soil erosion and soil fertility losses;
- Investigating the operations of NMC to locate expensive inefficiencies; and
- Developing a region-wide methodology for farm systems and data collection at farm and village level.

6.B. Education Development: Sector Paper, A. Massoni, January 1981 (11 pages)

The general aims of education area to equip learners with knowledge, skills, and attitudes for tackling societal problems; and to prepare the young people for work in Tanzania's predominantly agricultural society. This paper lists the major objectives of primary education, secondary education, adult and teacher education.

Under primary education, criteria for locating new schools and extensions, school design and projects, and school equipment and materials are discussed. This paper includes charts of school enrollment in Arusha Region, number of streams in various classes in 1980, number of teachers per district, and projections of school-age children (from 7 years old) from 1978 through 1985.

Educational problems are found in every district. The pressing ones are poor school attendance in some schools, shortage of teachers, shortage of school materials and equipment, shortage of teachers' houses, shortage of classrooms, poor attendance in adult education classes and shortage of building materials. Solutions to these problems are suggested. They mainly concern the procurement of materials for the classroom and for building classrooms and teachers' housing. It is also recommended that people work together to eradicate illiteracy and that villages be educated on the importance of post-primary technical centers so enrollment will increase.

6.C. Land Development Sector: Summary of the Current Status and Constraints, and Priorities for Future Development

This department is charged with providing guidelines for development of land, including management and economical use. To provide these services, the department is composed of Land Management, Survey and Mapping, and Urban Planning and Valuation divisions. The duties of each division are described in this paper.

Major problems facing the lands sector include lack of transport, lack of qualified and professional manpower, lack of coordination, squatting on land occupied for large scale farming and land in urban areas planned for urban development, non-availability of technical equipment, and low rates paid for crops when people are required to resettle.

Priorities for better utilization of existing resources include:

- Manpower -- transfer staff less frequently and create incentives for existing workers to stimulate production;
- Finance -- include night allowances for staff engaged in implementing projects, carry over funds from one financial year to another, and honor budgets estimated by the department;
- Transport -- purchase additional vehicles and replace worn-out vehicles, and purchase motorcycles for hand assistants and valuation technicians; and
- Technical equipment -- create repair facilities for existing equipment.

Priorities for the next five to 20 years include:

- Resettlement of landless people;
- Inclusion of additional large farms in the region should no longer be entertained;
- Development of land in urban centers;
- Interim land use planning in urban centers;
- Revision of valuation rates and establishment of permanent principles of property valuation and compensation;
- Opening four District Surveys Offices; and
- Repair and improvement of technical equipment.

National policy changes are also recommended. Existing large-scale farms should be upheld and the owners encouraged to utilize them to the maximum. All undertakings regarding transfer of right of occupancy should be dealt with by the region. There should be a flexible base of valuation. Legal changes should be made to enable villages to acquire legal status over ownership of land.

6.D. Livestock Sector: A Summary of the Current Status, Constraints, and Priorities for Future Development Livestock Development Division, December 1980 (20 pages)

Livestock play a vital role in the rural economy in all areas of the region. In the three range districts of Kiteto, Monduli, and Ngorongoro, livestock provide the major portion of the population's subsistence requirements as well as constituting their principal source of wealth. There are nearly 2.2 million cattle, 1.1 million sheep, and 1.5 million goats of indigenous breeds in the region. The region's meat supply is almost completely dependent on the sale of animals from the traditional herds. Traditional cattle are also the major source of milk for the region. They are also kept as draught oxen for cultivation.

The Livestock Department has overall responsibility for development of the livestock sector, prevention and control of animal disease, and provision of specific services for the livestock farmers. These include the treatment of sick animals and the provision of advice on improved husbandry practices. The Tanzanian Livestock Marketing Corporation are parastatals concerned with livestock.

Major problems and constraints to sector development include natural constraints, such as climate, disease, and tsetse fly; lack of water and competition for land; financial constraints that affect disease control; availability of reliable data; limited supply of goods and services for livestock owners; and organizational and policy constraints such as control within and between regions, frequent transfers of staff, lack of security of land tenure, and irregular supply of livestock feeds from NMC.

Priorities for better utilization of existing resources are 1) more funds should be allocated to the recurrent budget; 2) flexibility is required in the release of funds; and 3) the number of staff transfers should be reduced.

Priorities for the next five to 20 years include:

- National policy changes
  - -- Price control on meat should be lifted;
  - -- Fees should be charged for veterinary services; and
  - -- A separate company should be established for the production of livestock feeds.
- Regional policy changes
  - -- The RLDO and DLDO should become full members of the Land Advisory Committees; and

-- Roads should be planned recognizing the requirements of livestock owners.

The lack of information on a wide variety of topics is a major constraint to the rational allocation of resources. To overcome this problem, regional and district teams involved with tsetse and water must be strengthened. Other priorities include integration of livestock and available farming, improvements in artificial insemination, establishment of milk cooling centers and collection routes, improvement of livestock markets and stock routes, development of range management plans, information-gathering on the prevalence of different diseases, introduction of improved stock, and upgrading of veterinary services through staff training and transport and equipment provision.

6.E. Natural Resources Sector Paper: A Summary of the Current Status, Constraints and Priorities for Future Development (9 pages)

The people of Arusha Region depend on forest products, such as fuelwood, charcoal, and timber, for their domestic appliances. At present, one family uses about two to three m3 of forest produce for domestic requirements. The remainder of the region's forests will be finished in 20 years if no action is taken. The government retains 12 percent of the regional area as forest reserves. The region has 24 forest reserves, which are protected by national policy and are harvested under regulations. Raising of tree plants in district or division nurseries started as early as 1950. Protection and sale of forest produce from public land is being supervised. Efforts have been made to keep remaining forests from being damaged and to use them under management plans. The shortage and increase in price of parafin, other fuel, and building material have caused the demand for wood to increase.

Problems and constraints in this sector include:

- Lack of jurisdiction by forest staff over control of overcutting on public lands and within villages;
- Lack of research information to be used in planning development goals;
- Lack of funding;
- Lack of training on arid forest practices (presently geared more to temperate forest management);
- Lack of transport; and
- Underutilization of multi-purpose species.

Future development goals include:

- All areas with forest cover should be conserved and utilized under a management system which will ensure sustained yield;
- All cleared and burned areas should be claimed and rehabilitated by planting trees;
- All villages with water should start tree nurseries;
- All government farms, large land owners, institutions, schools and churches should be required to plant trees in all areas susceptible to soil erosion;
- Plans to ensure proper livestock practices should be formulated;

- A land use committee should be established;
- Towns should have plantations for the fuel wood requirements of town dwellers; and
- More field staff must be trained for each district.

6.F. Small Industries Sector Strategy for Planning 1980/81 Future 5 and 20 Years - Sido Office, January 1981 (32 pages)

Three main agencies are currently working on rural industrial programs in Arusha Region. These are SIDO, Elimu, and the Arusha Planning and Village Development Project. Other agencies engaged in related areas of industrial promotion include AATP (Arusha Appropriate Technology Project) and TAMTU (Tanzania Agricultural Machinery Testing Unit). This paper describes the activities of each of these agencies. The contribution of sector activities to regional development goals is also discussed.

The major problems of sector development are:

1. Administrative: (a) no district or regional line ministry representation in support of industrial development, (b) capability to travel and apply appropriate expertise, (d) limited pool of expertise in the region, and (e) inefficient SIDO procurement system for equipment and supplies.

2. Financial: (a) no access to working capital and limited access to capital for fixed assets, (b) no bank mandated to work on small industry promotion, (c) overseas funds available through SIDO confined largely to the Industrial Estate, and (d) absence of concessional finance and tax incentives.

3. Infrastructural: (a) limited availability of electricity, (b) uncertain fuel supply, and (c) deteriorating road transport system.

4. Political: (a) agricultural pricing policy, (b) Co-operative Act, 1975, (c) parastatal competition, (d) ambiguity over role of private capital, and (e) disruptions caused by unanticipated political decisions.

5. Technological: (a) limited availability of technical expertise, (b) limited locally available information systems, (c) serious disparity between urban and rural skill levels and (d) limited skill transfer mechanisms.

Priorities for better use of existing resources include developing the capacity of Ujamaa and Ushirika and proposing that TRDB be involved in meeting the equipment procurement needs of rural projects; creating a working capital resource through APVDP-NBC loan guarantee program; and emphasizing in-plant, on-the-job training and increasing the capacity of existing units.

Long term priorities consist of emphasis on industries based on agro-resources and/or for local consumption, fostering forward linkages between small and large scale industry, rural electrification, and large allocation of resources to be provided for maintenance of rural main roads.

6.G. Regional Government Stores: Sector Paper (2 pages)

The Regional Government Stores Depots supply stores to all districts in the region, and all stores must be obtained through these depots by requisition. Stores' stocks include (1) building materials, (2) electrical equipment, (3) sanitary equipment, (4) domestic equipment, (5) stationeries, and (6) spare parts for (a) Land rover, (b) Bedford trucks, (c) Isuzui trucks, and (d) motor accessories.

Materials are transferred from the main depot in Dar es Salaam by road.

Problems in this sector include lack of properly trained staff, and limited supply of calculating machines.

The priorities for better utilization of existing resources are to give the main depot enough funds to purchase materials, trucks and calculating machines, to give Regional Store Depots enough trucks for transporting materials from Dar es Salaam to Arusha, and to increase manpower.

Priorities for the next five years include (1) transport of heavy materials from Dar es Salaam by railway, (2) purchase of fork lift for Regional Stores depot, (3) increased storage tanks for petroleum products, (4) upgrading of present storage tanks for petroleum products, (5) open stores in every district, (6) trained supplies officers, and (7) a new salary scale for supplies officers.

6.H. Ujamaa and Cooperative Development Division, December 30, 1980 (7 pages)

This department started in 1972 soon after the decentralization system was established. It deals mainly with villagers and its officers act as coordinators with other ministries in assisting villages in their day to day work. The department is involved in the following activities: (a) accounting and auditing, (b) home economics and child care, (c) savings and credit society/rural savings scheme, (d) consumer shops, (e) building construction unit, (f) visual aid, and (g) registration or cancellation of cooperative villages.

The major problems and constraints to development of this sector are lack of personnel both quantitatively and qualitatively, poor roads and lack of vehicles, and inadequate funds.

Priorities for better use of existing resources include an equal distribution of development and recurrent funds. These funds need to be made available to buy materials and to provide Land rovers to the wards and motorcycle loans to staff. Priorities for the next five to 20 years include building 103 houses for village and management technicians, providing enough qualified staff to look after villages, providing each village with its own shop and an adequate network of distribution of goods, making villages self-sufficient in all aspects with godowns to store produce and other implements, and providing all weather roads connecting villages.

6.I. Works: Sector Paper (15 pages)

The Regional Road Section is responsible for planning and programming, construction and maintenance of all regional roads. Planning and construction off-district or feeder roads is done by the District Directorate. The regional engineer and his road inspector are responsible for rehabilitation and maintenance of all regional roads with funds amounting to 1,200 kilometers per year. The system of road camps for road improvement is being reinstituted.

The Regional Building Section is responsible for major construction and maintenance of all government buildings. The Regional Mechanical Section is responsible for the maintenance of all government vehicles in the region. The Regional Workshop functions in the following subsections: Landrover section, heavy trucks, heavy equipment, welding, panel beating, and spraying and tooling. District workshops are responsible for maintenance of government vehicles in the district.

Problems and constraints to sector development include:

Roads:

- Block cotton soil and volcanic soils are too soft to enable adequate compaction;
- Damage is caused by heavy rains;
- Rift Valley makes road construction difficult;
- Sparce population makes road maintenance difficult;
- Lack of qualified road staff;
- Fluctuation of prices for gravel dumping;
- Salary raises of daily paid laborers;
- Absence of road camps; and
- Few funds for road works.

Building:

- Carelessness of government quarter occupants;
- Little funding for maintenance of public buildings;
- Few staff in the maintenance crew; and
- Unavailability of building materials.

Mechanical:

- Lack of properly trained staff for all workshops;
- Too few mechanics in districts;
- Poor working conditions;
- Few workshop facilities;
- Few funds for uniforms;
- Low salary scales;
- Unavailability of spare parts; and
- Lack of qualified storemen.

Priorities for better utilization of existing resources:

- Co-ordinate the development budget with the recurrent budget;
- Use funds from the development budget to introduce a special construction brigade with permanent people;
- Use recurrent budget funds better; and
- Encourage cross-sectoral cooperation and integration.

Priorities for the next five years include:

- Expansion of the Morogoro Works Training School and training programs for engineers, technicians, plant operators, and mechanics;
- Introduction of construction units and maintenance units;
- Modification of regional and district shops; and
- Construction of an office workshop for Arumeru.

6.J. Water Development Department: Summary Sector Paper (18 pages)

The nation has set a target of supplying safe water to all by the year 1991. In the rural areas of Arusha Region, 13.3 percent of the population do not have a source of water within a radius of 5 kilometers, 36.7 percent get water from unimproved sources, and 49.9 percent are supposed to be getting safe water (actually only 34.9 percent are). In urban centers 80 percent of the population get a safe and adequate water supply.

The Water Department is involved in project preparation and planning which includes survey and mapping of proposed new projects, planning and design, collection of hydrological data, and hydrological investigation. It is also involved in the construction of new projects such as boreholes, dams, and shallow wells, the operation and maintenance of existing water supply systems and Maji vehicles, and the contribution of sector activities to regional development goals.

The water sector has been facing the following constraints to its development:

- Lack of self-help in implementing projects and lack of interest in helping run commissioned water systems;
- Unavailability of baseline data for design;
- Lack of standardization of equipment;
- Needed pipes and fittings out of stock;
- Inadequate time and effort spent on proper planning and execution of projects;
- Too many projects taken up in a single year; and
- The need to implement projects funded under other departments.

Priorities for better utilization of existing resources are:

- Concentrate resources in maintenance and running of existing water systems;
- Materials purchase and year three construction;
- Recurrent funds to be used for better distribution of fuel supplying pipes and fittings to Maji central stores, purchase of Landrovers, and higher paying salaries; and
- Cross sectoral cooperation to be encouraged.

Priorities for the next five to 20 years:

- Recommended national policy changes:

  -- The village government be authorized to collect revenues from the water supply system it is responsible for running and maintaining;

  -- Review of salary structure, promotional procedures, and a system of incentives to attract qualified manpower;

  -- Maji Central Stores and Regional Government Stores must be well stocked;

  -- Emphasize use of shallow wells;

  -- Standardize all materials used in water development; and

  -- Put emphasis on wind power pumps.

- Recommended regional policy changes:

  -- Emphasis should be given to the areas worst off in water supply;

  -- Each district should identify villages which will be provided with a water source;

  -- All water development planning and funds must be under one department Maji.

A study is needed to identify areas of high ground water potential and hydrological data needs to be collected and recorded regularly. Manpower must be trained to take up new responsibilities. Water sources with a high fluoride content that present health hazards should be identified. Existing water supply schemes need to be rehabilitated and maintained.

GENERAL POLICY PAPERS

7.a. APVDP Policy Paper, Project Review Committee, February 7, 1980 (9 pages)

This paper clarifies the types of activities that APVDP will support. These include village development activities; district development activities; feasibility studies and research; project proposal preparation; and regional; district, and village level training programs. Criteria for funding are both social and economic, placing priority on the poorest villages, encouraging participation of the village in development activities, emphasizing involvement of women and encouraging social cohesion, enhancing economic productivity with emphasis on agriculture, introducing appropriate technologies, using reasonable capital costs, and having existing administrative/organizational structure to implement the activity. The $9 million for APVDP activities will be brokenout at roughly $4 million for productive activities including agriculture, livestock, small industry, and natural resources. Guidelines for use of funds for productive activities are roughly 10-20 percent for feasibility studies, 30-40 percent for district development activities, and 40-50 percent for village development activities.

Documentation required prior to approval and funding of any project includes: village request form, project proposal form, implementation schedules, and a set of indicators for monitoring and evaluation purposes. The process of project development should be collaborative with the region actively working with the district rather than mainly conducting technical reviews. Thus, projects that reach the Project Review Committee should be ready for funding and implementation. The Project Review Committee is a senior regional body responsible for project development, approval, implementation, and evaluation. It consists of the regional planning officer, the project coordinator, and the DAI chief of party. The committee will meet monthly and circulate minutes of its meetings.

A Project Implementation Unit will be established initially under Mike Sarco. This unit will organize preliminary reviews of project ideas, establish schedules of project development and implementation program and monitor flow of resources, and organize and conduct periodic evaluations of ongoing projects to ensure effective implementation.

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7.b. Village Development Activities (3 pages)

APVDP combines the process of regional planning with the simultaneous development and implementation of local income-generating activities. Over 18 months, about 40 village-initiated activities have evolved out of an intensive dialogue/process between rural villages and government officials.

Two main emphases lead to the design and effective implementation of income-generating activities: (1) dialogue with rural villages to help them identify the availability of resources and the potentials for their better utilization and (2) introduction of land use planning so villages can better utilize and protect their natural resources. The following have emerged from this dialogue/planning process: testing new crops; small-scale irrigation; forest and fruit tree nurseries; livestock health center; production of ox-drawn equipment; establishment of grain-grinding mills, oil presses, etc.; construction of feeder roads; installation of water systems; and use of improved soil conservation.

For these activities, Arusha Region has developed a capacity to manage and support village initiatives. Resources from funding sources can be directly integrated into the regional planning, management, and administrative support structure.

Potentials for further investment include rural industries with emphasis on agricultural and livestock-processing activities, water systems development, activities tapping the economic potential of women; road and mechanical maintenance activities, strengthening of livestock and agricultural services, and small-scale irrigation and soil conservation activities. The Regional Planning Office of Arusha Region is willing to help potential funding sources to design projects in their areas of interest.

7.c. Information Activities of Arusha Planning and Village Development Project: Present and Future Potentials, Elliott Morss, March 1980 (7 pages)

The project's information activities are thought of as contributing directly to a determination of how monies should be spent and providing a basis for long-term planning and expenditure decisions. There are five major sources oof information for APVDP: (1) existing information on the region, (2) village profiles, (3) aerial photography, (4) information generated by short- and long-term technicians, and (5) information developed through dialogues at village, ward, district, regional, and national levels.

Timing for preparing information for use in development plan exercise suggested as follows:

- Complete sector and information papers by April 30, leaving two months for re-drafting, addition of computer, and mapping data, etc.;
- By July, put everything together in the hope of developing the major strands of a regional development strategy;
- Early fall -- completion of first phase of the development plan exercise; and
- Next 12 months -- develop income-generating projects from village level, create operationally useful development plan, and integrate of dialogue and planning activities.

The project must keep in mind the need for monitoring and evaluation information.

7.d. A Case for Regionally Integrated Planning, Elliott Morss (9 pages)

There is a need for inter-regional communication, coordination, and collaboration (1) in dealing with problems that cross regional boundaries such as problems of the Barabaig, cattle diseases, and illicit trading activities; (2) in developing economic linkages so as to increase production; (3) in eliminating distribution and marketing inefficiencies; (4) in sharing experience with alternative development strategies; and (5) in documenting the need for changes in national economic policies and procedures.

The last is particularly important and the following need documentation. Low producer prices result in less production and an increase in illicit trade detrimental to both the regions and the nation. The overvalued Tanzanian shilling creates incentive for smuggling to neighboring countries. Regions might be concerned about increasing their budget share of development expenditures. There is a need for increased integation of regional and national development plans as recommendations of regions to line ministries are not followed. More money should be allocated to operation and maintenance outlays relative to development expenditures. Foreign donors prefer financing new projects to underwriting operating and maintenance expenditures perhaps the case for operating and maintenance expenditures could be made to them.

7.e. Integrating Regional Development Objectives Into the Regional Planning Process, Elliott Morss (17 pages)

The set of development objectives for Arusha Region includes: equity, increased productivity, regional integration, and development of natural resources. The purpose this paper is to recommend how such objectives should influence the choice of development strategies for the region. The topics considered include (1) process of "objectives generation" (Do the objectives represent the rushes of all citizens, are they based on adequate information, and are they appropriate for the foreseeable future?); (2) the generality of objectives (Are the objectives concrete enough to offer guidance in selection of alternative development initiatives); and (3) the incompatibility of objectives. There is an inverse relationship between increased equity and increased production; policies prommoting equity cut into incentives to individuals and institutins to increase production. The goals of maximizing foreign exchange earnings and reducing income disparities might be in conflict. Is national integration desirable? Arusha is in competition with other regions for investment monies. Because the effects of development initiatives cannot be predicted, it is difficult to talk about tradeoffs among objectives.

