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MID-TERM EVALUATION
OF THE
VILLAGE ENVIRONMENTAL IMPROVEMENT (UHAI) PROJECT

SINGIDA, TANZANIA

LUTHERAN WORLD RELIEF
USAID OPG # 621-0160

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The Evaluation Team
October, 1983

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ABBREVIATIONS

AC	Area Commissioner
CCM	Chama Cha Mapinduzi (National Political Party)
CM	Community Motivator
DADO	District Agriculture Development Officer
DEO	District Education Officer
DHO	District Horticulture Officer
DNRO	District Natural Resources Officer
DPLO	District Planning Officer
DWE	District Water Engineer
ELCT	Evangelical Lutheran Church of Tanzania
FA	Field Assistant (Agriculture)
FO	Forestry Officer (Forest Attendant)
GOT	Government of Tanzania
ICRAF	International Council for Research in Agroforestry
LWR	Lutheran World Relief
MCC	Mennonite Central Committee
NO	Nutrition Officer
OPG	Operation Program Grant
PCV	Peace Corps Volunteer
PD	Project Director
RADO	Regional Agriculture Development Officer
RCAV	Reformed Church of America Volunteer
RDD	Regional Development Director
REO	Regional Education Officer
RHO	Regional Horticulture Officer
RNRO	Regional Natural Resources Officer
RPLO	Regional Planning Officer
RWE	Regional Water Engineer
TWDP	Tanzanian Water Development Project (Australian)
UHAI	Utilization of Hydrotechnology for Agricultural Intensification
USAID	United States Agency for International Development
UWT	Umoja Wa Wanawake Wa Tanzania (Tanzania Women's Association)
VIP	Ventilated Improved Pit (Latrine)

SWAHILI TERMS

Bibi	Woman, Mrs.
Bustani	Garden
Bwana	Man, Mr.
Bwana Miti	Forestry Extension Officer
Bwana Shamba	Agricultural Extension Officer
Chama Cha Mapinduzi	Party of Revolution
Fundi	Skilled Workman
Kata	Ward
Katibu	CCM Party Secretary
Maji	Water
Mali Asili	Natural Resources
Mboga	Vegetables
Miti	Trees
Mwenye Kiti	Village Chairman
Tarafa	Division
Uhai	Life
Uhuru	Freedom
Ujamaa	Togetherness
Umoja Wa Wanawake Wa Tanzania	Union of Women of Tanzania

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EXECUTIVE SUMMARY

The Village Environmental Improvement (UHAI)* Project intends to raise the standard of living through improved water and food supplies and enhance the environment for at least 12,000 beneficiaries in six widely scattered villages in two districts of Singida Region in central Tanzania. The project is being implemented by Lutheran World Relief (LWR) and is funded both from LWR's private source funds and an Operation Program Grant (OPG) from the United States Agency for International Development (USAID). The original budget, including in-kind contributions, was \$1,027,070. The project began on April 1, 1981 and is scheduled for completion on June 30, 1984.

The original proposal for the project was drafted in 1978 at the inspiration of the Central Synod of the Evangelical Lutheran Church of Tanzania (ELCT) in Singida. The technology envisaged at that time to reach project goals included windmills, water storage tanks, cement granaries, buried pot and trickle irrigation systems and community woodlots. These approaches proved technically and financially infeasible and were formally altered by the UHAI Steering Committee in a 1983 project revision. This Committee consists of the Project Director, the Singida Regional Development Director (RDD) of the Government of Tanzania (GOT) and a representative from the Central Synod of the ELCT.

The current implementation strategy for meeting project goals begins with the provision of an improved water supply through shallow well construction on a self-help basis at a nationally standardized ratio of one well per 300 inhabitants. Hand pumps are utilized on the wells. The technology conforms to the National Shallow Wells Programme. In conjunction with water delivery, the project aims to teach villagers improved vegetable gardening techniques, and improved nutrition as well as assisting with the supply of scarce agricultural inputs such as seeds and implements. To enhance the environment, afforestation methods are being introduced in the primary schools to provide fruit, pole and fuelwood trees to villages via school nurseries. A training dimension is associated with each of the three project components in order to institutionalize easily replicable packages of skills and knowledge so that project activities can continue at the end of the project without additional outside inputs.

The project is managed by a small staff, consisting of a Project Director supported by Peace Corps and other Volunteers collaborating with the project on a part-time basis. The project staff has links with over eighty government, church and local officials. Because of the demands imposed on the Project Director by the multi-dimensional and widespread nature of the project, the management structure

* Utilization of Hydrotechnology for Agricultural Intensification

is in the process of being expanded to a staff of four, including the Project Director, an Operations Manager, an Iramba District Project Coordinator, and an Administrative Assistant.

The progress of the project to date has been less than expected due to considerable delays related to establishing the infrastructure of the project, involving import permits, staff recruitment and building construction and to the constraints of working in central Tanzania at the present time.

The environment of Singida Region is harsh. It is the region of the country which is the neediest and yet it has had the least development input. The current national economy is weak, making commodities and support materials scarce. However, the project is now dynamically involved in the three components, water, agriculture and afforestation, and has excited the imagination of the participants.

Amongst measurable accomplishments to date are the following:

Water Component

- .. 37 approved well sites for 36-48 targeted wells in 5 of 6 villages
- .. 4 trained well-diggers of projected 12
- .. 6 wells under construction in first village

Agriculture Component

- .. 68 villagers of total 480 trained in first of three graduated seminars in vegetable gardening
- .. 10 trainers trained in adult education techniques
- .. 1 regional GOT official trained
- .. 2 of 6 agricultural extension agents assigned
- .. 5000 packets of seeds sold to villagers
- .. 1650 agricultural implements sold on a cost-recovery basis.

Afforestation Component

- .. 3 of 6 school nurseries producing seedlings
- .. 6 forestry extension agents assigned
- .. 6600 tree seedlings planted out in 1982 with goal of 30,000 for 1983
- .. 5 other school nurseries started due to "spread effect"
- .. 2 afforestation seminars held for extension officers and teachers.
- .. 6 schools involved in pilot effort to introduce afforestation syllabus into classroom at Standard 5 level

The project design aims to institutionalize the project activities at the government and local levels to allow these activities to continue after the completion of the project. Government officials and technicians are already intimately involved with the project in most areas. Village leadership must agree to enlist self-help support for the project in order for project activities to commence. In keeping with the policies of both the UHAT

Project and the GOT.

Well construction is being accomplished by two local well-diggers trained in each village using self-help labour. Well attendants and pump mechanics will be trained to supervise use and maintenance of the completed well sites, as standardized by the Regional Water Department. The gardening seminars have been designed to allow local professional gardeners to train their village counterparts in upgraded techniques. These seminars are being supervised entirely by the Regional Horticulture Officer with only logistical support from the project. Follow-up will proceed with resident agricultural extension officers. Afforestation techniques are being taught by forestry extension officers and teachers under the supervision of the Regional Natural Resources and the Regional Education Departments.

Despite the general momentum of the project at mid-term in September 1983, there is room for improvement. Amongst the major recommendations of the evaluation team are the following:

- .. A Tanzanian well construction supervisor should be seconded to the project by the Regional Water Department immediately.
- .. Baseline data collection should be done now for comparative measurement at the end of the project as virtually none exists. An outside consultant may be hired for this purpose.
- .. Continuous data collection procedures should be established for the duration of the project.
- .. Two additional vehicles should be procured, one to support agriculture extension work and the other to enable efficient project coordination in Iramba District.
- .. Requisite commodity support should continue to be supplied on a cost-recovery basis in the form of agricultural inputs and afforestation materials.
- .. Women should be included in all three components, through instruction in well use, training in vegetable gardening and nutrition, and participation in afforestation efforts with their children.
- .. Additional training should be offered to relevant GOT technical staff working with the project. The training should be in Tanzania, as appropriate.
- .. Communication efforts with all project participants should be strengthened from liaison with government officials to inclusion of village members in project implementation discussions.

- .. Coordination should be continued with other donors involved in similar projects.
- .. If apparent interest in certain aspects of the project is insufficient to generate voluntary village participation, those aspects should be dropped in such villages.

Furthermore, the budget should be revised to reflect the altered implementation strategy. The recommended adjusted budget allows for a saving of over \$100,000 in grant money from the original budget.

The UHAI Project is a small but complex multi-dimensional project endeavouring to stimulate integrated development in two districts through six targeted villages. While slow to begin, it is now well underway and promises considerable long-term impact due to the appropriate and replicable nature of its technology. For its impact to be fully recognized, however, the project completion date should be extended from June 1984 to December 1985 due to the initial project delays and the logistics of working in central Tanzania in the 1980's. Only with such an extension can the 36-48 targeted wells be completed and the gardening and afforestation training packages be adequately institutionalized.

I. INTRODUCTION

This document was prepared as the result of a Mid-Term Evaluation conducted on the Village Environmental Improvement (UHAI) Project # 621-0160 in Singida, Tanzania from August 24 - September 24, 1983. It is a Lutheran World Relief project funded additionally by an Operation Program Grant from the United States Agency for International Development.

The evaluation team consisted of:

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The aim of the evaluation was to assess and document the progress of the project towards achieving stated goals and to determine whether an extension of the project termination date was required.

The evaluation methodology included an extensive review of the project documents, interviews with relevant GOT and church officials, lengthy discussions with project staff, and site visits to all six participating villages. The village visits also included meetings with village leaders, extension agents and villagers.

This document presents an incapsulated account of the project's history, purpose, progress, problems and implementation strategy as well as the team's recommendations for the remainder of the project.

II. PROJECT BACKGROUND

HISTORY

The UHAI (Utilization of Hydrotechnology for Agricultural Intensification) Project was originally conceived in 1977 by Reverend Gunda of the Central Synod of the Evangelical Lutheran Church of Tanzania (ELCT) while on a visit to the United States. He realized the dichotomy in living standards between the people of his home, Singida, in central Tanzania and those in the United States and determined to start a project which might help alleviate "world famine" in a small way.

With the assistance of Reverend David Simonson, a missionary pastor living in Arusha, Tanzania, a project proposal was prepared in 1978 and presented to Lutheran World Relief (LWR) for funding. LWR reviewed it and then requested assistance for its funding from the United States Agency for International Development (USAID) in the form of an Operation Program Grant (OPG). This proposal was a scaled-down version of the original conception involving 40 villages in all three districts in Singida Region. Prior to approving the OPG, a USAID team from the regional office in Nairobi and the country office in Dar es Salaam investigated the proposed project site and recommended certain modifications to the project design.

An OPG for this project was signed in February 1981. The project budget was \$1,027,070 including \$499,000 of USAID funds, \$362,000 from LWR private sources and \$166,070 of local in-kind contributions. A project director, Dr. Andrew Clark, was designated and hired for three years in April 1981 on secondment from his work as a technical missionary with the Presbyterian Church in Kenya. Due to visa, infrastructural and technical problems, however, the project did not actually get underway until one year later, in early 1982. Since that time, the project's Steering Committee, composed of representatives from the ELCT, the Government of Tanzania (GOT) through the Regional Development Director's (RDD) office and the Project, has revised the original project design into one which they feel is more suitable to the needs and realities of the target area.

PURPOSE AND GOALS

The project purpose, as stated in the original proposal, was to raise the socio-economic standard of living and improve the environment for beneficiaries in six Singida Region villages, three in Singida District and three in Iramba District, as well as those in neighbouring villages through a "cluster spread" effect. The project was designed to overcome the serious constraints in Singida

Region of an irregular water supply resulting in an insufficient food supply, loss of harvested grains through inadequate preservation facilities and techniques, poor nutrition due to a meagre diet, lack of forests resulting in soil erosion and an approaching "fuel famine", and lack of exposure to new ideas due to physical isolation.

The methodology for achieving this purpose included five components, in an integrated program:

- Water supply
- Home gardens
- Grain storage
- Reforestation
- Motivation and training

Implementation was to take place through "community motivators" in each village who would "help discover needs particular to each community" and "translate plans into action" with expatriate Volunteers acting as project advisors, one per village, serving as the link between the village and the available government services.

The specific goals included improved nutrition due to better food supplies through pest-proof storage and improved seeds, freedom from the random effects of weather through the provision of a regular water supply, a reduced workload for women who must spend long hours collecting fuel and water, self-reliance in food with a potential saleable surplus, and growing social awareness and community pride.

The project purpose and goals have remained unchanged as the project has evolved.

CONSTRAINTS

The location of the UHAI Project in Singida Region in central Tanzania imposes numerous constraints. The natural environment is harsh; Singida is located on a semi-arid, windy plateau with an unreliable rainfall pattern. Erosion in the area is proceeding at a rapid rate due to traditional agricultural practices and over-grazing by livestock. Located twelve hours by road from Dar es Salaam with no railway link, it is known by Tanzanians as one of the most difficult areas of the country in which to live and work.

The development investment in Singida has been less than in any other region of the country although it is the neediest. Production capacity is currently limited as well by the depressed national economy which lessens the availability of foreign exchange for productive inputs such as agricultural tools, seeds, cement and fuel. Due to a weak national economy, agricultural production has reverted in many instances to a "private survival" economy.

Life for Singida residents is difficult, at all levels. Food availability, a national problem due to declining national agricultural production and an inadequate distribution system, is particularly acute in Singida. Basic foodstuffs, such as cooking oil, sugar and flour, are available only periodically, resulting in time lost while people cue for staples. The distance from the capital compounds the logistical problems of procuring available productive inputs and consumer items. The UHAI Project staff have had to learn to cope with these problems. Shortages of goods frequently delay work onset and site visits.

In addition to the physical constraints enumerated, related to the political, economic and geographical environment, the integrated design of the project itself imposes other complexities. The communications network required to stimulate development in several disciplines in six widely-scattered villages located in two districts includes more than eighty regional, district, village and church officials. Furthermore, the Project Director must deal with three administrative agencies, LWR, USAID & ELCT, located in New York, Dar es Salaam and Singida respectively. Requirements for each vary, making project administration cumbersome.

Finally, on a macro level, Tanzania's default on USAID and other international loans has resulted in a restriction of further funding by foreign governments. Additional funding for expanded UHAI Project activities at the end of the current grant can thus be requested only through private agencies.

TANZANIAN GOVERNMENT POLICIES

The Government of Tanzania's goals, since Independence in 1961, have been to establish a country in which the welfare of all people is considered, according to a socialism unique to Africa. Rural services have been given priority including relevant education, rural water supplies, health, and village roads.

To facilitate this, President Julius Nyerere urged the consolidation of people in ujamaa (togetherness) villages of 250-600 families in the late 1960's and early 1970's. These villages were to become self-supporting with an agricultural surplus for distribution or export. This was formalized in 1975 in the Village and Ujamaa Act which stated that villagers should live together, work together, own the means of production jointly, and share the fruits of their labour equally.

The GOI promotes a general policy of community participation as the basis for self-reliant development. The Tanzanian system of government follows a national, regional, district, divisional and village organization. The national political party structure parallels this pattern. The function of the government is to implement projects through technocrats at all levels while the party's role is to ensure that the people are well mobilized for participation in these projects. Village meetings are

called and issues discussed with the villagers after which an action plan is drawn and a division of labour made. In most villages, three days per week are allocated to village projects, leaving four days for individual work.

Amongst major government policy orientations, the international policy of providing "water for all by the year 2000" is a priority, with the hope of serving a large proportion of the Tanzanian population by then. The National Shallow Wells Programme has established a standard of one well per 300 inhabitants with chemical quality controls as well as a construction method aiming at reduction of bacteriological contamination.

The 1983 GOT agricultural policy supports small farmers and encourages increased production of vegetables as a nutritional supplement. (Pricing policies are relevant only for cereal and cash crops which are not within the scope of the UHAI project; vegetables are not a controlled commodity.) A new aspect of the policy is an emphasis on in-service training for extension agents and on farmer training. The use of oxplows instead of tractors is encouraged by the Government.

For afforestation, the Government runs campaigns on tree planting in order to reduce soil erosion and increase timber and firewood production in the country.

The UHAI Project supports these GOT policies, because it focuses on community improvement through self-help activities, aims to provide water to the beneficiaries according to national specifications, encourages vegetable production by small farmers, provides training for officials and farmers, and engages in afforestation.

BENEFICIARIES

The intended beneficiaries of the project are the residents of the six target villages as well as residents in neighbouring villages impacted due to a "cluster spread" effect. The villages are widely scattered throughout two of the three districts in Singida Region. They were originally proposed by the Central Synod of the ELCT for approval by the Regional Development Director. The target villages, each with a population of 1500-2500 people, were intended to be selected on the basis of need and willingness to participate on a self-help basis. The beneficiaries are non-nomadic soil tillers, growing maize, millet and sorghum. Many of them keep livestock as well. All members of the villages are included in the project regardless of religious persuasion. Because of the institutionalization of replicable procedures in the relevant government departments, the project's impact is expected to extend far beyond the six-village target group.

