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Project evaluation has been difficult because of the relatively early stage of the rural development program at present, and because of apparent inconsistencies from the beginning about AID/W's, the Government of Swaziland's (GOS), and OSARAC's understanding of the project. Follow-up on current project status vis-a-vis the logical framework proved to be most difficult; however, much progress is being made and some relationships can be pinpointed. The USAID project is definitely achieving its goal of supporting the GOS' rural development program. Based on the evidence available the evaluators believe that productivity will be increased substantially in the future, but there is little to see now. The evaluators made several recommendations including: (1) from this point forward, USAID projects and activities should give very high priority to institution building; (2) USAID should encourage the GOS to review carefully (a) the mechanism by which the agri/rural sector strategy is developed, and (b) the various Ministries' capability to plan, analyze and prepare economically sound projects; (3) accelerating the rural development program should constitute the hard core of USAID activities in Swaziland; and (4) the current project should be revised as soon as possible with preference given to replacing it with two projects.

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RURAL DEVELOPMENT IN SWAZILAND

AN EVALUATION REPORT

A. INTRODUCTION AND SETTING

This report is in fulfillment of a provision in project agreement No. 74-S-3, project/activity No. 690-11-110-024 which stipulates that a written report will be filed by the study team before their departure from Swaziland.

The report is not intended to "stand alone." Meetings were held with Government of Swaziland (GOS) and United States Agency for International Development (USAID) personnel in Mbabane in which the team's findings and recommendations were presented and discussed in detail. Also individual discussions were held with project personnel. The report is therefore supplementary and supportive, and includes only the more salient points.

The evaluation was performed in July-August 1974 by a three-man team consisting of:

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The course of action to be followed by the team was specified in the project agreement, Pages 2 and 3. According to this, the actual evaluation was limited to "USAID and USAID-supported inputs." However, the course of action wisely recognized that in order to do the job properly a broad understanding of the overall situation had to be obtained. The agreement specifically said, "The evaluation team is expected to become familiar with the entire rural development program in order to get the necessary background for their work."

The project agreement recognized in several places and in various ways that the USAID inputs were in support of a rural development "program," in contrast to a "project." However, selected correspondence and several word-of-mouth communications indicated the Team was expected to use AID's standard project evaluation techniques as the hard core of the evaluation. A very brief description of the Swaziland situation from a project perspective is therefore in order.

USAID's inputs into Swaziland agriculture do not represent a total, coordinated development program, and the inputs provided under the blanket of project 024 do not represent anything that can logically

be called a project except for in-house administrative purposes. The USAID project inputs, consisting of heavy equipment purchased from loan funds, salary topped advisors and operatives, special activities such as the literacy activity grant, and others are rather "bits and pieces" of projects which, in turn, are supported by GOS and various other aid donors.

The Team often found it impractical, if not impossible, to segregate out the "USAID inputs" for separate evaluation. For example, the machinery input would, on the surface, appear to be one supplied by USAID which would be amenable to standard brand evaluation. But, on closer examination the Team learned that only about 70 per cent of the heavy equipment in the Soil Conservation Unit was from the U.S. loan, and fewer than half the foreign advisors and operatives involved in using it were in any way related to USAID funding. The equipment pool contained three of non-U.S. make, provided from non-U.S. funding. All of the D-4 Caterpillar tractors and two large bulldozer equipped tracklayers were not purchased from USAID funds.

Good management of the Soil Conservation Unit dictates that operations not be segregated; therefore, on any given day a mix of USAID and other graders and equipment are in use in an integrally related operation. The non-USAID graders in the machinery pool are older than the USAID supplied graders, therefore, they logically require more of the U.S. salary-topped personnel's time, and perhaps move less than a proportionate share of earth. How much? Beyond general observation and guessing, there was no way for the Team to determine precisely what were the outputs from equipment by source category, or personnel from source of funding. Productivity of the total unit was ascertainable, but no more. What is perhaps more important is that it really does not matter enough to make a big issue of the problem. The equipment is being used very close to capacity and a good job is being done.

How, then, did the Team proceed? Keeping in mind the questions that are important to the operation of the USAID program, the Team developed procedures which, in its judgment, answered the more relevant ones as accurately as possible under existing conditions. In the report the more relevant ones will be asked, and answers provided. In some cases only judgments admittedly have been provided, but they are judgments of people who are experienced in Africa, took their charge seriously, and insofar as possible reviewed all the available data.

The fact that the Team found standard project evaluation procedures difficult, if not impossible, to apply should not be interpreted as criticism per se of the current USAID program of providing "selected inputs."

It is not necessary for there to be a "USAID strategy" for the development of Swaziland, or even for there to be "USAID projects" for inputs provided by USAID to yield great benefits and represent activities in which the Team feels the USG should be involved. Administrative structure should be flexible enough to respond to host country needs. Under certain conditions, piecemeal input provision could be the wisest course of action for a USAID. The relevant question is, "Does the USAID 'project' face those 'certain' conditions?"

The major problem a USAID program or project providing inputs on a piecemeal basis faces is risk the other inputs vital to success will not materialize, or will arrive late. The effective utilization of almost any input depends upon other parts of the puzzle called economic development being provided in full, and on time. When several aid donors and numerous agencies within the host government are involved, as is the case in OZ4, the risk can be great. Illustrations of project problems from taking such risk can be cited from OZ4 experience. In at least one of the RDAs, utilization of the heavy equipment provided by the USAID loan and personnel topped-up by grant funding was delayed by the late appointment and/or arrival of a project manager who was hired under ODA auspices. USAID had no responsibility for him, and to the Team's knowledge no specific mention of his provision by ODA was covered in any agreement between GOS and USAID. The delay was not serious when viewed in light of typical project delays in developing countries, but it was enough to cause a notation in an audit report, thus became a small "thorn in USAID's side." It is only natural for a USAID, or any other aid donor, to wish to avoid taking unusual risk.

The dangers from drawing conclusions from history are well known. Conditions are rarely identical, and all things change over time. Nevertheless, if there is anything to be learned from the 25-year life of AID and its predecessors, perhaps it is that undeveloped countries are undeveloped because they are unable to deliver a coordinated program to the field. Development will not occur rapidly until a capability to deliver a coordinated program exists. "Bits and pieces" aid programs complicate management and do not encourage the desired coordinated program delivery. It is appropriate for "bits and pieces" programming to be viewed with suspicion.

The opportunity for USAID or any other aid donor to avoid completely "bits and pieces" programming in Swaziland in the near future appears to be only a very remote possibility. The U.S. is not likely to be willing to come into Swaziland in a large enough way to replace the

need for other donors, the numerous donors already active can hardly be expected to pack up and go home, and undoubtedly the GOC will prefer what LDCs commonly believe is a most desirable approach, namely, relying as heavily as possible on the international agencies and keeping each bilateral donor's contribution as small as possible a share of the total. By this strategy the LDC leaders believe they can avoid becoming too dependent upon any one donor. In light of the above, the relevant question would appear to be, "What are the minimum conditions USAID must demand in order to insure that the 'bits and pieces', which might include small single function oriented projects, will contribute benefits worth their cost and minimize the chances failure to deliver a coordinated program to the field will prove an embarrassment." Logic indicates minimum conditions should be that the host nation have:

- (1) A sound, well understood strategy for development, and
- (2) The capability to manage (especially coordinate) a complex system, drawing inputs from multiple sources.

B. IS THERE A COORDINATED STRATEGY FOR THE DEVELOPMENT OF THE AGRICULTURAL/RURAL SECTOR?

The answer is, in general, "Yes"; but as should be expected, there is no single ready-made source for learning what it is, and once it has been ferreted out, there are some shortcomings.

The general goal of the strategy is to get Swazi farmers on the land, farming relatively efficiently, as quickly as possible. The strategy wisely recognizes:

- (a) Expatriate title deed farmers are vital to the immediate future.

A policy of minimum disturbance, but within the framework of reducing land holdings at an ever increasing rate is being followed. For example, a few years ago 50 per cent of land was Expatriate owned, now the figure is 48 per cent, and RDA related and other re-purchase programs now on the books will reduce expatriate ownership to about 40 per cent. The rate at which expatriate owned land is being returned to Swazis is not fast, but the trend is definite and the pace increasing.

- (b) There will continue to be a national need for a "modern farming," commercial subsector. Freehold farming on title deed land will remain an important element in Swaziland's agriculture.

About half of all exports, six-tenths of total agriculture production, and four-tenths of the wage employment originate in the "modern" farming subsector. Most production in the modern sector takes place on about 1,500 medium and large estates operated by non-Swazi farmers.

The nation's survival will depend for some time to come on "modern" subsector production. Expatriates will not likely be pressured to leave if they use their land wisely, and larger scale operations, including operations by Swazis, will continue to be permitted. Purchase of more of the larger units by Swazis probably will be encouraged; however, periodic discussions of possible changes in ownership and tenure rights such as is going on at present will dampen interest.

Two examples of special programs encouraging Swazi ownership and operations are the five 60-acre farms in the CDD scheme, and selected advanced farmer programs within the Ministry of Agriculture.

(a) Commercial, or "modern", subsector agricultural problems and Swazi Nation land settlement problems can best be handled by separate governmental organizations.

The Ministry of Agriculture's responsibility is at the moment felt to be primarily toward Swazi Nation farmers and rural people, and Swazis squatting on title deed lands. Ministries other than agriculture deal much more frequently with the expatriate farmer group.

Within the framework of the above, the most vital issue facing the nation is the low incomes of Swazi farmers and rural residents on Swazi Nation land. Increasing their incomes and consumption is given highest priority by GOS. The current strategy vis-a-vis the 40,000 Swazi Nation land settlers and the 15,000 squatters on title deed lands can best be summed up as, "Spread the Rural Development Area (RDA) approach nationwide as rapidly as possible." (Two strategically located Swaziland national officials expressed this view, as did several expatriates working for GOS.) The "modern" subsector is more or less left to cope with its own problems.

What is the "RDA approach"? The RDA approach has emerged over time; therefore, it is not the same today as it was last year, or in 1966 when it began. Each part of it has been tested in some degree somewhere, and those things that work utilized and those that do not, changed.

Examples of resettlement schemes that have provided experience in the past and are still being observed include:

Pineapple: Specialized production, no subsistence cropping or livestock, debt financed, family drawing R30 per month, all inputs available, intensive supervision, under control of "modern" government.

CDS: 20-year leases, variable acreages of cash, intensive field supervision, small acreage for subsistence or other crops, under control of "modern" government.

Thirteen farmer, low cost sugar cane scheme: Control by Chief (traditional government), land and water provided, loan for seed, small tract for other crops.

First RDA project: Simple land use plan from "modern" government with financing by force account major infrastructure and soil amendments (irrigation and terracing), intensive extension under guidance of Project Manager, project operated through authority of the local Chiefs.