The regional objectives should be taken seriously but not too seriously. They are important because they provide at least qualitative guidance for development strategies of the region. It is clear the region supports (1) increased aggregate output, (2) increased aggregate income, (3) increased employment, (4) increased participation of citizens in consumption of public and private goods, and (5) increased foreign exchange generation. A better statement of objectives is needed. Objective indicators of the achievement of the development activities should be developed, and the size of the budget to be made available to measure them should be considered.

7.f. Regional Development Planning - A Critical Assessment of the Tanzanian Experience and Its Implications for the Arusha Planning Process, Elliott Morss, August 1979 (79 pages)

The ideal planning process involves the following components: (1) goal specification, (2) identification of opportunities for, and constraints to, goal achievement, (3) identification of cost-effective approaches to goal achievement, (4) estimation of benefits that result from moving toward goals, (5) choice of activities such that the marginal expenditure on the combination of activities chosen yields greater social benefit than could be achieved from the same marginal expenditure on any other combination of activities; and (6) monitoring and evaluation of progress toward goals. The first section of this paper critiques what other regions have done in terms of these components.

Concrete suggestions are presented in terms of the form and content of the regional plan. The content should include: (1) a description of the region's economic, social, and physical characteristics; (2) a description of ongoing development initiatives; (3) an assessment of current and future resources available for development initiatives; and (4) identification of new development initiatives.

To get planning activities under way, the regional planning officer should be responsible for them, and a planning team should be appointed. Activities include deciding what information is needed, taking an inventory of available information, doing a rapid reconnaissance survey of villages, assessing ongoing activities, establishing an evaluation unit, etc.

Annex 1 presents a comparison of regional development plans in Tanzania giving donor/sponsor, preparation time, cost of plan, project proposed, data sources, and plan use. Each plan is then described giving title, format, regional characteristics, description of proposals by sector, goal specification, constraints, information used, and utilization of plan.

Annex II lists information sources for development plans. Annex III describes an approach to assessing resources available to Arusha Region. The four fundamental resources are: the government, parastatals, foreign assistance, and the region itself (revenue generation).

7.g. Center and Periphery in Arusha Region: Institutional Capacities and Development Initiatives in the Context of Existing Governmental Structures and Village Organization, Gary Thomas, November 1980 (97 pages)

This paper examines village institutional structure and decision making, analyzes what statutory and real powers villages have at this time, and assesses the kinds of linkages that connect villages with governmental and political centers. Specifically, it presents legislation relating to villages, political structures, political and governmental linkages to villages, a description of characteristics and variables of selected villages, and village-level constraints to development. It illustrates the diversity and complexity with which both villagers and change agents must deal.

The following recommendations are made for areas in which APVDP can make policy recommendations or initiate activities that would lead to positive developments at the village level:

- Provide village-level training in development planning and administration to village leaders;
- Tie this village-level training to the implementation of specific, on-going projects;
- Provide training in development planning and implementation for governmental, political, and parastatal employees who work at the division, ward, and village level;
- Provide training for village-based female primary schoool teachers in planning and implementation, community development techniques, and non-formal education;
- Give hamlets, even neighborhood cells, greater autonomy within villages for self-help and cooperative/communal activities, and for local governance;
- Work toward allowing villages to recruit, hire, pay, and dismiss village-based civil servants;
- Enable villages to relocate populations into "satellite villages" or hamlets to relieve overcrowding and improve access to farms;
- Encourage villages in less agriculturally productive areas to raise money by (a) levying a tax on the sale of livestock, and (b) planting village communal farms;

- Turn the direction of self-help components of water projects over to village councils, ward secretaries, and locally based civil servants, trained in community development techniques; and

- Encourage the growth of small industries and companies in villages under the business licensing act or company act.

7.h. The Village Profile Exercise Background Information, Impressions and Perceptions, D. D. Peterson and T. T. Peterson, June 1980 (80 pages)

A survey of 153 villages in Arusha Region was conducted from December 1979 through April 1980. The objectives of the survey were (1) rapid collection of a large amount of village data from a sufficient number of villages to represent the varied social, economic, political, and ecological conditions throughout Arusha Region, (2) involvement of district technical personnel in village data collection, (3) involvement of villagers in the planning process, and (4) training of regional planning assistants in survey methodology. The purpose of this paper is to provide background information to aid in the understanding of the survey method and context in which the survey was conducted, to aid interpretation of the data collected, and to provide some insight with regard to district and village perceptions and interactions, and village-level organizational realities, aspirations, and expectations as construed from participation in and response to the survey.

The paper describes the survey and method; evaluates the survey information and methodology; and discusses survey meeting attendance and participation, district participation and perception of the survey, and villager perceptions of government. Appendix I lists the villages surveyed in the village profile, and Appendix II gives background to specific questions on the village profile.

As a result of their experience with this exercise, the authors emphasize (1) that whenever possible surveys should be restricted to those situations in which they are integral part of implementation activities, and (2) the importance of using the survey derived information. Possible uses of the information include:

- Provision of an introduction and preliminary information base helpful for guidance of further work/activities in specific villages;

- Analysis of data at various levels from region to village to yield facts and statistics for comparing and evaluating current situations, problems, constraints, and trends within the region;

- Provision of a valuable component of information system organized at the district level in relation to land-use planning units; and

- Use (with caution) in the future as base-line with which to compare and evaluate changes.

7.i. The Village Profile Exercise: Codes for Information Held in Computer Files, TMB Chikloti, February 1982

The Village Profile Exercise was conducted by APVDP from December 1979 through April 1980. The survey of 153 villages in Arusha Region was designed to collect a large amount of village-level information as part of the regional planning process and to assist with the design and selection of village development activities to be undertaken by APVDP. The data collected from the 153 villages was put on the Regional Planning Office Ohio Scientific Microcomputer (provided by APVDP) for analysis.

This document consists of a detailed description of the computer files created to hold the information from the Village Profile Survey. Four files were created to hold the agriculture information, five to hold the livestock information, three to hold the economic information, and two to hold general administration and social data.

This document also contains the codes used for each of the data items, a listing of the data items and the number of villages that provided data for each data item, and a listing of the villages included in the survey.

7.j. Guidelines for Preparing Union Five-Year Plan 1981/82--1985/86 (15 pages)

The Union Five Year Development Plan 1981/82-1985/86 will be the first part of the long-term plan (1981-2000). The plan preparation and implementation will involve ministries, regions, and parastatal organizations, and the major objective will be to raise the standard of living of all Tanzanians.

This paper indicates the important points to stress and the important issues involved in preparation of national projects. It also lists important factors to be considered in regional and urban projects for the following sectors: agriculture, industry, natural resources and livestock, economic and social, lands and survey, health service, and education and cultural services.

Appendix I gives the responsibilities and membership of the work committees involved in preparation of this plan. Also projections of financial resources and total resources for the plan are given along with sectoral allocations.

7.k. Guidelines for the Preparation of the Regional Estimates for the 1981/82 Financial Year (47 pages)

The plan year 1981/82 will be the first year plan for the Union Five Year Development Plan. The purpose of this plan is to develop strategies that will help curb development bottlenecks and ensure smooth implementation of the whole five year plan.

This paper sets forth the priorities for project funding and details what should be planned for each sector. The aim of the agriculture sector is to make the nation self-sufficient in food and have strategic food reserves by 1981 through increased seed production, irrigation, use of ox ploughs, more godowns, fruit tree nurseries, and use of animal manure. The aim of the livestock sector is to raise the quantity and improve the quality of meat and milk in the villages. The main objective of the forestry sector will be implement the tree-planting campaign aimed at conserving present forests, expanding man-made ones, and establishing new ones. The target of the fisheries sector is to catch more fish and improve their distribution and preservation so that human consumption will increase. Beekeeping should be encouraged in order to produce more honey and wax.

The aim of small scale industries is to supply most of the villagers' requirements using simple technology. The target of the education sector is to enable the nation to complete the universal primary education program. The health sector's aim is to raise life expectancy by improving preventive and curative services and emphasizing cleanliness and sanitary education. The target for the water sector is to have each village provided with a water source by 1980 and a water tap by 1991.

Village and regional roads should be rehabilitated, and staff housing must be measured. The measuring of plots and the introduction of building brigades in the villages should continue. The allocation of funds will be 40 percent for productive sectors, 30 percent for economic services, and 30 percent for social services.

Recurrent expenditure estimates include salary estimates, nights out allowances, transport or leave, vehicle repair, house rent, services in towns, equipment for schools, medicine and supplies for dispensaries and health centers, road maintenance, and water facility maintenance. Expected revenue must also be estimated.

7.1. Cross-Cutting Issues Emerging from the Arusha Regional Planning Exercise, Elliott Morss, November 1980 (23 pages)

This paper attempts to synthesize the points coming out of the planning papers that have the greatest policy relevance for the region, districts, and villages. The following critical points are discussed: population growth, pressures on the land, financial constraints, and incentives.

The major constraints to development are discussed, distinguishing between those the region can deal with directly and those that require policy changes at the national level. Low producer prices are singled out as a critical deterent to higher production in Arusha Region. Financial problems and inefficiencies of parastatals responsible for marketing and distributing of agricultural produce are curtailing prospects for agricultural development. Top down planning leaves regional authorities little opportunity to engage in comprehensive planning for development.

What can the region do to accelerate development? It should think globally and act locally. The planning exercise should cut across sectoral lines, and land use plans should be started immediately. Make better use of existing manpower; review appropriations of existing equipment and its maintenance and development practices; and investigate appropriate technologies. Set priorities among areas and reduce service coverage in certain areas so that quality of service can be increased in others.

Implementation of the 17 recommendations put forth in this paper would go a long way to putting the region on the appropriate development path. Gaining their acceptance will not be easy.

Annex II of this paper lists the sector and issue paper recommendations and Annex III lists the recommendations contained in this document.

7.m. Summary Strategy Paper (4 pages)

The goal of APVDP is to develop viable projects that improve production, incomes, and quality of life in the rural villages of Arusha Region. To achieve this goal, APVDP attempts to build the capacities of regional, district, and local institutions to plan, implement, and evaluate such projects. In this paper the important ingredients for the formulation and implementation of sound development projects are listed. The areas of concentration in which APVDP has initiated activities are also listed. The effectiveness of APVDP can be improved by integration with the normal regional and district planning processes and schedules, integration into the government structure of the planning office, and feeding information gathered back in forms useful for planning and decision making.

For the coming year, the main aim of APVDP will be to continue to develop institutional capacities by preparing a regional strategy and priority paper, establishing a standardized project proposal format, promoting integrated planning, introducing land use planning, upgrading skills of technical offices, and confining data collection and analysis to regional and district decision making.

Immediate activity objectives (prior to February 1) are listed as are long-term activity objectives (prior to November 1, 1981).

7.n. Decisions for the Future, January 1981 (21 pages)

The purpose of this paper is to raise the issues emerging from the regional and district planning exercises, with the aim of defining the main policy guidelines for development decision-making in the region over the next 20 years. Regional development goals are to (1) increase village self-reliance, (2) improve equity, (3) promote economic growth, (4) improve regional integration, and (5) protect natural resources.

Recommendations are listed covering population; land use planning; geographic area of concentration; cross-sectoral planning; directly productive activities including agriculture and rural industry; and supporting infrastructure including roads, vehicles, water, and social services. It is recommended that the region and districts help increase the capacity of villages for project development and implementation and that APVDP experiment with development activities evolving through a dialogue with the village. Recommendations also cover manpower, availability of materials, revenue generation and other sources of financing, parastatal reform, macro-economic policy changes, regional planning, and extension of APVDP into the Maasai districts.

7.o. Women and Development: A Case Study of Ten Tanzanian Villages, Liz Wily, March 1981 (Summary in English and Swahili) (147 pages)

The Government of Tanzania's policy has consistently sought to make real the principle of equality between rural men and women. It has not as yet succeeded because the core issues of ownership, income sharing, and involvement in decision making have not been effectively addressed. This paper reports the conclusions and recommendations based on data collection and analysis in 10 villages in Hanang District. The research was sponsored by the Arusha Planning and Village Development Project, which has a special mandate under its Project Agreement between the Government of Tanzania and AID to help tap the economic potential of rural women.

The main conclusions of the study are:

- While rural women contribute significant labor to directly productive activities, their resource commitment and benefits are limited because they do not have an equal role with men in the ownership and control of major production.

- Although there have been attempts by the government and party to involve women in development decision making, marginal progress has been made due to local social and cultural factors and the lack of a concentrated approach by the government and party to implement the guidelines and vehicles for realizing effective participation.

- Due to the above reasons, the economic potential of women is not being effectively tapped, thereby lessening the possible development impact of government and other (such as APVDP) resource investments.

Recommendations of the study include:

- Arusha Region should make an explicit commitment to promote women's contributions to development. This should include government, party, and village examination of the potentials and contraints to women's development;

- Arusha Region should take steps to achieve a more egalitarian distribution of land, income, and labor between men and women producers such as ensuring access to land, initiating labor and income-sharing arrangements at the village level, and making sure that savings and loan opportunities are made available to women farmers and women's groups;

- Arusha Region should broaden development activities to promote women's development including special training, extension, and organizational and project specific assistance; and

- Arusha Region should use APVDP resources to test and develop women-specific activities, including special extension programs, development of the institutionnal capacities of UWT and Ujamaa and Cooperative Development to support organizational development, and assistance to women initiated development activities.

7.p. Encouraging Village Self-Reliance in Arumeru District, Tanzania, Joyce Stanley, June 1981 (60 pages)

The Arusha Planning and Village Development Project has uutilized various participatory approaches in district and village-level planning activities to increase applicability of the approaches for rural development in these and other contexts. This paper reviews the experience in Arumeru District during the past two years with the objective of adding to the information available on the realities of participation in integrated rural development planning.

Working within the existing institutional structures of the Tanzanian Government, the APVDP was developed to assist in the definition and implementation of a rural development strategy and action program that would ensure the flow of development benefits to rural people in a self-sustaining manner. This assistance included support in regional planning and in capacity building at the district level through planning workshops and training, technical support, and the testing of several alternative approaches to improved village-level participation. Two of these approaches are reviewed and analyzed: the village dialogue approach and the land use planning approach.

The report concludes that an effective participatory development strategy must include six major components:

- The general population of a village or group selects the action priority after thorough discussion by all potential beneficiaries and participants.
- The general population of a village or especially selected representatives are involved in planning, implementing, and evaluating the action selected or project designed.
- Those required to participate in action implementation are participants in action planning.
- The project encourages self-sustaining income-generating activities.
- An extension person or trained support person is living and working within the target community.
- Support systems for material, human, and technical support are available locally or are firmly established during the action-planning phase of the project.

7.q. Briefing Paper Overview, July 1981 (14 pages)

The Arusha Planning and Village Development Project was initiated in July 1979. Sponsored by the Government of Tanzania and by the United States Agency for International Development, the project combines the process of regional planning with the simultaneous development and implementation of village income generating and related development activities in Arumeru, Hanang, and Mbulu districts. The regional planning process provides a decision-making framework for the region's future development, with the initiation of local development activities contributing directly to improvements in the quality of life of rural villages while adding ideas and realism to the planning process.

APVDP staff and resources are integrated into the decision-making structure and processes of the Regional Development Directorate, Arusha Region, with four main objectives:

- Strengthening the planning, implementation, and evaluation capabilities at the regional, district, and village levels;
- Improving agricultural production (crops, livestock, and natural resources);
- Identifying and promoting other economic activities (primarily rural industries); and
- Improving the social and economic infrastructure directly related to productive activities (primarily water and roads systems).

APVDP is designed as a four-year project, to be supported by a grant of $14,591,300 from AID and by Government of Tanzania and village contributions of $6,472,000. The estimated breakout of AID funding is as follows: technical assistance - $5,156,000; commodities - $5,393,800; training - $793,000; construction - $257,700; and other costs - $2,990,000.

In accordance with the Project Agreement, funding for APVDP is obligated and released on the basis of annual plans and implementation documentation submitted to AID by the regional development director.

The prime contractor for the provision of technical assistance in development planning, management, and evaluation, the directly productive sectors, and water systems development is Development Alternatives, Inc., a Washington-based consulting firm. The roads component of APVDP is staffed by five individuals under personal contracts to AID.

APVDP was authorized on July 7, 1978, with an anticipated completion date of September 30, 1982. Delays in project start-up resulted in an actual initiation date of July 1979. A second phase of the project is anticipated which would include an extension of development activities to the three Maasai districts.

Progress to date and future priorities for the four objectives of the project are presented in this briefing paper.

7.r. Fuel Availability and Distribution in Arusha Region, W. E. Maro, August 1981

The development of the national economy depends heavily on the availability of adequate energy, which is a vital input in the various economic as well as social sectors. Out of the various energy sources -- electricity, oil fuel, coal, charcoal, solar, biomass, wind, and natural gas -- the first two constitute the major sources in Tanzania at present, along with the traditional use of charcoal for cooking in the rural areas. For government planners in Arusha Region, it is imperative to know the availability and distribution pattern in the country as a whole and in Arusha Region in particular. This information will help the regional authorities in preparing objective and realistic future physical and financial plans.

This report briefly surveys major world oil reserves and consumption patterns, then reviews in detail the trends in energy consumption in Tanzania. Particular attention is given to the national and regional fuel distribution and allocation systems. Given the existing fuel shortages, the report recommends that the Arusha Region authorities should take measures to place the allocation of fuels to various sectors and categories of customers under the control of the Regional Development Directorate to ensure that allocations are in line with the regional development strategies and priorities. In addition, this report notes that the Ministry of Water and Energy has recently asked the regional authorities to devise measures for ensuring that fuel shipped up country reaches the more remote areas.

This report also recommends that the region undertake further study of the present consumption patterns by sector and category of consumer, present and future demands from the sectors, and cost/benefit analyses of the relative efficiency with which fuel is consumed and the priority needs of the various sectors and consumer categories.

The report concludes that the overall economic situation in the country indicates that there will be serious shortages in fuel availability during the coming years. However, the regional authorities in Arusha Region should take a firm stand to reverse the declining proportions of fuel allocated to Arusha Region (from 5.4 percent in 1978 to about 3 percent of the national supply in 1980) and to ensure a fair share of the national supply for the development of the region. Furthermore, the region should develop a strategy for increasing its control over the allocations and movements so they are consistent with regional development strategies and priorities.

7.s. Integrated Rural Development Planning Through the Decentralized Sysytem: Shortcomings and Prospects. The Tanzanian Experience with the Arusha Region as a Case Study, M. K. Mwalende, May 1982. (Thesis presented to Cornell University for the Degree of Master of Professional Studies-International Development) (202 pages)

The Government of Tanzania launched the Decentralization Policy in July 1972, giving more power to villages, districts, and regions to decide, plan and implement matters whose effects and impacts are primarily local. Of particular importance has been the responsibility of initiating, preparing, and implementing rural development projects at village, district, and regional levels. For the new policy to function smoothly, development directors were appointed to head the Development Directorates in planning and managing rural development at regional and district levels.

The development directors are assisted by technical officers who are of different educational backgrounds and whose training is sectoral. This has resulted in the formulation of development plans that are not well prepared, sectoral in nature, often conflicting with one another over scarce resources, and eventually culminating in serious implementation problems. The resultant effects are waste of scarce funds, materials and equipment, and manhours, and killing of the enthusiasm of the target beneficiaries.

Three issues appear to cause this inefficient planning and implementation of rural development projects: (1) lack of planning skills on the part of those entrusted with the planning task; (2) lack of proper integration/co-ordination of projects during the preparatory stages; and (3) lack of resources necessary for both efficient planning and implementation of development plans. This thesis aims at proposing possible solutions to these three problems. It tries to pinpoint shortcomings in the present Tanzanian regional planning process and implementation, proposes remedial measures, and comes up with a training program that could facilitate integrated development planning in the country.

Integration in planning is a fairly new idea in Tanzania. However, the author's research on the subject carried out between June and August 1981 shows that it can be practiced. The increased scarcity of funds and other implementation resources, compounded by their ever rising prices, requires planning and managerial levels which in the recent past might have appeared less important. The role of involvement of planners in the government, parastatal, and private agencies in this effort is thus at a much greater level than possibly ever before and will most likely continue to rise.