An unexpected subsidiary group of beneficiaries are the villagers who are being trained in well-digging techniques and well maintenance, the market gardeners who have been trained as trainers, and the GOT officials who are being

offered in-service technical training. Also the technicians trained in ferro-cementhouse construction are now able to sell their skill to other interested parties.

ASSUMPTIONS

The UHAI Project was founded on the basis of the following assumptions:

.. that lack of regular water is inhibiting food supply in Singida and that its provision will help alleviate the shortage.

.. that villagers have a "felt need" for improved water sources and will participate in their provision.

.. that villagers desire an improved diet and can be persuaded to experiment with new vegetables.

.. that villagers are concerned about deforestation and are prepared to take corrective action.

.. that villagers like fruit and will expend energy and exercise care to have fruit trees.

.. that villagers want a more readily available fuelwood supply and will cooperate to provide it.

.. that villagers are familiar with participatory activities and will cooperate with project activities of perceived benefit to them.

.. that villagers can be trained to adopt new but appropriate technologies.

.. that GOT officials are technically skilled, motivated and equipped with adequate budgets to assume responsibility for ongoing project activities at the end of the project.

.. that the Lutheran Church, Central Synod, will encourage the continuation and expansion of UHAI-initiated activities through their local contacts.

The project designers were justifiably concerned about the sociocultural impact of the changes envisaged and conceived the project when some of the capital and technical inputs were already present.

Since that time, however, the Tanzanian economic situation has deteriorated sufficiently to have altered these basic premises. The UHAI Project today functions according to a new set of realities with the fundamentals of life inhibited even more severely than in 1978.

III. PROJECT IMPLEMENTATION STRATEGY

The original UHAI Project Proposal envisaged a five-pronged implementation scheme. The UHAI Project today has been revised into a three-pronged effort, in water, agriculture and afforestation. The purpose and goals remain the same but the implementation strategy has evolved in this manner as the result of a realistic appraisal by the Steering Committee, particularly the Project Director. The following discussion describes these revisions in detail as endorsed by the Steering Committee in May 1983. They accurately describe the project as it is being executed.

WATER COMPONENT

Purpose

The UHAI Project's goals, to stimulate increased food production, improve the environment and raise the standard of living in at least the six project villages, are predicated on the creation of a reliable water supply.

1978 Proposal

The original project was designed to create one shallow well 30-40 feet in depth for each group of ten families following the Tanzanian "cell" system for a total of 120 wells in the project. Each well was to be equipped with a windmill for pumping during the ten-month windy season in Singida and an auxiliary hand pump for the two-month rainy season when there is insufficient wind. The wells were to be reinforced and capped to limit access and thus contamination.

In addition, each well was to be surrounded by ten storage tanks, one per family, made of the same cement rings utilized for the well construction, a total of 120 storage tanks. Villagers were to participate in the well-digging, the erection of water tanks, and the installation of windmills and handpumps.

Villagers were to learn to make the cement rings (1 meter by 1½ meters) at the rate of four per day in the village. One person per village would also be trained in the maintenance of the windmill, involving an annual oiling and simple repairs with easily obtainable spare parts.

Before the Project Proposal was accepted, technical advisors from the regional USAID office in Nairobi and the USAID Mission in Dar es Salaam reviewed the project site and recommended certain modifications to this component. They included:

- .. Coordination should be established with the major Australian Water Project in Singida Region

and with the Regional Water Engineer's office with reference to site approvals, water quality testing and training.

- .. Water should be supplied first for domestic consumption and only secondarily for irrigation. Any irrigation wells should be located away from dwellings to assure that they do not draw down the drinking water supply.
- .. The technology of windmills was challenged as unproven. Instead, handpumps were recommended as more efficacious and more cost effective.
- .. The quantity of water in the area was deemed sufficient although siting problems due to bed-rock were anticipated.
- .. The quality of the water, however, raised serious concerns, due to the high fluoride content and the potential for bacteriological contamination with a high water table. It was recommended that field testing for fluoride levels be done, with samples analyzed at the Regional Water Department's laboratory and that the water quality be monitored regularly.
- .. The recommended number of wells was revised from twenty wells per village (total 120) to four per village or one well per 500 people (total 24). This was based on increasing the consumption of water from four liters per capita per day to 12.5 liters.

1983 Revision

The Project Revision adopted the techniques and standards of the National Shallow Wells Programme promulgated by the Dutch in Morogoro, Tanzania.

Site testing is being done using the Morogoro equipment and techniques, with skilled Tanzanian surveyors assisted by village self-help labour under the supervision of an American geologist (supported by the Reformed Church of America.)

Wells are sited where villagers want them and take into consideration domestic use, agricultural land, and the flood level of the area. They are in the same general area as traditional wells in order to avoid disrupting established patterns of water collection and use, but far enough away from old water sites to avoid contamination. Well sites are approved only after the water yield has proven adequate (400+ liters/hour) and the fluoride level and salinity have been tested satisfactory according to national standards.

Following the well survey, village participation is recruited to help two well-digging technicians construct each well. The initial two technicians were locally hired, trained by the Australian Project. They are training two villagers from each village to replace them and carry on their work.

The construction design is for shallow wells made totally by hand drilling on the cement ring model with attached hand pumps as standardized by the wells project in Morogoro. No windmills are being constructed, as they are complex to construct, especially with self-help labour, costly, and inappropriate for most shallow wells as they tend to drain the wells dry.

The construction of a well involves digging with hand tools, provided by the project, to the required depth, pumping out the water as necessary by a hand-operated membrane pump. The cement rings (3 to 5 per well) are installed with a tripod using a winch and pulley steel cable system. The cement rings (each one ton) are not manufactured on site but are delivered by lorry from a central manufacturing area.

Once the cement rings have been installed, a cement cap is placed over the well to seal it from potential contamination. It is then surrounded by a cement sanitary seal (five-meter diameter) with a ten-meter runoff trench to prevent polluted runoff being reabsorbed by the well.

Finally, the hand pump is installed. The hand pump utilized is the Dutch model which is available in Morogoro. It has been developed in Tanzania and is reputed to be reasonably maintenance free.

When the well is ready for use, it is intended that there will be an inauguration ceremony with a presentation regarding well use and maintenance. (This has not yet happened as no well has been fully completed due to a shortage of cement.) For each well, one member of the village will be trained to be a "well attendant," responsible for user supervision and minor maintenance. Pump mechanics will be trained at the ward level to service the wells in the wards. A set of spares will be left in each village to ensure rapid repair of broken equipment.

The national standard of one well per 300 people has been adopted, rather than the original target or the modified target, hence necessitating 6-8 wells per village or 36-48 for the total project.

AGRICULTURE COMPONENT

Purpose

The ultimate purpose of the UHAI Project has always been to raise the standard of living of the beneficiaries,

through a regularized food supply and improved nutrition. This is to be achieved with a year-round food supply made possible by reliable water and pest-proof storage and more nutritious foods grown in home gardens from improved seeds.

Home Gardens

1978 Proposal

The original proposal failed to articulate a precise methodology for involvement in this sector, except for the use of irrigation. Two types of irrigation systems were to be utilized in home gardens:

.. Buried Pot Model

This model was to employ local clay pots sunk in the soil and regularly filled with water which would seep out into the garden through the porous clay. It had been tested in India, Senegal and Upper Volta and was considered appropriate technology utilizing local materials

.. Drip or Trickle Model

This model was to utilize a hose or pipe with tiny holes pierced in it extending out from the water source.

Improved gardening techniques were to be taught at the Folk Development School in Singida and in the villages, using demonstration plots. Government technicians would do the training.

1983 Revision

The 1983 Revision refined and altered the original proposal. Instead of either clay pot or drip (trickle) irrigation, watering cans or buckets (with hand-held perforated tins used for sprinkling) are being encouraged. Since the new wells have not yet been completed, "dug-hole" wells in the traditional style are being used and gardens are situated near an existing and reasonable water source. While the irrigation technology is not an improvement, emphasis is being placed on improved vegetable production methods instead.

Training is currently being conducted for villagers in the three Singida District villages. Villagers (up to 40 per session) are brought in from the designated village for a one-day seminar in Unyankai, (two kilometres from Singida Town) where Tanzanian villagers do market gardening adjacent to a plot maintained by the Regional Agriculture Development Office. The training is being conducted by ten local gardeners on a farmer-to-farmer basis under the supervision of the

Regional Horticulture Officer. The gardener-trainers participated in a two-day seminar with the RHO in adult education techniques prior to beginning their teaching. They are paid TShs. 25 per day as trainers.

The seminars are planned in a three-tiered sequence, spaced by two to three months. The first seminar teaches the basic elements of nursery beds, seedbed preparation and transplantation of familiar vegetables. Each subsequent seminar will add technical skills and vegetable varieties. The resident agriculture extension agents (Bwana Shambas) will supervise the farmers as they undertake to practise their new skills.

To date, all participants (68 in two seminars of a projected 480) have been men. The intention is to offer the second series of seminars at the first level to women to encourage their participation in kitchen gardening. Furthermore, planning is currently in process for nutrition education to accompany the gardening component. A seminar is being organized by regional officials for presentation at the district, ward and finally, under the auspices of the project, at the village levels.

A major constraint which was not recognized in 1978, because it undoubtedly did not exist to the same degree, was the unavailability of agricultural implements. In addition, seeds have been unavailable to farmers. Thus the provision of both implements and seeds has been critical to allow the project to have any impact at all.

Grain Storage

1978 Proposal

The 1978 Proposal emphasized the need to construct improved granaries to reduce the 40-60% loss of food grains to pests, such as rodents, birds, insects and mold. Traditional storage methods included storage in homes, in trees and on roofs. Local communal stores constructed during the 1940's and 1950's proved unsuccessful due to spoilage and lack of trust in the accounting systems.

The UHAI Project Proposal therefore recommended the construction of individual family silos instead, using the same cement rings as the wells and the water storage tanks. Each granary would require two cement rings to allow a one-ton capacity. The project would help each family construct one silo; any more would be each family's responsibility. A total of 1200 silos was thus envisaged for the project.

1983 Revision

By 1983 the grain storage component had been absorbed into the general category of agriculture

along with vegetable gardening and nutrition and had been totally altered in focus. While the purpose remains the same, the model is completely different.

Construction of silos has been dropped. The cement ring model was considered technically incorrect as the danger of rotting from moisture retention in the grain was too high. It was also prohibitively expensive and logistically impossible, given a target of 1200 silos in three years.

Instead, emphasis has been on small-scale research in conjunction with the RADO using locally available insect repellents, such as neem leaves, chillies, tobacco leaves and cow dung ash, in traditional bark structures. This research will continue in support of the RADO's efforts, with emphasis on experimenting with new structures as well to avoid such extensive damage to local trees.

Information is also being gathered from other research projects in Tanzania and elsewhere. Extension work is being done by Peace Corps Volunteers in the area. As improved methods become available, the UHAI Project will intensify its involvement in these extension activities.

Solar drying and other methods of vegetable presentation will also be tested and the findings disseminated, through the gardening seminars, the agriculture extension officers, and the nutritionist seconded to the project.

AFFORESTATION COMPONENT

Purpose

A secondary purpose of the project was to improve the environment surrounding the six target villages through reforestation to counteract the degrading influences of deforestation and overgrazing. With increases in both the human and livestock populations, this degradation was becoming increasingly worse.

1978 Proposal

In the 1978 version of the project, each village was to set aside ten hectares of land deemed unsuitable for agriculture for a community woodlot. Over the three years of the project, this land would be planted with 9,900 fuel and pole tree seedlings and 200 fruit tree seedlings supplied from a central nursery in Singida. Clay pots were to be used for irrigation of fruit trees; ox carts would be used to transport water for the others.

The villagers were expected to contribute self-help labour for digging holes, planting, fencing,

watering and weeding. It was assumed that the villagers would undertake the responsibility for tending the young trees and protecting them from animals with trenches and bushes due to their heavy involvement with the woodlots from the beginning.

The Regional Forestry Officer was to be the central figure in this scheme.

1983 Revision

The 1983 Revision has shifted emphasis from community woodlots and orchards to tree seedling nurseries at the primary schools. This shift occurred largely due to the involvement of two Peace Corps Volunteers and to the recognition that the Regional Department of Natural Resources was adequately handling the community woodlot program.

Each UHAI village has been assigned a forestry extension officer (Bwana Miti) by the Department of Natural Resources to be resident in the village and work with the program. Likewise, each primary school has identified one teacher to be the link at the school. The "Bwana Mitis" and selected teachers have participated in two afforestation seminars organized at the regional level by the Peace Corps Volunteers and the Regional Education Officer.

The students in Standard 5 have been selected as the target group in the UHAI schools for classroom instruction on a pilot basis on the theoretical aspects of afforestation. They are also the students primarily involved with the practical exercises of raising seedlings in the school nursery.

A variety of tree seedlings are being grown but the most popular are the fruit trees, particularly guava and papaya. Some fruit trees are being planted on the school compounds while the remainder are being distributed to the school children. (Some have even been stolen!) Eucalyptus trees are less popular because of villagers' concerns that they attract birds, such as the quelea, which destroy crops, and that they consume large quantities of water.

The expected annual production of each school nursery is 5000 tree seedlings.

A "spread effect" is intended through the "Bwana Mitis" who are expected to encourage the inception in neighbouring schools and to work with villagers in establishing village nurseries where there is expressed interest.

Because of the institutionalization of these procedures, the afforestation component is expected to continue and expand after the project's completion.

MOTIVATION AND TRAINING

Purpose

The project has always intended to be a self-help endeavour designed to leave behind motivated and trained people capable of carrying on their own development, thus reducing their dependence on the outside world, especially at the village level.

1978 Proposal

The mechanism for such self-help involvement in the 1978 Proposal was the "Community Motivator" who was to be a respected community member from the village able to lead and organize other villagers for the benefit of village development. The CM's, chosen by their villages, would receive appropriate technical and socio-economic training of one week's duration at the Folk Development School in Singida under the tutelage of a variety of GOT officials. Women were to be a particular target group, especially in such areas as nutrition, cooking, gardening, health education and food preservation.

These Community Motivators would then be helped in their tasks by expatriate Volunteers who would act as resident Project Advisors, serving as the link between the villages and the available services.

1983 Revision

The 1983 Revision has significantly altered the original plan, de-emphasizing motivation and greatly strengthening training.

There is no longer an emphasis on creating "Community Motivators" as it has been recognized that the existing village leaders are already assigned the responsibility of mobilizing the villagers to participate in development projects. The tasks of the Village Chairman, who acts as the CM, are to keep the village aware of the program, stimulate interest in it, arrange meetings, and generally keep the lines of communication "open and functional." In the words of the Revision, "motivation involves contacting the people of the villages and helping them become more aware of their potentials and possibilities for shaping and improving their lives."

Training concentrates instead on imparting technical expertise at appropriate levels to villagers, in areas "where the project has found ways in which the situation of the people can be improved but their understanding and/or knowledge is not sufficient to carry out the program." This training is accomplished largely by seconded GOT officials through extension, seminars and on-the-job training and by expatriate Volunteers who have been

involved as "mobile specialists," an alteration of the original concept of having one "sedentary generalist" Project Advisor per village. GOT officials are also having their skills upgraded on a selected basis.

The theory behind the training is to leave behind "replicable packages" of information and techniques which can be continued without additional project input. Specifics of the training are itemized below:

Water Component

Well-Digger Training

Two well diggers are trained per village to carry on the well digging activities in their own village. They are being trained by professional well diggers formerly employed by the Australian Water Project.

Well Pump Mechanic Training

Well pump mechanics will be trained at the ward level to handle all major repairs of the pumps. This training will be integrated with the system established by the Water Department.

Well Attendant Training

One well attendant will be trained per well in the villages. The well attendant will be responsible for maintenance of the well site and minor repairs of the well equipment. Any major defects will be reported to the ward mechanics.

Seminars for Villagers on Well Use

The training of villagers on well use is planned for the inauguration of each well. This is meant to provide villagers with adequate information on well usage and sanitation. Health officers as well as Water Department officials will participate in these seminars.

Agriculture Component

Adult Education Techniques for the RHO

The Regional Horticulture Officer attended, under the auspices of the project, a one-week seminar sponsored by the Australian Project and directed by the Australian Training Officer. He was trained in adult education and two-way communication techniques.