None of the resettlement schemes tried to date is regarded as being completely successful. Some have contributed very little to date toward increasing the welfare of the participants (pineapples). Some have contributed so much material welfare that social justice and political problems have emerged (CDA sugar is an example. One year there were more than 400 applicants for six slots.) Some were prohibitively high in cost (original RDA). Something was learned from each experiment. By 1970, or thereabouts, the decision to concentrate on a refined RDA approach was made and three new areas were added. Today there are seven on the books. There can be no doubt, the RDA program is definable, and it is being "spread as rapidly as possible."

C. THE RDA PROGRAM, 1974 VINTAGE

The description of the RDA program in the Second National Development Plan (SEDP) is, with a few amendments, still accurate. Basically, RDAs involve:

(a) A bridge between the modern and the traditional governments: The area plan is "people" orientated, designed externally by the modern government, and implemented by the Chiefs. The plan is presented to the people in concert with the Chief. They discuss it and react. It is revised in response to their wishes so long as the revisions are technically sound. Implementation starts only when the Chief agrees and so orders.

(b) Project size, approximately 10 miles in diameter:

There is considerable variation, but project centers are expected to be not more than five miles distant from each farmer.

(c) Income goals of about \$300:

There are no written guidelines, however, all RDA plans list short run targets near \$300 per family. (No baseline studies are available, but the targets apparently represent an increase of two- to three-fold in most areas.)

(d) Plans providing for approximately the current population occupying the land:

No written policy was found, but all current RDA plans make provision for approximately the same number of families as originally lived in the area, including squatters.

(e) Simple land use planning:

The land use pattern is changed in order to provide for more effective and efficient use of the land resource. Efforts are made to keep things simple, i.e., grow crops "here", graze cattle "there", etc.

(f) Resource development:

This is the high cost GOS (modern) activity. The major ingredients are terracing and irrigation, followed closely by roads and livestock water. All are done by force account before the people are resettled.

Resource development is the major incentive used by the RDA planners to obtain cooperation and win support for the program. (The major USAID input, heavy machinery and advisors, are utilized in this aspect of the program; therefore, USAID has played a key role. The position of USAID is definitely low profile.)

(g) Infrastructure development:

Access to each farmstead is provided by a road, a center is constructed which includes a warehouse for the cooperative, a machinery pool, and offices for the Project Manager and extension workers, and domestic water facilities are constructed. All is done by force account.

(h) Resettlement and reallocation of the land:

- (1) All families in the area are resettled on land they till, with access to a road.
- (2) Each farmer's arable land is marked.
- (3) Each farmer must build on the land.
- (4) Ready access to domestic water is provided. (Water is not piped to each house, but farmers are permitted to do so themselves.)
- (5) Where possible, a combination of dry land and irrigated land is provided. (This provides stability.)
- (6) The communal grazing areas are fenced, and where possible, access to a fattening ranch is provided.

(i) A multi-purpose Service and Community Center development:

The key to both increasing production and community reorganization is the Center, located within five miles of the most distant family. The center is initially a farm service center with a warehouse for a multi-purpose cooperative the largest and most dominating structure. Also, offices for extension and other project personnel, and shops for the machinery pool are constructed. Eventually schools, health facilities, stores, etc. are expected to be located in or near the Center.

(j) Facilities and plans for providing the vital production increasing inputs and services:

A voluntary, self sustaining multi-purpose cooperative is established in each center, and they, in turn, are linked together in a federated national system. (The locals own and operate the central.) The central will perform wholesale, terminal and similar functions. The RDA project builds the warehouse and turns it over to the cooperative. Project personnel advise on what supplies to stock, etc., but do not manage.

Cooperative affairs are now under the jurisdiction of the Ministry of Commerce and Cooperatives. The Ministry (1) registers all cooperatives, (2) audits their books, (3) trains managers and bookkeepers, and (4) for an initial period, subsidizes the management of new organizations.

(1) Credit: RDA farmers can obtain production credit either through their cooperative, or directly from the bank. At present 20 cooperatives in the country have arranged through a bank loan to the Central Cooperative Union to provide credit. The number is to be increased, and presumably all RDA center cooperatives will be included. Cost of credit to the farmer is the same whether he uses the bank or his cooperative.

(2) Production Inputs: The cooperative in each RDA center will stock a complete supply of the inputs needed to increase productivity. In the Northern RDA the warehouse is already full of fertilizer -- well ahead of the rainy season. (This will be the first time a good supply of fertilizer was available locally well in advance of planting time.)

(3) Marketing: The intention is for the center cooperatives to engage in assembly and other badly needed marketing services. To date little has been done.

(4) Machinery Pool: Provision is made for a machinery pool in each center. Equipment is purchased with project funds, and initially pool operation will be a project function; however, it is the intention of RDA leadership to turn the pool over to private enterprise within five years.

(k) Coordination of activities by the Project Director:

Each RDA is, in effect, a separate "project." The Project Director controls the extension workers, and is responsible for coordinating all other activities.

(1) Consumer items made readily available:

The need for selected consumer items in rural areas is substantial, and the cooperatives plan to meet at least part of the need. An important incentive for increasing productivity may lie in this aspect of the RDAs.

D. A GENERAL EVALUATION OF THE STRATEGY AND THE RDA APPROACH

Although there are serious problems in the agri/rural sector, the general strategy being followed is sound, and with considerable aid assistance and reliance on expatriates, is within the capability

of GOS agencies to implement. Both efficiency and social justice have been considered in the strategy, and the team feels present projects and programs generally provide good balance between the two. The strategy, specifically the RDA approach, embodies almost every point the aid agencies are now pushing worldwide with reference to small farmer programs and rural development in general. Planners, policy-makers and those responsible for developing the RDA program properly can be very proud of what has been done.

Within the RDA program most areas (projects) have lagged behind the initial plan, but progress has been quite good when compared to other LDCs. The Evaluation Team members were, in general, unprepared for what they saw and learned because progress has been much greater than the documentation going to AID/W and elsewhere outside Swaziland indicates.

An especially encouraging sign is that as lessons have been learned, the RDA program has been revised and expanded. Past experience is used as a foundation upon which to build. Errors have not been repeated over and over, as is so often the case in LDCs. The administrative environment has, to date, been relatively good.

There is great demand from local people to expand the RDA program -- a very healthy sign. The people involved especially like the terraces, irrigation facilities and domestic water construction. One result of the RDA program is that attitudes toward government in the RDAs are rather good.

In terms of material benefits, RDA participants are obviously much better off, and they are being exposed to both a market economy and the requirements of modern government through methods within their grasp. Especially impressive is the fact that as the RDA program comes in, the high priority expenditure by the people from their increased income is better education for their children. Unfortunately, a good baseline study has not been done for any RDA, therefore, definitive economic and financial feasibility analyses after implementation are not possible.

If the pace of agri/rural development in Swaziland is to be stepped up, as the Team was told repeatedly is the GOS's intent, the problem of coordinating activities will arise with increasing frequency unless the aid donors, with GOS cooperation, revise their systems of programming, and in general, tighten up their operations. The Team saw nothing which would indicate improvement is just around the corner; in fact, it noted many signs that more serious problems than experienced to date were in store.

Although progress has been good, the Team believes faster progress can and should be made. Unless more resources are made available, the goal of spreading RDA nationwide is not likely to be met for 13 to 25 years. This is too long for a nation in which literacy rates are rising rapidly and communications improving by the day. In the first RDA the first account expenditure by GOB was R600 to R700 per family. This can be reduced without lessening the increase in productivity. There are many golden opportunities. The strategy and managerial capability can be improved. Blocks to progress can be removed, and program weaknesses corrected. Finding workable solutions to these problems is necessary if the RDA approach is to be spread more quickly, hence is the challenge to which GOB, with aid agency assistance, should be rising.

9. MACRO LEVEL PROBLEMS AND OPPORTUNITIES

1. The Government of Swaziland capability for sound rural/rural planning is stretched to capacity, and the use of more refined methods and techniques is badly needed.

Swaziland has several very limited resources, and a lengthy list of restraining and limiting factors. For example, capital is scarce and limited, trained manpower is very scarce, and there are many demands for funds from taxes. Agricultural development must compete for funds and manpower with education, health programs, road construction, etc.

An economically sound strategy for development calls for allocating the limited resources, including tax funds, where they will achieve the greatest benefit in the shortest possible time. A careful examination of the current RDA program reveals it is not always maximizing the benefits from the limited factors and resources. Neither are the activities that pay off the fastest always being given top priority. Whether as much leverage as possible is being obtained from the limiting factors is a question to need of immediate attention.

Illustrations where programming may be improved include utilizing the package approach by extension in the RDA program so as to obtain a higher benefit/cost (B/C) ratio; "activating" RDAs with fertilizer and other high benefit/cost ratio inputs as quickly as possible; concentrating on self-help methods of construction; and reducing expenditure on terracing, land amendment and infrastructure that returns a low internal rate of return (and then only in the long run).

What is the problem? The heartwood of the problem is a shortage of trained manpower who "speak" both macro economics and

technical agriculture. The excellence of the current RDA program speaks very well for those responsible to date, but in order to move forward from this point more people with the right kind of training and experience are required. For example, analysis of rates of return from alternative crop and livestock husbandry practices are needed to determine where extension should be concentrating. The leader of the responsible organization is well aware of the need, but due to staff shortages has been unable to do anything about it.

2. Good Managers are Very Scarce, and their Scarcity is a Key Restriction to Pastoral Development.

Swaziland has beautiful resources, and the people are known to be very intelligent and willing workers. Given the resources available in Swaziland and the peoples' basic attitudes and characteristics, all other limitations and restrictions could rather readily be overcome if a large supply of managerially skilled manpower were available. If Swaziland had enough managerially skilled people, bankable projects could be prepared and taken to the international financial institutions for funding. Capital would not be a restriction. Good management* could find ways to overcome resource restrictions.

Serious problems exist at four related, but fairly distinct, managerial levels.

(a) The macro economic, or national level.

Achieving effective and efficient use of the resources of the nation are basically managerial problems. The Second Five-year Plan is, in a sense, a document outlining a managerial strategy. The tools at this level are planning, policy formulation, project preparation, and administration in the implementing agencies. The problems discussed in section No. 1 above are generally at this level.

(b) Project level.

Projects are the cutting edge of development in Swaziland. Each project is a managerial entity within which resources are allocated and utilized, and revenues and benefits generated. Without effective project managers (directors), progress will be slow.

There is a serious shortage of project level managers. For example, only two RDAs are managed by Swazis, and one of them will soon leave for advanced training.

* The term "management" is used in broad context in this report, and includes what is often called administration.

(e) The Bureau or Agency level.

A review of an organizational chart of the Ministry of Agriculture reveals very few Swazis in managerial position responsible for operations. The veterinary and animal production group is in better shape than crops, but there is a predominance of expatriates everywhere. What is generally called "middle level" management is in the shortest supply, and is a very critical problem in terms of accelerating development.