7.t. Proposed Implementation Plan for APVDP Projects, 1982/83, APVDP, May 1982 (141 pages)

This document presents three sets of tables, which represent a draft Implementation Plan for the final year of the APVDP. The first set of tables (Part I) examines the current rate of implementation of projects and estimates the funds and workload that will be carried over into the Fourth Annual Plan period to begin July 1, 1982. Part II estimates expenditure by project, sector, and district on a quarterly basis. An indication of funds required beyond those allocated is given, together with details of recommended reallocations and funds required to complete or sustain projects beyond 1982/83, through Government of Tanzania budgeting. Part III provides substantive data on individual project implementation, including an analysis of required APVDP technical personnel inputs, materials, tasks, and responsibilities for each project.

Three outstanding requirements have guided the preparation of this draft Implementation Plan for 1982/83. They are:

- The need to accelerate the current rate of project implementation to ensure all funds available to the three district program are expended before June 30, 1983;
- The need to maximize the sustainability of APVDP initiatives; and
- The need to concentrate scarce resources, in particular APVDP technical assistance time, upon priority activities.

To this end a number of measures have been incorporated into the plan; for example, the clearer definition of inputs required, with more precise designation of responsibilities; an indication of where implementation is expected to be slow and from where funds might be allocated; and a plan to procure building materials in bulk.

Nonetheless, in sum not a great many changes have been made to the original plan. The project is bound to implement projects already approved as part of the district 1982/83 annual plans, and there is a determined willingness of most APVDP staff to tackle the large program. Also, it has proved extremely difficult, if not impossible, to cut the program to a realistic size and at the same time meet the objectives specified above. And although it would seem reasonable to drop low priority construction projects in favor of higher priorities, these very projects reflect national policy or have been included in the 1982/83 program to meet long-standing commitments. Other contradictions exist between the need to accelerate implementation and expend all available funds and the need to maximize the sustainability of initiatives. Given such problems, it is not surprising that APVDP

staff members have preferred to retain almost all elements of the original 1981/83 program, to do what they can, and to follow a strategy of continuing re-evaluation, as projects do, or do not, get under way.

7.u. Regional Planning Model for Arusha, Tanzania, R. Scott Moreland, Integrated Population-Development Planning Program, Research Triangle Institute, North Carolina, August 1982 (41 pages)

The Regional Planning Model for Arusha (RPMA) is a micro-computer based tool that can aid regional planners in the areas of population, education, health services, water, food and livestock. It was developed by the Integrated Population - Development Planning Project of the Research Trinagle Institute, North Carolina under an AID contract. The model can be used to keep track of relevant information for the seven districts of Arusha and, in combination with pre-specified planning goals, calculate target levels for various outputs and resource requirements. It contains a demographic projections methodology for projecting population, which influences the calculations, in the seven districts of Arusha Region.

The RPMA model consists of seven "submodels":

1. The Demographic Submodel tracks the population by age, and sex and gives information on demographic vital rates.

2. The Education Submodel projects enrollment in each standard of primary school by age and calculates required teachers and classrooms.

3. The Health Services Submodel projects requirements or goals for levels of health services personnel and infrastructure.

4. The Water Submodel calculates requirements for various water sources based on target levels of service and population estimates.

5. The Food Production Submodel gives the calorie and food requirements by type of food according to international standards.

7. The Livestock Submodel projects the livestock population, meat production, and milk production.

The model uses the Apple II+ computer and requires no special knowledge of computers to use. By simply responding to questions asked by the computer, the user can change assumptions, run the model for different districts, and view or print-out the values of calculated variables for any sector of interest.

An Apple II+ computer provided by the Integrated Population-Development Planning Program has been installed in room 44 of the Regional Planning Office and efforts are currently under way to work with the regional functional offices to update the base-line data incorporated in the Regional Planning Model.

EVALUATION PAPERS

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8.a. The Third Five Year Plan (1976-1981): Programme Implementation and Evaluation in Arusha Region, M.S.D. Bagachwa, S.S.A. Ngware, and I. Shao, April 1980 (86 pages)

The objectives and concerns of Tanzania economic policy are normally embodied in the five year plans. The First Five Year Plan and the Second Five Year Plan were operationalized during the 1964-1969 and 1969-1974 periods respectively. The Third Five Year Plan was postponed for one year to allow the unhealthy domestic economy to heal. This plan aspired to develop a sound basic industry strategy alongside a dynamic agricultural sector to exploit the intersectoral linkage effects. Mass line planning was articulated in conjuring up the people's plan. Decentralization was practiced but fell short of stipulated norms. Reduction of rural urban income differentials was also one of the dominant rural objectives. Formulation of integrated regional development plans began to be operationalized. This was to be preceded by village and district plans.

This paper discusses the Third Five Year Plan from a national and regional perspective. It also discusses the implementation and evaluation of the Third Five Year Plan in Arusha Region, the directly productive activities, and the social infrastructure in regard to the goals of the five year plan. Recommendations are given in each of these sections.

Arusha appears to have followed closely the national directives in the broad sectoral allocation of funds with heavier weight being given to the directly productive sectors which are growth oriented. The five year plan fails to contain enough safeguards for regional project implementation, and the whole budgetary exercise needs coordination and a well-balanced macro-economic management strategy. The overall sectoral program implementation in the region during the Third Five Year Plan has not been discouraging given the feeble socio-economic setting; the institutional bottlenecks; requisite input shortages; infrastructural constraints; and a weak resource base, particularly its capital and human components and among the turbulant international market scene. To enhance program track down, an appraisal of resource base and resource potential is urgently called for. Coordinated planning if accompanied by mass mobilization and participation in plan formulation will be a potential asset. More techinical factor input is a necessity while self-reliant collective efforts will subsidize the now scarce capital finance.

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8.b. Report of a Fact-Finding Mission to the Arusha Planning and Development Project in Tanzania, E.A.B. van Bunge and N.G. Rolling, February 1981 (51 pages)

An evaluation of APVDP was undertaken because of the impression that the "process approach" being used by DAI in the APVDP shows much concurrence with the "programmatic approach" which is now an important basis for the Dutch Development Co-operation policy. The process approach takes the line that prior to the execution of concrete activities a lot is unknown about the best intervention techniques, the most appropriate technological approaches, and the target groups and reasons for poverty. At the beginning and in further development activities, participation of the target group is of crucial importance; there should be a continued dialogue with the target groups. Activity planning should be flexible, and the target-group members should be involved in activities by means of a financial investment, time, initiative, etc.

The fitting in of regional planning with grass-roots initiatives is one of the aspects that makes APVDP so interesting. Two elements seem necessary -- development of a dynamic information system and of village organizations as full partners in the process of development.

This paper discusses the aims, project activities and their criteria, the project design, finances and technical assistance, the attempt to fit the project into the government structure, and the inventory/information system. Work on the village level is discussed with the conclusion that although the aim is to integrate the village development work and regional planning fully, hardly anything like it exists. Other topics discussed are procedures for financing village projects, roads, water, and rural industries components of the project, and DAI. The paper concludes with suggestions of how DAI might work with DGIS (Directorate General International Co-operation: The Hague).

The paper also contains 16 recommendations covering most aspects of running a project following the "process approach."

8.c. Report on the Evaluation visit to the APVDP Graduate Training Programme in Regional Planning at Cornell University (24 pages)

From February 16-20, 1981, a visit was made to Cornell University to evaluate the APVDP Graduate Training Program in Regional Planning. The objectives of the evaluation were:

- Assess the first phase of the training program as planned and implemented.
- Determine whether the plan is still sound given the above assessment, a greater knowledge of regional manpower resources and training requirements, and the availability of resources for training.
- Decide with Cornell University what actions should be taken to complete the first phase of the training program and what modifications should be made if this training is to continue.

The recommendations coming out of this evaluation are:

- The program of graduate studies in regional planning at Cornell for Tanzanian planning officials should be continued.
- Of the current group of participants Mr. Chikira is to complete his thesis by September 1981, and Mr. Mwalende and Mr. Tingirawanyuma are to return to Arusha from June to August 1981 to undertake a project and return to Cornell to complete their degrees by January 1982.
- Future participants in the program should be scheduled for a 12-month program and complete their degree before returning to Tanzania.
- The Department of City and Regional Planning at Cornell should continue to assist Arusha Region in its in-country training program.

This report also discusses the status and selection of participants for the 1981/82 academic year, placement of participants following their training, the necessity of decreasing the number of scholarships due to increasing costs of the program, and the need to develop a program for training in the region.

8.d. Kikwe Building Project Evaluation Team Comments and Recommendations (3 pages)

Although the villages have been able to recruit and maintain fully staffed brigades, the brigades have been under-utilized. The villages complained about the level of skills of the brigades, but in fact it was the lack of technical follow-up and supervision that affected the quality of houses built. The brick-making machines broke down regularly causing delay in the work as well as the production of poor bricks. The villages were disatisfied with the size of the houses built.

Recommendations of the evaluation team include:

- The loan of 10,000/= be made available as usual, then AATP submit alternative designs of houses, then the individual villager deposits the rest of the money required for the house desired. Thus the district will not purchase materials until money to cover them is in the account.
- RIDEP provide Shs. 1,500/= as a grant to the cost of houses currently under construction, but in future all cost increases be borne either by the brigade or buyer.
- Money remaining from year one be carried over to add to funds available in year two.
- A six-month contract be written for two people selected from the brigades to be responsible for technical and advisory support and to coordinate procurement.
- One UEDA from the district be allocated to the project of Kikwe to ensure that records and account of the project are up-to-date.
- A two-day seminar be conducted to get feedback from the brigades.
- The project implementation unit work with the regional planning officer to assist in supplying difficult to get materials.
- A loan be allocated for the Kikwe project and means be explored to provide transport for the Kalibre Rata.
- RIDGEP to buy two bicycles for Kikwe Ward.

8.e. Evaluation of the Arusha Planning and Village Development Project, USAID/Government of Tanzania, June 1981 (61 pages)

The goal of the APVDP is to improve the production, income, and well-being of rural people in the three relatively better endowed agricultural districts of Arusha Region. The purpose of the project is to strengthen the capabilities of Arusha Region, the three project districts, and the villages in these districts to identify, implement, and evaluate development activities within the framework of the policies and priorities of the Government of Tanzania (GOT). A second purpose is to provide the micro-data that will assist in the preparation of the Arusha Region Integrated Development Plan.

The project has made commendable progress since its start up in July 1979. In general it is well integrated with and has received good support from the GOT at the regional and district levels. The project approach -- based on a "process" model -- is innovative, ambitious, and well suited to Tanzania. It has successfully integrated the development of an improved regional planning capacity with the strengthening of Tanzania's "bottom up" style of village development, generating considerable support among regional and district leaders for significantly changed development priorities.

The APVDP staff is highly motivated and professionally competent. All have prior African experience; most speak Swahili. The staff includes rural development advisers assigned to the planning office in each of the three districts, sector specialists assigned to government ministries -- agriculture, water, rural industry, and roads -- and planning/management advisers working within the Regional Planning Office at regional headquarters. All but the roads component staff, which includes five expatriates working under separate contract, are part of an implementation team working under a U.S. Government contract.

The financial aspects of the project are summarized in a table indicating almost total obligation of funds, projected cost overruns in some categories, and cost variations for them. Detailed cost data and recommended breakdown by categories are included in an annex. Project progress to date has been hindered by a number of factors. Most important of these are delays in project start up and procurement, management diffficulties between AID offices and the contractors, insufficient recurrent funds and government staff, and an unfavorable economic environment.

It is too early to predict whether the project will be able to achieve all its objectives, particulary given the above-mentioned constraints and limited project funds. Based on progress to date, the fit of the project within Tanzania, and

AID's policy priorities, however, the evaluation team strongly recommends that the project receive priority attention for extension of funding and project completion date, and consideration for select follow-on activities.

8.f. A Preliminary Investigation into the Potential for Agricultural Production from the Kuru Valley Area of Hanang, I. Walton, J. Gadek, and D.R.R. Mabugo, June 1981 (31 pages)

Preliminary site observation showed that to consider the entire irriga .on and drainage network of the Kiru area as a whole would be preferable to treating the downstream flooding and need for improved irrigated farming in village areas separately from the potential for rehabilitation of agriculture in the upper reaches on mainly leasehold land. There would appear to be every possibility of serving both these and additional interests by developing a multipurpose land management scheme for the whole area. Further investigation of the potential for irrigation development in the Kiru Valley can be justified on the following grounds:

1. There is adequate land to support a medium- to large-scale irrigation scheme and historical evidence indicates that potential exists for a wide variety of crops to be grown under irrigation.

2. A number of crops are irrigated at the present time by both small- and large-scale farmers. Thus there is some familiarity with the principles of irrigated agriculture.

3. Several perennial rivers flow through the Kiru Valley providing a permanent source of irrigation water.

4. Disruption of the local populace to establish the scheme would be minimal in view of the distribution of population in relation to the various categories of land tenure.

5. The land tenure system lends itself to a single large-scale operation with a series of associated cut growers operating on a contractual basis with the centrally controlled scheme.

6. The area has potential for increased production of import substitute and export crops as well as providing materials to support improved livestock program and agro-industry.

7. The physical nature of the area, its land tenure systems and its proximity to a potential source of hydro-electric power (Hainu) provide scope for phased development of a larger scheme.

The following decisions and actions should be taken to adequately focus the design efforts of a feasibility study team:

1. A firm commitment on the part of the government on the organizational framework within which the irrigation scheme can be developed.

2. Agreement on the objectives of the scheme, the proposed scope of work for the feasibility team, and the proposed composition of the team.

3. An assessment of the current state of leasehold land tenure in the investigation area.

4. Establishment of water quality testing at selected points along potential irrigation water sources in the valley.

5. Collation of available water flow data and generation of daily discharge data for the Dudumera River.

6. Collation of available meteorological data for Masusu.

8.g. Evaluation of the APVDP Shallow Wells Program in Hanang District, October 1981 (14 pages)

In August 1981 the Hanang District Planning Office requested the Regional Planning Office and the Regional Water Department to assist in conducting an evaluation of the regional shallow wells survey and construction program. The shallow wells program was begun in June 1980 with funding by APVDP. Regional MAJI employees were first sent to Morogoro for three months of training. By August 1981 16 shallow wells had been constructed in Mbulu and Hanang districts with six of these in Hanang. The relatively low capital cost per capita of serving people with a clean water source through shallow wells, approximately shs. 100/- per capita for shallow wells versus shs. 800/- per capita for gravity systems, supports the continuation of this water supply methodology, provided it is carried out properly both in planning and in implementation.

The evaluation of the shallow wells program in Hanang took place from September 14-16, 1981. The report consists of a point analysis of the six issues listed in the terms of reference, which are: 1) assessment of the physical implementation plan and progress to date, 2) review of organization and management of shallow wells operation in Hanang District, 3) technological problems, 4) coordination with district planning strategies, 5) organization and plans for maintenance, and 6) financial arrangements for the survey and construction operations.

The report also includes the following recommendations:

Short-Term

1) Beyond the need for a safe water supply, the basic criteria for site selection for village shallow wells should be the presence of traditional wells.

   a. The shallow well potentials in the APVDP pilot wards be exploited.

   b. The District prepare a listing of priority wards for extension of the shallow wells program by the end of October, 1981.

2) Support for and operations of the shallow wells program be improved by the following actions:

   a. The District Planning Office be responsible for the organization and communication of shallow wells program objectives and requirements in villages.

   b. District health workers be involved in the planning and support for clean water supplies at the village level.

c. The government cover the costs of surveying and the village deposit one thousand shillings to cover direct labor costs.

d. Regional MAJI prepare a shallow well maintenance and clean water supply recommendation manual for villages for distribution with tools for maintenance.

e. Regional MAJI familiarize the district MAJI officer with the maintenance requirements of shallow wells and provide essential parts for maintenance.

f. The village be responsible for the selection and support of one or two shallow wells technicians.

g. The district introduce through the current ward secretary reporting system a requirement for determining how many days clean water is provided through the installed shallow wells.

Long Term

1) Regional MAJI Office provide the district with cost estimates for future shallow well construction in the district.

2) The district incorporate into its next annual plan submission the installation of shallow wells.

8.h. Evaluation of the Gallapo Dairy Multiplication Unit in Hanang District, November 1981 (8 pages)

The District Livestock Office in the financial year 1973/74 initiated an artificial insemination project at Gallapo and the Ward Development Committee was requested to give out 100 acres for the project. In 1978/79 the project was switched to a "Dairy Multiplication Unit." In 1979/80 they began building a cattle barn, one servant's house, and one cattle trough, and the farm was paddocked into four areas of 24 acres each. In 1980/81, 22 dairy animals were bought of which two died. Plans for 1981/82 are to go ahead with pasture establishment, fencing the whole farm with barbed wire, building of a water reserve tank of 5,000-gallon capacity, building one more cattle trough, and buying of concentrate feeds. The primary target of the project is multiplication of dairy animals that can be sold to villagers at a reduced price as recommended by the District Development Committee, thus the villagers will have fewer total animals, but with higher milk-producing abilities. The district has decided that this project should be evaluated before further operations are undertaken.

The evaluation of the Gallapo Dairy Multiplication Unit in Hanang District took place October 20-21, 1981. The report consists of an analysis of each of the issues in the terms of reference: 1) assessment of physical implementation plan and progress to data, 2) review of organization and management of Gallapo Multiplication Unit, 3) technical problems, 4) co-ordination with district planning strategies, 5) organization and plans for maintenance, and 6) financial matters.

The report also includes the following recommendations:

- To involve the villages in establishment of such projects.
- To have the farmers accept what is being done so that the project does not get stranded during implementation.
- The District Planning Office and District Livestock Development Office both be responsible for oganization and communication of the project objectives and requirements to the villagers before any resource commitment is made.
- Villagers be involved in planning with emphasis on education and follow up.
- The project should be self-sustaining.
- The project acquire its management, independent from that of the District Livestock Office.

8.i. Land Use Planning Activities in Arusha Region: Report and Recommendations, Regional Development Directorate, May 1982 (70 pages)

In its long-term development strategy, the region has stated that "Land Use Planning and Conservation will serve as the basic component for regional planning and development." A number of land use planning activities are currently taking place. There is a land use planning unit within the Department of Agriculture. The Department of Lands has support for land use planning as one of its major functions. The Arusha Planning and Village Development Project has assisted the region with developing land use planning activities at the ward and village level. Several projects funded by ILO have supported land use planning activities, and the region has no coherent land use planning program. The major purpose of this evaluation has been to find a way for the region to develop a coherent program for land use planning and to make specific recommendations for implementation.

One of the first questions addressed was the definition of land use planning. It is not just the demarcation of land and boundaries for specific uses, but includes all aspects of management and utilization of soil and water resources. An important element in land use planning is the integration and co-ordination of all productive sector activities.

A second major issue is the level at which land use planning takes place. At the local level it includes agricultural and livestock extension programs to improve production practices and soil and water conservation measures directed at specific problem areas. These activities need to be integrated and coordinated. At the broader district and regional, levels many major decisions are made in setting aside land for national parks and reserves, for use by parastatal farms and ranches, and for other leaseholds.

Recommendations resulting from this evaluation:

- A regional land use planning committee be formed to coordinate and direct all land use planning acvities in Arusha Region.

- A district land use planning committee be formed in each district to coordinate and direct all land use planning activities in the district.

- Use of legal authority including by-laws to support soil and water conservation and land use actions in Arusha Region.

- The Kilimo land use planning unit be strengthened as a major implementation unit responsible for soil and water conservation activities in Arusha Region.

- Recommendations and negotiaions for foreign donor projects should be undertaken by the Regional Land Use Planning Committee.

- The Regional Land Use Planning Committee review current inventories of equipment, review maintenance plans for the equipment, and review plans for utilization of the equipment.

8.j. Evaluation of the Computer Operations of the Regional Planning Office, Arusha Region: Report and Recommendations, Regional Planning Office, Arusha Region, August 1982.

Micro-computers are an important tool for both administration and planning whose potential is quickly being developed. As part of the Arusha Planning and Village Development Project, an attempt has been made to introduce the use of the micro-computer to improve the planning capabilities of the Regional Planning Office and to assist with the administration of development in Arusha Region.

Initially a small Ohio Scientific Challenger II micro-computer system was installed as part of the Regional Planning Office, arriving in May 1980. A computer center staff, consisting of a computer programmer and operator and an assistant, was hired and trained.

In September 1981 an initial collaboration was begun with the AID-sponsored International Population-Development Planning Program being carried out by the Research Triangle Institute, North Carolina. In Arusha Region the project is assisting in the development of a Regional Planning Model for Arusha Region; it includes a program for economic-demographic projections and provides a comprehensive collection of development statistics and indicators for use in annual and long-term planning and for quarterly evaluation. In August 1982 the project provided an Apple II+ computer for the Regional Planning Office and installed the Regional Planning Model.