Peer Training for Trainers

Villagers who are commercial gardeners were trained on how to teach other villagers improved gardening techniques. This training took place in a government demonstration vegetable garden and involved a synopsis of the training in adult education techniques given to the RHO by the RHO himself over a two-day period.

Horticulture Training for Villagers

Villagers are brought, 40 per session from a designated village, to the demonstration garden and the gardeners' own gardens for one-day seminars on improved gardening techniques. This system is designed in such a way that the trained villagers train other villagers, an example of horizontal communication.

Nutrition Seminars for Villagers

Seminars are in the planning stages at the regional level for training villagers in improved nutrition. These seminars will be introduced at the district and ward levels before being brought to the villages under the auspices of the project.

Skill Upgrading for GOT Officials

The training system is utilizing the existing GOT officials engaged in their respective subjects. However, there is an intention to upgrade their skills. The UHAI Project recommended adjusted budget includes training funds for organic gardening, nutrition education and communication techniques for up to four regional and district agriculture officers, to be scheduled in country as soon as possible in appropriate locations.

Afforestation Component

Seminars for Forest Attendants and Teachers

Seminars in afforestation have briefed Forest Attendants on how to ensure that primary schools develop effective school nurseries and become sources for providing seedlings to villagers. Selected teachers have been equipped with the knowledge to teach the afforestation syllabus prepared for introduction at the Standard 5 level.

Theoretical and Practical Afforestation Training for Students

Students in Standard 5 in the six UHAI schools

are beginning an academic year with one hour of classroom instruction per week on afforestation techniques and environmental concerns. An average of 50 students per school are involved for a total of 300. In addition, these same students are given practical instruction in raising seedlings.

TABLE I

PROJECT IMPLEMENTATION TARGETS

	1978 Proposal	1983 Revision
WATER COMPONENT	120 wells (1 per 10 families or 20 per village) 120 windmills 1200 storage tanks (1 per family)	36-48 wells (1 per 300 people or 6-8 per village) No windmills No storage tanks
AGRICULTURE COMPONENT		
Home Gardens	None specified except general improvement	6 extension agents in place 16 varieties of seeds introduced \$55,000 additional agricultural implements sold (\$23,000 items already distributed) 400 gardens upgraded
Grain Storage	1200 cement grain storage tanks (1 per family)	Experimentation with improved techniques
AFFORESTATION COMPONENT	1 community woodlot per village 10,100 trees per village (60,600 in 3 years)	6 school nurseries - spread effect to neighbouring schools 6 forest attendants assigned 5000 seedlings planted annually per school (30,000 total per year) 5000 Kg polythene tubing imported for sale & project use
MOTIVATION & TRAINING	1 community motivator per village	2 well diggers per village 1 well attendant per well 2 pump mechanics per ward 1 well use ceremony per well
		480 gardeners trained in three seminars each 4 GOT officials trained in organic gardening, nutrition adult education 10 commercial gardeners trained as trainers Village seminars in nutrition
		300 Standard 5 students taught afforestation techniques

IV. PROJECT INPUTS

The UHAI Project is heavily dependent on a logistical, technical and commodity infrastructure. Very little of this infrastructure was available at the inception of the project in 1981, largely due to poor planning and project design. This lack has been adequately rectified and the project must only now contend with the difficulties of commodity procurement in contemporary Tanzania.

The original project budget, as detailed in the Grant Agreement, was for \$861,500, not including local in-kind support estimated at \$166,070. LWR initially committed \$362,000 to this budget from private sources. LWR committed an additional \$99,500 to the project in March 1982 to cover added salaries and support costs. The original USAID grant was \$499,000. LWR monies were to be used primarily for housing and vehicles while USAID funds were to cover equipment, commodities and technical assistance. Joint funding would pay for training and evaluation.

By June 30, 1983, \$320,876 had been disbursed, accounted for in quarterly reports.

HOUSING AND OTHER BUILDING SPACE

The Project Director was able to rent adequate housing for himself from the Lutheran Church on a compound outside of town. The Peace Corps Volunteers associated with the project had already been assigned separate housing by the GOT. No other building space was available for the project despite its considerable needs for storage space, office space and additional housing.

The PD was fortunate in locating a Mennonite Volunteer who agreed to join him on a short-term basis to help with the construction of several small ferro-cement structures with multiple uses. The buildings, designed by the Volunteer, were cheap to construct (\$5,000) and effectively serve the project's needs.

The original budget provided \$112,700 for housing and other building space, and equipment.

VEHICLES

Due to the long distances between the project headquarters in Singida and the six widely scattered project villages, ranging from 7 kilometers to 140 kilometers, the project is heavily dependent upon vehicle support. The PD has a Toyota Land Cruiser for multi-purpose use. He also has an Isuzu lorry for transporting bulky supplies and equipment, and a Honda motorcycle. The project also has two small Suzuki pickups for use by other staff for miscellaneous activities. The seconded part-time PCV's utilize their Peace Corps motorcycles for project business. Bicycles have been issued to Tanzanian extension agents for their use during the project; they will accrue to them at the

end of the project.

For the water component, the lorry has been essential to transport the survey team with their three sets of equipment to the villages. It has also been necessary for the transport of cement for ring making, the delivery of cement rings (two per trip) to site and the transport of well-digging equipment. The Australian Water Project team has been very generous with their vehicle assistance to UHAI, using their larger lorries with a crane to deliver the heavy cement rings (1 ton each) at four per lorry load.

In the agricultural component, the lorry has been utilized to transport 40 villagers per trip to Singida for gardening seminars. Public transport is unreliable in Tanzania due to the shortage of fuels and the unavailability of vehicle spares, especially tires.

In support of the afforestation component, the smaller Suzukis have been used for the transport of polythene tubing, essential for the preparation of tree seedling nurseries.

The multi-dimensional nature of the project increases the demands of the communications network. Vehicles are essential for this purpose, both with government contacts and for links with the villages. This is particularly true as the project expands into Iramba District.

The original budget for vehicles was \$77,000.

COMMODITIES

The UHAI Project cannot function without certain commodities, of which some are either totally unavailable in Tanzania or insufficiently available to meet demand. Vehicles must be imported with sufficient spare parts. The supply of diesel and petrol fuels is unreliable and a bulk supply must be kept in reserve. Cement is essential for well construction but a recent order from the Tanzania cement factory has remained unfilled for three months. Seeds and farm implements are lacking; farmers are desperate for them. Polythene tubing is totally insufficient for the needs of the Department of Natural Resources for tree seedlings; if it does arrive, it is usually three months behind the planting schedule, resulting in considerable seedling loss.

As a result, the Project Director has found it essential to procure items in bulk, often in Kenya, in order for the project to engage in any activities at all designed to make progress toward the stated goals. For example, seeds, tools and farm implements are purchased, then sold to villagers on a cost-recovery basis. To date, the PD has distributed 950 buckets, 200 hoes, 90 oxplows, 5,000 packets of seeds in 16 varieties, and other miscellaneous implements for farmers who are desperate for them and cannot purchase them locally. He has also purchased 2,000 kilos of polythene tubing in Kenya, half of which has been

designated for the UHAI Project, and the rest of which has been sold to the Department of Natural Resources for their other tree seedling work (each 1,000 kilos allows the production of one-half million tree seedlings).

As most of these purchases are resold and the monies contributed to a cash account for local uses, these items are not directly reflected in the budget.

PROJECT MANAGEMENT

The Project Director was the only full-time employee budgeted for in the original proposal. The proposal indicated that the UHAI Project would be supported by six Volunteers from NORAD and/or the U.S. Peace Corps but no indication was given as to who had the responsibility to recruit them. The Director inquired of both agencies in Dar es Salaam shortly after his appointment and was told that he might be able to have one Volunteer from each but with a minimum lead time of a year. Consequently, the PD had to make other arrangements. He was able to arrange for the secondment of Volunteers already in place on a part-time basis as well as to recruit others from elsewhere.

The original budget provided only \$60,000 for staff salaries. LWR later authorized an additional \$99,500 for staff salaries and support.

TRAINING

The training component, although listed as a separate budget item, provides support to the water, agriculture and forestry components. The original budget figure was \$58,000, none of which had been spent by June 30, 1983. Training activities had begun by the time the evaluation team visited Singida in early September, however.

V. PROJECT STATUS AT MID-TERM

PROGRESS TOWARD GOALS

The UHAI Project is a long way from reaching the targets set by the 1978 Proposal. These, however, have been recognized to be unrealistic and have been revised accordingly in 1983, as indicated in the implementation strategy statement.

Even these new revised goals have not been well met, however, due to the considerable delays in getting the project started. For example:

.. The Project Director was seconded to the project from his work with the United Presbyterian Church in Kenya on March 31, 1981. However, the Tanzania resident permit which he had applied for in March did not arrive until September 2.

.. Importation permits for vehicles applied for at the same time were not received until October 27. (There is very limited access across the Kenya-Tanzania border.) The vehicles were finally exported December 31 after appropriate alterations had been made.

.. The six American and/or Norwegian Volunteers envisaged in the project design were never recruited for the project. Discussions with appropriate agencies in Dar es Salaam indicated a one-year lead time. Since there had been no arrangement for any other staff, the PD was left alone to initiate the project. He was fortunate in finding several Volunteers already in position and managed to have them seconded on a half-time basis to the UHAI Project.

.. One house was available for immediate rental from the Lutheran Church, Central Synod, on the outskirts of Singida in Kititimu. No other building space was similarly available, however, and thus it needed to be constructed.

.. The PD was asked to undertake a windmill/well construction project with little consideration given to the physical infrastructure and logistics involved. Through investigation, he discovered a Dutch project ten hours away, in Morogoro, and an Australian project in Singida itself, and has been able to cooperate effectively with both of them.

.. Assignment of counterparts by the GOT has taken longer than anticipated. In fact, it is only now that the project has reasonable counterpart assistance in most spheres.

Many of these problems could have been avoided if the complexities had been fully realized and the proper groundwork laid. For example, the permit process could have been started much earlier. Vehicles could have been imported

from Japan. Building construction could have been undertaken by a contractor prior to the PD's arrival, under church auspices. Additional staff could have been properly recruited.

Due to the late start, the project's implementation is behind schedule.

PHYSICAL ACCOMPLISHMENTS TO DATE

Water Component

In the water component, the wells survey has been completed in four of the six villages with 37 well sites of the projected 36-48 identified. The survey is in process in the fifth village, with one approved site. The sixth village, Ntwike, has shown little interest and may be given over to the Australian Project.

No wells have yet been completed, although several have been started and one, in Ighuka, has been completed up to the hand pump installation stage. However, as it is a policy of the project not to install the pump until the sanitary seal has been constructed in order to avoid contamination and, since the cement for the seal has not arrived, the pump has not been installed.

With three sets of well-digging equipment, well construction can be undertaken simultaneously in three villages, as local well-digging teams become trained. At the rate of one well per team per month, 36 wells could conceivably be constructed in one year, given optimal conditions. However, the rainy season hinders digging during three to four months of the year, reducing the maximum output to 24 wells. Thus, even though the original target of 120 wells has been reduced to approximately 40, sufficient according to national standards, the project will be unable to equip all six villages with one well per 300 persons by June 1984, the project completion date.

TABLE 2: PHYSICAL ACCOMPLISHMENTS TO DATE

(September 1983)
WATER COMPONENT

<u>Activities</u>	<u>V I L A G E S</u>					
	<u>Ighuka</u>	<u>Ng'ong'mpoku</u>	<u>Unyambwa</u>	<u>Kisonga</u>	<u>Tyeme*</u>	<u>Ntwike**</u>
Approved Sites	8	8	14	6	1	-
Wells Started	5	-	-	-	-	-
Wells Completed	1	-	-	-	-	-
Wells Equipped***	0	-	-	-	-	-

*Survey in process

**No cooperation in Ntwike with well site surveyors

***Hand pump not attached due to lack of cement for sanitary seal

Agriculture Component

An unexpected but major felt need of the villagers in Singida Region has been the lack of agricultural inputs including seeds and implements. Thus, before any improvement in technology has been able to be introduced, farmers have needed to be equipped with the necessary inputs. To date, the Project Director has provided 1650 implements of various sorts and 5000 packets of vegetable seeds to villagers on a cost-recovery basis.

The vegetable gardening component has just begun in Singida District with the recent assignment of the Regional Horticulture Officer to the project. He has begun supervising a gardener-to-gardener training program in upgraded gardening techniques. To date, 10 trainers and 68 gardeners have participated in the first of three graded seminars to be offered at two to three month intervals with appropriate follow-up in between. By June 1984, 240 farmers will have been trained in each of the districts, Singida and Iramba, for a total of 480.

The grain storage activities, although initially the source of considerable interest, have proven unproductive due to a lack of improved technology to disseminate.

TABLE 3: PHYSICAL ACCOMPLISHMENTS TO DATE

(SEPTEMBER 1983)

AGRICULTURE COMPONENT

<u>Type</u>	<u>Implements Distributed</u>		
	<u>Origin</u>	<u>Price*</u>	<u>Number</u>
Oxplows	Tanzania	2150/2150	90
Hoes	Kenya	45/50	200
Shovels	Tanzania & Kenya	44/50	40
Buckets (lg)	Kenya	44/50	550
Buckets (sm)	Kenya	32/40	400
Wheelbarrows	Kenya	485/500	45
Spanners	Kenya	44/100	100
Rakes	Tanzania	(Free)	20
Oxplow chain	Kenya	44/100	160

*Purchase price/Sale price

Seeds Distributed

5000 Packets

Cabbage	Collards	Carrot
Spinach	Onion	Swiss Chard
Pumpkin	Green Pepper	Squash
Red Pepper	Leeks	Eggplant
Beetroot	Tomatoes (2)	Okra

Afforestation Component

The school afforestation component is well established in Singida District UHAI schools, including a spread into the neighbouring villages. "Gwana Mitis" have been assigned to all six UHAI schools. Over 10,000 seeds were planted in school nurseries in 1982, with 6600 of these planted out as tree seedlings. The survival rate has not yet been established. To date in 1983, over 40,000 tree seeds have been planted in polythene pots, including 20,000 in one non-UHAI nursery due to the spread effect.

Polythene tubing, a scarce commodity in Tanzania, has been imported for use in the project and generally by the Regional Natural Resources Department. The PD has provided 2000 kilograms of this tubing on a cost-recovery basis, allowing the seeding of one million trees.

An academic syllabus has been introduced at the Standard 5 level this year in the six UHAI schools. By June 1984, this syllabus will have been tested by the 300 students participating in the experiment.

Two seminars have been held for forestry extension agents and teachers, organized by Peace Corps Volunteers associated with the project and the Regional Education Department.

TABLE 4: PHYSICAL ACCOMPLISHMENTS TO DATE
(September 1983)
AFFORESTATION COMPONENT

<u>Activities</u>	<u>V I L L A G E S (Singida District)</u>			
	<u>Ighuka</u>	<u>Ng'ong'mpoku</u>		
<u>1982</u>			<u>Uhyambwa</u>	
<u>Seeds Planted</u>	<u>4150</u>	<u>4100</u>	<u>2600</u>	
Guava	300	1000	1500	
Eucalyptus	2420	600		
Papaya	1430	250	1100	
<u>Seedlings Planted Out</u>	<u>1400</u>	<u>3600</u>	<u>1600</u>	
Guava	40	940	500	
Eucalyptus	760	500	550	
Papaya	400	2160	550	
Azadiracta indica	200			
<u>Seedlings Surviving</u>				
Guava	?	?	None	
Papaya	?	75%	Most	
<hr/>				
<u>Activities</u>				
<u>1983</u>				
<u>Seeds Planted</u>	<u>0</u>	<u>8000</u>	<u>6000</u>	
Guava			1500	
Eucalyptus			3000	
Papaya			1500	
<hr/>				
<u>Activities</u>	<u>(Spread Effect to non-UHAI villages)</u>			
<u>1983</u>				
	<u>Ikungi</u>	<u>Malolo</u>	<u>Kijota</u>	<u>Msis</u>
<u>Seeds Planted</u>	<u>4000</u>	<u>20,400</u>	<u>1668</u>	<u>2400</u>
Guava	1000			
Eucalyptus	1000			
Papaya	1000			
Albizzia Lebbeck	1000			

IMPACT

Because of the delays in getting the project started, the impact of the project at mid-term with respect to basic human needs is minimal, even of a short-term nature. Village water supplies have not yet been improved in quantity or quality as no new wells are yet functional. The vegetable gardening seminars have just begun; hence, it is too early for one planting cycle to have been completed and much too early to detect improvements in nutrition. No major grain storage improvements have been discovered to allow dissemination of a technology which could dramatically increase available food supply in a short time. A number of tree seedlings have been planted but they are still too young to bear fruit, arrest erosion or provide fuel or pole wood.