(c) The farm, or firm, level.

At the farm level we find many Swazis, but almost inevitably in the smaller units. And, to say they "manage" is almost a misnomer. Farming is very much a way of life, and often what are thought to be normal managerial decision making prerogatives are not alternatives open to a Swazi or Swazi Nation land. For example, on much Swazi Nation land the individual farmer cannot by his own choice decide to plow his land early in the season. It is the Chief's prerogative to declare when the oxen are in condition to start work, and to order livestock removed from cropland. There are relatively few normal managerial choices open to the typical livestock owner grazing on communally controlled pastures.

To view the managerial problem as simply one of inadequate managerial training in the school system would be erroneous. The Swazi culture and traditional system do not foster the development of managerial skills in people, and change will likely come very slowly. However, the first corrective step must be through training.

Unfortunately, to date managerial skills in the training of technical agriculturalists have not been given especially high priority. The new UDL program is encouraging, but whether it is adequate is open to question. A study into what positions graduates are likely to fill during their lives, asking whether the training provided meets the need for that position, could be enlightening and helpful.

3. The current national organizational structure in the Ministry of Agriculture is not fully geared to the delivery of a people-oriented, coordinated field program.

The key to increasing the pace of development in LDCs is now rather well known to be the creation of a capability to deliver a coordinated program to the field. The various inputs...credit, fertilizer, improved seed, insecticides, new technology, marketing services, etc., must all be made readily available at the right place, at the right time and at the right price. Basically, the problem is one of

management, and organization is one of its vital parts.

Swaziland is in reasonably good shape when compared to other IDCs, primarily because of the RDA program. Unfortunately, there are numerous signs the current organizational structure has gone about as far as is possible. If progress is to be accelerated, changes must be made.

In most IDCs the ministries of Agriculture are organized vertically and functionally into very jurisdictionally conscious general directorates. For example, a veterinary general directorate operates the animal health program and is in total control of all animal health activities from top to bottom. There are general directorates for major crops production, plant protection and other functionally oriented activities. Under these conditions the professional ego needs of personnel in each general directorate are met, and jurisdictional squabbles are minimal. Bureaucratically, it is easy to understand why this type of organizational structure emerges. Unfortunately, no general directorate views problems as does the farmer, and it has been proven almost impossible to develop an efficient delivery system that takes a coordinated program to him. Programs tend to be designed to meet nationalistic macro economic goals, and unless supported by force account implementation, fall short because they fail to be built upon a firm base of incentives to which the farmer will respond. Programs and projects tend to be inefficient, and generally yield low total benefits in relation to costs.

Swaziland fortunately does not have a very vertically oriented system at this time, but there were signs she might soon be tempted to move once again in that direction. It might be wise to move quickly toward preventing such a system from emerging by default.

The answer to the coordination problem is that horizontal linkages must be forged across the vertically oriented agency lines of authority. The RDAs have accomplished the goal at the local level, but no similar structure exists at the top, or at intermediate levels. Someone in strategic positions at the top and in between, i.e., with power over programs, must think in terms of farmers', rural people's, local areas' needs.

Based on observations from around the world, it is reasonable to assume that the success of the RDA program to date is primarily a result of an organizational structure in the field which crosses the vertically oriented agency programs. The field level structure is

right, hence one key official was able to observe "The field has run ahead of Mbatane."

One reorganization proposal revealed to the Team would have a central Ministry of Agriculture agency responsible for all field programs and projects, and make the functionally specialized agencies responsible for developing new packages of practices and solving functional problems. Regional officers, such as RDA project leaders, would be in charge of regions or areas with all Ministry of Agriculture personnel in the area at least partially under their supervision and control. The proposal is worthy of serious consideration.

A team that has been in-country only three weeks would be most presumptuous if it tried to make definitive recommendations concerning organizational structure at the national level. There is, however, little doubt about whether the current organizational structure is or is not adequate to meet the needs of an ever accelerating, economically viable development program. Change must come, and every effort should be made to avoid the mistakes made elsewhere in LICs.

At present there is no central outreach (extension), program, or organization, of the usual type. Specialists are under the control of the functionally oriented departments. How outreach is to be approached in the future is especially important. A special, provocative paper on the topic has been prepared, and is included as Appendix I.

4. Technically trained, "Doer" type Personnel are Scarce, and Programs are not getting as much leverage as possible out of those available.

Training facilities in Swaziland are very limited, and the bulk of the positions requiring technical expertise above the most fundamental of levels are filled by expatriates. Nationally, the need for expatriates has been recognized and working relationships are generally very good. Since technically trained manpower is both scarce and expensive, it would be surprising not to find many programs based on activities which are technically questionable.

The technical training problem is complicated by the following:

(a) Much of the training provided externally is not adapted to Swazi conditions, and it is extremely difficult for technicians to make the adaptation needed while working under conditions of relative isolation. Both expatriates and externally trained Swazis face the same situation.

(b) Training in Swaziland is largely "borrowed" from external sources, therefore, is at this time little better in terms of adaptation than external training.

(c) The economic system, partially because of the manager's deficiencies discussed above, does not take full advantage of the technically trained people available. Part of the problem is a matter of business and government "borrowing" methods of operation from the developed countries where technical expertise is not so scarce. Developed area modes of operation rarely fit properly.

F. AN EVALUATION OF PROJECT OR⁴ IN TERMS OF PRO AG 74-S-3, DIRECTIVE AND M.O. NO. 1026.1 CRITERION

This section provides a review of the Team's main findings in terms of specific responsibility spelled out in the relevant AID documents.

The approach is to provide first a brief discussion of the original planning procedure as it relates to the goal, project purpose, and outputs which appear in the PROF and are related to verifiable indicators in the Logical Framework. Second, the various categories of inputs are considered in terms of their utilization, with consideration also being given to the coordination of their use with those from GOS and the other donors.

Project evaluation has been difficult because of the relatively early stage of the RDA program at present, and because there were apparently inconsistencies from the very beginning among AID/W's, GOS' and OSARAC's understanding of the project. The PROF was written in AID/W, a practice that would be difficult to justify under normal conditions, and the task of coordinating with GOS and OSARAC was never completely accomplished. For example, how the conclusion was reached that a real per capita income increase of 30 per cent would indicate project purposes have been achieved, as is shown in "Conditions that will Indicate Purpose has been Achieved..." Project Design Summary, Logical Framework (see Appendix III), is a mystery! How could a conclusion be reached when in fact there were no hard data on current income, no land use plans for five of the six project areas, and no market surveys? Some of "Magnitude of Outputs" data was equally baffling. With no soil surveys in most of the RDAs, the yield projections could be at best only guesses. Investigation by the Team failed to turn up any knowledge concerning any interest on the part of GOS in constructing the 15 rural village centers mentioned in the Logical Framework. On the

other hand, nothing was said in the USAID project about the provision of production inputs such as fertilizer, yet they are vital to project success, and plans for their provision were apparently included in the COS concept of the project since the beginning.

In light of the inconsistencies discovered, follow-up on current project status vis-a-vis the logical framework proved to be most difficult; however, it was obvious to the Team that much progress is being made and some relationships can be pinpointed.

The stated goal of the USAID project is to support the COS rural development program. There can be no question concerning whether the Swaziland RDA program is moving forward, and the USAID project is definitely supporting the movement. The project is therefore moving toward fulfillment of its goal. Sections B and C above support a positive conclusion.

The stated USAID project purpose is to increase productivity in six rural development areas. On August 1, 1974, the time of the evaluation Team's visit, only one project (RDA) had proceeded to the point where very many objective, verifiable indications of productivity could be observed. In a second project (RDA) there was much evidence the inputs needed to increase productivity were going to arrive soon. Based on the evidence available, the Team feels confident productivity will be increased substantially in the future, but there is little to see now. The Team believes it would be relatively easy for the income and some of the production projections in the USAID Logical Framework to be exceeded.

The following table indicates the stage of development for the first six RDAs (there are now seven on the books):

<u>Criteria</u>	<u>Project Number</u>			
	<u>No. 1</u>	<u>No. 2</u>	<u>No. 3</u>	<u>No. 4, 5, 6</u>
Project Area designated	Yes	Yes	Yes	Yes
Land use plan prepared	Yes	Yes	Partial	No
Land use plan approved by people & implementation ordered by majority of Chiefs)	Yes	?	No	No
Full cooperation of all Chiefs)	No	No	No	No
Center constructed	Yes	Almost	Not started	Not started
Key inputs for 1974 season ordered or on hand)	Yes	Yes	No	No
Extension active for one year or more)	Yes	Yes	No	No
Extent of terracing, irrigation and domestic water dev.)	Very extensive	Some	Very little	None
Technical Plan proposed for range management)	Yes	No	No	No
Plan for fattening Ranch)	Yes	No	No	No
Farmland fenced	Yes	Partial	No	No
Homes on allocated Units)	Generally Yes	Partial	No	No

In terms of the Logical Framework outputs (see Appendix III) only RDA projects No. 1 and No. 2 are far enough along to provide very significant indications of progress rate in most categories. Project No. 1 indicates good progress in items No. 2, No. 5, No. 6 and No. 7, and success on arable land in No. 1, and Project No. 2 shows similar results, but on a smaller scale. Range management practices have lagged.

A new crop, tobacco, has been introduced on 114 farms in project No. 2, and it has increased gross income by about R300 per farm, and net by at least R100. Net incomes in the developed parts of project No. 1 have increased by an average of R200 or more, according to project personnel. The new, more substantial housing being built is evidence incomes are higher.

The Ministry of Agriculture is improving its administrative capacity, however, whether at a fast enough rate is open to question. (See section 2.3). Also, with the decision having been made to operate the vital input and marketing aspects of the RDAs through the media of cooperatives, and the transfer of responsibility for them to the Ministry of Commerce and Cooperatives, developments there are as important as in Agriculture. Good progress is being made in the cooperative field. The formation of the Central Cooperative Union is especially desirable because the local cooperatives will now have wholesale and terminal backstopping. Upon completion of the Cooperative Training Center, financed by Sweden and operated by ILO, and the arrival of all of the six-man training team, the cooperative aspect of the project could be in good shape. The most serious problem the cooperatives face at present is that many GOB policies do not provide for their independent existence.

There has been improved access to credit in terms of convenience. The farmer can now obtain credit from either his cooperative or the Bank. The quantity of credit available is increased. Unfortunately, the margin allowed the cooperatives (one per cent) is so low they cannot survive on it. Either policies must be changed, or the cooperatives will remain a tool of government.

The marketing aspect of the project is making little progress, and elsewhere in the report a new approach has been recommended by the Team. Additional current information on prices is being disseminated, and it undoubtedly has done some good; however, objective verification of how much good was being done was unavailable.