With the installation of two micro-computer systems in the Regional Planning Office, and after two years of testing of alternative uses of the systems, the Regional Planning Office conducted this evaluation to assess the past experiences and make recommendations regarding a future program of activities of the computers, training needs and training arrangements, servicing and maintenance of the computers, and other issues. The evaluation was held on August 21, 1982. The following is a summary of the recommendations:

1. List of Activities: The Regional Planning Office computer staff should keep an up-to-date listing of all work that has been undertaken on the computers.

2. Inventory of Equipment: A complete inventory of equipment, software, and materials supplied to the computer operations should be maintained in an official regional file.

3. Program of Activities for 1982/83: A complete program of activities for 1982/83 is outlined in the report. The Regional Planning Office should concentrate on the limited set of activities proposed, including:

- Use of the Arusha Regional Planning Model.
- Develop and maintain files of regional manpower statistics.
- Develop and maintain a system of monitoring expenditures of the regional development budget.
- Prepare special reports as requested based on the village profile information.
- Update water systems inventory and prepare analytical reports for planning.
- Update regional rainfall statistics files and prepare analytical reports.
- Use of word processor for selected documents.

4. Assessment of Training Needs: The most important need is for training in the introduction to computer use and computer applications in planning and administration for regional and district planning officials and functional officers.

There is an additional need for training of several support staff in basic computer maintenance and computer operation. Recommendations are also given concerning support for computer equipment and software, staffing needs and sources of financial support for the Regional Planning Office computer operations, ways in which the computer could be of use to the districts, and long-term sustainability of the micro-computer operations and of the Regional Planning Office.

DISTRICT STRATEGY AND PRIORITY PAPERS

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9.a. Arumeru District Strategy for Planning 1981/82 Future 5 to 20 Years, December 1980 (70 pages)

This paper reviews development goals and defines seven priority issues. Strategies were developed for these issues.

1) Population

- Increase programs in land use planning in the district.
- Prohibit or prevent in-migration into the district.
- Move people out of the district to surrounding areas.
- Initiate family-planning programs throughout the district.

2) Land Use and Land Scarcity

- Develop land use planning programs for the district.
- Improve land use in order to preserve valuable natural resources.
- Begin a district land policy.

3) Project selection process - Integration and Concentration

- Integration of sectoral planning in the yearly planning/budgetary process.
- Initiation of concentrated approach to planning and implementation of district projects (geographic concentration).

4) Personnel Deployment and Utilization

- Increase motivation of staff.
- Improve distribution of personnel.
- Increase political awareness of all project implementation.
- Increase and equal distribution of responsibility for project implementation between district and villages.

5) Transport

- Increase the number of vehicles in the district.
- Improve the care of vehicles through initiation of a district workshop facility.

- Improve roads based on economic priorities.
- Improve transport network between villages by constructing new roads.

6) Material Availability

- Look for other sources of materials and increase small industries that promote appropriate technologies.
- Follow the integrated planning approach when ordering materials for project implementation.

7) Financial Resources

- Attempt to increase the development budget.
- Emphasize productive activities that have the highest rate of return -- agriculture.

The above strategies cover cross-sectoral issues. Sectoral strategies are also presented for agriculture, livestock, works, cooperative development, water, natural resources, education, and health.

9.b. Hanang District Long-Term Development Strategy, December 1980 (46 pages)

The district is committed to using its resources to assist villages achieve self-reliance and equity through their economic and social development as its priority goal. The district believes it is through the development of villages and their populations that the long-term interests of the district and nation are best served.

The main components of the strategy developed by the district are:

- To stabilize future population growth both in terms of natural increase and immigration.
- To encourage increased and sustained economic growth with a primary focus upon the agriculture and livestock sectors.
- To pursue more intensive land use production and to minimize competition between land use.
- To encourage a mixed farming economy throughout the district wherein balances between potential uses are decided locally.
- To ensure villages gain greater control of their resources through increased education, participation, and legal authority.
- To introduce improved conservation practices to ensure sustained production.
- To protect and develop natural resources.
- To encourage a lowering of the stocking rates.
- To introduce coordinated land use planning and project implementation as the "vehicle" for all land related activities.
- To support and assist the local manufacture of good for local consumption and the processing of agricultural products.
- To improve access for villages to sources of expertise, training, and credit to establish such industries.
- To continue the expansion of support infrastructure while ensuring a greater capacity for the upkeep of existing infrastructure.

- To maintain the development of social services at their present level, again ensuring existing facilities are fully utilized.

- To allocate any increases in development funds to the directly productive sectors.

- To increase the coordination between sectors at all levels of operation.

- To bring about greater control of, and co-ordination with, other development agencies, particularly the parastatals.

- To encourage the marketing parastatals to become more actively involved in development initiatives.

9.c. Kiteto District Development Planning Framework for 1981/82 and the Future 5 to 20 years. Issues, Strategies and Supporting Action, Area Commissioners Office, January 1981 (36 pages)

Strategies formulated by Kiteto District include:

1) With recognition that Kiteto's population problem is largely external in origin, the district proposes a strategy that allows for district regulation and control of immigration to prevent haphazard and unplanned immigration.

2) Development of land use policy and a land use planning mechanism. The general goal of land use policy is increased production on a sustained basis.

3) Recognizing that district resources -- financial manpower, and material -- are drastically limited in relation to district development needs, the district proposes to adopt a concentrated strategy for productive sector activities supported where necessary by services and economic infrastructure.

4) Given the shortage of manpower and the inability of the district to shoulder the entire task of project implementation, the district proposes a strategy whereby existing personnel are posted most effectively and greater responsibility for project implementation is shifted to village and ward.

5) Given limited financial resources and on increasingly burdensome recurrent budget, the district proposes a strategy whereby recurrent costs of certain projects are borne by villages, and means of generating village development funds are established.

6) Considering foreign exchange and national industrial capability constraints and consequent high costs and unavailability of materials, the District proposes a strategy for identification and use of local materials and appropriate technologies so as to: decrease external dependence and thereby increase the potential for successful project completion; reduce costs and thereby allow a large number of projects; and foster local craftsmanship and employment opportunity.

7) To alleviate transport constraints, the following strategies are proposed: (a) the district requests a mandate to establish an independent Comworks in which procurement of spares is at the district's discretion and staff employment and training are the district's responsibility, (b) district will continue to encourage and support village/ward purchase

of vehicles for transport self-reliance, and (c) district through initiation of cross sectoral, integrated planning will use existing vehicles more efficiently.

Sector specific strategies are presented for livestock, agriculture, natural resources, education, Ujamaa and cooperatives, works, youth and culture, and health.

9.d. Mbulu District's Development Issues and Strategies, District Planning Committee, Mbulu, January 1981 (34 pages)

Utilization of Natural Resources:

Soil erosion and soil fertility: 1) requests a feasibility study and full-scale recovery program to assist Karatu Division in overcoming the serious soil erosion problems there, 2) establish a soil management team, 3) establish local-level tree nurseries, 4) encourage village governments to reinforce permanent ownership of farming plots, and 5) assist in production of ox-carts and ox-plows.

Water availability: 1) promote the development of water gravitational systems, 2) train village technicians how to repair and maintain local water systems, 3) construct small dams where shallow wells cannot be dug, and 4) construct boreholes.

Competitive land use, land pressure and land availability: 1) create a land management team, 2) encourage and support intensive agriculture and livestock keeping practices, 3) plan for growth and development of the less populated parts of the district, and 4) encourage people in overcrowded areas to move to other areas.

Overstocking: 1) emphasize village land use planning and village land management, 2) promote cross-breeding, improved animal health and nutrition, and intensive livestock-keeping practices, 3) bring existing veterinary centers and cattle dips into full service, and 4) establish more livestock markets.

High Population Growth:

1) request that Umati establish its operations in Mbulu, and 2) improve and expand present social service facilities.

Constraints to Village Development:

1) provide training and study tour opportunities to ward secretaries, village chairmen, and village secretaries, 2) encourage and support establishment of small-scale industries to produce building and construction materials, 3) support village efforts to purchase and operate vehicles of their own, 4) recommend crop prices be increased, 5) request an increase in the number of UCDAs to assist villages in their financial affairs, and 6) support villages that attempt well-planned communal projects.

Limited Financial Resources:

1) request services of a personnel management specialist, 2) request assistance with project initiatives too large for the district, and 3) learn options that exist to the district for generating additional development funds.

Transport: Vehicles, Fuel Supply and Roads:

1) request a qualified transport officer be assigned, 2) develop training and incentive for drivers, 3) improve garage service in the district, and 4) obtain underground fuel storage tanks.

Shortage of Building Materials and Other Supplies:

1) request assistance in obtaining human medicines and vaccines, as well as livestock medicines and vaccines.

Employment, Underemployment, and Educational Opportunities:

1) establish various skill training opportunities to school leavers, 2) explore the possibility of establishing large scale employment programs, and 3) encourage and assist technical training activities in primary schools.

Electricity - Power for Small-Scale Industry:

1) request assistance from TANESCO in establishing the framework for supplying electrical power to Mbulu Town, and 2) promote the hydro-electric potential at Mainu Falls as a source of electrical power to all of Mbulu District.

Lack of Integration and Co-ordination in Project Planning and Implementation:

1) design projects that require cross-sectoral integration, and 2) re-evaluate current project selection and design process.

The Utilization, Deployment and Support of District Personnel: 1) seek regional assistance in finding suitable personnel to fill critical departmental vacancies and 2) recommend immediate attention be given to the need for employment promotions and other incentives to civil servants.

9.e. Monduli District Development Issues, Strategies and Actions for the next 5 to 20 Years, Area Commissioners Office, January 1981 (49 pages)

Strategies developed for Monduli include:

- Formulation of a policy that allows control of immigration including restrictions on land use.
- Formulation of a land use plan and the development of a land use planning mechanism. The policy proposed is that Monduli be a livestock specialization area in which agriculture is strictly controlled.
- Provision of essential basic service projects throughout the district, but adoption of a concentrated strategy for productive sector activities supported where necessary by services and economic infrastructure.
- Requests to region to be more flexible regarding minimum population requirements for wards and divisions so that smaller units can be formed, to provide more village managers and to provide lower level personnel with transport.
- Emphasis on training programs at village level and exploration of potential for a vocational training school.
- Requests to region for upgrading both district and Maasai range workshop facilities.
- Emphasis on proper care and maintenance of vehicles and provision of training for drivers.
- Seeking guidance and assistance from AATP to determine potential use of suitable local construction materials.
- Emphasis on large-scale piped water projects and small catchments using water harvesting techniques rather than large dams and boreholes.

Sector specific strategies are also given for livestock, water, natural resources, agriculture, land development, health, works, Ujamaa and cooperative development, education and culture.

9.f. Ngorongoro District Long-Term Development Strategies and Supporting Issues (22 pages)

The Ngorongoro District government, in view of financial, manpower, and material resource constraints, will concentrate on supporting small-scale projects undertaken primarily by villages and undertaking itself larger scale projects necessary to remove major bottlenecks and benefiting several villages. The district will emphasize integrated planning at all levels, promote directly productive activities and supporting infrastructure, improve existing facilities, and concentrate resources in specific areas.

Strategies for specific issues include:

1) Immigration -- The district will aid villages in developing a mechanism for controlling in-migration.

2) Land Use and Production -- The district will emphasize land use planning.

3) Transportation and Communication -- The district requests that the region give high priority to improving the drought road. The district will plan for greater coordination and integration of vehicle use with respect to development activities and request the bus company to extend its services to Ioliondo. The district will look into the feasibility of providing radio communication links between headquarters and all wards.

4) Manpower Resources -- The district will emphasize the training and mobilization of village and ward leaders.

5) Material Availability -- The district proposes a strategy for the identification and use of local materials and appropriate technology.

6) Financial Resources -- The district will mobilize village financial resources for the provision of services and initiation of other projects.

7) Black Market -- The district will ensure that the amount of goods allocated to the district actually reaches it and that they are distributed as evenly as possible.

8) Stock Theft -- Attempts will be made to control theft.

9) Project Selection -- Projects will be reviewed and evaluated for their intersectoral implication.

Sector specific strategies are presented for agriculture, livestock, natural resources, education, works, ujamaa and cooperatives, health, water, and lands.

SEMINARS, PLANNING WORKSHOPS, PLANNING COMMITTEE MEETINGS

10.a. Seminar on Data Analysis and Development Planning, Lewis, Bradford, Jones, August 1980 (54 pages)

APVDP has initiated a program of training activities for regional and district functional officers (ministry representatives) and planning officials. APVDP has worked closely with faculty members from the Department of City and Regional Planning of Cornell University in developing this program. The seminar on "Data Analysis and Development Planning" represents the first phase of this collaborative effort. This report documents the seminar activity and describes major conclusions drawn from it.

The seminar was presented in three one-week sessions to district level planning officials and functional heads plus representatives of the regional planning and functional offices and the municipality of Arusha. Material was offered on the planning process, use of electronic calculators, data analysis for planning, project design, implementation, planning project impact analysis, and project monitoring and evaluation.

As a result of this seminar the following training needs were identified: 1) training to help improve project design and implementation; 2) training to improve competence in providing technical support to development activities; and 3) training for strategic planning and the establishment of development priorities. Other recommendations include: 1) integration of training with other aspects of the RIDEP program, 2) integration of the training with the timing of Tanzania's annual planning process, and 3) use of RIDEP data for instructional purposes.

The major recommendation of the instructional team of the workshop is that a member of the permanent RIDEP advisory staff be designated as training coordinator. This person should have a member of the Tanzanian RIDEP staff as a counterpart. The coordinator's responsibilities should include initiation of a program of regular short-term training seminars, use of Tanzanian training resources, use of short-term expatriate trainers, and integration of long-term training.

The six phases in the organization and development of the training workshop are discussed in detail in this report. This includes the initial planning, a day-to-day description of the actual workshop, the follow-up activities, and the evaluation by participants and staff.

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10.b. Workshop on RIDEP/Arusha (7 pages)
Summary of Discussions September 19-20, 1979

Development is a set of activities that leads to an improvement in the quality of people's lives. Important development activities include those that are (1) directly productive, (2) social service oriented, and (3) infrastructural.

This paper presents lists of characteristics and indicators of village development that conform to the ideas of Mwalimu Nyuere on development.

Constraints that stall development efforts were identified as: 1) ecological and natural constraints, 2) inadequate funding for basic needs and/or development activities from various sources, 3) poor management capabilities at the village level, 4) poor technical capabilities at the village level, 5) lack of receptivity at village level to social and/or technological change, and 6) poor development support system in various areas or sectors.

In order for development workers to be effective, policy makers and change-agents should:

- Make efforts to understand villagers' resistance to change.
- Understand the existing process for village-level decisions.
- Realize the tradeoffs involved in development decisions made at national, regional, and district levels.

This paper also discusses the village- and district-level planning process and lists constraints that lessen district-level support for village planning. They include: 1) inadequate transport and equipment, 2) inadequately trained personnel at district, division, and ward level, 3) inadequate information distributed to the districts, and 4) inadequate finances. The "facilitator/training model" and the "leadership/experience model" could both make contributions to building a planning capacity and removing constraints to planning at the village level.

10.c. Manyara Workshop Papers, October 1979
This is a group of papers written for presentation and discussion at the Manyara Workshop in October 1979. Each is described briefly below.

1) Checklist for Indicating What Data is Available Currently at the District, Ward and Village Levels (17 pages)

This document was designed for the district functional officers to establish what data was available so that informed decisions as to whether additional information needed to be collected through the intensive village surveys could be made. The completed checklist was to be made available to all functional officers and all short term consultants. Sectors covered include agriculture, livestock, natural resources, commerce and industry communication, health, education, water, and government budgets.

2) Data Needs, Summary of Approaches (5 pages)

This paper lists source, collection methods, examples, and why needed for the following types of data needs: international, national/sectoral, parastatal, regional, district, villages in the pilot wards, and villages outside pilot wards.

3) Village Rapid Reconnaissance (26 pages)

Development planning requires a process whereby we learn about an area, listen to the people affected, and come to understand their perception of their problems and needs. Effective "process" planning requires more knowledge and information about an area than is necessary when "imposing" a solution. A rapid village reconnaissance, early in the planning process, is a desirable way of providing the required information. A reconnaissance survey will provide a quick summary of a village, its problems, potentials, and procedures. It does not provide the precision of a statistical survey, but it provides information quickly to decision makers. The rapid reconnaissance survey form covers the following areas: demographic characteristics, economic activities, land tenure and land tenure relationships, agricultural production potential, level of popular involvement in decision making, degree of social cohesion, perceived effectiveness of government operations at local level, level of development assistance, level of modernization, and role of women.

4) The Arusha Planning and Village Development Project Summary (13 pages)

The goal of APVDP is to improve the production, income, and well-being of people in the rural areas of Arumeru,

Mbulu, and Hanang districts of Arusha Region. The project is designed to strengthen the capabilities of the region, districts, and villages to plan, implement, and evaluate development activities within the framework of the policies and priorities of the Tanzanian government. Initial emphasis is on the development of a regional plan for Arusha. This project emphasizes the "process" approach to development. Because the approach is to develop and initiate activities as more is learned about local-level needs and problems, the need for a system that gathers and analyzes data is particularly important.

There are four principle project components:

- Strengthen the planning, implementation, and evaluation capabilities at the regional, district, and village levels.
- Improve agricultural production.
- Identify and promote other economic activities.
- Improve the social and economic infrastructure directly related to productive activities.

5) Village Survey (2 pages)

The village survey is a direct area data collection and analysis exercise. This paper outlines five objectives of the village survey, five constraints of the data collection and analysis technique, and the steps in undertaking the survey.

6) The Village Log (2 pages)

This is a document to be filled out daily or weekly by the village council or development committee. It covers various activities in the village and their performance. This paper discusses the purposes of the village log and how it is administered.

7) Progress Report of RIDEP Workplan - Arumeru (27 pages)

The first activity of this quarter was the preparation and implementation of a district RIDEP meeting and workshop. At the workshop, participants defined development, assessed staffing capabilities, and presented their ideas and priorities regarding future program implementation.

Four types of training were identified as necessary for district staff as part of RIDEP: 1) RIDEP model training, 2) short courses and long-term technical training, 3)

agricultural extension field staff training, and 4) short courses in management, bookkeeping, and setting up savings and credit scheme.

Staffing conditions for agriculture, livestock, cooperative development, and natural resources were assessed along with training, material, and facility needs. A tomato-canning factory and an irrigation scheme were two projects identified for feasibility studies.

8) Mbulu District APVDP - Three Month Work Plan (4 pages)

Village and district level activities are listed for each week of October through December 1979. Villages in the four selected wards - Daredi, Murray, Dongobesh, and Maghang were ranked I, II, and III. Type I villages are most developed in their management, planning, and decision-making capabilities and their ability to implement planned activities. Type II villages need some training and preparation before implementation of any proposed projects. Type III villages need long-term training and preparation. Initial data collection in the district is described.

9) Hanang District Workplan (2 pages)

The objectives of this plan are to identify constraints in the planning process and formulate strategies to facilitate project implementation. Aims and action are listed.

10) ADVDP District Imprest Fund (2 pages)

This is a memo from E. P. Mozalla, regional planning officer, to district planning officers and rural development specialists of Arumeru, Hanang, and Mbulu districts. It indicates that APVDP will establish district imprest funds of 30,000 shillings and what expenditures are authorized under this account.

11) The Preparation of Project Proposals for APVDP, Hugh Allen (20 pages)

It is suggested that project proposals be initially submitted to APVDP in a simplified, standard format that provides a descriptive picture of the project situation, cost/benefit arguments, and descriptions of the probable technical, commercial, managerial, and financial mix. This paper discusses the economic and social criteria for projects, the contract needed for implementation, and the terms for repayment of capital.

Appendix 1 lists criteria for construction of water systems and facilities.

Appendix II includes a draft of the village activity request form, which would permit villagers to make a straight-forward description of their project and a draft of the project proposal form. The latter includes project history, project description, inputs, and outputs.

10.d. Ngorongoro District Planning Workshop Report, Neal Cohen, January 1980 (9 pages)

This is an unofficial summary of the discussion that took place at the Ngorongoro District planning workshop held January 17-18, 1980, in Loliondo.