However, while the short-term impact may not appear great or be very measurable at this time, in terms of improved health, increased agricultural production and environmental enhancement, the long-term potential is enormous for the project through the institutionalization of replicable techniques in well construction, vegetable gardening and afforestation, due to the dramatically increased emphasis on training in the revised implementation strategy.

There are improvements, nonetheless, which can be made to the UHAI Project to render the contribution of project activities even greater. These suggested improvements are thoroughly explained in the following section of this report.

PROJECTED ACCOMPLISHMENTS

The UHAI Project is scheduled for completion in June 1984. If the revised implementation strategy is followed, much will be left unachieved by that date. If the project were to continue, however, for another twelve or eighteen months, the projected accomplishments would be much greater, as indicated in the following table.

TABLE 5

IMPLEMENTATION SCHEDULE

(Cumulative)

Components	9/83	6/84	6/85	12/85
<u>WATER</u>				
Villages Surveyed	4	Completed	-	-
Wells Completed	1	20 (50%)	35	40-46(100%)
Wells Equipped	0	20 (50%)	35	40-46(100%)
People Supplied with Improved Water	0	6000	10,500	12,000
Well Diggers Trained	4	10	12(100%)	-
Pump Mechanics Trained	0	6	12(100%)	-
Well Attendants Trained	0	20 (50%)	35	40-46(100%)
Well Use Seminars	0	20 (50%)	35	40-46(100%)
<u>AGRICULTURE</u>				
<u>Home Gardens</u>				
Implements Sold	1650 (\$23,000)	Saturation (\$55,000)	-	-
Seeds Sold	5000 Pkts (16 Varieties)	10,000 Pkts	15,000 Pkts	Saturation
Extension Agents Assigned	2 (33%)	4 (67%)	6 (100%)	-
GOT Technicians Trained	1	4	-	-
Trainers Trained in Vegetable Gardening	10 (Singida only)	20 (Iramba also)	-	-
Villagers Trained in Vegetable Gardening				
Seminar # 1	68 (Singida)	468	-	Follow up
Seminar # 2	0	240	480	Follow up
Seminar # 3	0	120	480	Follow up
Old Gardens Upgraded	68	200	Greater Improvement	Follow up
New Gardens Started	0	200	Improvement	Follow up
Introduction of New Vegetable Varieties	5	10	16	

Components	9/83	6/84	6/85	12/85
Change in Quantity of Produce	-	X4	X4	X4
School Gardens Started	0	3	6	-
Nutrition Seminars	0	3	6	-
<u>Grain Storage</u>				
Experiments	5	8	-	-
Extension Visits	Whenever applicable - by 2 PCV's & 1 Contractor			
Vegetable Preservation Seminars	0	3	6	-
<u>AFFORESTATION</u>				
Extension Agents Assigned	6(100%)	-	-	-
School Nurseries Started (UHAI Schools)	3	6(100%)	-	-
School Nurseries Started (Non-UHAI)	5	Spread Effect	Spread Effect	Spread Effect
Plastic Tubing Supplied UHAI	1000 Kg.	2000 Kg.	-	-
Mali Asili	1000 Kg.	3000 Kg.	-	-
Syllabus Introduced in UHAI Schools	6(100%)	-	-	-
Students Taught	0	300	600	-
Seeds Started	10,850	53,528	100,000	Spread
Seedlings Planted Out	6,600	45,000	80,000	Effect
Survival Rate	0-75%	?	?	?
Seminars Held	2	3	4	-
Forestry Agents Trained	6(100%)	-	-	-
Teachers Trained	11	16	21	-
<u>MOTIVATION & TRAINING</u>				
(See Above by Component)				

VI. FINDINGS AND RECOMMENDATIONS

REVISED PROJECT DESIGN

Findings

.. The 1983 UHAI Project Revision represents an appropriate evolution of an inspired but overly ambitious original proposal into a workable project. It attempts more realistically to address the needs of Singida Region and achieve the stated goals. The budget has been adjusted accordingly. It has been approved by the UHAI Steering Committee as the official working document of the project but it has never been formally endorsed by LWR and USAID. It was tentatively approved by USAID in May 1983 pending the findings and recommendations of the evaluation team.

Recommendations

.. LWR and USAID should formally endorse the 1983 Project Revision with the accompanying adjusted budget as the working document of the UHAI Project. An amendment to the Grant Agreement should then be written to incorporate major changes in implementation.

.. Excess funds due to the adjustment of the budget can be de-obligated by the respective donors.

WATER COMPONENT

Findings

.. The UHAI Project is based on the provision of water in six villages. The implementation strategy has shifted from windmills to handpumps since the project's conception due to technical, logistical and financial considerations.

.. The envisaged number of wells has been substantially reduced from 120 to approximately 40. These measures conform to Tanzania's National Shallow Wells Programme with the cement ring well construction technique utilized as an appropriate technology on a ratio of one well per 300 inhabitants.

.. Accurate data is being kept on the surveyed well sites according to the Morogoro Wells Construction Project format.

.. The survey team is endeavoring to locate wells which conform to national water quality standards. Furthermore, the use of sanitary cement seals around the wells will diminish the risk of bacteriological contamination.

.. Well construction capabilities are being institutionalized at the village level through the training of village workers, usually two per village.

.. Well digging and well digger training are being carried out in a phased manner, beginning with Singida District and expanding into Iramba District.

.. The water component is logistically complex due to the equipment and materials transport required and to the widespread nature of the villages. The TWDP (Australian) team is providing technical and logistical support to the project, rendering this component feasible.

.. Due to the delays in installing the project and the logistics of this component, well construction is behind schedule. Even the revised target of approximately 40 wells cannot possibly be completed by the current project completion date of June 1984.

.. In one of the Iramba villages, Ntwike, the water surveyors received no cooperation even though the project had been thoroughly explained to the village leadership as a self-help project. The only excuse offered for non-cooperation was the villagers' need to prepare for the visit of an official. The surveyors were called out and will be returned only if there is a clear willingness on the part of the villagers to assist with the survey.

.. One villager will be trained as a "well attendant" for each well, to handle minor maintenance problems backstopped by ward pump mechanics who can do more major maintenance. A set of well spares will be left in each village at UHAI expense under the supervision of the Village Chairman to allow for immediate replacement of dysfunctional equipment. The broken equipment will then be sent to the District Water Department for repair. Future repairs will be financed by the village.

.. A well-use seminar is planned for the inauguration of each well. However, no continuous health education is planned.

.. The major role women play in water collection and water use is recognized; however, women have not yet been included in this aspect of the project in any way. They are intended to be included as the primary target group in the well use training.

.. Tanzanians are involved in the water component directly at the lower levels and indirectly through the cooperation of the Regional Water Department. However, no Tanzanian has yet been included at the supervisory level in well construction.

.. The water survey team has done an excellent job of surveying sites in areas where traditional wells already exist in order to disturb water collection habits as little as possible. However, no data exists on patterns of water use.

Recommendations

.. A qualified Tanzanian well construction supervisor should be seconded by the Regional Water Department (MAJI) immediately for approval by the Project Director as agreed upon in the debriefing with the UHAI Steering Committee. He will be under the authority of the UHAI PD for the duration of the project.

.. The Project Director should purchase three additional sets of well-digging equipment to facilitate the well digging efforts.

.. The opinions of local women should be sought on the use of the new wells, regarding clothes washing as a major item. A consultant should be hired by the Project Director for up to twelve weeks (two weeks per village) for this purpose, in conjunction with other baseline data collection needs. (A sample baseline data collection format is offered as an appendix to this report.)

.. The "well attendants" should be trained in the sanitary aspects of well use as well as the technical aspects of well maintenance. Local health officials should combine with project staff for this training.

.. The water component needs a built-in evaluation system for well use and maintenance. The project staff should work together with the Regional Water Department and the Regional Health Department to devise such a system. (A sample continuous data collection format is offered as an appendix to this report.)

.. The project staff should cooperate with the Regional Water Department in the training of ward pump mechanics. Two pump mechanics should be trained per ward instead of one in case one is unavailable when needed.

.. The Australian Water Project is currently working in the area of Ntwike village. It is recommended that their surveyors conduct the water survey in that village as the UHAI surveyors are no longer available.

.. The project staff, in conjunction with village, district and regional leadership, should continue to explore the underlying reasons behind the non-cooperation in Ntwike village. The UHAI Project should be left the option not to complete the water component in Ntwike village, however, if there is

continued lack of interest.

AGRICULTURE COMPONENT

Findings

.. The ultimate purpose of the UHAI Project, as the acronym suggests, is a better "life" (uhai in Swahili) for the beneficiaries. To this end, the Regional Agriculture Development Officer has seconded the Regional Horticulture Officer to the project on a half-time basis to stimulate vegetable gardening. A training program has been designed using local gardens and farmers for instruction, consisting of three graded seminars offered for up to 40 participants per seminar. To date, 68 villagers of an anticipated 480 have participated, all male; no women have as yet been included. The seminars are supervised by the RHO with the UHAI Project providing logistical support. The seminars have been enthusiastically received.

.. The RHO participated in a one-week training program in adult education techniques given by the training officer of the Australian Water Project to improve his effectiveness at working with villagers. He then organized a two-day seminar for ten of the professional gardeners at Unyankai, a functional garden site near Singida, to train them to become trainers. As they themselves are villagers, using appropriate but upgraded techniques, it is felt that they will be convincing trainers of other villagers interested in learning improved vegetable gardening methods.

.. Two agricultural extension officers ("Bwana Shambas") have been assigned to UHAI villages by the RADO and equipped with bicycles by the UHAI Project to do follow-up work with the gardeners after the seminars. They have been specifically trained by the RHO in horticultural techniques as most "Bwana Shambas" are not bustani (garden) experts. A spread effect to neighbouring villages in the wards is intended through these field assistants.

.. There is no appropriate baseline data available at the regional or village level against which to measure the impact of this program.

Recommendations

.. To be able to demonstrate the impact of the agricultural component of the UHAI Project, the following data needs to be collected, at a minimum:

Baseline

- Current vegetable crops
- Current vegetable outputs
- Utilization of vegetable produce
(home consumption or sale)

Dietary patterns and nutritional content
Roles of men and women in vegetable gardening

Continuous

Numbers and names of farmers trained
Types of vegetables planted
Volume of vegetable produce
Technical success rate of vegetables
Cultural acceptability of new vegetables
Change in dietary patterns
Revenue earned through sale of vegetable produce

A consultant should be hired for twelve weeks (two weeks per village) to collect the baseline data, as soon as possible. (This individual may be the same as hired for other baseline data collection, to gather all the data in one twelve-week contract.) Continuous data collection can be done by project staff and relevant GOT officials. (Sample data collection formats are offered in the appendices.)

.. The vegetable gardening seminars should continue as planned, with two at each of three levels per village, for a total of 36 seminars before June 1984. As 40 farmers can be trained in each seminar, the target for training should be 480 farmers, each attending three graded seminars. Women should be included as well as men, in separate seminars if culturally more acceptable.

.. The UHAI Steering Committee should request the RADO to appoint four additional Agricultural Field Assistants ("Bwana Shambas") as soon as possible. They will cooperate with the assigned Peace Corps Volunteers in extension work and will provide continuity after the project's completion.

.. A nutritional education and vegetable preservation program should be incorporated into the horticultural training through the seconded half-time services of a nutrition officer from the RADO. This effort will necessarily involve women in gardening and men in nutrition issues.

.. The project should continue to supply villagers with improved vegetable seeds on a cost-recovery basis to enable higher production and encourage greater variety. Hybrid seeds should be avoided, however, to avoid replication problems.

.. The project should continue to supply villagers with agricultural implements (e.g. ox-plows, hoes, buckets) on a cost-recovery basis, importing where local supplies are insufficient. Pricing of implements should be consistent with national pricing policies and ensure cost recovery.

.. The funds generated through the sales of seeds and agricultural implements should continue to be accounted for through the local cash account for use on local expenses.

.. The Project Director should request an additional Suzuki pickup from LWR for use in vegetable garden and nutrition extension work. USAID should provide a waiver as USAID funds will be used. The vehicle will accrue to the GOT at the end of the project.

.. The project should continue to support the RADO in his grain storage experimentation efforts. Project staff should also continue to keep abreast of research developments in grain storage and support the Peace Corps Volunteers in their extension efforts, where appropriate.

.. The project staff should support the RADO and the Regional Education Officer in exploring the feasibility of a school gardens program in UHAI village schools including both practical and theoretical aspects.

.. The project should provide training for up to four regional GOT agricultural staff in organic gardening techniques. In-country training should be provided for the nutrition officer related to her activities at Tanga and Mwanza. Funding for such training has been set aside in the recommended adjusted budget.

.. The Project Director should write a complete report of the farmer-to-farmer gardening training prior to the end of the project as it is a rather unique endeavor.

AFFORESTATION COMPONENT

Findings

.. The afforestation component, although initially intended to follow the completion of the water infrastructure, was actually one of the first aspects of the project to be implemented, due to the commendable efforts of the Peace Corps Volunteers and the excellent support from the personnel from the Department of Natural Resources.

.. Initial activities in the primary schools have proven fruitful with a total of approximately 6600 tree seedlings planted out to date. These efforts will continue under the supervision of District Forest Officers and Forest Attendants (Bwana Mitis). All UHAI villages have already been assigned these extension officers.

.. The afforestation program includes both practical aspects and a theoretical dimension in the classroom as the subject has just been introduced into the Standard 5 syllabus in UHAI schools on a pilot basis.

.. Two afforestation seminars have been held at the regional level, initially for Forest Attendants and

subsequently for teachers and Forest Attendants together. These seminars were organized by Peace Corps Volunteers with the assistance of the Regional Natural Resources Officer and the Regional Education Officer.

.. The "cluster spread" effect has already occurred in several instances where teachers in areas near UHAI villages have also been trained in afforestation techniques through the seminars and are putting their knowledge into practice with the guidance of the resident "Bwana Mitis."

.. A major constraint to afforestation in Tanzania is not the lack of skilled manpower, as technicians abound, but the scarce availability of polythene tubing for seedling production.

.. It is noted here, also, that while there is some understanding of the cultural significance of various trees, there is insufficient specific baseline data available to the project in this component to allow for adequate evaluation at the end of the project.

Recommendations

.. To be able to demonstrate the impact of the afforestation component of the UHAI Project, the following data needs to be collected, at a minimum:

Baseline

Cultural factors concerning tree usage
Availability of firewood, timber and fruit trees
Utilization of fruit products (consumption or sale)

Continuous

Seeds sown (numbers & types)
Seedlings planted out (by whom, where)
Survival rate (reasons)

The consultant hired to collect other baseline data should collect this baseline data as well. Continuous data can be collected by the Department of Natural Resources. (Sample data collection formats are offered in the appendices of this report.)

.. The project staff should cooperate with the RED in exploring the feasibility of establishing self-sustaining school nurseries through the sale of seedlings, especially for popular fruit trees.

.. The UHAI Project should coordinate with the SIDA-sponsored afforestation project wherever possible, through the RNRO.

.. The afforestation syllabus being introduced into the schools should be considered an examination subject to ensure its absorption. The REO will deal with this on a per school basis.

.. The project staff should continue to assist as necessary with the procurement of polythene tubing to support the project, on a cost-recovery and timely basis, importing it where local supplies are insufficient. At the same time, the RNRD should be encouraged to explore alternative methods for seedling production (e.g. banana leaves, earth balls).

PROJECT MANAGEMENT AND ADMINISTRATION

Findings

.. The UHAI Project is a complex, multi-dimensional project endeavouring to stimulate integrated development. It is even more complex due to its operation in two districts. While the philosophy of widespread and integrated development to provide opportunities to a variety of villages with a hoped "cluster spread" effect is excellent, the logistics of such an operation are enormous, particularly in a resource-short country such as Tanzania.

Despite these constraints, the project is well underway at this point. The project staff, under the leadership of the Project Director, have worked diligently in cooperation with the Steering Committee to bring the project to this stage. These considerable efforts, however, have overextended the Project Director. He has been required to cope with financial management, procurement of often scarce commodities, overseeing and coordinating the work of individuals in three separate sectors, and communicating with numerous offices.

The Project Director himself has recognized that changes in the management structure are needed for an efficient operation. These changes have been initiated already and personnel located to fill most positions. They are outlined below:

.. The PD will be supported by an Operations Manager for field activities and by a Project Coordinator for Iramba District.

.. He will have the assistance of a part-time administrative and financial assistant.

.. He is also planning to hire a driver/mechanic.