Some livestock from RDAs have been marketed through the fattening ranches, and the net returns to the farmer have been considerably

higher than selling directly from the range. Detailed information is available in a research report cited in Appendix II. Several marketing studies have been prepared. The main problem, like in credit, is that pricing policies by GOS do not encourage the development of improved local institutions. For example, if cooperatives buy corn they are not allowed a handling margin, hence there is no incentive for them to become involved. (See Section G).

It is too early in the game to determine whether most of the "Magnitude of Outputs" listed in the Logical Framework are reasonable, let alone determine whether the project is on schedule. With no range condition evaluation or plan for five of the six areas, little can be said about whether a reduction in the ratio of acres to animal units is reasonable or not. At present some authorities in Swaziland insist overgrazing is the big livestock problem, and the ratio should increase rather than decrease! Yield figures are not based on actual soil survey.

There has been no baseline survey. The original plans called for a British University to do some baseline surveying, but nothing has materialized and GOS officials with whom the Team visited presumed nothing would be forthcoming. (USAID has asked for assistance from AID/W, but with no effect.) The last census was relatively close to the project initiation date, and it will be helpful when later census data become available, but this is not adequate. It is recommended USAID insist upon a baseline survey in at least one RDA soon.

With regard to the important assumptions, GOS definitely has continued to give high priority to the agriculture sector, and the very highest possible priority to the RDA program. The rate of inflation is increasing, but it has not yet affected the RDA's program. Markets are expanding, and grain/livestock prices have increased, but have not distorted farmer production patterns. The GOS National Council is supporting RDA. Expanded credit institutions have been created, and more are planned. The UK has, in general, provided the inputs pledged.

Recruitment of highly trained technicians by USAID, GOS and the CDA has lagged, there has been a shortage of good candidates for training, and it is uncertain whether GOS can be 100 per cent successful in overcoming the cultural inhibitors. (Some Chiefs are not supporting RDA.) Little improved seed has been made available to date, and equipment under the loan did not arrive on schedule, but as indicated below, all is now in-country and being put to good use.

Following is a listing of various inputs and their utilization in terms of USAID objectives.

a. Soil Conservation

1. Heavy earth-moving equipment

Due to delays in procurement because of substitutions for some items which were ordered but not available, and transportation problems, some of the equipment arrived late. At this writing, however, all the heavy equipment is on the job and working. Appendix IV shows how the equipment is being utilized.

An audit report makes reference to lack of progress in construction of terraces, dams, and feeder roads. The output projections in the FROP were found to be unrealistic because, as discussed earlier in the report, the FROP was written in AID/W where accurate and factual data based on the Swaziland situation were not available. However, the Team has learned that more terraces and other construction had been done than the auditor report indicated. (See Appendix IV.) Misunderstandings apparently were the cause of the under-reporting.

2. Workshop and tools

The Workshop was completed mid 1972. When the workshop was completed, all the shop tools were in place. This GOS/AID financed workshop is without question the best managed and equipped heavy equipment repair facility in Swaziland and possibly in all Africa.

3. Soil Conservation Engineer (Planning)

At present this technician is acting as the Chief Land Development officer. He was instrumental in introducing to Swaziland advance designs for the various soil conservation and irrigation structures and household water supplies. See Appendix IV.

(a) On-the-job training counterparts. (See Fropg Annex page 4, A7)

Since the project started, concentrated effort has been made in identifying counterparts with little success. At this time only one counterpart has been identified, namely, Conservation Engineer (Planning). He is a five-year graduate in Agricultural Engineering from Pullman, Washington. GOS should continue to search for possible candidates. At this point, as reflected in other manpower

needs, this phase of the project bears close watching. As is indicated elsewhere in the report, institution building possibly is not moving ahead as fast as it should be.

(b) Overseas Training

The Team recommends that OSARAC and GOS continue to make every effort possible to locate prospective candidates for participant training.

4. Soil Conservation Engineer (Construction)

The results shown in Appendix IV indicate the magnitude and number of construction activities completed. This technician has done a superb job.

(a) On-the-Job Training

The Soil Conservation Engineer, unfortunately, does not have a counterpart. It appears one might be available in five months. In the event this does not materialize, GOS should make a concentrated effort to locate a candidate. Since degree personnel are not available, the Team suggests that GOS explore the possibility of locating an interested and capable Swazi with diploma or certificate training.

(b) Overseas Training

See 3(b) above.

5. Shop Foreman

In this project the shop foreman was the first technician on the job. He assisted in the design and complete organization of the work shop, and did jobs and activities such as repair parts inventory, systematic assignment and handling of tools, heavy equipment and auto repair, tire repair, hiring, training and placement of mechanics, etc. (See 2 above.) An excellent job has been done.

(a) Overseas Training (Mechanics)

Two potential foreman mechanics are in training in the United States. Upon return, they are expected to replace the U.S. technician. Prior to their U.S. training, both shop mechanic trainees worked with and received on-the-job training with Mr. Zwart, Shop

Foreman. Upon their return to Swaziland they will work with Mr. Zwart about five months before his end of tour. Mr. Zwart will leave Swaziland in June 1975.

(b) On-the-Job Training (Mechanics)

As of August 14, 1974, 22 mechanics had been trained and were continuing to receive on-the-job training. However, to further accelerate the training program it is recommended that the Shop Foreman, Ministry of Agriculture Training Officer, and the Chief Land Development Officer closely examine the types of training being currently provided, and if appropriate, determine what additions or modifications in the training program should be developed and implemented.

6. Grant Commodities

Other than the rotary mower (brush) for the highveld ranch, all of the grant commodities are in the country and ready for use as soon as the ranch buildings and infrastructure are completed. (For Highveld ranch construction progress, see B, 1 below.)

b. Range Management and Animal Husbandry

1. Highveld Ranch Construction

On August 1, 1974 the construction of the building and housing for technicians was about 70 per cent complete. Estimated completion date for the ranch is about January 1, 1975. The machine sheds and maintenance facilities, cattle holding chutes, cattle sheds, and housing are well designed, and the quality of construction appears very good.

2. Ranch Equipment

See A 9 above.

3. Animal Husbandry Officer and Range Management Officers

These officers have been actively involved in the day to day planning for the general layout and building designs, and in supervision of the highveld ranch construction. They have also developed a tentative cattle breeding and management research program for the ranch. These programs were reviewed and evaluated, and recommendations for their improvement were made in discussions with the two officers, and in Appendix IV.

4. Overseas training

Two participant trainees to serve as counterparts for Ministry of Agriculture personnel are in training at present. Both worked with their counterparts before departing. Whenever funds are available, every effort should be made to find additional participants.

5. On-the-job training

At this writing, except for those covered in item No. 4 above, there are no counterparts as such in training. However, as soon as the highway ranch is completed (estimated completion date about Jan. 1) on-the-job training will be planned and carried out. The Ministry of Agriculture will provide and support the required ranch staff.

6. Grant Commodities

See A 9 above of this section.

c. Marketing Research

1. Marketing Research Officer

The Market Research Officer has assembled market reports and livestock and crops statistics during the course of his tour. The team believes the job needing priority attention in the RDAs has not been done well. Many marketing problems have not been identified and plans for their solution prepared. In order to properly define the role of this position, it is suggested that the position's duties and responsibilities be discussed in detail with OCS, and there be clarification as to how the incumbent is to relate to other ministries, farmers' organizations, private marketing utilities, and in particular to the EIA program. This position and its role should also be reviewed in terms of the new ILO cooperative training and backyard project which includes both marketing and credit positions.

2. Overseas and on-the-job training for counterparts

Because of the shortage of counterparts, no specific counterpart on-the-job training programs are being carried out; however, there is a participant in training overseas. He will return in 1975. In addition, under other funding a participant returned from a year long training program in Agriculture Census in August 1974.

In view of the new ILO training program in cooperatives and marketing, it is recommended that this aspect of the project be further reviewed and discussed in the Ministry of Agriculture and Ministry of Commerce and Cooperatives to determine the most suitable course of action.

d. Specialized Development and Savings Bank

1. \$250,000 Loan

This loan is fully utilized and certain loans have been identified for USAID loan security and repayment purposes. In the actual operations of the bank, identification of individual dollars is impractical and what is in fact being done is that a loan program is being operated from funds from several sources. A schedule of loans made to farmers and farmer's organizations is shown in the schedule in Appendix V.

The Team noted that the bank made 800 small farmers loans totalling approximately \$112,000, and provided funds specifically to farmers associations who in turn lent these funds to small farmers.

2. Personnel Training

Special short term training was arranged for the bank assistant responsible for agriculture loans. Hopefully other candidates can be identified so that additional bank personnel can be trained. To further strengthen the small farmer aspect of the bank, an agricultural credit and cooperative advisor will soon arrive as provided.

e. Management Improvement

1. USAID Project Coordinator

The coordinator position has now been phased out. The Team was unable to determine that the coordinator position, as defined, contributed significantly to coordination of field activities...a major position responsibility. Since the commodities and equipment have arrived, the position is not required.

2. Management Seminar

The Team was informed by GOS that the several Management seminars, under the direction of the Coordinator (see 1 above), were well presented and enthusiastically received.

F. Literacy Program at Sebenta National Institute

In general the literacy program in Gambia is considered to be one of the best in the world, according to Pierre Fourre, UNESCO advisor. The team learned that a meeting and workshop will be held in Gambia for literacy trainers and advisors from several countries from the surrounding area, and possibly from other developing countries cooperating with the UNESCO program.

From the inception of the program in 1972 to present about 12,000 to 13,000 people have passed the literacy test and are considered literate. In addition, it is believed that the 4,000 have learned to read and write, but because of timidity in taking the test they were not included in the official count.

A functional approach is used. They concentrate their teaching by using local problems and situations with special emphasis on agriculture.

In an interview with an agriculture officer, independently and separate from the Sebenta program, he volunteered that many people in his area can now read what an invoice or receipt for goods bought or commodity sold. He contributed this achievement to the concentrated country wide literacy improvement program.

Although the program is not reaching its 20,000 people annually, it has been without question a phenomenal success.

The team believes the AID commodities are effectively and efficiently utilized. With the purchase of the Gestetner printer, the information and duplicating section is providing all the printing and poster requirements for the literacy program. They, in fact, have earned extra funds by making posters and printing pamphlets and bulletins for other organizations and agencies.

Following is an itemization of items purchased for the literacy program:

200 bicycles @ \$33	\$6,600
Printing	
Primer (20,000)	5,000
Follow-up readers (50,000) (including printing machine)	10,000

30 Posters for 500 classes	1,000
Teaching aids	1,500
Training seminars for writers, supervisors, illustrators (board and room)	2,000
Classroom furniture for rural areas (benches, tables, desks, lamps, generators)	5,000
Contingencies	900
	<u>132,000</u> or \$40,000

g. Group Extension (provided under SADPT Project)

This position is not funded under Project 024, but it is related and the Fund specifically calls for an evaluation.