The area commissioner emphasized that poor road communication was the main obstacle to development in the district. Mr. Mitema, RIDEP coordinator, explained what RIDEP is, and Neal Cohen discussed planning.

Comments were presented by the Maasai District village profile enumerators. Michell Jacobs emphasized the need for village participation. Problems include livestock diseases, non-functioning dips, lack of consumer goods, lack of agricultural and livestock extension services, and cograzing with wildlife. Thad Peterson discussed the shift to permanent villages; it changes traditional grazing patterns and leads to range deterioration. David Peterson stressed the need to understand the people, their aims, goals, problems, and suggestions and to make use of their knowledge.

In evaluating the Maasai Range Project, the DDD complained about the overemphasis on livestock and not on people.

Past activities were reviewed by district functional managers, and major problems were outlined. New projects were proposed, listed by type, and assigned A, B, or C priority. "A" priority projects include directly productive 1) vet center improvement, 2) dip improvement, 3) field extension services and training, 4) irrigation projects, and 5) tree nurseries; social services: 1) more classrooms, and 2) water for district Headquarters; and infrastructure: 1) Wasco to Oldonyo Orok road, and 2) district workshop for vehicles.

10.e. Preliminary Impression Based on the Collection of Information from Villages in Kiteto District. Report by RIDEP enumerators D. Peterson and T. Peterson for the Kiteto District Planning Workshop, February 14-15, 1980 (7 pages)

In this short paper the authors summarize for workshop participants the kind of information sought and the reasons for conducting the village profile exercise. The importance of listening to villagers and to their assessment of problems, needs, and solutions is underscored as necessary for real and effective development. Specific issues that emerged from the village survey are discussed including the following:

1. Although livestock markets are regularly held in Kiteto, the unavailability of desired consumer goods and veterinary medicines is widespread and undoubtedly results in fewer sales of livestock. Recognizing that shortages are a national problem, the authors stress the importance of village shops supported by training of villagers in shop management and accounting. In addition, the situation calls for fair distribution by the Regional Trading Corporation as well as officially disseminated allocations and prices of goods and veterinary supplies.

2. Villagers were vocal in expressing dissatisfaction about government-provided human and livestock services, which are to be an incentive for permanent settlement. There appears to be a need for much greater village participation in the planning, implementation, and responsibility for projects in order to ensure adequate services.

3. Villagers expressed a desire for visits by technical staff from the district, particularly from the Agricultural Department as cultivation is a new activity in much of Kiteto (in large part, a result of unavailability of purchasable maize meal).

4. Villagers expressed concern concerning encroachment of undesirable plants over much of their rangelands. District technicians should work with villagers to devise village management plans that address these types of problems.

5. Wildlife abound in many village areas, depredate crops, and compete with livestock for forage and water. The district and particularly game department should consider ways by which villages can directly benefit from wildlife, such as through a surcharge on hunting fees.

6. The great distance between Moyio Division and District Headquarters, Kibaya, results in high costs and inconvenience to procurement of goods for Village Stores in Moyio. If possible it would be desirable for the district to arrange for means of official procurement of goods for Moyio from the nearby trading centers of Moshi and Arusha.

10.f. Regional Planning Committee Meeting Minutes, February 9-11, 1981 (In English and Swahili) (33 pages)

The main item on the agenda was discussion and consideration of the recommendations of the paper entitled "Arusha Regional Planning Exercise: Decisions for the Future." The aim of this paper was to define main policy guidelines for development decision making over the next 20 years.

Recommendations approved by the committee come under the following categories: A. Regional Development Goals, B. Population, C. Land Use Planning, D. Geographic Concentration, E. Integrated Planning, F. Directly Productive Activities, G. Supporting Infrastructure, H. Social Services, I. Project Development and Implementation - Village Capacity, J. Manpower, K. Materials, L. Finance, M. Parastatal Reform, N. Macro-Economic Policy Changes, O. Regional Planning and External Resources, and P. Extension of APVDP.

Consideration of recommendations under Manpower, consumer prices, and other policy guidelines were delayed until the February 25, 1981, meeting.

Recommendations rejected at this meeting are also presented. An addendum to these minutes includes the minutes of the February 25 meeting, the recommendations from the manpower report, a discussion of the formation of subcommittees for considering sectoral and cross-sectoral problems and potentials for longer term planning, and the format for preparation of the 1981/82 submission.

REGIONAL AND DISTRICT PROJECT PROFILES

PROJECT PROFILES

11.A.1. Title: Regional Planning Activities

Location: Arusha Region

APVDP Funding Allocation: Grant: $1,500,000 (Tsh 12,750,000)

Description: One of the goals of APVDP was to improve the quality of regional, district, and village planning and project development. Associated with this goal, APVDP had the task of assembling a comprehensive set of regional data and assisting the region with the preparation of the Arusha Region Integrated Development Plan. Among the many planning activities undertaken by APVDP during the four years of the project were the following:

1. Comparative analysis of regional planning in Tanzania

2. Arusha workshop for detailed implementation plan of APVDP

3. Three study tours to review design and implementation of six regional integrated development projects in Tanzania

4. Definition of land planning units based on agro-ecological zones

   A. Computer enhancement of satellite imagery

   B. Regional aerial survey

   C. Color aerial photography of 12 pilot wards and Arusha town

5. Aerial study tour of three districts by government and party officials

6. Arumeru, Hanang, and Mbulu district workshops to review priorities and annual work plans

7. Regional workshop to review district work plans, develop APVDP policies and procedures

8. Village profile survey of 151 villages

9. Sector assessments and background papers for regional planning

10. Six district workshops for development of district strategy and priority papers (Arumeru, Hanang, Mbulu, Ngorongoro, Monduli, and Kiteto)

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11. District and Regional Planning Committee meetings to adopt strategies and priorities

12. Development of Arusha Region Integrated Development Plan (five volumes), September 1982

13. Regional development director, commissioner for planning and control, and regional development adviser, marketing trip to Europe, January 1982

11.A.2. Title:	Regional Facilitator Training Model Seminar
Location:	Arusha Region, Arusha town
APVDP Funding Allocation:	Grant $4,705 (Tsh 40,000)
Description:	One-week seminar for training of 21 officials from the 3 APVDP project districts in the facilitator or village dialogue model for interacting and planning with village leaders. Seminar led by two expatriate trainers from Kenya.

11.A.3. Title:	Workshop on Data Analysis and Planning
Location:	Arusha Region, Tanzanite Hotel, Usa River
APVDP Funding Allocation:	Grant: $43,823,000 (Tsh 372,500)
Description:	90 regional and district officials attended 3 one-week workshops in data analysis and planning held at the Tanzanite Hotel. Technical assistance for the workshop was provided by 3 faculty members from the Cornell University Department of City and Regional Planning, together with APVDP staff. This was part of a collaborative program with Cornell which included 5 Tanzanians undertaking graduate studies in regional planning at Cornell. The Tanzanite workshop was followed up by district visits by the workshop faculty to discuss a follow-up in-service training agenda.

11.A.4 Title: Graduate Training Program in Regional Planning at Cornell

Location: Cornell University, Ithaca, New York

APVDP Funding Allocation: Grant: $130,000 (Tsh 1,105,000)

Description: Five government officials from Arusha Region attended a specially designed graduate training program in regional planning for Tanzanian planning officials at Cornell University, Department of City and Regional Planning. The graduate program led to a Master's of Professional Studies in International Studies. All five officials completed Master's theses on topics concerning sectoral training in Arusha Region, with three of the particpants completing field work in Arusha Region.

11.A.5. Title: Themi Farm Implement Company

Location: Njiro Hill: Arusha Municipality

APVDP Funding Allocation: Grant: $275,398 (Tsh 2,340,889)

Description: Intent to produce components for ox-carts to serve district units with surplus for general sale. Additionally intended to produce tool bars with weeders and ploughs. All objectives met, and production now at level of planned capacity.

11.A.6. Title: Improvement of Regional Veterinary Services

Location: Arumeru, Hanang, and Mbulu districts

APVDP Funding Allocation: Grant: $133,882 (Tsh 1,138,000)

Description: Procurement of veterinary center equipment to equip 30 veterinary centers in the three APVDP project districts as follows: Arumeru-8, Mbulu-9, Hanang-13. The centers are distributed on the basis of 1 center per 25,000 cattle. Equipment provided includes a full range of laboratory and dip testing equipment.

11.A.7. Title: Procurement of 35 Landrovers

Location: Arusha Region

APVDP Funding Allocation: Grant: $484,000 (Tsh 4,114,000)

Description: Procurement of 35 Landrovers to up-grade the capability of planning officials and functional offices in project planning, evaluation, and implementation. The Landrovers were distributed among planning and functional officials at the regional level and in the three project districts -- Arumeru, Hanang, and Mbulu.

11.A.8. Title: Procurement of 10 Isuzu 7-ton Lorries

Location: Arusha Region

APVDP Funding Allocation: Grant: $243,000 (Tsh 2,065,500)

Description: Procurement of 10 7-ton Isuzu lorries to assist in the implementation of APVDP project activities as well as government-funded projects. The lorries were distributed as follows: 6 to the Regional Water Development Department, 1 to the Regional Planning Office, 1 to each of the District Planning Offices in Arumeru, Mbulu, and Hanang districts.

11.A.9. Title: Procurement of 120 Motorcycles

Location: Arusha Region

APVDP Funding Allocation: Grant: $100,000 (Tsh 850,000)

Description: Procurement of 120 Honda 110 cc. motorcycles to upgrade the efficiency of field staff and supervisors in carrying out their responsibilities. The motorcycles were distributed 35 to each of the three project districts -- Arumeru, Mbulu, and Hanang -- with 15 distributed at the regional level. They were given to staff on a private, loan basis, with assignments made with priority to field staff, extension supervisors, and government and party officials closely involved with implementation of APVDP projects. Staff assigned motorcycles included ward and divisional secretaries and field staff and supervisors in the following departments: Planning, Agriculture, Livestock, Natural Resources, Water, Lands, Works, Cooperatives, and Community Development.

11.A.10. Title: Procurement of Spare Parts for Regional Well Drilling Equipment

Location: Arusha town

APVDP Funding Allocation: Grant: $50,000 (Tsh 425,000)

Description: Procurement of spare parts for the regional well drilling equipment which was originally provided by the Maasai Range Project. The well drilling equipment was to be allocated to APVDP projects on a priority basis.

11.A.11. Title: Construction of Regional Warehouse/ Garage

Location: Arusha town

APVDP Funding Allocation: Grant: $291,294 (Tsh 2,476,000)

Description: Procurement of pre-fabricated 13,000 sq ft warehouse with local installation and construction to serve as a regional warehouse and garage/ maintenance facility. This was constructed at a site provided by the government at Njiro Hills in Arusha municipality.

11.A.12. Title: AATP Technical Development Project

Location: AATP, Arusha Municipality

APVDP Funding Allocation: Grant: $5,058 (Tsh 43,000)

Description: Intent to develop a hand-operated sunflower press, for oil extraction, a low-lift irrigation pump, and a cast ox-cart wheel for use with pneumatic tire. Sunflower press developed and tested successfully, but operational economics led to conclusion that powered expellers more appropriate to village use. Pump successfully developed. Not adopted as yet in production. Wheel successfully developed and adopted in use.

11.A.13. Title: Spider Tractor Testing Programme

Location: Mbulu District, Kambia Ya Simba Village; Arumeru District, Oljoro Village

APVDP Funding Allocation: Grant: $12,353 (Tsh 105,000)

Description: Idea to test lightweight tractor using winch-drawn plough to obtain high draught power with light weight and small engine. Concept proved workable but without significant fuel saving advantages, while being no faster than oxen cultivation. Recommendations developed for larger machine offering equal economy of operation and low unit cost with double cultivation capacity.

11.A.14. Title: Agricultural Implements Research and Development

Location: Arusha Municipality

APVDP Funding Allocation: Grant: $3,294 (Tsh 28,000)

Description: Intent was to develop an oxen-drawn toolbar suitable for ploughing, weeding, and seeding. To also develop a ploughshare, a [illegible]sh planter, a push weeder, an oxen drawn planter. All objectives accomplished except for oxen-drawn planter, owing to unexpected termination of APVDP finances. Toolbar with weeder and plough now in production. No planned production of other items at this time owing to existing demand for ploughs and ox-cart components absorbing all production capacity.

11.A.15. Title: Regional Pest Control Program Support

Location: Arusha Region

APVDP Funding Allocation: Grant: $21,176 (Tsh 180,000)

Description: Local currency support for the Regional Pest Control Program. Support for regional contribution to FAO-sponsored Quelea-Quelea bird-spraying program to limit bird damage to regional grain crops.

11.A.16. Title: Establishment of Regional Planning Office Resource Center

Location: Arusha Region

APVDP Funding Allocation: Grant: $15,000 (Tsh 127,500)

Description: Resource and documentation center established in the Regional Planning Office containing over 1,000 reports, government documents, and books on development issues relevant to Arusha Region. Also contains topographic maps, black and white and color aerial photographs, satellite imagery, and other land use planning materials. A bi-monthly newsletter has been published announcing new acquisitions, and materials have been procured, and a Peace Corps volunteer assigned to develop extension communications. A permanent resource center coordinator has been assigned to the center and trained.

11.A.17. Title: Establishment of Micro-Computer Center in Regional Planning Office

Location: Arusha town

APVDP Funding Allocation: Grant: $20,620 (Tsh 175,276)

Description: Ohio Scientific Challenger II Micro-computer System provided to the regional planning office to assist with development planning and management. A computer program and assistant were provided for two years after which they were taken over by the government. Work accomplished included data compilation and analysis for the village profile survey, regional rainfall statistics analysis programme and data files, water systems inventories and surveys, a small-scale industries survey, a transportation survey used to prepare a report on road maintenance priorities, a population survey of Arumeru District, and use of the computer as a word processor. In 1982 a second, Apple Computer was added by the AID-sponsored International Population and Development Planning Project, a regional planning model was developed for Arusha Region and a seminar on micro-computer applications in planning held in Arusha.

11.A.18. Title: Training of Shallow Wells Survey and Construction Unit

Location: Arusha Region

APVDP Funding Allocation: Grant: $7,411 (Tsh 63,000)

Description: Seven-person team from the Regional Water Department trained for three months in shallow wells survey and construction by the Dutch-funded Morogoro Wells Construction Project. After returning from training the team has surveyed and constructed 29 successful tubewells with plans and funds to construct an additional 16 wells by September 1983. The shallow wells survey and construction teams trained in Morogoro have given the region a relatively low cost, technologically proven means of serving rural areas with a potable water supply. Probably the sub-area of most significant impact within this shallow wells program has been the skills and technology brought into the region related to the surveying of appropriate well sites. The training and hand-turned survey equipment provided through the Morogoro Wells Construction Project has permitted successful construction of 29 out of 33 wells.

11.A.19. Title: Tanga Region Study Tour for Planners

Location: Tanga Region

APVDP Funding Allocation: Grant: $1,576 (Tsh 13,400)

Description: Study tour of 8 regional and district planning officials from Arusha Region to Tanga Region to study the implementation of a Regional Integrated Development Project. Particular emphasis was put on directly productive activities, along with discussions of issues related to management of RIDEPs. Study tour included five district planning officers, project coordinator, regional development director, and the rural development planning adviser.

11.A.20. Title: Study Tour to Botswana

Location: Botswana

APVDP Funding Allocation: Grant: $18,000 (Tsh 153,000)

Description: Eight regional and district officials participated in this three-week study tour to Botswana in February/ March 1981. The aim of the study tour was to draw lessons from Botswana's rural development experience, especially the approaches to integrated development planning as related to rural development. The following areas were reviewed: district planning system, role of the district development committees, project memorandum and the funding and approval process, land use planning, village area plans, extension services, agricultural and livestock program planning, and training policies and practices.

11.A.21. Title: Regional Soil Conservation Workshop

Location: Mbulu District, Karatu; and Arumeru District

APVDP Funding Allocation: Grant: $16,000 (Tsh 136,000)

Description: Three-week Regional Soil Conservation Workshop for 21 district officials from multidisciplinary soil conservation teams from the three APVDP project districts -- Arumeru, Mbulu, and Hanang. Three ADVDP soil conservation consultants provided technical assistance to the workshop, which included both classroom instruction and practical field instruction in Karatu Division and in Arumeru District. Each of the three district teams was assisted in the preparation of an action plan for soil conservation work in their district.

11.A.22. Title: Regional Irrigation Seminar

Location: Arusha Region

APVDP Funding Allocation: Grant: $31,470 (Tsh 267,500)

Description: A four-week in-service training workshop was held for 25 regional and district irrigation officials during August and September 1982 with instruction provided by an APVDP irrigation consultant. The workshop included design studies and implementation and maintenance of irrigation and drainage systems. Workshop included field instruction at irrigation sites at Maroroni in Arumeru District and Magugo in Hanang District.

11.A.23. Title: Regional Community Development Seminar

Location: Arusha Region

APVDP Funding Allocation: Grant: $7,3[illegible] [illegible]sh 62,238)

Description: Two one-week workshops to train 85 community development assistants from the seven districts in Arusha Region to undertake new tasks vested or charged on them after the split of Ujamaa and Cooperative Development into two departments. The workshops were to provide the field staff with knowledge of approaches for motivating villagers through their village councils in ways to go about planning for development activities.

11.A.24. Title: Regional Cooperative Development Seminar

Location: Arusha Region

APVDP Funding Allocation: Grant: $9,381 (Tsh 79,745)

Description: Two-week regional seminar for 42 cooperative assistants in the Cooperative Development Department to orient the officials to their new responsibilities after the split of Ujamaa and Cooperative Development into two deparments. Topics covered included the Cooperative Act, 1982, the role of the Cooperative Audit and Supervision Corporation, the Rural Savings and Credit Scheme, Management and Project Appraisal, and Credit Management.

11.A.25. Title: Study Tour to Agricultural Research Stations

Location: Kilmanjaro, Tanga, and Morogoro Regions

APVDP Funding Allocation: Grant: $1,764 (Tsh 15,000)

Description: Two-week study tour of 6 regional and district agricultural extension supervisors to agricultural research stations at Lyamungu, Mlingano, Ilonga, and Tanga. Objective was to collect relevant research data, explore linkages between the research programs and the extension services, and review the Tanga RIDEP Extension Program.

11.A.26. Title: Kiteto Land Use Planning Seminars

Location: Kiteto District

APVDP Funding Allocation: Grant: $6,674 (Tsh 57,500)

Description: Kiteto District and APVDP jointly funded and provided support for a district wide village land use planning seminar program. Seminars were conducted in 51 villages (August-November 1981) by a multidisciplinary team composed of two regional extension staff and district representatives from Livestock, Agriculture, Natural Resources and Lands departments. Village council members, local government extension staff, and party officials participated in the seminars, which had the objectives of increasing villager awareness of population and land use trends and problems, producing maps of village land areas, and providing guidance to village leaders, party officials, and government extension staff on activities and solutions to address the land-related problems.

11.A.27. Title: Regional Organic Agriculture Seminar

Location: Arusha Region

APVDP Funding Allocation: Grant: $12,500 (Tsh 106,250)

Description: Two-week Regional Organic Agricultural Methods Seminar for 15 district agricultural officials. Technical instruction provided by an APVDP consultant agronomist. Objective of the seminar was to introduce organic methodology to the traditional high-input system currently followed up by the agricultural. The regional workshop was followed by two district workshops in Arumeru and Mbulu districts involving 90 district extension staff.

11.A.28. Title: Reading Univesity Livestock Course

Location: Reading University, England

APVDP Funding Allocation: Grant: $17,400 (Tsh 147,900)

Description: Two livestock officers from the Regional Livestock Development Office attended a three-month course at Reading University, England, in 1981 on the Economics of Health in Livestock Production. On return to Arusha the two officials were involved in the design and coordination of pilot livestock extension programs in the three APVDP project districts.

11.A.29. Title: Training for Two Officals, Cornell University Communications Seminar

Location: Cornell University, Ithaca, New York

APVDP Funding Allocation: Grant: $9,200 (Tsh 78,200)

Description: Two regional officials attended a one-month seminar at Cornell University in 1980 on "Communications, Planning and Strategy in Support of Development." On return to Arusha the two officials were involved in the design of APVDP support to village and district development projects.

11.A.30. Title: Procurement of Regional Radio System

Location: Arusha Region

APVDP Funding Allocation: Grant: $70,000 (Tsh 595,000)

Description: Procurement of one base station and five substations with 125 watt ssb Motorola transceivers complete with solar-powered battery units. The five substations will be in the district headquarters of Mbulu, Hanang, Ngorongoro, Kiteto, and Monduli districts.