It is noted here that the Project Director will be leaving Singida on April 1, 1984, at the end of his three year contract. The Operations Manager is the PD-designate.

Recommendations

- .. LWR should confirm the designated successor for the position of Project Director.
- .. The PD should write specific job descriptions for each of the new management positions.
- .. The Steering Committee should complement the PD's organizational plan by requesting the secondment of a Tanzanian well construction supervisor as soon as possible from the Regional Water Department, as recommended earlier.
- .. The PD should request another additional Suzuki pickup from LWR for the Project Coordinator in Iramba District. As the vehicle will be purchased with USAID funds, USAID should request a waiver. This vehicle will accrue to the GOT upon completion of the project.
- .. The PD should distribute his quarterly reports more widely to facilitate on-going communications with appropriate officials.
- .. The PD should locate a procurement agent in Nairobi and clearing agents in both Arusha and Dar es Salaam to facilitate his work.
- .. The PD should open a cash book immediately to avoid financial miscalculations.
- .. LWR should assure that the PD receives adequate assistance in modifying the project's accounting system to provide for better overall financial control and to facilitate report preparation.
- .. The PD should assure that USAID-procured items are appropriately labelled, with USAID as well as UHAI identifying marks.

COORDINATION WITH OTHER DONORS

Findings

- .. The UHAI Project is intimately linked with both the Tanzanian Water Development Project with Australian support, based in Singida, and the Dutch Water Project, based in Morogoro. The Australians provide technical and logistical support to UHAI through the manufacture of cement rings at their Singida station and their delivery on ten-ton lorries equipped with a crane. The Morogoro Project is the stimulus for the UHAI well-construction design and the resource for equipment.

.. UHAI may soon be able to join efforts with a SIDA-funded afforestation project in village schools, some of which overlap with UHAI Project schools.

.. The USAID-funded School Health Project in the central zone features a school gardening component which may become the prototype for UHAI involvement in school gardening.

.. Training in two-way communication techniques for adult education was made possible for the RHO through the Australian responsible for manpower development with the Australian Water Project.

Recommendations

.. Coordination with other donors should continue to be encouraged.

COMMUNICATIONS

Findings

.. Communication is a system for sending messages and in return receiving responses from recipients. In this project, it has meant the provision of adequate information about the project plan, design, implementation procedures and even the philosophy of the project to all parties concerned in Singida Region. It was apparent, however, in interviews with villagers, that communication by project staff with the villagers has not always been adequate. This has varied from village to village depending on the village leadership but it has been particularly weak in Iramba District. Despite at least three staff visits to those villages, there are misunderstandings about the project amongst the villagers, leading to non-cooperation with the project implementors. Communication is especially important in a country such as Tanzania where numerous schemes with different philosophies and approaches have been put forth for development.

Recommendations

.. In addition to communicating with village leadership, the project staff should communicate directly with the villagers. Prior to undertaking any aspects of the project, a community meeting should be called. Relevant GOT officials should accompany project staff at these meetings.

.. The UHAI Project might benefit from a publicity and goodwill campaign through the sale and/or distribution of khangas, t-shirts, and caps marked with the UHAI logo recently designed by the PD.

POPULAR PARTICIPATION

Findings

.. The focus of the UHAI Project from the start has been to enable villagers to solve their own problems. However, it was noted during the evaluation that the idea of this project originated from the church leadership and was brought down to the people. The planning process did not include people from the grassroots level such as Village Chairmen. However, this situation is being rectified through the efforts of the project staff, the Tanzanian officials and local leadership such that popular participation is becoming increasingly meaningful.

.. The selection of the villages was done entirely by the Lutheran Synod of the ELCT and the decision communicated to government officials for their approval. It was argued that participation by the villagers in the selection process could have raised high expectations among the people before funds were available for the project.

.. Popular participation in the project differs from Singida District to Iramba District. This depends on the quality of the village leadership, the relative isolation of the villages and the communication techniques employed by the project staff.

Recommendation

.. The participation of the people in the planning and implementation process should continue to be emphasized as necessary for the success of the project.

ROLE OF WOMEN

Findings

.. Women have been only marginally included in the project to date, despite their large role in water use, collection of fuel wood, and provision of a nutritious diet to their families. However, there are some plans to include women in a more direct manner. For example, nutrition seminars are being planned for the village level to make women in particular aware of the importance of vegetable and fruit consumption. The Nutrition Officer from the RADO's office has already been seconded on a part-time basis for this purpose and will base her approach on the results of the baseline data survey.

Recommendations

.. Women should be included in the baseline data surveys regarding their current ideas about water use,

their current involvement in vegetable production and consumption, and their attitudes toward trees.

.. Women should be addressed in the well inauguration ceremony regarding the appropriate use of the new technology. Follow-up should be done biannually to order to perceive any difficulties.

.. Women should be included in the vegetable gardening seminars to allow them to raise more nutritious food for home consumption. The Iramba District Horticulture Officer should be able to take a lead in designing seminars adapted to this purpose, as she is a woman.

.. School children provided with tree seedlings for home planting should be cautioned to advise their mothers on appropriate care of the trees.

REPLICABILITY

Findings

.. All project components are designed as "packages" in such a way that when the project funding ends, essential activities will be taken over by the GOT in Singida Region. The following action agents are to assume responsibility for the various components:

Well construction	Water Department
Well maintenance	Water Department
Well sanitation	Water and Health Departments
Vegetable gardening	Agriculture Department
Grain storage	Agriculture Department
Nutrition education	Agriculture & Education Departments
Afforestation	Agriculture & Education Departments

.. The lack of basic necessities for gardening and afforestation is a serious problem which can be solved temporarily by the UHAI Project. At the end of the project, however, there will no longer be a conduit for supplies. The "spread effect" will be hindered by these shortages at the end of the project unless ways of ensuring a continuous supply are sought by the GOT and the Church.

.. Recurrent expenses associated with the project have not been adequately considered in the replication strategy.

Recommendations

.. Follow-up plans should be considered by the appropriate regional departments in conjunction with project staff for each component before the end of

the project, in the event that the GOT and the Church decide to carry on project activities. Wherever possible, project plans should be such that villagers can themselves sustain activities.

.. The RHO could be encouraged to expand training opportunities beyond the six villages to the 138 Singida Region "Bwana Shambas" in conjunction with the RADO's office and in support of GOT policy.

.. Although additional USAID funding will not be available after the completion of the project, the Church may wish to begin seeking additional private funding for an extension of project activities.

MISCELLANEOUS

Findings & Recommendations

.. The ferro-cement buildings constructed on the project site are unique and an unplanned effect of the project. LWR should arrange for the publication of a monograph on ferro-cement housing construction to disseminate the technology. The monograph has already been prepared in draft by the architect of the buildings.

.. Cement is a scarce commodity in Tanzania. The PD should arrange for its importation if necessary to facilitate timely completion of the project.

.. A Village Information Sheet has been prepared by the project staff but the information has not been collected on all six UHAI villages. The consultant being hired for other baseline data collection should complete these sheets as well.

.. The Operations Manager and Administrative Assistant, now on leave in the U.S. prior to assuming their new responsibilities in Singida, should be given training at Rodale Institute in Pennsylvania in organic gardening. They might also be routed back through Niger to see another type of well project using portable cement ring well molds.

.. The new PCV's and other UHAI staff should be given the training in two way communication offered through the Australian Project.

RECOMMENDED ADJUSTED BUDGET

The evaluation team has thoroughly reviewed the budget in light of the project's revised implementation plan. The net result of this review is that the team recommends adjustments which decrease the amount of

funds needed from both LWR's private sources and the USAID OPG. These recommended adjustments are summarized below.

The project has been slow at disbursing funds. This has been due to the PD's cost-consciousness and the revision of the project into a more cost-effective format. As a result, the project will not need at least \$100,000 of the originally authorized funds.

	<u>Previous Commitments</u>	<u>Recommended Adjusted Commitments</u>
LWR	\$ 461,500	\$ 420,000
USAID	\$ 499,000	\$ 423,100
	<u> </u>	<u> </u>
	\$ 960,500	\$ 843,100
	<u> </u>	<u> </u>

(A comparison of the original budget, dollars spent to date, and the recommended adjusted budget is attached as Appendix VII.)

Water Component

Findings

.. The original budget for construction of windmill-equipped shallow wells was grossly underestimated for the proposed outputs.

.. Though no wells are yet functional, most of the hand pumps and half the well construction equipment had been purchased by June 30, 1983, for a disbursement of \$76,513.

Recommendation

.. Reduce this category from \$331,200 to \$177,000 (53% of the original figure) to reflect the changed implementation strategy. This adjusted figure is based on current costs for cement (all of which is expected to be procured by March 1984), actual hand pump costs, transport costs, and others.

Agriculture Component

Home Gardens

Findings

.. The original plan was very vague regarding the mechanisms for increasing vegetable production. The revised plan budgets \$17,000 to cover the cost of 36 one-day seminars for

up to 40 villagers each, using fellow but successful peasant gardeners. (These costs are included under training in the budget.)

.. Due to the desperate need for supplies, large sums of money are being spent on seeds and implements, which are then sold to villagers on a cost-recovery basis. Proceeds from their sale are recirculated into the project to cover local shilling expenses.

Recommendations

.. Increase this component's budget from \$ 5,700 to \$65,000 to cover the newly specified needs in the agricultural sector, such as extension assistance, training for individual gardeners and some improved access to water.

.. Provide budget support for appropriate training for up to four relevant GOI officials in organic gardening, nutrition education and adult education techniques. Up to \$10,000 should be provided for this. The training content should be consistent with Tanzanian agricultural policies and resource constraints. (These costs are included under training in budget.)

.. Continue to supply seeds and equipment totalling approximately \$55,000 on a cost-recovery basis, rotating the proceeds into a local cash account. A separate column in the recommended adjusted budget shows the anticipated receipts from these sales or reimbursements.

Grain Storage

Findings

.. Originally the project was planning to provide grain storage facilities in each of the six villages for a cost of \$120,000. These plans have been dropped. This aspect is now limited to test trials of grain storage methods and extension support for any useful findings. The modest amount of \$1,042 spent to June 30, 1983 reflects these changes.

Recommendation

.. The budget for this component has been reduced from \$120,000 to \$10,000 to reflect these changes in program plans.

Afforestation Component

Findings

.. The original plan was for 60,600 tree seedlings to be planted in community woodlots in the six

villages over the three years. The new strategy starts with a school nursery in each of the six villages but also offers supplies for starting school nurseries in neighbouring villages. One adjacent school nursery alone has planted 20,000 seeds. The original budget allotment was \$8,100.

.. Seminars to help forestry department personnel and school teachers implement the scheme have been initiated but were not part of the original plan.

Recommendations

.. Increase this budget category to \$33,100 to reflect a sounder implementation strategy, substantially increased targets, and successful implementation to date. Total expenditure to June 30, 1983 was \$11,249 which is consistent with the project's progress in this sphere.

.. The new budget figure includes an amount of \$15,000 which will be used to purchase polythene tubing from Kenya for starting seedlings. This tubing will be resold to the Singida Regional Natural Resources Department. It will be sufficient to supply the department's potting and materials needs on a one-time basis for the whole region and will allow the seeding of 2.5 million seedlings over a two to three year period. Sales proceeds will cover the cost of these materials and will be used for other project expenses.

Training

Finding

.. Though listed as a separate category, the training component provides support to the water, agriculture and afforestation components. None of the original \$58,000 had been spent by June 30, 1983, although the training activities had commenced when the evaluation team visited Singida in early September.

Recommendations

.. Despite an increased emphasis on training, this category can be reduced to \$50,000, reflecting more cost-effective training. This training includes, as itemized elsewhere:

- ... gardener-to-villager training
- ... in-country training for agricultural supervisors
- ... afforestation seminars
- ... in-country training and travel for project staff.

Project Management and Administration

Findings

.. The original budget provided only \$60,000 for staff salaries. LWR later authorized an additional \$99,500 for staff salaries and support. By June 30, 1983, \$70,087 had been spent.

.. The staffing pattern has been increased to allow for more effective project management.

Recommendations

.. The staff budget should be increased from \$159,500 to \$248,000 to reflect actual costs for the PD's salary and anticipated salary costs for the Operations Manager, the Administrative Assistant and the seconded Well Construction Supervisor. (The salary for this seconded employee may be handled by the Water Department.)

.. Provide up to \$1400 for in-country training and travel for project staff to enable them to get information on similar activities elsewhere in Tanzania. (This amount is included in the training budget.)

Vehicles

Findings

.. The original budget for vehicles was \$77,000, providing for a lorry (Isuzu) and an all-purpose vehicle (Land Cruiser). The project has already procured two small pickups (Suzukis) and a motorcycle (Honda) in addition. Each of these vehicles appear to be fully utilized on a daily basis in useful functions. By June 30, 1983, \$72,256 had been spent in this category.

.. Fuel costs are provided for in the budget sections on water, agriculture, afforestation and training.

Recommendations

.. The recommended adjusted budget is \$112,000 to provide for the number of vehicles the project actually needs. The team recommends the purchase of two more Suzuki pickups. The rationale for this recommendation is the vehicle use plan outlined below:-

Vehicle Use Plan

Isuzu Lorry	Construction and Deliveries
Toyota Land Cruiser	Operations Manager
Suzuki A	Project Director

Suzuki B	Well Construction Supervision
*Suzuki C	Iramba District Coordination
*Suzuki D	Agricultural Support, Training, Nutrition Education
Honda Motorcycle	Local Use

*Recommended additional vehicles

The new vehicle budget provides for both purchase and maintenance of the Suzukis. Iramba District coordination and agricultural follow-up will be ineffective without these vehicles.

Support Costs

Finding

.. The original budget provided \$112,700 for staff housing, office space and equipment.

Recommendation

.. The revised figure of \$122,000 reflects costs experienced to date and the support necessary for an increased number of staff.

Evaluation

Findings

.. The original budget provided only a total of \$10,000 to cover the costs of both mid-term and end-of-project evaluations. Costs for the current evaluation alone will exceed \$7,000.

Recommendation

.. The evaluation budget should be increased to \$18,000.

Inflation and Miscellaneous

Finding

.. A general provision for inflation and miscellaneous of slightly under 10% is noted. This is anticipated to be adequate since most procurement will be completed in the next few months.

Recommendation

.. Recommended amounts for each category are based on current prices, as a result.

REQUEST FOR EXTENSION

The mid-term evaluation team was asked to investigate the necessity of extending the project beyond the original completion date of June 1984.

Findings

.. The UHAI Project is behind schedule in all but the afforestation component due to the numerous delays associated with the startup of the project. Nonetheless, the project is now well underway and the project staff is coping satisfactorily with the constraints of the environment.

.. The water component has a revised target of approximately 40 wells, down from an original target of 120 wells. The wells survey is nearly completed in five of the six villages. Well construction is underway in two villages and four local well diggers are being trained. All cement rings are due to be completed and delivered by December 1983. The infrastructure for this aspect of the project is now well organized. Yet, even so, the targeted number of wells cannot be completed by June 1984 due to the logistics of well construction in Singida Region.

.. The agriculture component, although the slowest to begin due to the unavailability of Tanzanian counterparts, has suddenly "taken off" and is gaining momentum dramatically. To date, 10 trainers and 68 gardeners have participated in seminars. Farmers in all six villages will have been exposed to the first graded seminar by June 1984. A Nutrition Officer has been seconded to the project adding a new dimension.

.. The afforestation component is well established in the Singida District UHAI schools, including a spread into the neighbouring villages. By June 1984, the academic syllabus will have been tested and the program instituted in Iramba District as well.

.. Training has begun in all components, with well diggers, gardener-trainers and school children already introduced to new concepts and techniques. The training dimension of the project is well designed and beginning to be implemented.

Recommendation

.. The evaluation team recommends an extension of the project completion date until minimally June 1985 and preferably December 1985. This will involve no additional funding. This extension is recommended to allow the project targets to be met, particularly in the water component, and the project components to be effectively transferred institutionally.

This recommendation is based on lengthy and substantive discussions with project staff, a thorough review of activities completed to date and the revised implementation plan, and comprehensive site visits. Terminating the project by the original June 1984 date will result in considerable under-achievement in terms of specific project goals and a diminishment of the long-term impact of project activities possible only through their successful institutionalization. An extension of eighteen months, on the other hand, will compensate for the year that was used to develop the basic support infrastructure for the project and will capitalize upon the substantial momentum that has developed in Singida around the UHAI Project.

VII. MISCELLANEOUS

UNPLANNED EFFECTS

.. Windmill construction has been entirely abandoned in the project in favour of handpump delivery following a standardized national program for Tanzania. One result has been the saving per well of approximately 120 bags of cement as storage tanks are not needed and \$1650 as the cost of one well with a handpump is \$2000 rather than \$3150 for a windmill-equipped unit.