The incumbent in this position is carrying the duties and job assignment spelled out in the contract and job description. However, in view of the lack of a central extension organization and consequently a lack of direct lines to the field extension officers, he is frustrated and feels his abilities are not being adequately utilized. The Team recommends that this job be reviewed very closely with the Director of Agriculture, the Director of the Veterinary Service and Swaziland Ministry of Agriculture centers. This review should examine the possibilities within the existing organizational structure to determine by what means and methods technical information can be disseminated to the field extension officers and the VEDAs, as well as consider reorganization alternatives.

1. Overseas and on-the-job training

At this time no trainees have been assigned.

3. LOOKING AHEAD WITH USAID

This section of the report targets in on specific recommendations to USAID/Swaziland. Additional recommendations on specific project problems are also made in Section F, and Appendices No. 1 and No. 2.

The procedure followed involves first stating a situation or point, then discussing it briefly, and finally offering specific recommendations.

1. Economic growth and development of the agri/rural sector in Swaziland are restricted primarily because institutions which foster a more modern progressive system either do not exist, or are weak.

Discussion: The list of institutional restrictions is long and discouraging.

Credit for productivity increasing purposes is scarce, and institutions would be unable to remain financially viable if they were to channel credit in the volume required to those needing to increase their productivity the most, i.e., Swazi farmers on Swazi Nation land.

Farm supplies and inputs needed to increase productivity quickly and efficiently are not readily available to most small farmers, even when they are prepared to pay cash for them.

The outreach effort of the Ministries of Agriculture and Commerce and Cooperatives are not as well organized or as strong as required to be effective with traditional farmers.

Research findings are fragmentary and will not support the creation, for example, of crops package programs, or a well tuned livestock development program.

Marketing is often geared to local markets, involves small quantities, information is not disseminated widely, and grades and standards are inadequate. There is little competition.

Training facilities are too few and not properly staffed and equipped to meet the needs of a developing country.

Transportation is costly and not especially reliable.

Agricultural agencies in government are not adequately geared to a development philosophy, fuel and transport is scarce, and problems between the modern and traditional system are not reconciled.

The above list is only partial, but hopefully is long enough to show that unless viable institutions are built, benefits from USAID supported activities are likely to be disappointingly low and short lived. Benefits from field oriented activities, such as those of the Conservation Unit in the Soil Conservation Section, may soon disappear unless institutions capable of maintaining what has been done and carrying on are created. For example, at the present time there is no institutionalized arrangement for clearing out and maintaining terraces and roads. If the terraces clog up, the result could be worse erosion than now exists. (Illustrations can be found in the U.S., as well as abroad.) Some USAID technicians still do not have counterparts, and training is frequently given second priority to getting the operational job done. The surface has not even been scratched in terms of coping with institutional problems in the livestock subsector.

To date the high priority for many personnel utilizing the USAID inputs has been to "get the operational job done," and the Team does not find fault with this. It was necessary to demonstrate what could be done. However, institution building, including on-the-job training, handled on a more or less "do it when you find the time" basis has a poor record. Strong institutions are built only when building them is given high priority, and there are sound plans for how the building job is to be done.

Recommendation: From this point forward, USAID projects and activities should give very high priority (generally first) to institution building.

2. The capability of the GOB to develop a sound strategy, and plan and evaluate projects is stretched to capacity; therefore, accelerating the pace of development while holding risk to reasonable levels calls for improvement in the responsible agencies and departments.

Discussion: The development of the current strategy and the RDA approach is commendable; however, as was shown in earlier sections of this report, there is evidence limited resources could be used more effectively, and the future success of the RDAs depends on getting certain policy decisions made soon. The currently available

personnel are of excellent quality and have performed extremely well; however, there are too few. They cannot be expected to meet the challenge.

The utilization of inputs already provided by USAID, as well as those which may be provided in the future, hinges on strategy and top level management capability. Two examples of critical policy issues being faced at present are margins allowed the cooperatives for handling the credit program, and market price policy. Unless the margin to the cooperatives for handling the credit program is raised from the current one per cent, they cannot become self-supporting. They will be forced to quit, or be subsidized by GOS. Neither can they engage in many badly needed marketing activities unless some current price policies which allow them no margin are changed.

The present R500 to R700 force account cost per family in an RDA is high, and could possibly be reduced if activities were reviewed in terms of cost effectiveness. Whether the B/C ratio for the RDA program is high or low is unknown. Whether a total GOS cost of R40,000,000 for a nationwide RDA program (R700 per family times 55,000 Small Nation land and squatter families) is within the capacity of GOS is unknown. These questions need answering.

At the project planning level many problems are being encountered. Construction is sometimes starting before there is a full evaluation of resources, and an analysis of local needs.

Recommendation: USAID should encourage the GOS to review carefully (a) the mechanism by which the agri/rural sector strategy is developed, and (b) the various Ministries' capability to plan, analyze and prepare economically sound projects. Current and future expertise requirements should be determined, and if technical assistance is needed, USAID should give highest priority to meeting any request for it. At minimum USAID should stand ready to provide advanced training for a few qualified participants.

3. The RDA program is well designed, is meeting the Nation's most pressing socio/economic problem, and is given highest priority by GOS.

Discussion: Justification for GOS giving highest priority to the RDA program is covered earlier in the report. The RDA approach is 100 per cent consistent with AID/W country program guidelines and priorities.

Recommendation: Accelerating the RDA program should constitute the hard core of USAID activities in Swaziland.

4. The RDA program cannot move ahead much faster without additional external assistance.

Discussion: If the RDA program is to meet the challenge, at the national level the institutions required for proper backstopping must be strengthened, and the resources and technically trained personnel and managerial staff required for each RDA must be readily available.

The need is for long term assistance. It will be years before Swazis can occupy all managerial and technical positions, and finance all inputs through regular commercial channels.

Recommendation: The current project 024 should be revised as soon as possible with preference given to replacing it with two projects, or as a second alternative with a major revision dividing it into two distinct parts, each with a discreet set of objectives and its own logical framework. The projects, or the major parts, should be:

A. A project to strengthen the central government agencies responsible for servicing and backstopping the RDA program.

Primarily this project (or discreet part of revised 024) would provide personnel, training and one or more loans for activities such as the loan fund for the Bank, operating capital for the Central cooperative union, heavy equipment purchases, etc. Other aid donors should be encouraged to continue to contribute. Needs cannot be accurately determined at this time, but the following have been tentatively identified by the Team as being some where GOS is likely to require help:

1. Project and activity management. (The list includes management of the Soil Conservation Unit(s), the Highveld Ranch, the Workshop, and RDA Project Managers.)

2. Marketing, especially for an extension type effort specific to the RDA program, but linked closely to Commerce and Cooperatives, perhaps even being housed there.

3. Extension, especially district officers, specialists, and supervisors in the central government if the revision discussed in section B is implemented.

4. Mechanics.

5. Livestock program development and extension, with a range management bias.

6. Research, applied and testing in direct support of the RDA program.

7. Training programs, especially middle level management.

B. A Rural Area Development Project 100 per cent within the framework of the GOS RDA system, in which USAID provides the major share of the external assistance required to expand services in an RDA area, or open up a new one.

The Evaluation Team feels very strongly that USAID should become involved in an active way in one or more of the RDAs. Several reasons support the recommendation, including that this is the level "where the action is." GOS is in the most desperate need of assistance at this level. Involvement in central government level institution building by USAID's, such as is recommended above, is vital; however, aid agency involvement at that level only does not foster healthy working relationships. Scapegoating by advisors in which inadequacies of the field staff are blamed for their own program shortfalls is commonplace. USAID is urged to become involved in both field and central institution building activities.

A small team could be needed to come to Swaziland, and while working in complete concert with GOS, help prepare a project plan, identifying the physical and human input requirements. A loan for purchase of equipment and supplies would be required. Salary topped personnel in operative positions would be needed. Commodities for testing and demonstration should be supplied. Generally budgetary support might be required.

5. The weakest link in the agr./rural sector development system in Swaziland is management, and the problem may best be attacked frontally.

Discussion: The idea that when large numbers of technically trained people are available in a country, the management of agricultural agencies

will automatically improve has been found to be false. More technical training is not going to solve the general management problem in Swaziland, which is possibly nearing a crisis level stage at present. Looking ahead, as more Swazis return from the U.S. and elsewhere abroad with B.S. and M.S. degrees, they can be expected to move quickly into managerial positions. Unfortunately, they will be ill equipped by their training for their new roles.

An even more critical situation exists at the middle management level. At the moment only two PDAs are managed by Swazis, and the situation elsewhere is comparable.

The Agricultural Development Council (A/D/C), through an AID grant, has prepared plans and tested in the field, a 30-day long workshop for new middle-level managers in LDCs. Response to the program where it was tested has been excellent. The program appears to be "tailor made" for Swaziland's middle level needs. Management training could readily be handled as an integral part of project (a) above.

Recommendations: (a) USAID should encourage GOS to become more aware of middle level managerial training needs, and if requested, provide instructors and other assistance required to initiate a middle-level managerial OTJ training program using A/D/C materials.

(b) Whenever the opportunity arises, USAID should supplement technical training for participants with a short post-technical training program in management and/or administration.

(c) USAID should look favorably upon any reasonable proposal to train high level personnel.

6. The current livestock situation represents Swaziland's most baffling current technical problem, and a course of action designed to cast light on numerous unanswered questions as soon as possible is needed.

Discussion: GOS administrators repeated time and again to the team that livestock was their most difficult technical problem. The team reviewed the situation as deeply as possible, and is very concerned about what is being done and planned by GOS. Some of the current plans do not appear to be based on experience in similar conditions in Africa, and the vital social and economic questions have not been dealt

with. The Highveld ranch, the recipient of most of USAID's recent assistance in livestock, is standing on the brink of possibly not being used in a manner which would backstop the RDA's to the fullest extent possible. Serious organizational problems within GOS and coordination problems among the aid agencies are definitely a possibility. The special report on livestock included in Appendix II provides greater detail.

Recommendations: USAID should insist on GOS defining the role of USAID inputs in the livestock subsector, giving particular attention to guaranteeing that the highveld ranch is used in a manner which will backstop the RDA program to the maximum. If short term consultancy is needed, USAID should provide it. USAID should recognize that the highveld ranch should be an integral part of a national livestock and range testing system, but it should not tolerate USAID inputs into the ranch being utilized in a program that is not technically or economically sound. Insist that the ranch support a "people oriented" development program.

7. Agricultural College level training is fundamental to all agricultural activities, and special consideration for it external to other agricultural projects may be appropriate.

Discussion: The team's rather cursory review of the UBLB left the impression it was in a near crisis, if not crisis, condition. The staff situation was not good. Modest inputs designed to guarantee a program adapted to the developmental needs of the Nation may be justified.