11.A.31. Title: Fruit Tree Upgrading

Location: Horti-Tengern Region

APVDP Funding Allocation: Grant: $2,142 (Tsh 18,215)

Description: To provide support to Horti-Tangern for the improvement of fruit tree stock for the region. Improved species of all popular fruit tree species and a small quantity of new varieties were imported from the USA as seed, graftwood, and live plants. Horti-Tangern established nursery of this improved stock seed, graftwood, etc. from this nursery will be distributed widely throughout the region providing groves with highest qualities and quantity of fruit.

ARUMERU DISTRICT PROJECTS

11.B.1. Title: Ngarenanyuki Irrigation Rehabilitation

Location: Arumeru District, Ngarenanyuki Ward, Ngabobo Village

APVDP Funding Allocation: Grant: $21,176 (Tsh 180,000)

Description: To carry out repairs to the intake weir, provide sluice gates, repair irrigation canals, and improve drainage to alleviate saltation problem on 600 acres of irrigation.

11.B.2. Title: Maroroni Irrigation System

Location: Arumeru District, Maroroni, Kikatiti Ward

APVDP Funding Allocation: Loan: $75,667 (Tsh 643,170)

Description: Project designed to irrigate 500 acres of small holdings in Maroroni village. Water to be taken from Usa River via 9 km cut. Four blocks of land to be irrigated with main crops of maize, beans, and tomatoes. Village contributing labor for unskilled work.

11.B.3. Title: Pilot Agricultural Extension Programme

Location: Arumeru District

APVDP Funding Allocation: Grant: $12,260 (Tsh 104,213)

Description: To assist the district introduce more effective extension program and methodology. An adapted form of the training and visitation system was tested first in 2 wards with 16 contact farmers and then expanded to 4 wards with 68 immediate contact farmers and 700 neighbor farmers.

11.B.4. Title: Agriculture Field Staff Training

Location: Arumeru District

APVDP Funding Allocation: Grant: $12,087 (Tsh 102,740)

Description: To provide training to all Bwana Shambas to enable them to carry out and broaden their duties and service to farmers. Particular emphasis upon soil conservation, improved land husbandry, and integration with other land uses. A total of 27 Bwana Shambas provided with 8 weeks' training over 2 years.

11.B.5. Title: Procurement of Irrigation Pump

Location: Arumeru District

APVDP Funding Allocation: Grant: $2,086 (Tsh 17,738)

Description: To purchase a water pump to assist in irrigation projects particularly in the repair and construction of irrigation weirs.

11.B.6. Title: Agriculture Field Staff House

Location: Arumeru District, Owsa Ward

APVDP Funding Allocation: Grant $12,352 (Tsh 105,000)

Description: To construct a house for the Bwana Shambas in this ward. The ward is in the district's area of concentration and the location of a major soil conservation program.

11.B.7. Title: Maize Production Seminars

Location: Arumeru District

APVDP Funding Allocation: $3,529 (Tsh 30,000)

Description: A series of 7 one-day seminars were held in 4 divisions located in Arumeru's "maize belt" for 270 village leaders. A basic "package" of advice upon maize production and land husbandry was put forward. Each village group then returned to their village to hold meetings with 10 cell groups.

11.B.8. Title: Kisongo Dip Rehabilitation

Location: Arumeru District, Matees Village

APVDP Funding Allocation: Grant: $9,241 (Tsh 78,553)

Description: Major rehabilitation of destroyed livestock dip serving Mateves Village, population 2,830 with approximately 65,000 A.U.; funds for purchase of materials and skilled labor; village provided unskilled labor.

11.B.9. Title: Repairs to Livestock Dips

Location: Arumeru District, Sura Village, Nkoanekoli Village, Nduruma Village, Matiyachai Village, and Neg'ungu Village

APVDP Funding Allocation: Grant: $12,352 (Tsh 105,000)

Description: To repair 5 livestock dips in priority locations in 5 villages.

11.B.10. Title: Livestock Field Staff Training

Location: Arumeru District

APVDP Funding Allocation: Grant $27,647 (Tsh 235,000)

Description: A three-year program to upgrade all livestock field staff in Arumeru District. 28 unqualified staff (dip attendants) will have each received 30 days training and 16 qualified staff have received a 15-day refresher course. A major emphasis throughout has been upon comprehensive animal production.

11.B.11. Title: Spray Race Attendants House

Location: Arumeru District, Nkoanrua Village

APVDP Funding Allocation: Grant: $7,176 (Tsh 61,000)

Description: To provide a house for the spray race attendants at Nkoanrua Village. Government funds used to construct and install spray race.

11.B.12. Title: Pilot Livestock Extension Program

Location: Arumeru District

APVDP Funding Allocation: $3,529 (Tsh 30,000)

Description: An adapted training and visitation extension methodology is being tested by 4 field staff each with 10 contact leaders. Structured program for livestock and grazing upgrading is being introduced. Each field staff is also working with villages on commercial area upgrading.

11.B.13. Title: Grass Seed Multiplication Plots

Location: Arumeru District

APVDP Funding Allocation: Grant: $3,529 (Tsh 30,000)

Description: To establish small-scale grass seed multiplication plots throughout the district to provide seed for improved pasture as part of the Department of Livestock extension program. Eight seed plots totalling 10 acres have been established, seed successfully harvested, and distribution begun.

11.B.14. Title: Olkokola Tree Nursery

Location: Arumeru District, Olkokola Village

APVDP Funding Allocation: Grant: $9,754 (Tsh 82,915)

Description: To establish a tree nursery in support of land use planning and soil conservation. Some 25,000 seedlings distributed 1981-1982. After the season financial support will come exclusively from village. Two villages being trained to take over management of nursery.

11.B.15. Title: Lekitatu Fishpond

Location: Arumeru District, Lekitatu Village, Poli Ward

APVDP Funding Allocation: Grant: $2,941 (Tsh 25,000)

Description: To construct a demonstration/experimental fishpond operated by Department of Natural Resources to provide a demonstration pond for training villages in construction and management.

11.B.16. Title: Forestry Field Staff Training

Location: Arumeru District

APVDP Funding Allocation: $2,352 (Tsh 20,000)

Description: A 15-day training course for 20 forestry field staff. Two main emphases: the role of tree planting in soil conservation and land management, and the management of small village level tree resources. Training was also provided in extension methods.

11.B.17. Title: Fisheries and Beekeeping Field Staff Training

Location: Arumeru District

APVDP Funding Allocation: Grant: $3,529 (Tsh 30,000)

Description: Two training courses of 15 days for 7 beekeeping field staff and 6 fisheries field staff. The course for beekeepers to provide basic training to largely unqualified staff. For fisheries staff, practical training in fishpond construction and management will be provided.

11.B.18. Title: Pilot Beekeeping Project-Nduruma

Location: Arumeru District, Nduruma Village

APVDP Funding Allocation: Grant: $2,705 (Tsh 23,000)

Description: To provide 15 modern improved beehives to a production group in Nduruma Village to demonstrate to other interested groups improved production that can be obtained from such modern hives.

11.B.19. Title Village Tree Nurseries

Location: Arumeru District; Maweni Village-Kikue Ward; Owiro Village-Ngarenanyuku Ward; Lemonglo Village-Oldonyosambo Ward

APVDP Funding Allocation: Grant: $9,864 (Tsh 83,850)

Description: To provide initial grant funding to three villages wishing to establish village tree nurseries. Grant covers equipment and first season operating expenses; after first season nurseries will be fully supported by each village through sale of seedlings. Target production per village: 25,000 timber and 8,000 fruit tree seedlings.

11.B.20. Title: Soil Conservation Seminars

Location: Arumeru District, Mukulat Division

APVDP Funding Allocation: Grant: $2,353 (Tsh 20,000)

Description: A series of 12 one-day workshops were held for all the villages in Mukulat Division introducing the concepts of soil conservation and particularly the activities to be undertaken under the ILO Mukulat Soil Conservation Project. The workshops were run by the functional managers of Agriculture, livestock and Natural Resources. Some 300 village leaders attended the workshops.

11.B.21. Title: Soil Conservation Programme

Location: Arumeru District, Musa and Mwandet Wards

APVDP Funding Allocation: Grant: $25,882 (Tsh 22,000)

Description: Supplementary funds to augment the project funded through ILO to allow district to complete work in Musa and Mwandet Wards. Contour bunds and gulley erosion control on 3,500 hectares of cultivated land plus the planting of 100,000 seedlings for soil protection. Villages taking measures to protect the conservation work.

11.B.22. Title: Olkokola Land Use Planning Programme

Location: Arumeru District, Olkokola Ward

APVDP Funding Allocation: None, a planning exercise

Description: To involve villagers in a dialogue which helps them to recognize problems and potentials with regard to their land resources and identifies solutions for dealing with the problems and developing potentials. Seminars were held with each village council, action plans were formulated, and village implementation committees were chosen. Activities resulting from the exercise include the establishment of the Olkokola tree nursery, family planning seminars for village councils, agricultural extension visits.

11.B.23. Title: Ngarenanyuki Ox-Cart Production Unit

Location: Arumeru District, Ngarenanyuki Ward

APVDP Funding Allocation: Loan: $28,202 (Tsh 239,718)

Description: To establish an ox-cart production unit to manufacture initially 100 carts per year plus other local carpentry products. The unit is set up as a cooperative with 7 full-time employees.

11.B.24. Title: Maize Mill Uwiro

Location: Arumeru District, Uwiro Village

APVDP Funding Allocation: Loan: $10,003 (Tsh 85,030)

Description: Provision of a loan to the village council for the purchase of a maize mill. Village constructed mill house as it contribution to the project.

11.B.25. Title: Maize Mill Ngabobo

Location: Arumeru District, Ngabobo Village

APVDP Funding Allocation: Loan: $11,438 (Tsh 97,230)

Description: Provision of a loan to the village council for the purchase of a maize mill. Village constructed mill house as its contribution to the project.

11.B.26. Title: Maize Mill Kisimiri

Location: Arumeru District, Kisimiri Village

APVDP Funding Allocation: Loan: $10,003 (Tsh 85,030)

Description: Provision of a loan to the village council for the purchase of a maize mill. Village constructed mill house as its contribution to the project.

11.B.27. Title: Maize Mill Samaria

Location: Arumeru District, Samaria Village

APVDP Funding Allocation: Loan: $11,176 (Tsh 95,000)

Description: Provision of a loan to the village council for the purchase of a maize mill. Village constructed mill house as its contribution to the project.

11.B.28. Title: Maize Mill Sakila

Location: Arumeru District, Sakila Village

APVDP Funding Allocation: Loan: $7,647 (Tsh 65,000)

Description: Provision of loan to village council for the purchase of a maize mill. Village constructed mill house as its contribution to the project.

11.B.29. Title: Kikwe Ward Building Brigades

Location: Arumeru District, Kikwe Ward

APVDP Funding Allocation: Loan: $32,745 (Tsh 278,338)

Description: The original project design was for Tsh 2 million. Sought to train 6-person building brigade in each of 5 villages and establish a revolving loan fund for housing construction. Project to be administered by ward board with logistics support from district and technical support from Arusha Appropriate Technology Project. Target was for 10 houses per brigade per year utilizing soil-cement technology.

11.B.30. Title: Kiranyi Brick and Tile Production

Location: Arumeru District, Kiranyi Village

APVDP Funding Allocation: Loan: $47,058 (Tsh 400,000)

Description: To establish a burnt brick and tile production unit utilizing both machine and hand molding operations. Project originally initiated by the region to utilize machines imported from India under separate project. Current production about 3,000 bricks per day with a target of 5,000; tile production not stated. Presently employing 25 full-time staff.

11.B.31. Title: Makumira Bakery

Location: Arumeru District, Makumira

APVDP Funding Allocation:

Description: Intent to establish a bakery project at Makumira, via finance from TRDB. APVDP innvolvement in preparation of feasibility study for TRDB, advocacy with bank to obtain loan, design of apporpriate wood fired ovens. Project fully operational as per study, with daily production 400 loaves; this rising to 800 this month with arrival of project vehicle. Loan being repaid on schedule.

11.B.32. Title: Lands Department Equipment Procurement

Location: Arumeru District

APVDP Funding Allocation: Grant: $6,667 (Tsh 56,673)

Description: The procurement of essential surveying equipment for the District Lands Department to enable it to carry out its duties, particularly surveying of village boundaries and for soil conservation measures. Equipment included theodolite, level, measuring tapes, compass, etc.

11.B.33. Title: Kisongo Road Base Camp

Location: Arumeru District, Kisongo Ward

APVDP Funding Allocation: Grant: $5,882 (Tsh 50,000)

Description: To provide a permanent maintenance base camp for Comworks on an important district feeder road (Kisongo-Monduli). Government funds provided 1981-1982 to rehabilitate this road. Once complete a permanent maintenance crew will be assigned to this base camp.

11.B.34. Title: District Housing Construction and Repair

Location: Arumeru District, Kingori Village, Arusha town

APVDP Funding Allocation: Grant: $25,647 (Tsh 218,000)

Description: The project will construct one government rest house/Bwana Shamba house at Kingori, repair and extend one senior staff quarters in Arusha, and provide minor repairs to be carried out on a staff quarters.

11.B.35. Title: Field Staff Bicycle Purchase Scheme

Location: Arumeru District

APVDP Funding Allocation: Loan: $6,095 (Tsh 51,815)

Description: Twenty-five bicycles were provided to key field staff from Department of Agriculture, Livestock, and Natural Resources on a loan basis. The provision of bicycles to enable field staff to move about their areas was considered an essential step to improving the extension services of the productive sector.

11.B.36. Title: Sakila Pump Attendants House

Location: Arumeru District, Sakila Village

APVDP Funding Allocation: Grant: $5,628 (Tsh 47,844)

Description: This construction of a small house for a pump attendant servicing the Sakila water supply. Additional APVDP funds for rehabilitation of this system being provided in 1982-1983.

11.B.37. Title: Community Development Assistants Training

Location: Arumeru District

APVDP Funding Allocation: Grant: $11,552 (Tsh 98,200)

Description: To provide training to 23 ACDO's for a period of 5 weeks in bookkeeping and accounts, project development and management and credit and savings schemes. Funds also provided to support follow-up activities in the field. ACDO's field offices working directly with villages.

11.B.38. Title: Village Godowns

Location: Arumeru District, Losinoni, Likamba, Mateves, and Ngurtoto Village

APVDP Funding Allocation: Loan: $47,058 (Tsh 400,000)

Description: Loans to four villages to enable each village to construct village storage facility for both agricultural inputs and crop storage prior to transport to market. Loans to purchase materials only; all labor provided by villages.

11.B.39. Title: Ox-Cart Purchase Scheme

Location: Arumeru District

APVDP Funding Allocation: Loan: $11,764 (Tsh 100,000)

Description: To establish a revolving fund for the district to provide loans to villages and groups for the purchase of ox-carts. Each recipient will receive a loan equivalent to half the cost of purchase of an ox-cart. Upon repayment the loan will be re-issued to further groups.

11.B.40. Title: Olkokola Borehole Water Supply

Location: Arumeru District, Olkokola, Lengijave

APVDP Funding Allocation: Grant: $28,235 (Tsh 240,000)

Description: There are two existing gravity water supplies in Olkokola Ward which in times of severe drought are greatly reduced in yield. The Olkokola borehole water supply project was intended to augment these gravity supplies, particularly during drought conditions. The borehole was drilled to a depth of 415 feet with no productive aquifer met.

11.B.41. Title: Olkokola Gravity Water Supply Rehabilitation

Location: Arumeru District, Olkokola, Mwandet Wards

APVDP Funding Allocation: Grant $11,764 (Tsh 100,000)

Description: One of the two gravity water supplies in Olkokola serving parts of Olkokola Ward and Mwandet Ward has been in need of rehabilitation. Two new cattle troughs have been built; three break pressure tanks are to be rebuilt; and four new domestic points constructed.

11.B.42. Title: Kikatiti Borehole Water Supply

Location: Arumeru District, Kiketiti Ward, Kikatiti, Samaria

APVDP Funding Allocation: Grant: $84,705 (Tsh 720,000)

Description: This borehole water supply project is intended to augment the existing gravity water supply serving Kikatiti Ward (Kikatiti and Samaria Villages). The yield of the surface source serving these two villages is insufficient; this borehole will supplement the total yield to these two villages.

11.B.43. Title: Shallow Wells Survey and Construction

Location: Arumeru District

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Two tubewells were drilled in 1980 in Mbuguni Village both of which are dry for at least 4 months of the year. Survey was conducted in Engalaoni Village (Mwandet Ward) and Olchorovus Village (Musa Ward) but no sites for tubewells approved. One ring well site was approved in Engalaoni Village.

11.B.44. Title: Village Water Supply Technician Training

Location: Arumeru District

APVDP Funding Allocation: Grant: $21,176 (Tsh 180,000)

Description: These are training courses designed to instruct villagers in the proper basic maintenance skills for gravity pipeline water supplies. To date two courses were conducted, training a total of 28 participants from 22 villages. Two other training courses are scheduled for up to 40 additional participants. Tools were distributed to the villages.

11.B.45. Title: Karangai Pipeline Rehabilitation

Location: Arumeru District, Karangai Village

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: To rehabilitate an existing pipeline water supply. Main emphasis is to rehabilitate three storage tanks which were originally constructed but no top slab put on. Source pipeline rehabilitation to occur but this is only minor works.

11.B.46. Title: Sakila Gravity Water Supply Rehabilitation

Location: Arumeru District, Sakila Village

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: To rehabilitate the Sakila water supply which was constructed only a few years ago. The source of the water supply needs to be relocated.

11.B.47. Title: Sambasha Gravity Water Supply Project

Location: Arumeru District, Sambasha Village

APVDP Funding Allocation: Grant: $8,941 (Tsh 76,000)

Description: This project was funded with the Tsh 400,000 which was not used for the borehole which was abandoned. Sanbasha Village will contribute Tsh 64,000 to complete this project. This is a branch line off of the TPRI water system constructed in 1980-1981.

11.B.48. Title: Oldonyosapuk Hydraulic Ram Water Supply

Location: Arumeru District, Oldonyosapuk

APVDP Funding Allocation: Grant: $22,941 (Tsh 195,000)

Description: This project was partially funded by APVDP using those monies which were not used by the Olkokola borehole project when it was abandoned. This is a joint financing by APVDP and Tanzanian Government. This will be the first government sponsored hydraulic ram water supply in the region.

HANANG DISTRICT PROJECTS

11.C.1. Title: Pilot Agricultural Extension Program

Location: Hanang District 12 Wards, 40 Villages

APVDP Funding Allocation: Grant: $7,058 (Tsh (60,000)

Description: A program of regular bi-weekly visits to 2 contact farmers in each village in 8 villages was developed in 1981-1982. Pedigogical base of program is a small demonstration plot on each farmer's field. At end of end month field staff attend a one-day seminar in Baboti. In 1982-1983 program was extended to 11 field staff working in 40 villages.

11.C.2. Title: Qameyu Women Farmers' Groups

Location: Hanang District , Mademga Ward/Qameyu Ward

APVDP Funding Allocation: Grant: $615 (Tsh 5,232)

Description: The purpose of the project is to assist 25 women to start a fruit and vegetable garden. 30 trees were planted but project abandoned due to lack of maintenance of garden.

11.C.3. Title: Barley Production

Location: Hanang District, Madunga Ward, Qameyn Village, Utwari Village, Modunga Kati Village

APVDP Funding Allocation: Grant: $2,647 (Tsh 22,500)

Description: In 1980-1981 27 acres of test plots of barley were planted in 7 locations. Results were encouraging. Production did not take place in 1981-1982. In 1982-1983 it is expected that 3 villages will plant a total of 100 acres of barley to be sold to breweries.

11.C.4. Title: Training of Agricultural Extension Staff

Location: Hanang District, Babati

APVDP Funding Allocation: Grant: $5,647 (Tsh 48,000)

Description: Part I: Training 12 field staff with previous training for 1 week in extension methods.
Part II: Training 12 field staff with no provious training.
Part III: Training 20 field staff in communications methods.

11.C.5. Title: Oil Seed Production

Location: Hanang District, Gallapo Ward

APVDP Funding Allocation: Grant: $1,176 (Tsh 10,000)

Description: Distribution of sunflower seeds free to farmers in villages surrounding Gedamar Village where APVDP has placed an oil seed press.