.. Buried pot and trickle irrigation techniques have likewise been abandoned in favour of bucket irrigation from "dug-hole" wells, a traditional method for collecting water. These upgraded techniques were dismissed because pots have never been crafted locally and piping is unavailable due to Tanzania's economic situation. Furthermore, the Project Director decided to utilize a familiar method of irrigation in order to allow instant access into vegetable gardening rather than focusing on irrigation technology.

.. The afforestation component has shifted away from a major emphasis on firewood trees into fruit trees since the Department of Natural Resources handled the community woodlot program and because there is a felt need for fruit trees by individual families. Also, farmers are suspicious of eucalyptus plantations because of concerns about attracting quelea birds which devastate their crops and about excessive water consumption by the trees.

.. The afforestation program has found an entrance into the communities through the primary schools, as Standard 5 students are participating in a school nursery program. This practical participation will be reinforced in the classroom this year as the subject has just been introduced through the Regional Department of Education on a pilot basis in the six UHAI schools.

.. Due to an immediate need for staff housing, office and storage space for the UHAI Project, the Project Director arranged for a new, inexpensive (\$5000) ferro-cement structure to be especially designed and constructed by a Volunteer (MCC) contractor. Five examples have been built to date, for varied purposes, and five laborers have learned the technique. The molds are available for rent through the project and the Tanzanian technicians can be hired to do the construction. A construction manual, complete with building specifications and photographs, is currently being prepared for publication in order that others may benefit from this excellent technique.

.. A private enterprise component has been capitalized upon through the experimental introduction of a farmer-to-farmer training program in market gardening. Local gardeners are paid a stipend to offer training and demonstrations in their own gardens. It appears that the local market can support increased garden produce as there is a dearth of vegetables for sale. It is hoped that the availability of vegetables will be a stimulus for home consumption as well.

.. Government officials are being exposed to two-way communication techniques for adult education. The Regional Horticulture Officer has already been trained by the Australian Training Officer from the Australian Water Project and is effectively utilizing his training in his work with local vegetable gardeners.

.. Numerous government officials, who are often short of transport and supplies, have been pleased to participate in the project as it offers them increased opportunities to get to the field and to engage in the activities for which they have been trained.

LESSONS LEARNED

.. The major lesson learned from this project is that the lead time necessary for starting a project should not be included in the time frame of the project. No matter how excellent a project design may be, there are logistical and relational issues to be settled before any progress toward the project goals can be made. It takes time to establish communications and confidence with both government officials and villagers. It also takes time to create the infrastructure essential to the achievement of the goals set forth by the project designers. It is unrealistic to assume, as in this case, for example, that wells will begin being dug immediately upon the arrival of the PD in country.

.. A related lesson is that project designs are often idealistic and overly ambitious. In the UHAI Project, the PD spent the first 1½ years revising the original design into a feasible project with realistic goals. He also needed that time to concretize the mechanism for achieving the goals, especially in the agriculture and afforestation components, where the mechanisms were only vaguely identified.

.. Windmill technology is less appropriate for a village-level self-help approach to water delivery than for institutions with a built-in maintenance capacity as they are relatively expensive and complex to construct and maintain. More importantly, they are often not suitable for shallow wells as they tend to pump such wells dry. They should thus be reserved for institutions with a built-in maintenance capacity and in areas where deep borehole wells are feasible and desirable.

- .. Multi-purpose cement ring technology, as proposed in the original project design, is not functional. The attempt to utilize the same design for three separate purposes, i.e. shallow wells, water storage tanks and grain storage silos, proved infeasible due to the different needs of each component.
- .. Grain storage techniques have not been identified which can be promulgated as improvements. Thus, although the need for improved grain storage is great, no grain storage extension is being undertaken by the UHAI Project at this time.
- .. The responsibilities for Volunteer recruitment (Norwegian and/or American) for project staff positions were not defined in the project proposal. As a result, none was done. By the time the PD arrived on site, it was too late to begin recruitment, a process requiring a lead time of one year. A project proposal should thus give clear indication of the responsible agents for staff recruitment.
- .. Only limited housing and other building space was available for the project in Sindida. A quick site review prior to initiating the project would have identified these inadequacies.
- .. The project has been staffed almost entirely by expatriate Volunteers. While the Volunteers have made an excellent contribution to the project, they are administratively not answerable to the UHAI Project Director, which can lead to management difficulties.
- .. Pressure should have been exerted by the project designers to ensure that the target villages for the UHAI Project were located within feasible proximity to each other and to the project headquarters. Project logistics have been rendered unnecessarily complex due to the widespread location of the six villages, although it is recognized that need and isolation are often correlated.
- .. The usual complexities of such a project have been compounded by having the donor's head office in New York. It would be preferable to have a local staff person handling the project. LWR has recently stationed a representative in Nairobi but he does not have administrative responsibility for the UHAI Project. The USAID project officer in Dar es Salaam responsible for overseeing the OPG has been very helpful but her administrative role is necessarily limited.

FINAL EVALUATION

The final evaluation of the UHAI Project should be scheduled during the last three months of the project in order to allow feedback to reach the project principals before they disperse.

Progress toward goals should be measured against the goals as revised by the Steering Committee just prior to the mid-term evaluation and amended by the mid-term

evaluation.

The final evaluation team should assess impact based on the comparison of data from the continuous data collection instruments with baseline data to be collected just after the mid-term evaluation.

The final evaluation should attempt to assess whether the evolutionary nature of the project and the flexibility of both donors in this regard resulted in a viable project with long-term impact. It should make recommendations on the feasibility of the UHAI format as a replicable model for other development projects. It should comment on the anticipated "spread effect" into neighbouring communities especially as a result of adoption of technical packages by the GOT.

Finally, the evaluation should endeavour to predict the long-term impact on the socio-economic standard of living of the targeted beneficiaries of the UHAI Project activities in Singida Region.

VIII. CONCLUSION

The Village Environmental Improvement (UHAI) Project is small, experimental and genuine. It hopes to introduce changes in people's lives which will enhance their socio-economic position and allow them greater potential and dignity. Through self-reliant practices which can be incorporated into their daily lives, the beneficiaries of UHAI's development focus are expected to reap long-term benefits.

There is excitement in Singida surrounding this project as it gains momentum. Although it is small in scope, the potential impact on the residents of scattered villages in central Tanzania ought to be positive and enduring.

In Tanzania, a country which has experimented with various approaches to human progress, this endeavour, combining public and private monies in a joint effort between government, church, and individuals, offers an approach which stimulates constructive self-reliance with long-term impact.

UHAI juu!

APPENDICES

- I. Sites Visited During Evaluation
- II. Interviews Conducted During Evaluation
- III. Singida Region Village Information Sheet
- IV. Sample Baseline Data Formats
- V. Sample Continuous Data Formats
- VI. Evaluation Team Preliminary Report to UHAI Steering Committee and Reactions
- VII. Recommended Adjusted Budget
- VIII. USAID Logical Framework (Revised)
- IX. USAID Project Review and Evaluation Guidelines: Technology Transfer (Africa Bureau)
- X. USAID Project Evaluation Summary Sheet

APPENDIX I

SITES VISITED DURING EVALUATION

SINGIDA DISTRICT

IGHUKA

6 wells under construction
1 school nursery at Ighuka School
1 adjacent school nursery at Ikungi
CCM office

UNYAMBWA

1 school nursery & students
5 well sites (domestic & agricultural)

NG'ONG'O MPOKU

1 school nursery at Mpoku school
1 adjacent school nursery at Malolo
CCM office

IRAMBA DISTRICT

NTWIKE

CCM office

TYEME

CCM office

KISONGA

School

APPENDIX II

INTERVIEWS CONDUCTED DURING EVALUATION

SINGIDA REGION

RDD - Abubakar
RADO - Kiariro
RPLO - Mbuli, Fussi
RHO - Shuma
RNRO Representative - Sabbas
RED - Shirima
Manager/TWDP - Roberts
NO - Tedi
Central Synod/ELCT - Gunda (President), Churi
(Executive Secretary)
RWE - Mellya

SINGIDA DISTRICT

DNRO - Sollo, Liymo

IRAMBA DISTRICT

AC - Duwe
DED - Chale
DADO - Hassan
DHO - Luther
DNRO - Munisi
DWE - Lungwe
Planning Officer - Mageka

PROJECT STAFF

Andrew Clark - Project Director/UHAI
Charles Franzen - PCV/Grain storage
Michelle Calkins - PCV/Forestry
Dirk Doorenbos - RCAV/Water Survey
Kevin Prelgovist - PCV/Forestry
Terry Prelgovist - PCV/Grain storage

VILLAGE GOVERNMENT OFFICERS

Ighuka:

Chairman: Mhandi
Secretary CCM: Mussa

Ng'ong'ompoku:

Chairman: Mpimbi
Secretary CCM: Pascal Mijuli

VILLAGE GOVERNMENT OFFICERS (Cont.)

Unyambwa:

Secretary CCM: Shabani Munko Ngala
Headmaster: John Gunda Daka

Kisonga:

Chairman: Reuben Pyusa
Secretary CCM: Neligua Isiah
Headmaster: Balabala Duki

Tyeme:

Chairman: Jairo Nkollo
Secretary CCM: R.K. Mpeke
Headmaster: Hamisi Kazimoto

Ntwike:

Secretary CCM: Henry Kilimba
CCM Ward: Mzee Garrison

SINGIDA REGION VILLAGE INFORMATION SHEET (Cont.)

Crop Area Ownership: (in acres)

	<u>Bega Kwa Bega</u>	<u>Binafsi</u>	<u>Schools</u>	<u>Prison</u>	<u>Irrigated Gardens</u>	<u>Total</u>
Maize	_____	_____	_____	_____	_____	_____
Millet	_____	_____	_____	_____	_____	_____
Sunflower	_____	_____	_____	_____	_____	_____
Peanuts	_____	_____	_____	_____	_____	_____
Beans	_____	_____	_____	_____	_____	_____
Rice	_____	_____	_____	_____	_____	_____
Cassava	_____	_____	_____	_____	_____	_____
Potatoes	_____	_____	_____	_____	_____	_____
Others	_____	_____	_____	_____	_____	_____

Nutrition:

Food Storage:

Gardening of Vegetables:

Miscellaneous:

APPENDIX IV

SAMPLE BASELINE DATA FORMATS

1. WATER COMPONENT: Water Use

A. General Information

1. Name of Village
2. Number of People in the Village

B. Individual Questions

How do you obtain water?
Where does it come from? Is it clean? Is it enough?
How far do you walk?
Who collects water in your family?
How much do you use daily?
What kinds of containers do you use?
Do you have difficulties collecting water?
Where do you wash your clothes?

C. Village Data

How many people use each water source on the average?
For what purpose?
Do people use local containers?
Do they boil their water or allow it to settle?
Where do people wash their clothes?
What do people think about having new wells?
Do they foresee any problems with them?

D. Data Tabulation:

Water Sources	Distance	No. of Users Daily	Amount of Water Used

II. AGRICULTURE COMPONENT: Vegetable Production

A. General Information

1. Name of Village
2. Number of People in the Village

B. Individual Questions

Do you ever eat vegetables?
What type do you usually eat?
Do you have a garden at home?
What kinds of vegetables do you grow?

AGRICULTURE COMPONENT Contd.)

How many vegetables did you harvest last year?
 How much was sold?
 How did you learn about gardening?
 How do you prepare vegetables?

C. Village Data

How many families eat vegetables everyday?
 How many gardens are available in the village?
 What vegetables are preferred most by villagers?
 When were these vegetables introduced?
 How do people obtain vegetable seeds?
 Who does the gardening?
 Who sells the produce?
 What new types of vegetables would people like to plant?
 How many farmers are trained in gardening in the village?
 How many new types of vegetables have been introduced in the village?
 What kinds have been adopted fastest?
 What technical problems do farmers face?
 How do people prepare the new types of vegetables?

D. Data Tabulation

Vegetables Grown	Quantity	Amount Consumed	Amount Sold

I. AFFORESTATION COMPONENT: Tree PlantingA. General Information

1. Name of Village
2. Number of People in the Village

B. Individual Questions (for adults and/or primary school children)

Are you used to planting trees?
 Do you plant trees now?
 How many surviving trees do you have at home?
 What are the trees used for?
 How are the trees protected?
 What types of fruit trees do you plant?
 What type is most preferred?
 Do you have any concerns about planting trees (e.g. birds, water consumption)?

C. Village Data

How many nurseries are in the village?

- How many seedlings are present?
- How many have been distributed to people?
- Who received them?
- What is the survival rate?
- What kinds of problems are faced in tree planting?
- How are these problems solved?
- What kind of training is given to people to ensure proper care for tree seedlings?
- Where does firewood come from? Are there alternative fuel sources?
- What do the people build with?

D. Data Tabulation

Types of Trees Grown	Quantity	Rate of Survival	Usage

APPENDIX V

SAMPLE CONTINUOUS DATA FORMATS

WATER COMPONENT: Water Use

A. General Information

(As in baseline format)

B. Individual Questions

How did you obtain water before?
Do you have difficulties in getting water now?
What kinds of containers do you use in collecting water?
Where do you wash your clothes?

C. Village Data

How many people use the well per day on the average?
For what purpose?
Who looks after the cleanliness of the well?
Who does the repairs?
How many people are educated on the use of the well?
How often does the well get checked?
What particular parts of the well need to be
observed carefully?
What measures are taken to ensure that the well
does not get damaged?
How often are bacteriological tests performed?

D. Sanitation Questions

Do villagers use the old source for drinking water
as well as the new?
Has there been any health education associated
with well use?
Are the containers clean when they come to the well?
Is the water contaminated in any way between the
well and consumption?
Do villagers understand the concept of clean water?
Has health improved since construction of well?
(Subjective impression of villagers)

E. Data Tabulation

Source of Water in the Village	How many wells	Quantity consumed/day

II. AGRICULTURE COMPONENT: Vegetable Production

A. General Information

(As in baseline format)

B. Individual Questions

(Use baseline data questions)

C. Village Data

(Use baseline data questions)

D. Questions re UHAI Project

Have you heard of the UHAI project?
 Did you participate in the UHAI gardening seminars?
 How many?
 Were they in the village or away?
 Were they helpful? What did you learn?
 What didn't you like about them?
 Have you had any follow-up from the local Bwana Shamba
 Has your produce increased?

E. Data Tabulation

Types of Vegetables Grown	Quantity	Amount Consumed	Amount Sold

III. AFFORESTATION COMPONENT: Tree Planting

A. General Information

(As in baseline format)

B. Individual Questions

(Use baseline data questions)

C. Village Data

(Use baseline data questions)

D. Questions re UHAI Project (for villagers)

Have you ever heard of the UHAI Project?
 Do you have any trees which came from the project?
 Did you buy them or get them free?
 Do you know how to grow other seedlings?
 What kinds of trees do you prefer?
 Have you met the Bwana Miti?

E. Questions re UHAI Project (for school children)

Have you helped with the school nursery?
How many trees have you taken home?
Are they still living?
What kinds of trees do you prefer?
Can you now prepare seedlings by yourself?

F. Data Tabulation

Types of Trees grown	Quantity	Rate of Survival	Usage

APPENDIX VI

EVALUATION TEAM PRELIMINARY REPORT

TO UHAI STEERING COMMITTEE AND REACTIONS

The following letter was presented to the UHAI Steering Committee as the basis for a debriefing session held on September 7, 1983, prior to the evaluation team's departure from Singida. The meeting was attended by:

RDD: Abubakar
Central Synod: Reverend Gunda
RWE: Mellya
RADO: Kiariro
REO: Shirima

The letter is in two parts, an initial letter dated September 5, following visits to the Singida District villages, and a supplement prepared September 6 after two days in Iramba District.

UHAI Project,
Steering Committee,
P.O. Box 435,
Singida.

September 5, 1983

UHAI EVALUATION TEAM PRELIMINARY REPORT

Prior to returning to Dar es Salaam, we as the Evaluation Team of your UHAI Project would like to share with you some of our reflections. These are, of course, preliminary and our recommendations may be changed somewhat in our final report; but we wish to communicate our current thoughts with you now in order to have your reactions.

First of all, we commend you all on the efforts you have made to revise an inspired but overly ambitious original proposal into a workable project. We have been impressed with the evolutionary nature of the implementation of the project and feel that the revised proposal more realistically attempts to address the needs of Singida Region and achieve the goals as stated. Furthermore, we note the logistical dilemmas of working in six widely scattered villages in two Districts and support the evolution of the project into a phased effort, beginning in Singida District and following in Iramba District.