Recommendation: USAID's Chief Food/Agriculture Officer and the Education Division Chief should review the situation in the near future, and make appropriate recommendations.

APPENDIX I

AGRICULTURAL OUTREACH

Since agriculture extension methods, techniques and approaches at the field level in Swaziland from the very beginning have played a key role in the planning and laying the foundation for the innovative effort at integrated rural development, it is appropriate to take note of the Ministry of Agriculture's Extension Organization and its present and future relationship to the Rural Areas Development Program (RDA).

In the RDA the extension and field officers, under capable leadership, participate directly in the development of strategies for the development of each area. To accomplish this, they study, discuss and finalize with the local chiefs the best approach and applicable ideas in reaching the local people. Additionally, in their out-reach role each field officer serves as a multi-disciplinary officer. In this role, he assembles and adapts for the local area the best suited technical knowledge and practices from the various specialists (crops and livestock), and works with and demonstrates to the local farmer, e.g. how to increase sorghum yields by using fertilizers. Through this local level coordinated approach, the farmer has one contact, the multi-disciplinary field extension officer, who is in the best possible position to know what works and what doesn't as he endeavors to sort out the priorities that must be given to activities and innovations in order to maximize farmer income. By contrast, several specialists working directly in the local area, each promoting his own biased priorities, leads to farmer confusion and ineffectiveness. Also the latter system leads to inefficient utilization of limited Swaziland Government finances.

A cursory study of the regular Ministry of Agriculture's extension organization reveals that in it, in contrast to the RDA program, there is no central coordinated extension organization at headquarters, and its field extension officers are not a multi-disciplinary team. The effort is along disciplinary lines with divided supervision from the Agriculture Section, and Veterinary Service/livestock production. The crops extension field officers are further divided into commodity groups such as cotton, sugar, tobacco, sorghum and pineapple. There is very little, if any, coordination between the commodity oriented field officers and those in livestock. Given this fact, extension effort is duplicated and often confusing and ineffective to the local farmers.

The Permanent Secretary recognized and pointed out this above problem in his address at a "Seminar on Cooperation" between the Veterinary and Agriculture Departments. He said, "Interdependences of the Ministry's Sections and Departments is so important that if we try to set up separate services, the Ministry's work will be ineffective and ultimately will meet with failure and confusion. It is the farmer we serve. He is the unifying force. He does not see us as separate institutions."

Despite its short life, the RDA approach has already demonstrated the possibilities of integrated agricultural development, and it is anticipated that this approach will expand nation wide. If this is to happen, it is of highest priority and urgency that the extension organization be geared to provide the additional impetus and further accelerate this effort. An organizational structure at the national level consistent with the local approach is needed. It is questionable whether a national program based on extension specialists assigned to vertically oriented, functional departments is consistent. Careful consideration needs to be given to enhance the role, expand the scope, strengthen professional capability and reorganize the extension effort.

In this study and analysis, because of limited time and the lack of sufficient extension organizational expertise, recommendations for improvement will not be made. However, if the Ministry of Agriculture deems it necessary and requests special assistance for an in depth study of its agricultural extension effort, it is recommended that USAID give serious consideration to providing a carefully selected consultant for approximately 60 days. The consultant must have had experience with or be well acquainted with extension as an integral part of an area development program/project.

SWAZILAND LIVESTOCKBACKGROUND

The Swazi livestock industry is backed by a long tradition of cattle keeping. Systems of husbandry were developed and carried down to the present day.

There are 602,000 head of cattle, 265,000 goats and 38,000 sheep. The cattle population is divided between Swazi farmers and title deed farmers. The distribution shows that the Swazi farmer owns 83% of the cattle which are grazed on approximately 800,000 hectares of land. The balance of 17% of the cattle population is grazed on 500,000 hectares controlled by title deed farmers.

Carrying capacities have been indicated as being 1 AU/10 acres. This has and is being exceeded which causes problems in certain areas.

Natural grassland range is divided into four classes:

- A. High veld or Boer veld
- B. Mid veld
- C. Low veld
- D. Lubombo

A. The Highveld is located in the western most region of Swaziland and composed of mountainous terrain ranging in altitude from 3000 to 6000 feet. Land formations limit the cropping potential.

Soils: are red, orange and yellow soils of medium texture, which are highly acid. 4.5-5.5.

Grasses: The *Andropogon* triandra, *Ruzizkia* altera, *Loudia* simplex, *Monocymbium* cerealisiforme, *Hyparrhenia* hirta, *Tristachya* niapida and *Eragrostis* and *Sporobolus* spp. are found in over-grazed areas.

Rainfall: Generally the rain fall is good varying from 40-90 inches, depending on elevation.

B. The Middleveld is a rolling topography with an elevation of 2000 to 3000 feet. This is typical tall grass country but carries large sections of farming area.

Soils: Varied with relatively high acidity but in general not as low as the Midveld.

Grasses: *Hyparrhenia filipendula*, *Themeda triax*, *Loudia simplex*, *Pennisetum Comersonii*, *Alopecurus bulbosus*, *Brachiaria ruficeps*.
At lower elevations: *Heteropogon contortus*, *Cymbopogon nardus* and *Brachiaria*.

Rainfall: 30-40 inches.

C. The Lowveld is comprised of gently undulating plains terrain with elevations from a few hundred feet to 1500 feet.

Soils: Varied with varying pH. ranges approaching Ph. 7.

Grasses: *Panicum maximum*, *Themeda triax*, *Tripsacis dactyloides* spp., *Setaria*, *Pogonochloa squarrosa*, *Brachiaria suprema* (common in heavily grazed areas.)

D. Labombo type:

Elevation ranges from 1200 to 2,500 feet terrain - rolling plateaus with steep slopes on the western margin.

Climate: similar to the Midveld

Rainfall: 30 to 35 inches.

Soils: heavy textured redish soils of shallow depth.
pH varies in different soils.

Grasses: *Digitaria swainsoniana*, *Themeda triax*, *Hyparrhenia filipendula*, *Hyparrhenia* spp., *Heteropogon insculpta*, *Cymbopogon excavatus*, *Tripsacis dactyloides*, *Cynodon dactylon*.

Livestock Industry

The basic livestock industry in Swaziland has a high potential for development. Government services connected with the industry for disease control and production are providing the base from which it can be expanded. The disease aspects of the livestock industry are such that

*Expanded not in numbers but in economic production increases.

cattle quality for the export markets to England, Republic of South Africa, Mozambique and Zambia. Swazi Small Farmers can participate in this market through the RDA programs.²

Development production plans are limited by various administrative, technological and sociological restraints which affect the progress desired.

WEAID input into the livestock system, the Highveld Ranch has as yet not been fully completed, therefore no active planned program can be initiated. This however is not a static situation for the ranch will be activated within the next 6 months. Its contribution can play a very important part in the development of the Swaziland Livestock program and the Rural Development Areas (RDAs) if utilization is properly initiated by the technical program.

MARKETING: The livestock marketing system is oriented toward the export trade. This is accomplished through the Swaziland Meat Corporation (SMC). Limited numbers of live animals are exported due to high OCS export taxes. There is also a migration of large numbers of sheep from South Africa to Swaziland and back again when seasons change. This varies from 30 to 40 thousand each year. (6-8 thousand AU's).³

The Swazi Government sponsored 102 auction sales in 1973 with 4,600 cattle sold. Local livestock programs are oriented toward beef production but are not adequately supported with a good market system. The OCS with the FAO group are planning some dairy work to improve milk and beef production by the introduction of cross breeding of the local animals with improved breeds. Several aspects of the breeding program are of great concern to the team.

GENERAL CONDITIONS

Large areas of grasslands are burned, as is the custom in many African countries, and this depletes the available acreage of pasture or range during the winter season when it is needed. Furthermore it leaves the soil open for erosion. It requires one and one half tons of ground cover to support a fire.

²Fattening or holding ranches provide areas where the cattle can be put for conditioning and the small farmers are charge R .65 (\$1.00) per month for these services.

³These animals belong to title deed farmers who have bases both in Swaziland as well as South Africa.

Work oxen are reportedly in poor condition when ploughing season comes, thus hindering the planting of crops. Swazi farmers are not in the habit of conditioning their oxen prior to their use.

I. OBSERVATIONS:

1. Work carried on in the Highveld ranch is commendable and progress is good under the condition which it had to operate. It is situated in a strategic location to assist in the development of demonstrations for the SWA program in livestock production.
2. In general the local cattle (NOMI) are cattle which under the local conditions and management retain good condition during the winter months. (They are at present in good condition but rainfall has been very good the last 3 years. During dry years it is expected they would be under more stress, with less condition.) This condition may not be maintained by next month because of the intensity of the burning is restricting large tracts of range normally used for grazing. Cattle being held on the crop residue areas at present have gleaned the land and are without adequate feed. Adjacent to these lands, range areas contain grasses which are mature and dry but would provide adequate feed, though it would have a low protein content.
3. Industry by-products: These products such as pineapple and citrus pulp, cotton seed and molasses are all exported with little going into the local cattle industry. This restricts the feeding potential for winter upkeep or conditioning.

The Swazi Meat Corporation purchase about one quarter of the total animals marketed. While giving a base support price in the Government Auction sales. Four top bidders took two-thirds of the cattle offered in the markets.

Closing bid prices may be rejected by the owner. Average rejections can be one third of the bids but normally run around 10%.

The Swazi Meat Corporation (South African ties) exports meat to England the Common Market as well as other African countries. They have a full range of fresh frozen, boxed frozen meats, offal, and canned meats for sale. Beef extract is also sold bringing R9 per pound. By-products such as canned pet food, bone meal, carcass meal and hides are also sold, rounding out the products available for consumers. Warnings of the by-products carry the operation expenses

of the plant. Export markets to the European Markets have dropped due to the glut of meat in the area and the drop in price. This is being felt by the SAC as products accumulate in their freezers and warehouses.

4. The holding ranches, now called "fattening ranches", are having good results in both removing excess cattle and obtaining good market prices for the cattle which are sold from there. The small farmers get benefits from this operation as he can borrow money against the animal which is placed there. Once the animal is sent to the ranch it can not be reclaimed. Sales price offered can be turned down by the owner but the animal will be held and offered at a later date.

5. There is a definite correlation between the natural conditions which exist in each of the three veld areas and the cattle which are kept there. (FV, grass type, etc.)

Factors which cause variations in size and growth are soil acidity, length of forage growing season, mineral content of soil and protein content of the forage.

6. Records show a progressive decrease of soil acidity from the Highveld to the Lowveld, with the exception of the Lubombo type veld which will vary with soil and elevation.

7. The type of grasses which appear at progressively lower elevations, or steps, increase in nutritive value and growth thus supporting animals of large size and for longer periods.

8. The stage of harvest of the different velds all reflect the lack of management in grazing system. This is true on both natural range and title deed holdings.