11.C.6. Title: Magugu Irrigation Survey

Location: Hanang District, Magagu

APVDP Funding Allocation: Grant: $5,229 (Tsh 44,447)

Description: Survey of 860 acres of land for proposed irrigation project to be funded by APVDP.

11.C.7. Title: Maguyu Irrigation Project

Location: Hanang District, Maguyu Ward, Mapea Village, Magugu Village, Matufa Village

APVDP Funding Allocation: Grant: $29,411 (Tsh 250,000)

Description: Development of approximately 800 acres of land to be divided into 2-acre plots. There will be 3 crop rotations per year. Preliminary estimates indicate that, using official prices, output per acre will be value of Tsh 10,000 per acre.

11.C.8. Title: Mapea Coconut Nursery

Location: Hanang District, Maguga Ward, Mapea Village

APVDP Funding Allocation: Grant: $1,517 (Tsh 12,900)

Description: It was intended to start a district plot coconut nursery with 4,000 seedlings. Since it is the first of its kind it is under the management of the District Agricultural Office. Due to high cost of seeds, quantity has been reduced to 1,500.

11.C.9. Title: Groundnut Purchase Scheme

Location: Hanang District, Maguga Ward

APVDP Funding Allocation: Loan: $4,117 (Tsh 35,000)

Description: It was intended to purchase groundnuts in Tabora Region and store them in Babati until planting time when they would be sold to farmers (chiefly in Maguga Ward) at cost. Money would be put in a revolving fund and used again in a similar fashion next year.

11.C.10. Title: Ox-Plow Purchase Scheme

Location: Hanang District, Katesh Ward

APVDP Funding Allocation: Loan: $11,730 (Tsh 99,710)

Description: Project purchased 145 ox-plows at UFI factory in Dar Es Salaam and resold them at cost to farmers in Katesh Ward.

11.C.11. Title: Livestock Extension Program

Location: Hanang District, 6 Wards, 6 Villages

APVDP Funding Allocation: Grant: $7,058 (Tsh 60,000)

Description: A program of regular bi-weekly visits of 2 contact herders in each of 6 villages was established for 9 livestock field staff. Village livestock and land use committees were formed to promote better use of grazing lands and to promote planting of improved pasture grass varieties.

11.C.12. Title: Qash Cattle Dip Attendants' Quarters

Location: Hanang District, Gallapo Ward, Qash Village

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: Construction of attendants' quarters and supply room for an existing cattle dip.

11.C.13. Title: Pasture Grassland Seed Production

Location: Hanang District, Gallapo Ward, Gallapo Village

APVDP Funding Allocation: Grant: $3,529 (Tsh 30,000)

Description: It was intended to produce 6 different kinds of grass seeds in 2 locations. In fact, only 1 kind was produced in large quantity. Four other kinds were produced on a test plot basis. Seeds produced will be distributed to herders participating in the Livestock Extension Program.

11.C.14. Title: Livestock Extension Staff Training

Location: Hanang District, Babati

APVDP Funding Allocation: Grant: $9,411 (Tsh 80,000)

Description: Seminar emphasis was on livestock production and interaction with land resources with express intent to direct attention away from traditional concern of veterinary care. Part I consisted of training 25 field staff who have had previous training. Part II consisted of training another group of 25 who had no previous training. Each of these 2 parts was 2 weeks in length.

11.C.15. Title: Tsamasi Cattle Dip Improvement

Location: Hanang District, Gallapo Ward, Tsamasi Village

APVDP Funding Allocation: Grant: $2,352 (Tsh 20,000)

Description: Installation of a hand water pump to pump water from a nearby station to existing cattle dip.

11.C.16. Title: Nangwa-Dirma Livestock Water Project

Location: Hanang District, Katesh Ward, Nangwa, Wareta, and Dirma villages

APVDP Funding Allocation: Grant: $13,802 (Tsh 117,323)

Description: Repairs of water (gravity) system in 3 adjoining villages, together with repair of 2 existing cattle troughs and construction of 2 new cattle troughs. These 3 villages have approximately 25,000 head of cattle and 20,000 head of sheep and goats.

11.C.17. Title: Forestry Extension Program

Location: Hanang District, 13 villages

APVDP Funding Allocation: Grant: $2,941 (Tsh 25,000)

Description: Conducting of 7 1-day seminars for workers of 13 village nurseries. Also village tree planting campaign in 13 villages using filmstrips.

11.C.18. Title: Hanang Forestry Project

Location: Hanang District, Modunga Ward, Madunga Kati Village, Kotesh Ward, Jorodan Village, Maguga Ward, Mapea Village

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: Tree nurseries were established in 3 villages. A total of 110,000 seedlings were produced and planted. Nurseries were village owned.

11.C.19. Title: Village Tree Fruit Nurseries

Location: Hanang District, 10 Wards, 13 Villages

APVDP Funding Allocation: $17,058 (Tsh 145,000)

Description: Following decision to decentralize nurseries based on experience from 1981-1982, it was decided to start 13 village-owned and operated nurseries with 10,000 seedlings in each (8,000 forestry and 2,000 fruit seedlings). The goal has been reached with forestry seedlings but not yet with fruit seedlings.

11.C.20. Title: Fruit Tree Nurseries

Location: Hanang District, Bonga Ward, Bonga Village, Maguga Ward, Mapea Village

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: Establishment of 2 fruit tree nurseries with a total of 21,000 lemon stock seedlings to be budded as orange trees. During 1981-1982 program was enlarged to include a fruit section in each of 13 village nurseries.

11.C.21. Title: Gallapo Fishpond

Location: Hanang District, Gallapo Ward, Gallapo Village

APVDP Funding Allocation: Grant: $1,176 (Tsh 10,000)

Description: Reconstruction of existing but inoperative pond that was to be jointly owned by primary school and village, with project to be managed by school.

11.C.22. Title: Bassotu Fish Receiving Station

Location: Hanang District, Bassotu Ward, Bassotu Village

APVDP Funding Allocation: Loan: $8,235 (Tsh 70,000)

Description: Construction of a building for drying and storing of fish so that the village can store a sufficiently large quantity to make it worthwhile hiring a lorry to haul fish to urban centers where price is much higher.

11.C.23. Title: Training Course for Forestry Extension Staff

Location: Hanang District, Babati

APVDP Funding Allocation: Grant: $3,374 (Tsh 28,685)

Description: Two-week seminar in forestry (soil conservation, tree planting, forestry protection) for 22 district forestry field staff.

11.C.24.	Title:	Fisheries Training Seminar
	Location:	Hanang District, Babati
	APVDP Funding Allocation:	Grant: $1,095 (Tsh 9,310)
	Description:	One-week seminar in methods of fishing and fish preservation given for 11 districts fisheries field staff.

11.C.25.	Title:	Training in Project Planning and Management for Women
	Location:	Hanang District
	APVDP Funding Allocation:	Grant: $922 (Tsh 7,840)
	Description:	Study tour to women's projects in Mangoni, Singida District conducted with 10 village women.

11.C.26.	Title:	Bookkeeping Training for Village Women
	Location:	Hanang District, Babati town
	APVDP Funding Allocation:	Grant: $2,724 (Tsh 23,160)
	Description:	Project trained 20 village women for 1 week in bookkeeping.

11.C.27.	Title:	Training Seminar for Village Accountants
	Location:	Hanang District, Babati
	APVDP Funding Allocation:	Grant: $4,705 (Tsh 40,000)
	Description:	Training for 50 village accountants for 1 week in bookkeeping techniques.

11.C.28.	Title:	Gedaman Oil Seed Press
	Location:	Hanang District, Gallapo Ward, Gedaman Village
	APVDP Funding Allocation:	Loan: $21,176 (Tsh 180,000)
	Description:	Installation of oil seed press capable of pressing sunflower seeds and of turning out 100 kg of oil per day.

11.C.29. Title: Madunga Kati Maize Mill

Location: Hanang District, Madunga Ward, Madunga Kati Village

APVDP Funding Allocation: Loan: $7,647 (Tsh 65,000)

Description: Provision of milling services to villagers in Madunga Kati and Utwari villages. Project also provides source of revenue for Madunga Kati Village.

11.C.30. Title: Madunga Kati Wood-Working Project

Location: Hanang District, Madunga Ward, Madunga Kati Village

APVDP Funding Allocation: Loan: $2,027 (Tsh 17,233)

Description: Intent was to train 18 village funders who would then produce furniture, window frames, etc. in the workshop equipped by project funds. Production has been low.

11.C.31. Title: Mapea Mat-Marketing Project

Location: Hanang District, Magugu Ward, Mapea Village

APVDP Funding Allocation: Loan: $4,117 (Tsh 35,000)

Description: Intent: formation of marketing group that would sell mats at uniform prices and thus raise income of producers. Group itself (marketing) is non-profit in nature.
Results: Marketing operations have just started with goal of sale of 300 mats per month.

11.C.31. Title: Qameyu Woodcutting Group

Location: Hanang District, Madunga Ward, Qameyu Village

APVDP Funding Allocation: Loan: $1,411 (Tsh 12,000)

Description: Formation of wood cutting group to provide jobs in wood cutting, to supply timber locally and to generate revenue for the village. Goal was to hire 22 people and to fell 9 trees per month. Result: 20 people employed full-time and an average of 5 trees felled per month.

11.C.32. Title: Magugu Maize Mill and Rice Hullers

Location: Hanang District, Maguga Ward, Maguga Village

APVDP Funding Allocation: Loan: $16,279 (Tsh 138,375)

Description: Intent was to install 1 maize mill and 1 rice huller. Result: installation of 1 maize mill and 2 rice hullers.

11.C.34. Title: Village Maize Mills

Location: Hanang District, Gallapo Ward, Magugu Ward, Orngodida Village, Mawemain, Mapea and Sareme villages

APVDP Funding Allocation: Loan: $36,705 (Tsh 312,000)

Description: Installation of maize mill in each of 4 villages.

11.C.35. Title: Ayamango Maize Mill

Location: Hanang District, Gallapo Ward, Ayamango Village

APVDP Funding Allocation: Loan: $9,176 (Tsh 78,000)

Description: Installation of 1 maize mill.

11.C.36. Title: Kizakiba Ox-Cart Factory

Location: Hanang District, Babati town

APVDP Funding Allocation: Loan: $29,058 (Tsh 247,000)

Description: Intent: Construction of factory, production of 100 carts per year.
Results: Production of 10 carts to date.

11.C.37. Title: Ox-Cart Purchase Scheme

Location: Hanang District

APVDP Funding Allocation: Loan: $8,941 (Tsh 76,000)

Description: It is intended to give loans for ox-carts produced in Babati to recipients who will receive a loan for half the purchase price of a cart (price of cart is approximately Tsh 6,000). Thus, approximately 25 loans will be given either to villagers, institutions or individuals.

11.C.38. Title: Hanang Extension Transportation Project

Location: Hanang District

APVDP Funding Allocation: Loan: $15,361 (Tsh 130,573)

Description: Sixty-three bicycles were purchased and given to field staff on a loan basis. The following departments were included: Agriculture, Livestock, Natural Resources, Water, Community Development.

11.C.39. Title: Shallow Wells-Tubewells: Survey and Construction

Location: Hanang District

APVDP Funding Allocation: Grant: $58,823 (Tsh 500,000)

Description: Using the regional shallow wells survey and construction teams, six villages in Hanang District have had wells installed with plans for five additional villages to be served this year, 1982-1983.

11.C.40. Title: Ringwells: Survey and Construction

Location: Hanang District

APVDP Funding Allocation: Grant: $6,823 (Tsh 58,000)

Description: A ringwells construction team is to be set up in Hanang District under the direction of the District Water Engineer. The district will make use of the regional shallow wells survey team for site identification. APVDP is to finance the setting up of this group, and the construction of 2 ringwells in one village.

11.C.41. Title: Katesh Gravity Water Supply Rehabilitation

Location: Hanang District, Katesh, Jorodom Villages

APVDP Funding Allocation: Grant: $24,705 (Tsh 210,000)

Description: This project provided for the rehabilitation of the existing pipeline water supply serving Katesh and Jorodom villages. A storage tank was constructed and piping replaced.

11.C.42. Title: Gallapo Gravity Water Supply Rehabilitation

Location: Hanang District, Gallapo Ward

APVDP Funding Allocation: Grant: $40,000 (Tsh 340,000)

Description: This project was designed to rehabilitate the existing gravity water supply in Gallapo Ward serving four villages. A storage tank is being constructed as well as portions of the pipeline replaced.

11.C.43. Title: Village Water Supply Technician Training

Location: Hanang District

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: This project is designed to address the problems faced in villages with maintaining existing water supply schemes. Villagers were trained from 11 villages (11 people) to date with an expected additional training to train 20 more villagers. Tools are assigned to the villages.

MBULU DISTRICT PROJECTS

11.D.1. Title: Labay Crop Storage Facility

Location: Mbulu District, Maghang Ward, Labay Village

APVDP Funding Allocation: Grant: $7,071 (Tsh 60,107)

Description: Construction of crop storage facility (godown) with 3,000-bag capacity to serve 2 to 3 villages in Maghang Ward. Labay Village is a buying post for the National Milling Corporation. Building complete and operational.

11.D.2. Title: Maghang Crop Storage Facility

Location: Mbulu District, Maghang Ward, Maghang Village

APVDP Funding Allocation: Grant: $7,071 (Tsh 60,107)

Description: Construction of crop storage facility (godown) with 3,000-bag capacity to serve 2 to 3 villages in Maghang Ward. Maghang Village is a buying post for the National Milling Corporation; building complete and operational.

11.D.3. Title: Agricultural Field Staff Training and Extension Support

Location: Mbulu District

APVDP Funding Allocation: Grant: $2,313 (Tsh 19,668)

Description: Two-week training course for 32 Bwana Shambas (agricultural field extension agents) on crop production practices, extension techniques, and farm level data collection and use. Run by District Agricultural Development Office with assistance of Regional Agricultural Development Office.

11.D.4. Title: Soil Conservation and Land Use Planning, Karatu and Daudi

Location: Mbulu District, Karatu Division, Daudi Ward

APVDP Funding Allocation: Grant: $31,764 (Tsh 270,000)

Description: Establishment of district soil conservation steering committee and a 9-member soil conservation field team to work in Karatu Division and Daudi Ward. The field team consists of surveying, contour bund construction, and contour ploughing, training units, and a gulley control and tree and shrub planting unit. Village educational seminars have been held in 10 villages. 6-member contouring teams trained in 9 villages and a total of 3,600 acres contoured in the first year with a plan to contour 9,000 acres in the second year, along with tree planting and other gulley control measures.

11.D.5. Title: Pilot Agricultural Extension Project

Location: Mbulu District

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Support for establishment of an agricultural extension program based on the World Bank Training and Visit System pilot project includes an extension superviser and four field extension agents making bi-weekly visits 52 contact farmers in five wards. Also included are monthly seminars for the extension agents and quarterly farmers' field days.

11.D.6. Title: Dongobesh Oil Seed Production Project

Location: Mbulu District, Dongobesh Division

APVDP Funding Allocation: Grant: $2,352 (Tsh 20,000)

Description: The aim of this project is to improve the production of oil seeds in Dongobesh Division. The project includes extension activities and purchase of seeds to establish 50 hectares of groundnuts and 50 hectares of sunflowers on village farms as demonstrations and for production of seeds for future years. Improved production of sunflower seeds will be an essential component of the recently started Dongobesh Oil Seed Pressing Project.

11.D.7. Title: Dongobesh Ox-Plough Training

Location: Mbulu District, Dongobesh Division

APVDP Funding Allocation: Grant: $5,882 (Tsh 50,000)

Description: Construction of one grade C field staff house in Dongobesh, two months of training for one agricultural agent in ox-plough training and extension, and support for setting up and operating an ox-plough training unit to encourage the use of ox ploughs in Dongobesh Division.

11.D.8. Title: Murray Women's Vegetable Production Project

Location: Mbulu District, Murray Ward

APVDP Funding Allocation: Grant: $588 (Tsh 5,000)

Description: Project to establish women's vegetable gardens in five villages in Murray Ward. Five one-acre gardens established providing income and vegetables for consumption for 150 women.

11.D.9. Title: Mbulu Fruit Tree Orchard and Demonstration Facility

Location: Mbulu District, Mublu town

APVDP Funding Allocation: Grant: $4,332 (Tsh 36,829)

Description: Establilshed a "mother" fruit tree orchard in Mbulu town containing 600 parent fruit trees (orange, tangerine, avocado, pear, apple, plum, and several other fruit and nut trees). The orchard provides 1) easy access to seeds, cuttings, budding, and grafting material for other nurseries in the district, 2) a demonstration and training site for extension activities, and 3) a research facility, especially with regard to the prevention and control of fruit tree pests and diseases in the area.

11.D.10. Title: Dongobesh Pig Multiplication Unit Support

Location: Mublu District, Dongobesh Ward

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Support to the already established government pig multiplication unit in Dongobesh Ward for purchase of pig feed and establishment of a feed lot. Project was closed down due to lack of permanent source of pig feeds and protein supplements.

11.D.11. Title: Training for Veterinary Center Attendants

Location: Mbulu District

APVDP Funding Allocation: Grant: $10,223 (Tsh 86,900)

Description: Three-week training course for 40 veterinary center attendants. Curriculum included diagnosis and treatment of livestock diseases, use of veterinary center equipment, and nutrition and livestock husbandry. Conducted in conjunction with regional project to upgrade veterinary centers through procurement of equipment.

11.D.12. Title: Training Course for Livestock Dip Attendants

Location: Mbulu District

APVDP Funding Allocation: Grant: $7,529 (Tsh 64,000)

Description: Two-week training course for all 60 dip attendants in the district, instructed by District Livestock Development Department officials and a specialist from the Ministry of Livestock Development. Training covered disease diagnosis and treatment as well as proper livestock dipping management techniques.

11.D.13. Title: Moringa Village Slaughter Facility

Location: Mbulu District, Daudi Ward, Moringa Village

APVDP Funding Allocation: Grant: $2,117 (Tsh 18,000)

Description: Construction of livestock slaughtering facility in Moringa Village consisting of a small shop (constructed by the village), a slaughtering banda, and a drying shed for hides and skins. The aim of the project is to increase the off-take of livestock in Daudi Ward, and to encourage the local people to make greater use of their animals for food.

11.D.14. Title: Village Grass Seed Multiplication Plots

Location: Mbulu District

APVDP Funding Allocation: Grant: $1,879 (Tsh 15,975)

Description: The goal of this project is to provide a supply of improved pasture grass seeds to local farmers in Mbulu District by establishing one-acre pasture legume and grass seed multiplication plots in 26 selected villages. Extension services provided to villages by District Livestock Development staff on how to plant, care, and harvest a special two-acre demonstration plot near Mbulu town will be supervised by district livestock staff.

11.D.15. Title: Cattle Dip Construction Moringa Village

Location: Mbulu District, Daudi Ward, Moringa Village

APVDP Funding Allocation: Grant: $8,823 (Tsh 75,000)

Description: Repair one cattle dip in Gwandumehhi Village and construct new cattle dip in Moringa Village to serve 7,500 residents of Daudi Ward. The project is one part of a larger land use program that aims to intensify and upgrade livestock production and is being carried out in conjunction with the livestock disease prevention program which provides arcaricide on a revolving funds basis.

11.D.16. Title: Training for Livestock Field Staff

Location: Mbulu District

APVDP Funding Allocation: Grant: $4,117 (Tsh 35,000)

Description: Two 2-week training courses for 25 livestock extension staff, and fuel and support for follow-up supervision of extension activities. Training to include diagnosis and treatment of diseases, pasture management and use of improved pasture grass, and district livestock policy.

11.D.17. Title: Pilot Livestock Extension Project

Location: Mbulu District

APVDP Funding Allocation: Grant: $7,913 (Tsh 67,263)

Description: Pilot livestock extension program begun in 4 villages to 1) improve the production and sustainability of village communal grazing areas through the formation of village livestock and land use committees, and 2) to improve and intensify the production from individual livestock and land holdings through a structured extension program in which 4 extension staff visit 6 contact farmers each on a bi-weekly basis. Project included an initial staff workshop followed by monthly staff seminars and initial seminars in each of the 4 villages.

11.D.18. Title: Karatu Slaughter Facility

Location: Mbulu District, Karatu town

APVDP Funding Allocation: Grant: $14,117 (Tsh 120,000)

Description: Construction of livestock slaughtering facility in Karatu town, a subdistrict head quarters. The facility will consist of a slaughtering banda to supply local butcher shops, and a drying shed for hides and skins. The aim of the project is to increase the off-take of livestock in Karatu Division and to supply the demand for meat of the growing population of Karatu.