There are some suggestions we would like to make, however, to render the activities even more relevant during the remainder of the project. These are as follows:-

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Water ComponentFindings

The UHAI Project is based on the provision of water in six villages. The implementation strategy has shifted from windmills to handpumps for water delivery since the project's conception due to technical, logistical and financial considerations. Furthermore, the envisaged number of wells has been substantially reduced from 120 to 40. These measures conform to Tanzania's National Shallow Wells Programme with the cement ring well construction technique utilized as an appropriate and replicable village technology on a ratio of one well per 300 inhabitants. We support these revisions.

We are impressed with the accurate data kept on the well sites following the Morogoro Wells Construction Project format and commend the team's efforts to locate wells which conform to national water quality standards. Furthermore, the use of sanitary cement seals around the wells will diminish the risk of bacteriological contamination, helping to achieve the WHO goal of "clean water for all by 2000 A.D."

We also praise the institutionalization of well construction capabilities at the village level through the training of village workers and applaud the intention to train one villager to be a "well-site attendant" for each well, backstopped by a village pump mechanic who can do more major maintenance.

We note with appreciation the technical and logistical assistance given to the UHAI Project staff by the Tanzanian Water Development (Australian) Project.

Despite these changes, the efforts which have been and will continue to be necessary to support the completion of this component of the project are considerable, involving the procurement of scarce cement, the logistics of hauling cement rings, the supervision of local self-help teams, and so on. We are concerned that no Tanzanian has been included at the supervisory level in this aspect of the project to assure achievement of the goals by the end of the project. (The Reformed Church of America Volunteer who has worked so diligently supervising the well survey which involved 371 test bores to locate 37 approved sites is scheduled to complete his one-year commitment in October 1983.) The need for such an individual is imminent.

Recommendations

(1) Recruit a Tanzanian well construction supervisor immediately, perhaps through the ELCT. He can then function on a broader basis at the completion of this immediate project.

(2) Explore the possibility of leasing additional sets of well-digging equipment from the Australian or the Marogoro Project to hasten the well-digging efforts.

(3) Train the "well-site attendants" in the health aspects of well maintenance as well as the technical aspects. Include women in well use training as well as men.

(4) Train two pump mechanics per village instead of one.

(5) Confirm the possibility of leaving one set of well spares in each village for handpump maintenance to avoid repair delays.

Agriculture Component

Findings

The ultimate purpose of the UHAI Project is, as the acronym suggests, a better "life" for the beneficiaries. This is contingent upon an improved and dependable food supply. Well construction will help alleviate the constraint of the dry season shortage of water.

Specifically, the UHAI wells will help stimulate vegetable gardening. To this end, the Regional Horticulture Officer has been seconded to the project on a half-time basis. A training program has been designed using local gardens and farmers for instruction.

The Regional Horticulture Officer participated in a one-week training program in training trainers given by the training officer of the Australian Project to improve his effectiveness at working with villagers. He then organized a two-day seminar for ten of the professional gardeners at Unyankai to train them to become trainers. As they themselves are villagers, using appropriate but upgraded techniques, it is felt that they will be convincing trainers. This approach appears to be very dynamic.

To date, 25 farmers from Unyambwa village have been brought in to Unyankai and have participated in the first of three graduated seminars on vegetable gardening. The two other UHAI villages within Singida District will have the same opportunity soon. The response is enthusiastic and we encourage the continuation and expansion of this programme. It is intended as a pilot effort which will be refined in the Singida villages and expanded into Iramba under the leadership of the District Horticulture Officer. It is hoped that there will also be a spread effect to neighbouring villages in the wards through the Agricultural Field Assistants, only two of whom have been assigned and equipped with bicycles.

It is noted here with concern that there is no appropriate baseline data against which to measure the impact of this programme.

Recommendations

(1) To be able to demonstrate the impact of the agriculture component of the project, the following data needs to be collected, at a minimum:

- (a) Baseline: current vegetable crops
current vegetable outputs
utilization of vegetable produce
(home consumption or sale)
dietary patterns and nutritional content
roles of men and women in gardening
- (b) Continuous: numbers of farmers trained
types of vegetables planted
volume of vegetable produce
technical success rate of vegetables
cultural acceptance of new vegetables.

An outside consultant may be hired for the baseline data collection.

(2) Continue the vegetable gardening seminars as planned, evaluating and refining the training along the way.

(3) Continue to supply villagers with improved vegetable seeds on a cost-recovery basis to enable higher production and encourage greater dietary variety, avoiding hybrid seeds due to replication problems.

(4) To support increased agricultural production, continue to supply on a cost-recovery basis appropriate agricultural implements (e.g. ox plows, hoes, buckets), importing where local supplies are insufficient.

(5) Pricing of implements should be consistent with national pricing policies and insure total cost recovery.

(6) The funds generated through the sales of seeds and agricultural implements should continue to be accounted for through the revolving account for use on local expenses.

(7) One additional Suzuki pickup should be purchased for use in vegetable garden extension work.

(8) Ensure the appointment of the four additional Agricultural Field Assistants as soon as possible.

(9) Explore a nutritional education and vegetable preservation component through the seconded half-time services of a nutrition officer through the Regional Agriculture Office. (This has already tentatively been agreed to and needs only to be formalized.) This effort will necessarily involve women in gardening and men in nutrition issues. The nutritionist may have access to the additional vehicle.

(10) Discontinue the major effort in grain storage for the time being, despite its importance, due to the uncertainty of any proven upgraded techniques. Continue to keep abreast of research developments, however, and be

prepared to become involved in extension efforts if valid discoveries are made. Minor experimentation may be undertaken if deemed desirable.

(11) Explore a school gardens programme similar to the afforestation programme in UHAI village primary schools including both practical (gardening) and theoretical (classroom) aspects.

Afforestation Component

Findings

The afforestation component, although initially intended to follow the implantation of the water infrastructure, was actually one of the first aspects of the project to take off, due to the commendable efforts of the Peace Corps Volunteers and the excellent support from the personnel from the Department of Natural Resources.

The initial contacts in the primary schools have proven fruitful and we expect that these efforts will continue under the supervision of District Forest Officers and Forest Attendants. All UHAI villages have already been assigned Forest Attendants. We are pleased that the afforestation programme includes both the practical aspects and a theoretical dimension in the classroom as the subject has been introduced into the Standard 5 syllabus in UHAI schools on a pilot basis.

We are equally pleased to note that the "cluster spread" effect has already occurred in several instances where teachers and forest attendants in areas near UHAI villages have also been trained in afforestation techniques through the afforestation seminars and are putting their knowledge into practice.

It is noted here, however, that, although there is some understanding of the cultural significance of various trees, there is insufficient specific baseline data in this component to allow adequate evaluation at the end of the project.

Recommendations

(1) To be able to demonstrate the impact of the afforestation component of the project, the following data needs to be collected, at a minimum:

- (a) Baseline: cultural factors concerning tree usage
availability of firewood, polewood and fruit trees
utilization of fruit products (consumption or sale)
- (b) Continuous: seedlings grown
seedlings planted out (by whom, where)
survival rate

(2) Explore the possibility of self-sustaining school nurseries through the sale of seedlings, especially for popular fruit trees.

(3) Coordinate with the SIDA-supported afforestation project wherever possible.

(4) Request that the afforestation syllabus being introduced into the schools be considered an examination subject to ensure its absorption.

(5) Assist as necessary with procurement of plastic tubing on a cost-recovery basis to support the project while at the same time exploring alternative methods for seedling production.

Project Management

Findings

The UHAI Project is a complex multi-dimensional project endeavoring to stimulate integrated development. It is even more complex due to its operation in two Districts. While the philosophy of widespread and integrated development to provide opportunities to a variety of villages with a hoped "cluster spread" effect is excellent, the logistics of such an operation are enormous, particularly in a resource-short country such as Tanzania.

Despite these constraints, we are pleased to note that the project is well underway at this point. The project staff, under the leadership of the Project Director, has worked diligently in cooperation with the Steering Committee to bring the project to this stage. These considerable efforts, however, have over-extended the Project Director. He has been required to cope with financial management, procurement of often scarce commodities, overseeing and coordinating the work of individuals in three separate sectors, communicating with numerous officials, and so on.

The Project Director himself recognized that changes in the management structure were needed for an efficient operation. We feel that these changes were appropriate and commend them. They are outlined below:

The Project Director will be supported by an Operations Manager for field activities and a Project Coordinator for Iramba District. He will also have the assistance of a part-time administrative and financial assistant. He is also considering hiring a driver/mechanic. We support this staffing pattern wholeheartedly.

We note here as well that the Project Director will be leaving Singida on April 1, 1984, at the end of his contract.

Recommendations

(1) The project should complement the Project Director's organizational plan with the recruitment of a Tanzanian well construction supervisor, as earlier recommended.

(2) The project should procure an additional Suzuki pickup for the Project Coordinator in Iramba.

(3) Lutheran World Relief should identify a successor for the Project Director. (It would appear viable that the Operations Manager will be moved into this position but we as evaluators cannot make that decision.)

Other minor miscellaneous administrative suggestions will be included in the final report for circulation to the donors and the Steering Committee.

Administrative Matters

Findings

The UHAI Project implementation plan has undergone a major revision since the inception of the project. The changes have been evolutionary and, we feel, appropriate to the needs of the area. They have been documented in a written project revision which was approved by the Steering Committee in May 1983.

As a result of these changes and due to the lengthy lead time required for the project to get underway due to visa problems, insufficient building space, unavailable staff and so on, the project has not yet been able to log significant accomplishments.

Recommendations

(1) We recommend that the revised project plan be formally endorsed by the two donors, USAID and LWR.

(2) We recommend that the funding period for the project be extended to December 1985. The project took almost one year to get started. As of September 1, 1983, the revised implementation plan is, in our judgement, workable and manageable. This judgement is based on lengthy and substantive discussions with project staff, a thorough review of the revised implementation plans and activities completed to date, and comprehensive site visits. An extension of 18 months, without any increased financial support from either LWR or USAID, will compensate for the year that was used to develop the basic support infrastructure for the project and allows an additional six months to implement an ambitious, though achievable, implementation plan. Terminating the project by the original June 1984 date would result in considerable under-achievement and would not take advantage of the substantial momentum that has developed.

The UHAI Project is indeed a self-help project where the technical expertise of the project staff has been supplemented by enthusiastic cooperation in the villages. While the short-term impact of the project may not appear great in terms of increased agricultural production, improved health and environmental enhancement, the long-term potential is enormous through the implantation of replicable techniques in well construction, vegetable gardening and afforestation through the training involvements.

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We commend the flexibility of the Project Director his staff and the Steering Committee in evolving appropriate methodologies to stimulate socio-economic and environmental improvement in Singida Region and encourage the Project to continue in this manner.

It will then be the task of the relevant Government of Tanzania officers and the Central Synod to ensure that these efforts do not die at the end of the UHAI Project but continue to spread to other villages in Singida Region

We have enjoyed working with all the people involved in the UHAI Project during this mid-term evaluation and look forward to a successful completion of the project.

Maji juu!
Bustani juu!
Miti juu!
Tanzania juu!

Sincerely,



Gretchen Bloom, Evaluator
Joseph Sprunger, LWR
Sharon Fee, USAID
Rogathe Mshana, ELCT

UHAI Evaluation Team

UHAI Project,
Steering Committee,
P.O. Box 435,
Sindida.

September 6, 1983

SUPPLEMENT
TO THE
UHAI EVALUATION TEAM PRELIMINARY REPORT

The preliminary report, dated September 5, 1983, was written following site visits to all the Singida District villages, i.e. Ighuka, Unyambwa and Ng'ong'ompoku, but prior to site visits in Iramba District. We have now seen Ntwike, Tyeme and Kisonga, the UHAI designated villages in Iramba District and wish to add supplementary comments to our preliminary report.

Findings

We have stressed the complexity of project logistics already, in Singida District, due to the three-dimensional focus of the project and the widespread location of the villages. When three Iramba villages are added, in Phase II, this undertaking becomes formidable, even with a Project Coordinator situated in Kiomboi. The villages are distant and connected by frequently impassable roads. While we can appreciate the need to extend development to the remote areas, the UHAI Project may not be the vehicle for this achievement.

In addition, in two of the three villages, the water survey team has received little if any cooperation, even though the project has been clearly explained to the village leadership as a self-help project. In Tyeme, the surveyors were pulled out but have now been returned for a second effort at the request of the villagers. In Ntwike, the surveyors have just been pulled out and will be returned only if there is a clear willingness on the part of the villagers to assist. In Kisonga, on the other hand, cooperation was immediate and four well sites were quickly approved. The only excuse offered for non-cooperation in the two villages mentioned was their need to prepare for the visit of an official.

Recommendations

(1) The Australian Water Project is currently working in the area of Ntwike village. As Ntwike was originally included in their project, we feel it should in fact be done by them, if it is determined that water is a felt need in the village.

(2) The UHAI Project should continue to explore interest in the vegetable gardening and afforestation components in Ntwike, as these aspects do not involve a major transportation component. If, after six months, there is little progress, Ntwike should be dropped as an UHAI village.

(3) A Peace Corps Volunteer is scheduled to be assigned to Kisonga in November. It is hoped that he or she will provide the logistical support for Tyeme and Kisonga.

Finding

Communication by the project staff with the villages has not been adequate, largely due to the village leadership. The project staff has visited each Iramba village at least three times to communicate the goals of the project; yet, when queried, there seem to be misunderstandings amongst the villagers. Apparently, the leaders did not share this information with the villagers, since they did not help the survey team.

Recommendation

In addition to communicating with the village leadership, the project staff should communicate directly with the villagers. Prior to undertaking any aspects of the project, a community meeting should be called.

Finding

Agricultural implements are desperately needed and highly desired in these remote villages, especially ox plows. Indeed, villagers expressed more interest in purchasing these implements than in any other aspect of the project.

Recommendation

The project should continue to supply them on a cost-recovery basis until a saturation point is reached, encouraging cooperative ownership and use where appropriate.

Finding

The water component needs a built-in evaluation system for well use and maintenance, in both Singida and Iramba Districts.

Recommendation

Data should be collected on well use and maintenance, including the number of users, the adequacy of maintenance and improved sanitation. The seconded nutritionist may be utilized to collect this data on a random sample basis. If she identifies problems of improper use and maintenance, she can call these to the attention of the well construction supervisor. If she feels that water sanitation can be improved, she may attempt some health education with villagers.

We were impressed by the needs of the villages selected in Iramba District for UHAI involvement and commend once again the project staff for their courage. The District officials in Iramba District, like in Singida District and the Region, appear eager to have the UHAI Project and to mobilize the villagers in support of it. This is welcome and we praise it. We are, however, even more convinced than before of the need for a diversified management structure for the project and a driver!

Sincerely,

Gretchen Bloom

Gretchen Bloom, Evaluator
Joseph Sprunger, LWR
Sharon Fee, USAID
Rogathe Mshana, ELCT

UHAI Evaluation Team

STEERING COMMITTEE REACTIONS TO THE PRELIMINARY REPORT

The Steering Committee reacted as follows to the finding and recommendations:

General

.. The team was reminded of the history of the project. It was originally conceived to extend to 40 villages, beginning in Singida and Iramba Districts and then extending to Manyoni District, thus promoting development in all three districts of Singida Region.

Water Component

.. The use of sanitary cement seals is fully endorsed by the Steering Committee. However, all present acknowledged that further investigation needs to be done at the village level to ensure that the wells are not misused and thus polluted despite the sanitary seals. For example, clothes washing habits and the efficacy of separate washing slabs need to be explored. The Health Department will be asked to participate in these investigations.

.. Pump mechanics will be stationed at the ward, not the village level. Two will be trained per ward, instead of one.

.. The RWE agreed to second a Tanzanian well construction supervisor, to work under the authority of the Project Director.

.. Additional sets of well-digging equipment cannot be leased from the Australians as they are overextended already. The RDD and the RWE would prefer to have more sets purchased by UHAI to be left with them at the end of the project.

.. Health educators will be asked to participate in the well use training.

.. The Water Department plans to improve its maintenance system and will request monthly reports for each well from the well attendants but it wants villagers to pay for their own spares. The UHAI spares will be left in the villages.

Agriculture Component

.. The RADD reminded the team that the training program is currently conducted at the RADD garden at Uhyankai as well as the contiguous local gardens.

.. The Iramba DHO has also requested training.

.. There is agreement on the lack of basic data for impact measurement. Data will be collected. The UHAI team is encouraged to set the example by hiring an outside consultant.