9. No work has been done in Swaziland comparing the improved breeds with the local cattle under the same conditions. Some title deed farmers indicate that the Nguni adapts readily to conditions of the feed lot without excessive adjustment time.

10. The Highveld Ranch program as presently designed does not serve the small NHA farmer, but will have to be modified to bring this into play. Information on the cattle breeding and management can be applied to the small holder under the communal grazing system.

11. Commercial RDA pastures need to have a rotational program imposed on them in order to improve the forage and carrying capacity.

II. QUESTIONS FOR CONSIDERATION

1. What roll does the Highveld Ranch play in the national livestock program?
2. Is the use of the Brahman animal as a replacement animal in Swaziland in the best interest of the swazi livestock development program at the present level of management or direction?
3. Shouldn't some concentration be put on a program to condition or feed the animal power used in crop production?
4. How can you remedy the need for trained personnel needed to carry on the livestock work in the RDA?
5. Should assistance be given to the University (UNISA) in order to carry out the proposed animal husbandry course program?
6. Is there really a problem of over grazing or is it a management or sociological problem?
7. Are the local RDA farmers being asked to participate on program problem solving?
8. What is the National Swazi Livestock policy?
9. What approach is best to develop the communal grazing grounds?
10. How does the Artificial Insemination program fit into the overall program?

RECOMMENDATION AND COMMENTS

Answers to the above questions will be covered in this section. No attempt will be made to go to any great depth but rather to provide sufficient information and direction which can be followed up.

1. The Highveld Ranch should include in its program of work, either inside or outside (if it can be arranged), special RDA size holdings

as demonstration units which will work out some of the problems confronted by the people in their day to day operations. Range management practices should be shifted to include the communal grounds and the "fallowing ranches".

Research work should be channeled towards active practical production work on pasture grass improvement, carrying capacity, feed application, forage preservation and husbandry.

It might be possible to utilize the ranch at the very beginning as a holding ground until the communal ground can be fenced into paddocks and a program implemented (6-9 months only).

A base line data system should be set up immediately utilizing the standard range tools, photo plots, exclosures; etc. Make sure that these inputs are programmed for continuation. Basic laws for establishing legislation for range management practices should be started. Guide lines could be drawn from Nigeria, Ethiopia and Ghana, (in part).

2. **Brahmas Introduction:** There is some question as to the feasibility of the proposed animal production (breeding) policy presented by FAO and which may be adopted by the GOV. Consideration should be given to related works which have been carried on by Bonsome, South Africa; Vlasse, Venezuela; Glasser N. Columbia and Koger, U.S.A. All of these have contributed research information which is relevant to the Swaziland livestock conditions and programs where cross breeding is carried on under poor management.

Breeding work by many different people have found that to try and completely change an indigenous breed of cattle will be relatively impossible, beside disrupting the survival of the local breed. Basically the NCHNI cattle have established themselves in Swaziland because they have adjusted to the ecological conditions and local management over many years.

3. **Conditioning work oxen:** If the KDA people have difficulty ploughing their land due to their work oxen being thin and weak, then some type of program should be started to use supplemented feed. This feed could be hay or stored forage prepared during the growing season. The Highveld ranch could take this on as a minor research project.

It might be possible to establish an ox "fattening ranch" similar to the beef animal ranch. This could be worked out by the range people in the country.

TRAINING

4. It is essential that an accelerated training program be considered to provide the personnel necessary to carry on an expanded program. This training should be of middle level as well as degree or specialist personnel in order to support the activities generated by the input program.

5. Special support should be considered for the new Animal Husbandry courses which are being organized at the University (UELA). Teaching staff will be needed to make this course viable. Other aid donors volunteered teachers but these positions have not been filled.

Training of the middle level personnel should be in the areas of management, nutrition, agronomy and husbandry. Short courses in machinery management and utilization will fill the basic needs of the program.

The courses provided in management should be based on ranch, farm or range management. Nutrition training should be in the area of grass forage, supplemented by concentrate feeds and crop residues.

6. Range or Pasture Management

Is there really a shortage of range or pasture, or is it just lack of management?

Observations have shown during our visit that far more unutilized grass and range land is available throughout Swaziland than is indicated by reports. Fire destroys a big portion of that available forage each year. Reported carrying capacities vary greatly as well as condition of over stocking. It is true that certain areas are overgrazed but could be revitalized with proper management. This has been proven in many countries in Africa who have sociological restraints to proper management. This leads us to the communal (question No. 9) grazing lands.

Traditional systems make this difficult, but if the people are involved usually they can find some solution to implementation problems if suggestions are presented for them to consider. The usual drawback is the length of time they normally require to take such action.

Range Management, to be effective in the long run, will require some basic legislation with which a program can expand. Initial starts can be made on limited areas but wide expansion will require some basic guidelines in order to develop a viable national system. Experience in other African countries has pointed out this need when emphasis has required expansion.

Systems of range management must be standardized in order to establish action necessary to get base line data for future evaluation and projections. Practices should be tied to production oriented programs with practical research information as a side output.

Management of range land in the different sections of the country, high, middle and low veld, should have the same data gathering system but adjusted management systems suited to the geographic, ecological and climate conditions found in the area.

7. Have the individual Swasi farmers involved in the RDA programs been given adequate chances to participate in program planning and implementation?

Have they received enough information, about the intended program to understand its relationship to their well being and financial improvement?

If the program is to be successful the people will have to participate in its development from the start.

8. What is the overall GOS program for livestock development and does it integrate all inputs required for a complete program?

No indications have been found which indicate that the High Veld Ranch and its operation has been integrated into a national program policy. Shouldn't consideration be given to the potential output and technical expertise available at the ranch for assisting in the formation of a national policy? A meeting should be called between UNRAID, GOS and other donors who have inputs in the Swasi livestock

Industry, and develop a jointly conceived national program policy in which the maximum utilization of all inputs are coordinated.

CATTLE BREEDING POLICY

The art of cattle breeding has been carried on in Africa for many years and well supplemented by the techniques from modern systems. In view of some of the works, a question might be raised concerning the direction of the breeding policy, zoning being set, and its effect on Swaziland's long time goal. Current research information on the cross breeding of various improved breeds (European and American) with indigenous cattle under poor management has led in most cases to poor results, and disappointments. Crossbred animal management is virtually impossible past the F1 generation under present local conditions.

Milk breeds, both pure and half breeds, have been rather poor producers even though they have had reasonably good management.

10. Artificial Insemination

Management, communication and trained personnel are a prerequisite to establishing a AI system. The constant supply of liquid nitrogen is one of the most critical concern in that program.

Use on the ranch is feasible and limited work with the NDAs is possible at the present level of management. Future action depends on overall program development.

From the economic standpoint a careful review of the input/output ratio should be made. The use of A.I would be preferable to the importation of live animals, and would be more economic.

SUMMARY

There is a great need for more trained personnel in both the upper and lower strata of the technical field of livestock in Swaziland.

Administrative and policy program planning are very badly needed if a coordinated national program is developed.

The NDA development is progressing very well, but the USAID input program, involving the Highveld Ranch, needs to be better oriented to assisting NDA development if maximum results are to be achieved. Range or pasture management techniques should be directed toward the NDA

development. Assistance from the people should be asked for concerning the solution of the sociological restraints encountered in program management.

Careful research of information and experience with breeding and cross breeding in other African countries should be done, prior to adopting a GOB national plan, considering the present stage of development management that exist in Swaziland.

It is essential that USAID replacement personnel should overlap the departure date of the technical staff presently on board. If necessary the departure dates could be extended.

The program implementation time factors previously set and planned for future operations should be revised in order to counter the restraints of local conditions. Criticism of the Highveld ranch and its program accomplishments are not warranted. Progress has been very good and the work commendable considering all of the factors involved. When the ranch is completed (6 months) a careful look and expansion of the present program will be required if the maximum input into the NDA is to be realized. Further work will be necessary to mold it into a national GOB program.

The marketing of livestock and all of the stages required in the process need careful study and improvement. The outflow of animal feed products should be investigated and a plan devised to incorporate it into the national production program. Provisions of salt and minerals are primary steps in cattle nutrition, but other feeds such as molasses citrus and pineapple pulp when available, are essential if the utilization of all roughage available from natural and crop residues is to be properly utilized. Modification of the final process of these products may have to be altered if a realistic local purchase price is to be established. A GOB subsidy might enable its use to be instrumental in reaching a production program level in the livestock industry cycle that can adequately cope with the land use cattle population problem in the future.

**PROJECT DESIGN SUMMARY
LOGICAL FRAMEWORK**

AFED/202/1-75

Life of Project: From FY 72 to FY 75
Total U.S. Funding: _____
Date Prepared: _____

Project Title: Rural Development

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Program or Sector Goal: The broader objective to which this project contributes: To support the GOS Rural Development Program.</p>	<p>Measures of Goal Achievement: 1. RDA's become viable self-sustaining entities.</p>	<p>1. Absence of requirements for additional external inputs.</p>	<p>Assumptions for achieving goal targets: 1. GOS will continue to give some kind of priority to Ag. sector.</p>
<p>Project Purpose: To increase agricultural productivity and farmer income within the 6 rural development areas.</p>	<p>Conditions that will indicate purpose has been achieved: End of project status. 1. Real per capita farm income will increase 30% over life of project. 2. Increase in national grain production, increase in national cattle take off. 3. Increased export earnings from Ag. production.</p>	<p>1. National statistical information 2. Direct observation</p>	<p>Assumptions for achieving purpose: 1. Rate of inflation will not increase 2. There will be an expansion of both domestic and South African markets.</p>
<p>Outputs Relative to RDA's 1. Improved range management practices and more rational pattern of land use. 2. Increased production of maize and sorghum 3. Expanded administrative capacity within the Ministry. 4. Increased yields of livestock products. 5. Expanded farmer access to public services, credit and markets. 6. Reduced erosion and expanded water supplies. 7. Creation of farm to market roads.</p>	<p>Magnitude of Outputs: 1. Ratio of acres per animal unit changes from 15:1 to 10:1. Rotational grazing systems which will remove no more than 50% of annual growing of key plant species with reduced burning. 2. Maize yields up from 400 pounds per acre to 1800 per acre. Wheat from 300 pounds per acre to 900 pounds. 3. Placement of 15 formally trained personnel in Ministry. Phase-out US Advisors. 4. Cattle take off up from 12% to 26% 5. Completion of 15 rural village centers. 6. Construction of terraces on 125,000 acres and 100 dams. 7. Construction of 350 miles of feeder roads.</p>	<p>1. National statistical information. 2. Special baseline studies if needed. 3. Direct observation.</p>	<p>Assumptions for providing outputs: 1. Prices for grain and livestock will stay the same or increase at a rational rate. 2. The GOS National Council will support RDA scheme. 3. Recruitment of highly trained technicians will be achieved on a timely basis. 4. GOS will successfully overcome cultural inhibitors to changed farming and animal husbandry techniques. 5. New seed varieties compatible to Swazi ecology will be available. 6. GOS will provide increased public services</p>
<p>Inputs: 1. US Technicians 2. US Loan - (Equipment and Credit) 3. Participant and farmer training. 4. U.K. - a) technicians, b) land purchase c) loan to Swazi Credit Bank 5. GOS Contributions</p>	<p>IMPLEMENTATION TARGET (TYPE AND QUANTITY) (See Attachment A)</p>	<p>1. AYD Budget 2. Direct observation 3. Project Implementation Plan 4. Project Evaluation</p>	<p>Assumptions for providing inputs: 1. That U.K. will continue to provide pledged level of assistance on schedule. 2. Equipment provided under loan will be shipped on time. 3. Expanded credit institutions will be created. 4. Qualified ministry candidates will be available for training.</p>

LAND DEVELOPMENT SECTION

Accomplishments - March 1973 - August 1974

I. Northern Rural Development AreaA. Mbashedi, Longshigo and Helchale areas

1. Irrigation storage dam - 46,000 cu.yds.
2. 1/2-mile irrigation canal - 80 acres (40 farmers)
3. 2 irrigation structures
4. 35 miles roads - with 25 structures
5. 5500 acre Terracing
6. 1 gravity flow domestic water supply system (20 families)
7. 2 stockwater dams (40,000 cu.yds.)