11.D.19. Title: Dongobesh Slaughter Facility

Location: Mbulu District, Dongobesh Ward, Dongobesh Village

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Construction of livestock slaughtering facility in Dongobesh town consisting of a small shop (built by the village), a slaughtering banda and a hides and skins drying shed. The aim of the project is to increase the "off-take" of livestock in the Dongobesh Area, and to encourage local people to make greater use of their animals for food.

11.D.20. Title: Livestock Disease Prevention Program (Revolving Fund)

Location: Mbulu District

APVDP Funding Allocation: Grant: $20,000 (Tsh 170,000)

Description: The aim of this project is to establish a revolving fund program to supplement government efforts in the provision of arcaricides used in the livestock dipping program. Initially 40 drums of arcaricide were purchased from Sapa chemicals, Dar Es Salaam, who are government tenderers. Villages purchase the dip paying all transport costs as well, with the funds going to additional purchase of Arcaricide in a revolving fund. 318,000 cattle and 511,000 small ruminants are covered by the dipping scheme.

11.D.21. Title: District Tree Planting

Location: Mbulu District

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Suppport to district natural resources department tree nurseries to increase number of seedlings by 143,000 to extend tree planting for purpose of soil conservation. Extension program included 29 one-day village seminars and 15 ward seminars for a total of 960 participants.

11.D.22. Title: Dongobesh Fruit and Forest Tree Nursery

Location: Mbulu District, Dongobesh Division

APVDP Funding Allocation: Grant: $54,460 (Tsh 462,910)

Description: Established a division level fruit and forest tree nursery in Dongobesh Division and a long-term tree production and planting program in the 24 villages in the division. In the first 3 years 515,000 forest tree seedlings and 120,000 fruit tree cuttings and seedlings were produced. Annual production of forest tree seedlings now 180,000. Each year 22 villages have planted 10 acre wood lots and 25 schools have planted smaller lots, for a total of 500 acres in the first two years. Technical and management support is provided by the agricultural and natural resources field staff.

11.D.23. Title: Murray-Kainam Fruit and Forest Tree Nursery

Location: Mbulu District, Murray and Kainam Wards

APVDP Funding Allocation: Grant: $30,089 (Tsh 255,758)

Description: Established a fruit and forest tree nursery and planting and extension program in Murray and Kainam wards. Annual production is 140,000 forest tree seedlings and 32,000 temperate and sub-tropical fruit tree seedlings. The fruit tree seedlings are sold to generate operational funds for the nursery. During the first two years planting and extension activities included the planting of 25-30 acre wood lots in each of 7 villages with additional planting at 7 schools, for a total of 400 acres. Technical and management support is provided by the agricultural and natural resources field staff.

11.D.24. Title: Daudi Ward Beekeepers Training Project

Location: Mbulu District; Daudi Ward

APVDP Funding Allocation: Grant: $2,023 (Tsh 17,200)

Description: To provide training and modern (transitional) hives to 50 traditional beekeepers in 3 villages in Daudi Ward to increase their productivity and incomes. 18 transitional hives were provided to each of the three villages, and equipment and logistics support provided to the district beekeeping extension staff.

11.D.25. Title: Daudi Ward Fruit and Forest Tree Nursery Program

Location: Mbulu District, Daudi Ward, Daudi and Gidamba Villages

APVDP Funding Allocation: Grant: $22,998 (Tsh 195,488)

Description: Establish fruit and forest tree nurseries in Moringa and Gidamba villages to serve the 7 villages in the ward. Annual production of forest trees is 160,000. 35,000 fruit trees were planted in the first year, with sale of fruit trees to provide operational funds for the nurseries. Extension activities include the planting of 25 acre woodlots in each of the 7 villages annually, with 180 acres planted the first year. Technical and management support is provided by the agricultural and natural resources field staff.

11.D.26. Title: Hayloto Village Fishpond

Location: Mbulu District, Murray Ward, Hayloto Village

APVDP Funding Allocation: Grant: $2,494 (Tsh 21,200)

Description: The aim of this project is to introduce local fish production by establishing a village fishpond near Hayloto primary school in Murray Ward. A one-acre fishpond was created through village self help labor and APVDP support for construction of concrete weir. Bi-monthly harvests of 200 Tilapia on a sustainable basis are anticipated providing a rich source of protein for local consumption, income generation for the village, and a model for additional fishponds in the ward.

11.D.27. Title: Forest Tree Seed Purchase and Distribution

Location: Mbulu District, Murray Ward

APVDP Funding Allocation: Grant: $2,716 (Tsh 23,090)

Description: Local collection of black wattle forest tree seeds in Murray Ward. 1480 kilograms are being collected by 68 villagers in 4 villages. The seeds are used in soil conservation tree planting through direct sowing in 33 villages. This hardy drought-resistant species is planted in large quantities and is particularly good for semi-arid and other poor unproductive areas.

11.D.28. Title: Natural Resources Training and Extension Support

Location: Mbulu District

APVDP Funding Allocation: Grant: $7,536 (Tsh 64,056)

Description: Two training courses of two weeks each for 25 forestry field officers in technical skills and management in support of village tree nursery program. Additional support for follow-up extension activities and supervision by district officer.

11.D.29. Title: Soil Conservation Along District Roads

Location: Mbulu District

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: The aim of this project is to initiate effective soil erosion measures along the Karatu-Mbulu District Road which goes through badly eroded areas in Gongali, Endabash, Kansay, Baraeta, Kilima Punda, Daudi, Tlawi, and Dongobesh. The aim will be achieved by planting 20,000 forest trees, 30,000 Leucaena shrubs, and sisal along both sides of the road in selected areas to control gullies caused by run-off during the rains. The project is managed by the Natural Resources Department.

11.D.30. Title: Bicycle Purchase Scheme for Extension Staff

Location: Mbulu District

APVDP Funding Allocation: Grant: $9,753 (Tsh 82,904)

Description: To provide bicycles for 40 extension staff to facilitate their field extension activities. Bicycles provided on a loan basis to 40 field staff, as follows: 20 in natural resources, 15 in agriculture, and 5 in livestock.

11.D.31. Title: Dongobesh Ox-Cart Production and Training Unit

Location: Mbulu District; Dongobesh Ward, Dongobesh Village

APVDP Funding Allocation: Grant: (Tsh 40,000 Loan: $23,391 (Tsh 158,824)

Description: Establishment of an ox-cart production unit capable of constructing one hundred high-quality ox carts per year, making them available to both villages and individual villagers in the district. The project also provides long-term training in ox cart manufacturing to four to six village carpenters each year. This is part of a regional agriculture implements program.

11.D.32. Title: Tlawi Tile Production Project

Location: Mbulu District; Tlawi Ward, Tlawi Village

APVDP Funding Allocation:

Description: Establishment of tile project in Tlawi Village 8 miles from Mbulu town for construction of clay roofing tiles. Tile press and construction funds provided by a government grant with technical assistance from APVDP. Project has estimated capacity for producing 8,000 tiles per month and has 11 permanent employees.

11.D.33. Title: Dongobesh Oil Seed Pressing Project

Location: Mbulu District; Dongobesh Ward, Dongobesh Village

APVDP Funding Allocation: Grant: $23,529 (Tsh 200,000)

Description: Established an oil seed pressing project in Dongobesh Village using a "mini-40" oil seed press with a 6 hp lister engine to press sunflower seeds grown in Dongobesh Division. The project provides a ready market and higher price for local farmers for sunflower seeds, and with a 25 gallon per day capacity makes cooking oil available locally and provides substantial income for village.

11.D.34. Title: Kuta Village Maize Mill

Location: Mbulu District; Murray Ward, Kuta Village

APVDP Funding Allocation: Loan: $10,798 (Tsh 91,783)

Description: Establishment of village-operated grain grinding mill in Kuta Village, a difficult to reach village in Murray Ward. Village contributed the mill and two operators were trained. Loan repayment is over three years.

11.D.35. Title: Ujamaa and Cooperative Development Assistant Training Course

Location: Mbulu District

APVDP Funding Allocation: Grant: $2,991 (Tsh 25, 431)

Description: Training course for 18 Ujamaa and Cooperative Development assistants for two weeks in record keeping, shop keeping, and checking of accounts. Each UCDA serves 2 villages.

11.D.36. Title: Training for Community Development Assistants and Village Leaders

Location: Mbulu District

APVDP Funding Allocation: Grant: $4,705 (Tsh 40,000)

Description: Two-week training course for community development assistants on departmental policy, planning and research at village level, home economics, and data collection and reporting. Also 3-day seminar for 20 village committee members from 4 villages on village level planning, record keeping and project implementation. Both courses run by Community Development Department with assitance of Planning Office.

11.D.37. Title: Shallow Wells Survey and Construction

Location: Mbulu District

APVDP Funding Allocation: Grant: $61,176 (Tsh 520,000)

Description: Construction of 17 functioning tubewells in 10 villages to serve as a clean reliable water supply. Six additional wells are funded for 1982-1983 . Two additional villages were surveyed but not acceptable for tubewells; ring wells were recommended.

11.D.38. Title: Ringwells Survey and Construction

Location: Mbulu District

APVDP Funding Allocation: Grant: $24,705 (Tsh 210,000)

Description: This project is designed to set up a ringwells construction unit in the district under the District Water engineer's direction. He will basically rely upon the survey team from the regional shallow wells team to identify sites. Funds provided to construct 7 ringwells.

11.D.39. Title: Yaida Chini Gravity Water Supply Rehabilitation

Location: Mbulu District; Yaida Chini Village

APVDP Funding Allocation: Grant: $4,000 (Tsh 34,000)

Description: The water supply serving the Yaida Chini settlement and dispensary had been out of service for over two years. APVDP monies were used to rehabilitate the source intake which had been washed away several years ago.

11.D.40. Title: Harsha Water Supply Rehabilitation

Location: Mbulu District; Harsha Village

APVDP Funding Allocation: Grant: $5,882 (Tsh 50,000)

Description: The intent of this project was to purchase a new pump for the Harsha branch of the Diomat Water Supply Scheme. The pump has been broken for over three years now and Harsha Village has not received any water from this system in that time. No pumps are available these days in Tanzania for local currency.

11.D.41. Title: Upper Kitete Gravity Water Supply Rehabilitation

Location: Mbulu District; Upper Kitete Village

APVDP Funding Allocation: Grant: $7,058 (Tsh 60,000)

Description: Two storage tanks are to be newly constsrcuted in Upper Kitete, one 5,000 gallon and one 3,000 gallon. The former storage tanks were corrugated iron sheet tanks which rusted out years ago.

11.D.42. Title: Kilimatembo Gravity Water Supply Rehabilitation

Location: Mbulu District; Kilimatembo Village

APVDP Funding Allocation: Grant: $3,529 (Tsh 30,000)

Description: A new 5,000 gallon storage tank is required in Kilimatembo Village. The previous one was constructed of corrugated iron sheets and has rusted out years ago.

11.D.43. Title: Village Water Supply Technician Training

Location: Mbulu District

APVDP Funding Allocation: Grant: $11,764 (Tsh 100,000)

Description: These are training courses designed to instruct villagers in the proper basic maintenance skills for gravity pipeline water supplies. To date two 3-week courses were conducted, training a total of 36 participants from 26 villages. At the end of the training tools were supplied to the villages to carry out the skills learned.

11.D.44. Title: Murray-Kuta Community Center

Location: Mbulu District; Murray Ward

APVDP Funding Allocation: Grant: $7,058 (Tsh 60,000)

Description: Assistance to Murray and Kuta villages to construct a multipurpose building that will serve both villages as a community center, training facility, and for crop storage. The facility will be jointly owned, and both villages will share in its construction and maintenance, with the assistance of District Works Department.

11.D.45. Title: Maretadu Bridge Construction Project

Location: Mbulu District; Dongobesh Ward, Maretadu Village

APVDP Funding Allocation: Grant: $7,647 (65,000)

Description: Construction of small bridge on the road that links the village of Maretadu with Dongobesh Ward headquarters and the main road to Mbulu town. The bridge is needed to make it possible for vehicles transporting agricultural produce and inputs to reach the village throughout the year. Construction by District Works Department.

11.D.46. Title: Construction of Grade "B" House, Mbulu town

Location: Mbulu District; Mbulu town

APVDP Funding Allocation: Grant: $19,647 (Tsh 167,000)

Description: Grant to assist the district with construction of one grade "B" house to help alleviate the severe shortage of housing for district staff based in Mbulu town. There is a particular shortage of Grade "B" housing construction to be undertaken by District Works Department.

ROADS PROJECTS

11.E.1. Title: Dareda-Mbulu Border Road (27 Miles)

Location: Hanang District, Dareda Ward

APVDP Funding Allocation: Grant: $337,500 (Tsh 2,868,750)

Description: Rehabilitation of 27 miles of district road linking Dareda with the border with Mbulu District. This road is essential for improving inter-district communications and is also essential for the success of development projects being carried out in Madunga Pilot Ward. It serves 15 villages directly with a total population of 22,293. Rehabilitated road is murram with 5.5 meter wide travelway.

11.E.2. Title: Singe-Gallapo-Mamire-Babati Road (29 Miles)

Location: Hanang District, Gallapo and Mamire Wards

APVDP Funding Allocation: Grant: $362,500 (Tsh 3,081,250)

Description: Rehabilitation of 29 miles of district roads linking the agriculturally productive Gallapo and Mamire wards with the district headquarters in Babati. The road serves 13 villages with a population of 16,198 and an annual harvest of over 20,000 tons of grains. Rehabilitated road is murram with 5.5 meter travelway.

11.E.3. Title: Babati-Nakwa-Riroda Road (10 Miles)

Location: Hanang District, (Riroda Ward)

APVDP Funding Allocation: Grant: $125,000 (Tsh 1,062,500)

Description: Rehabilitation of 10 miles of district road linking Riroda and 7 other villages with the district headquarters in Babati. The total population served is 5,625 with an annual total of over 1,000 tons of agricultural produce. Rehabilitated road is murram with 5.5 meter wide travelway.

11.E.4. Title: Bashnet-Madunga Kati Road (11 Miles)

Location: Hanang District, Madunga Ward

APVDP Funding Allocation: Grant: $137,500 (Tsh 1,168,750)

Description: Rehabilitation of 11 miles of feeder road providing access to Madunga Ward, a low to medium potential area with a population of 4,250 producing maize, beans, and some livestock. Madunga Ward was a pilot ward on which APVDP resources were focused. Rehabilitated road is murram with 5.5 meter wide travelway.

11.E.5. Title: Gitting-Endasak Road (8 Miles)

Location: Hanang District, Endasak Ward

APVDP Funding Allocation: Grant: $100,000 (Tsh 850,000)

Description: Rehabilitation of 8 miles of road linking Endasak Ward with the main Dareda-Mbulu Road. The road serves 4 villages with a total population of 11,043 and an annual harvest of over 2,500 tons of grains. The rehabilitated road is murram with a 5.5 meter travelway.

11.E.6. Title: Bashnet-Ufana Road (10 Miles)

Location: Hanang District, Ufana Ward

APVDP Funding Allocation: Grant: $125,000 (Tsh 1,062,500)

Description: Rehabilitation of 10 miles of road linking Ufana Ward with the main Dareda-Mbulu Road. The road directly serves a population of 3,975. The rehabilitated road is murram with a 5.5 meter travelway.

11.E.7. Title: Karatu-Mbulu-Dongobesh-Hanang Border Road (81 Miles)

Location: Mbulu District

APVDP Funding Allocation: Grant: $1,012,500 (Tsh 8,606,250)

Description: Rehabilitation of 81 miles of district road linking Karatu with the district headquarters in Mbulu and continuing to link Mbulu District with Hanang District at the border at Nar. This road has been the lifeline of Mbulu District since 1928. The road serves to tie together the principal towns and agricultural zones of the district, including the 4 APVDP pilot wards. The link between Mbulu Town, the district headquarters, and Karatu-Oldeani, the most productive part of the district in the north, is vital for the interchange of inputs and services and surplus production. The road is also essential for linkage between Hanang and Mbulu districts, facilitating the flow of goods and services. The road directly serves a population of 98,639. The rehabilitated road is murram with a 5.5 meter wide travelway.

11.E.8. Title: Dongobesh-Haydom Road (30 Miles)

Location: Mbulu District, Maghang, and Haydom Wards

APVDP Funding Allocation: Grant: $375,000 (Tsh 3,187,500)

Description: Rehabilitation of 30 miles of district road linking the southern part of Mbulu District and Haydom Hospital in the southwest corner of the district, with the main Karatu-Mbulu-Hanang Road. The area has a medium to high potential with a concentration on cereal crops and livestock. The road serves 11 villages in the two APVDP pilot wards of Dongobesh and Maghang with a total population of 25,372. The rehabilitation road is murram with a 5.5 meter wide travelway.

11.E.9. Title: Oldeani-Mangola Road (30 miles)

Location: Mbulu District, Oldeani, Mangola Wards

APVDP Funding Allocation: Grant: $375,000 (Tsh 3,187,500)

Description: Rehabilitation of 30 miles of district road linking the Mangola/ Lake Eyasi Area in northern Mbulu District with the main Arusha-Karatu-Ngorongoro Road. The Mangola area has high economic potential which is being constrained by the current state of the road. The area served produces rice, peanuts, onions, wheat, and some vegetables. Much of the production comes from irrigated lands with major potential for expansion. There has also been some exploitation of the Tilapia fishery at Lake Eyasi which can be expanded. The road serves 10 villages with a population of 13,807. The rehabilitated road is murram with a 5.5 meter wide travelway. Note: This road is subject to heavy erosion during the rains and will require substantial development of culverts.

11.E.10. Title: Njia Panda-Oldeani Road (6 Miles)

Location: Mbulu District, Oldeani Ward

APVDP Funding Allocation: Grant: $75,000 (Tsh 637,500)

Description: Rehabilitation of a 6-mile district road linking the Oldeani-Mangola Road with the main Karatu-Ngorongoro Road. This road link is essential for serving both the Mangola area with its current and potential irrigated agricultural production and the Oldeani area which is a major producer of coffee. The road serves 10 villages with a total population of 13,807. The rehabilitated road is murram with a 5.5 meter wide travelway.

11.E.11. Title: Mbulu-Kainam-Hayloto-Murray Road (15 Miles)

Location: Mbulu District, Kainam, Murray Wards

APVDP Funding Allocation: Grant: $187,500 (Tsh 1,593,750)

Description: Rehabilitation of 15 miles of road linking the two APVDP pilot wards of Murray and Kainam with the district headquarters in Mbulu. The road passes tthrough a heavily populated area serving 7 villages with a population of 16,710. The road has potential as a connecting link to Hanang District via Kuta Village, a link planned for construction by the government. The road also provides important access for the development of the Hainu River Hydro-Electric Project. The rehabilitated road will be murram with a 5.5 meter wide travelway.

11.E.12. Title: Tengeru-Mbuguni Road (22 Miles)

Location: Arumeru District, Kikwe Ward

APVDP Funding Allocation: Grant: $275,000 (Tsh 2,337,500)

Description: Rehabilitation of 22 miles of road allowing access to Kikwe Ward, one of the APVDP pilot wards. The road links the southern part of Arumeru District with the Arusha-Moshi Road which is a main commercial lane. The Kikwe area is a low to medium potential area with cotton seed, beans, mixed beans, maize, castor, and sisal being produced as well as livestock. The road serves 9 villages with a population of 10,535. The rehabilitated road is murram witn a 5.5 meter wide travelway.

11.E.13. Title: Usa River-Ngarenanyuki-Oldonyosambu Road (10 Miles)

Location: Arumeru District

APVDP Funding Allocation: Grant: $125,000 (Tsh 1,062,500)

Description: Rehabilitation of 10 miles of the road connecting Ngarenanyuki an APVDP pilot ward, with the main Arusha-Moshi Road. The government plans to continue the rehabilitation of the entire 40 mile Usa River-Ngarenanyuki-Oldonyosambu Road. This area, in the banana-coffee belt, has very high agricultural potential, with main crops being coffee, pyrethrum, bananas, beef and dairy cattle, forest products, and fisheries. It also opens up an area where the government is developing small industries such as lumber, carpentery, pottery, baskets, and sugar, and it is an area of significant interest for tourism. Unfortunately APVDP was only able to complete the first 10 miles of rehabilitation during the time of the project. The rehabilitated portion of the road is murrram with a 5.5 meter wide travelway.