B. Chinese Rice Scheme (55 Farmers)

1. 2 miles irrigation canal
2. Diversion structure with headgate "blow-off" structure
3. 180 ft. irrigation flume
4. 4 irrigation structures
5. Irrigation storage dam - 30,000 cu.yds.
6. 110 acres of 1/4 acre rice paddies

C. Mpofu Fattening Ranch - 8,000 acres

1. 8 large stock water dams - 96,000 cu.yds.
- with pipes and filtered inlets for stock water tanks
below dams. Dams and reservoirs to be fenced.
2. 15 miles roads
3. 2, miles of fire breaks and fence line clearing.

D. Lomati Rice Scheme - (58 farmers)

Construction was started in May 1974 - It will be completed by September 30, 1974.

1. Diversion structure from Lomati river
2. 3 mile - 8 ft. bottom canal
3. 3 siphons
4. 3 large pipe drop structures
5. 2 flood control - irrigation storage dams
6. 117 acres of rice paddies

7. 100 Acres of non-paddy irrigation lands
8. 3 miles service road along canal
9. 1 mile of drainage ditches

Note:- Earth moving has been completed on irrigation canal, inlet structure will be completed by August 15, pipes for siphons and drop structures will be delivered by August 20, construction of paddies will start August 12, digging of drainage ditches has started.

A water measuring flume has been ordered - delivery August.

Note: Items 2-9 above not shown in summary.

II. Central Rural Development Area

1. 650 Acre terracing
2. 1 road - Fill stock water dam - 65,000 cu.yds.
3. 1 road - Fill domestic water supply dam - 9,000 cu.yds. (20 farmers)
4. 1 irrigation storage dam - 43,000 yds. (35 farmers)
5. 1 "over flow" road bridge
6. 7 miles access roads

Note:- Another irrigation storage dam has been surveyed and designed. The pipes and gates have been shipped from Johannesburg. Construction will be completed by Dec. 1974.

III. Mahlangatsha RDA

1. 1000 acres terracing
2. Repair of 2 dams on irrigation canal
3. Restoration of 2 mile irrigation canal
4. Construction of 8acre ft. storage reservoir at end of canal (20 farmers)
5. 6 miles access roads

IV. Southern Rural Development Area

1. Irrigation storage dam - 65,000 cu.yds.
2. Road-fill domestic water supply dam - 15,000 cu.yds. - (60 farmers)
3. 21 miles roads

4. 750 acres terracing
5. 100 acres irrigation area laid out and under construction - (50 farmers)
6. Chinese Rice Project
(Enlarged and revamped canal to Chinese Rice project to develop a dependable supply of irrigation water to the Chinese project and provide new water to 30 Swazi Farmers - 18 use water during 1973-74 rice season.

Chinese Rice Project Included

- a. 2 miles - relocated and enlarged canal
- b. Diversion and headgate structure - with headgates and sand "blow-off" gate (This is a new structure in Swaziland)
- c. Siphon - (First of small irrigation siphons in Swaziland)
- d. "Waste-water" drop at end of canal (First time in Swaziland)
- e. Rice paddies - 50 acres

V. Highveld Ranch

1. Gravity flow domestic water supply system
 - a. Spring development with Filter Field and spring box.
 - b. 2 miles of 3" pipe line
 - c. 40 ft. steel storage tank - 50,000 gal. cap.
 - d. "stand-by" domestic and irrigation storage dam - 30,000 cu.yds. (System has 20lbs. pressure at headquarters)
2. 12 miles access and entrance road
3. Prepared land for relocation of families moved from ranch
 - a. 150 acres cleared from "bush"
 - b. 150 acres terraced
 - c. 150 acres ripped
 - d. 30 acres stones removed and placed in terrace outlets

VI. Mzimba Tea Project

1. 875 acres terraced
2. 4 miles access roads

VII. Kalanga Irrigation Scheme - (25 Farmers)

1. Raised Kalanga dam wall 7 ft. - 45,000 yds.
- (doubled storage capacity of reservoir)

2. Cleared and ripped 100 acres from bush
3. Installed buried mainline sprinkler system for 60 acres
(can be expanded to 100 acres)
4. 2 miles access road

VIII. Sivanga Sugar Project

1. 2750 acre ft. storage reservoir - 456,000 cu.yds.
2. 1650 acres cleared from bush, ripped, cross-ripped and rough leveled
3. 3 - 20 to 25 acre ft. over night storage reservoirs - 21,000 cu.yds.
4. 6 miles access roads
(Start has been made in raising the dam wall 7 ft. This will more than double capacity of storage reservoir)

IX. Viluziuceni Irrigation Scheme - (13 Farmers)

1. 4 acre ft. storage reservoir - 5,000 cu.yds.
2. 1/2 mile irrigation canal

X. Magwanyane Irrigation Scheme - (27 Farmers)

1. Cleared and ripped 102 acres
2. Installed irrigation system - 102 acres
3. Constructed series of fish ponds below Nyelane dam -
for Fisheries Section of Ministry - 6 ponds

XI. Malkerns Rice Scheme

1. 60 acre rice paddies - 1/4 acre each
2. 12 Fish ponds - 9,200 cu.yds. For Fish Farming.

XII. "Red Line" Foot and Mouth Cordon - (Many Farmers)

1. 60 miles road
2. 45 culvert and low level crossings
3. Quarantine camps at Sivanga and Mpiwa
 - a. clearing and roads
 - b. planned domestic water systems (Sivanga camp system under construction)

XIII. Lowveld Farmer Training Center

1. Roads, terraces and water ways completed on 23 acre irrigation demonstration farm.
2. 1/2 mile trench dug for irrigation pipeline.

XIV. New Ministry of Agriculture Building

1. Cleared roadway and parking area.
2. Constructed access road and parking area.
3. Three units of equipment were used for about 40 hours total equipment time.

XV. Big Bend Research Station (Many Farmers)

1. 12 acre ft. "over night" irrigation storage reservoir
2. Ripped 42 acres research station lands

XVI. Patterning Ranches - Mpala, Rhiane, Mpisi and Lavumisa

1. Approximately 160 miles of roads and fire breaks graded

XVII. Tulwane Cattle Sales Grounds

1. Realigned and constructed 3-1/2 miles access road to sales ground for local ranchers.

XVIII. Siboya Sugar Cane Scheme - (13 Farmers)

1. Land leveled 12 acres
2. Irrigation system 12 acres

XIX. Florence Mission Irrigation Scheme

1. Installed sprinkler irrigation system 30 acres (15 Farmers)

H.B.

1. Item V will be incorporated into the RDA program.
2. At the present time although items VI through XIX are not a part of the RDA program, as such, however, these items will be within the confines of the RDA program, as this program expands.

SUMMARY

<u>Project</u>	<u>No.</u>	<u>Amount</u>
Irrigation Storage Dams	6	685,000 cu.yds.
Irrigation "over night" reservoirs	7	37,000 cu.yds.
Stock water dams	11	201,000 cu.yds.
Domestic water dams	3	54,000 cu.yds.
	<u>27</u>	<u>977,000 cu.yds.</u>
Fish Ponds	12	9,200 cu.yds.
Domestic gravity flow (springs)	2	3 miles pipe line
Irrigation Flume	1	180 ft.
Irrigation Siphon	1	200 ft.
Irrigation headgate structures	3	
Irrigation "waste-water" drops	2	
Irrigation Canals	5	8 miles
Irrigation Structures	9	
Irrigation Systems	2	112 Acres
Sprinkler Irrigation Systems	2	90 Acres
Terracing		8950 Acres
Land Clearing		2000 Acres
Land Ripping		2040 Acres
Rice Paddies	310	230 Acres
Land Leveling (For Irrigation)		12 Acres
Roads		175 miles
Firebreaks		185 miles
Road Culverts	80	
Overflow Bridge	1	

APPENDIX V

SCHEDULE OF AGRICULTURAL LOANS APPROVED 1971/72 SEASON

* Dilalambi Farmers' Association	R1,959	Maize
* Lombamba Farmers' Association	400	Maize
* Poponyane Farmers' Association	310	Maize
* Mkungwini Farmers' Association	600	Cotton
* Mahlalini Farmers co-op Society	1,800	Cotton
* Mbava Farmers' Association	1,000	Cotton
Joseph Diamini	1,465	Maize/Tobacco
Gegedane Magongo	1,235	Cotton
Duma Khwala	2,750	Cotton
Bafana Thabede	700	Cotton
Zeblon Thabede	1,000	Cotton
Swazi Cotton Package Scheme (161 Farmers)	15,000	Cotton
Swazi Tobacco Scheme (34 Farmers)	5,000	Tobacco
Saligne Development Co. (Pty.) Ltd.	10,000	Forestry
Mtimane Forest (Pty.) Ltd.	60,000	Forestry/ Saw Milling
C.A.V. Investments (Pty.) Ltd.	30,000	Forestry
J. Magiya	2,200	Maize/Cotton
Sinceni Farmers' Association	430	Cotton
S. D. Dairies (Pty.) Ltd.	20,000	Marketing purchasing locally produced milk
Swaziland Milling Company (Pty.) Ltd.	200,000	Purchase Swazi Maize and marketing maize products
Swazifresh (Pty.) Ltd.	28,000	Purchase Swazi Maize Vegetable crops
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	R 373,849	\$523,389.
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In addition approximately 800 small loans are granted each season to Swazi farmers totalling approximately R80,000 (\$112,000)
 *Average membership of these six organizations is approximately 36 Swazi farmers.