.. Women should also be trained, either in separate seminars or in their villages. The emphasis should be on kitchen gardening for home consumption rather than market gardening.

.. The "Bwana Shambas" will be trained separately by the RHO in the future as the local trainers feel uncomfortable working with them.

.. There is an agreed desperate need for seeds. The RADO has insufficient funds to make them available, even on a cost-recovery basis. Many varieties are not procurable in Tanzania in any event.

.. The Steering Committee recommended importing even available implements from Kenya, such as ox plows, since there is a shortage in Tanzania. The Kenyan plows are also cheaper, at 485/- instead of 2150/-. The possibility of manufacturing spares locally according to Kenyan plow specifications needs to be investigated.

.. The RDD warned that the additional requested vehicle may be necessary for crop marketing until the Tanzanian transport marketing system improves.

.. According to the RADO, only two additional agricultural field assistants can be spared for UHAI villages. They will be assigned to Unyambwa and Ntwike. He expects the anticipated grain storage PCV who will live in Kisonga to be the extension agent for Kisonga and Tyeme.

.. A seminar on nutritional education is already in the planning stage with five regional officials. It will be offered first at the district level, then the ward level, and finally in the villages.

.. The Steering Committee reacted strongly to the recommendation to discontinue the grain storage component, as there is such need in the region for improved measures. Hence, the project will continue experimentation and be prepared to fund extension work if necessary.

.. A school gardens program is already underway with the USAID School Health Project. The UHAI villages will be included in this approach.

Afforestation Component

.. Baseline data can be collected by a consultant; continuous data can be gathered by the schools and the "Bwana Mitis".

.. School funds exist for many purposes. Self-supporting school nurseries could easily become other projects.

.. The afforestation syllabus will be an examination subject but only at the pilot schools where it is being introduced.

Miscellaneous

.. District officials should accompany project staff on their visits to villages to facilitate communication and "mobilize" people.

.. The Water Department agrees to return Ntwike to the Australians if UHAI wants it. The Church agrees to drop Ntwike as a UHAI village if there is no cooperation.

The Steering Committee dedicated an entire morning to a review of these preliminary recommendations. There is obviously great interest in the project and an active involvement in its administration.

The Evaluation Team
September 1983

APPENDIX VII

ORIGINAL BUDGET
EXPENDED TO DATE
RECOMMENDED ADJUSTED BUDGET

	Water	Grain Storage	Afforestation	Agriculture	Training	Staff	Support	Vehicles	Evaluation	Infl'n & Misc	Sales & Reimb.	Total
<u>Original Budget</u>												
Private OPG	100,500	-	-	-	-	159,500	112,700	52,000	3,000	33,800	-	461,500
	<u>230,700</u>	<u>120,000</u>	<u>8,100</u>	<u>5,700</u>	<u>58,000</u>	<u>-</u>	<u>-</u>	<u>25,000</u>	<u>7,000</u>	<u>44,500</u>	<u>-</u>	<u>499,000</u>
Sub-total	331,200	120,000	8,100	5,700	58,000	159,500	112,700	77,000	10,000	78,300	-	960,500
Local Total	36,000	-	84,972	24,000	-	-	-	-	-	15,098	-	166,070
	<u>367,200</u>	<u>126,000</u>	<u>93,072</u>	<u>29,700</u>	<u>58,000</u>	<u>159,500</u>	<u>112,700</u>	<u>77,000</u>	<u>10,000</u>	<u>93,398</u>	<u>-</u>	<u>1,126,570</u>
<u>Expended to Date</u>												
Private OPG	212	-	-	19,045	-	70,087	66,599	54,979	-	854	-	211,776
	<u>76,301</u>	<u>1,042</u>	<u>11,249</u>	<u>3,231</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>17,277</u>	<u>-</u>	<u>-</u>	<u>-</u>	<u>109,100</u>
Sub-total	76,513	1,042	11,249	22,276	-	70,087	66,599	72,256	-	854	-	320,876
Local Total	5,400	-	6,139	-	-	-	-	-	-	-	-	11,539
	<u>81,913</u>	<u>1,042</u>	<u>17,388</u>	<u>22,276</u>	<u>-</u>	<u>70,087</u>	<u>66,599</u>	<u>72,256</u>	<u>-</u>	<u>854</u>	<u>-</u>	<u>332,415</u>
<u>Recommended Adjusted Budget</u>												
Private OPG	-	-	15,000	25,000	-	175,000	122,000	76,000	9,000	38,000	(40,000)	420,000
	<u>177,000</u>	<u>10,000</u>	<u>18,100</u>	<u>40,000</u>	<u>50,000</u>	<u>73,000</u>	<u>-</u>	<u>36,000</u>	<u>9,000</u>	<u>40,000</u>	<u>(30,000)</u>	<u>423,100</u>
Sub-total	177,000	10,000	33,100	65,000	50,000	248,000	122,000	112,000	18,000	78,000	(70,000)	843,100
Local Total	42,000	-	85,000	24,000	-	-	-	-	-	-	-	151,000
	<u>219,000</u>	<u>10,000</u>	<u>118,100</u>	<u>89,000</u>	<u>50,000</u>	<u>248,000</u>	<u>122,000</u>	<u>112,000</u>	<u>18,000</u>	<u>78,000</u>	<u>(70,000)</u>	<u>994,100</u>

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APPENDIX VIII

USAID LOGICAL FRAMEWORK

(Revised)

Village Environmental Improvement (UHAI) Project # 621-0160

GENERAL

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Assumptions</u>
<u>Sector Goal</u>	<u>Measures of Goal Achievement</u>	<u>Indicators/Goal</u>	<u>Goal Targets</u>
Raise the socio-economic standard of living and improve the environment in six villages of Singida Region in Central Tanzania	Improved water supply Improved diet Improved environment	Regular monitoring of well and well use Nutrition survey Visual tree count	Outputs will raise standard of living and enhance environment
<u>Purpose</u>	<u>Conditions</u>	<u>Indicators/Purpose</u>	<u>Purpose Targets</u>
Provide the villages with dependable water supply Improve nutritional levels	Number of wells completed Consumption from vegetable gardens	UHAI records Continuous data collection Evaluation re baseline data	Villagers will participate in well construction Villagers will grow better gardens if trained and consume produce Improved techniques can be discovered Contacts with outsiders will reduce isolation Trees will be cared for
Diminish grain loss Reduce isolation Reduce deforestation	Reduction of % loss Contacts with outside Number of trees planted		
<u>Outputs</u>	<u>Magnitude of Outputs</u>	<u>Indicators/Outputs</u>	<u>Outputs</u>
Construction of wells Improvement of vegetable gardens Plantation of trees	Wells with pumps (1 per 300) 200 gardens upgraded 90,000 trees planted	UHAI records GOT data Evaluation	36-48 wells reasonable target in 3 years with logistics, equipment, raw materials, labour
<u>Inputs</u>	<u>Implementation Target</u>	<u>Indicators/Inputs</u>	<u>Inputs</u>
Project staff Vehicles Equipment Raw materials Infrastructure	1 Project Director, 3 others, 80 GOT & church officials 1 lorry, 1 Land Cruiser, 4 Suzukis Miscellaneous Cement, seeds, tubing, implements Housing	UHAI records UHAI financial statements	Staff available Vehicles can be maintained Raw materials available

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APPENDIX VIII

USAID LOGICAL FRAMEWORK
(Revised)

Village Environmental Improvement (UHAI) Project # 621-0160

WATER COMPONENT

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Assumptions</u>
<u>Sector Goal</u>	<u>Measures of Goal Achievement</u>	<u>Indicators/Goal</u>	<u>Goal Targets</u>
To improve the standard of living of residents in six villages in Singida Region	Improved health Improved diet, hence less malnutrition	Survey Subjective perceptions of villagers Survey of vegetable use	Providing water leads to better health Villagers will use wells properly Villagers will eat vegetables, not only sell them
<u>Purpose</u>	<u>Conditions</u>	<u>Indicators/Purpose</u>	<u>Purpose Targets</u>
To provide improved and dependable water supply for domestic and agricultural use in six villages	Installation of shallow wells in ratio of one well per 300 inhabitants with village participation	UHAI records Visual observation during evaluation	Technique of well construction appropriate Raw materials available Water supply available Villagers desire changes Villagers will participate in well construction Infrastructure can be provided
<u>Outputs</u>	<u>Magnitude of Outputs</u>	<u>Indicators/Outputs</u>	<u>Outputs</u>
Better water supply, in quantity and quality Trained capability	36-48 wells 2 well diggers per village	Records UHAI Visual observation	Well survey accurate Improved water supply a felt need Village participation forthcoming
<u>Inputs</u>	<u>Implementation Target</u>	<u>Indicators/Inputs</u>	<u>Inputs</u>
Staff Vehicles Well construction equipment Raw materials Village self-help labour	1 well construction supervisor (seconded) Lorry, pickup 3-5 sets of well-digging equipment, 1 set ring molds Cement Adequate to complete targets	UHAI records Financial records	Raw materials Logistics possible

APPENDIX VIII

USAID LOGICAL FRAMEWORK

(Revised)

Village Environmental Improvement (UHAI) Project # 621-0160

AGRICULTURE COMPONENT

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Assumptions</u>
<u>Sector Goal</u>	<u>Measures of Goal Achievement</u>	<u>Indicators/Goal</u>	<u>Goal Targets</u>
To raise the standard of living of residents in six villages in Singida Region	Improved diet (short-term) Improved health (long-term) Number of villagers involved in improved gardening	Sample survey against baseline data Villagers subjective perceptions Ward records Observations Extension agents' perceptions Discussions with village leaders	Increasing food supply will improve the diet Improving the diet leads to improved health Extension techniques can be institutionalized to allow "spread effect"
<u>Purpose</u>	<u>Conditions</u>	<u>Indicators/Purpose</u>	<u>Purpose Target</u>
To increase the available food supply and reduce hunger	Increased grain produce	Sample survey Continuous data collection	People will eat more if food is available
To improve nutrition through upgrading of vegetable gardening and introduction of new vegetable varieties	Number of vegetable gardens Number of gardeners trained Increase in production Increase in consumption Sale of new seed varieties		
To reduce grain loss in granaries	Availability of improved preservation techniques		Training leads to doing
<u>Outputs</u>	<u>Magnitude of outputs</u>	<u>Indicators/Outputs</u>	<u>Outputs Targets</u>
Increased production of vegetables	Quantity of produce per garden	UHAI records	Baseline data exists
Increased consumption of vegetables	Quantity of consumption	Perception of farmers	Gardeners will produce more if trained
New varieties introduced	Sale of new varieties of seeds	Measurement on sample basis against baseline data	Villagers will try new foods
Reduced grain storage loss	Quantity of grain lost (%)		Improved grain storage techniques exist or can be discovered
<u>Inputs</u>	<u>Implementation Target</u>	<u>Indicators/Inputs</u>	<u>Inputs</u>
Agricultural training	Number of gardeners trained	UHAI records	Villagers will be interested in training
Nutrition seminars	Number of participants in seminars	Followup survey of activities compared to baseline data	Villagers will understand seminars Villagers will practice what they learn
Seeds	Saturation in terms of felt needs		Seeds and implements are available
Agricultural implements	Saturation in terms of felt needs		Trainers can be identified

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APPENDIX VIII

USAID LOGICAL FRAMEWORK

(Revised)

Village Environmental Improvement (UHAI) Project # 621-0160

AFFORESTATION COMPONENT

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Assumptions</u>
<u>Sector Goal</u>	<u>Measures of Goal Achievement</u>	<u>Indicators/Goal</u>	<u>Goal Targets</u>
To improve the environment in six villages in Sinqida Region	Number of new trees planted in villages	Visual	Villagers perceive environment to be degraded
To improve the environment in nearby villages through a "spread effect"	Number of new trees planted in nearby villages	Reports of teachers and extension agents	Villagers have positive reactions to trees
<u>Purpose</u>	<u>Conditions</u>	<u>Indicators/Purpose</u>	<u>Purpose Targets</u>
To plant trees in villages	Number of seedlings grown	UHAI records	School children can learn afforestation techniques
To reduce deforestation and erosion	Number of trees planted out	Mali Asili records	Water available to grow seedlings
To reduce time for fuelwood collection	Number of surviving trees	School records	Trees planted out will be cared for
To improve nutrition through fruit consumption	Distance to fuelwood supply	Continuous data collection	
To teach school children afforestation theory and techniques	Number of fruit trees	Observations	
To encourage other schools to plant trees	Amount of fruit consumed	Village/school perceptions	
	Examination results on afforestation questions	Extension agents' perception	
	Existence of school nurseries in nearby schools		
<u>Outputs</u>	<u>Magnitude of Outputs</u>	<u>Indicators/Outputs</u>	<u>Outputs</u>
Seedlings	Number of seedlings	Counting	Water available
Trees	Number of trees		Seeds available
Extension agents trained	Number of agents trained	School records	Extension agents motivated
Students educated	Number of students educated		
Nurseries started in nearby villages	Number of nurseries started		
<u>Inputs</u>	<u>Implementation Targets</u>	<u>Indicators/Inputs</u>	<u>Inputs</u>
Extension agents	1 per village	UHAI records	Extension agents will use bikes for afforestation work
Technical advisors	2 PCV's (terminating 1983)	Mali Asili records	
Seeds	Locally available		Seeds and polythene tubing available
Polythene tubing	5000 sq. total imported for UHAI & other use		
Vehicles	1 bicycle per extension agent		
	1 motorcycle and/or pickup per technician		

APPENDIX VIII

USAID LOGICAL FRAMEWORK

Village Environmental Improvement (UHAI) Project # 621-0160

TRAINING COMPONENT

<u>Narrative Summary</u>	<u>Objectively Verifiable Indicators</u>	<u>Means of Verification</u>	<u>Assumptions</u>
<u>Sector Goal</u>	<u>Measures of Goal Achievement</u>	<u>Indicators/Goal</u>	<u>Goal Targets</u>
To institutionalize project techniques to allow continuation of activities after completion of project To promote self-reliance	Long-term impact Continuation of activities beyond project completion	Follow up by ELCT in future	Training ensures institutionalization GOT, church and local villagers have adequate budgets to support continuation
<u>Purpose</u>	<u>Conditions</u>	<u>Indicators/Purpose</u>	<u>Purpose Targets</u>
To train village well construction crews To teach proper well use To train commercial gardeners as trainers To teach improved nutrition To teach school children afforestation procedures	Wells can be dug without outside help Well attendants can supervise Gardeners can train villagers without outside help Villagers can improve diet Children can prepare own tree seedlings	Followup in final evaluation Followup by local participants at future date	Villagers available and willing to be trained Training will lead to improved techniques
<u>Outputs</u>	<u>Magnitude of Outputs</u>	<u>Indicator /Outputs</u>	<u>Outputs</u>
Well digging Well maintenance Trainers Gardeners	2 well diggers per village 2 pump mechanics per ward 1 well attendant per well 1 well use seminar per well 10 commercial gardeners trained 480 villagers trained in gardening techniques	Counting UHAI & GOT records	Numbers available Training will proceed on schedule
<u>Inputs</u>	<u>Implementation Target</u>	<u>Indicator /Inputs</u>	<u>Inputs</u>
Staff Vehicles for followup Implements	GOT technical staff 2 Singida pickups As necessary	UHAI records	Technical staff available LWR/USAID will provide 2 additional Suzukis Implements for teaching available

APPENDIX IX

USAID PROJECT REVIEW AND EVALUATION GUIDELINES

TECHNOLOGY TRANSFER

(AFRICA BUREAU)

(The following questions are required to be answered where applicable in all evaluations of USAID projects in Africa.)

Village Environmental Improvement (UHAI) Project
621-0160
OPG to LWR

- I. What constraint does this project attempt to overcome?

The UHAI (Utilization of Hydrotechnology for Agricultural Intensification) Project attempts to overcome an insufficient food supply due to an unreliable water supply, the unavailability of seeds, a shortage of agricultural implements and inadequate grain storage methods. It also endeavors to improve upon an environment lacking in readily available forest products.

- II. What technology does the project promote to relieve this constraint?

The UHAI Project begins by improving local water supply through the construction of cement ring shallow wells with hand pumps using local self-help labour. It then instructs villagers in improved irrigated gardening techniques through on-site training with other local gardeners using improved seeds. Improved grain storage is encouraged using local insect repellents in traditional containers. Primary school children are the vehicles for afforestation through school nurseries.

- III. What technology does the project attempt to replace?

The UHAI Project attempts to replace polluted and unreliable water sites, limited crop variety, poor tilling techniques, grain storage with inadequate insect control, a diet limited in fruit and vegetables, and a degraded environment due to slash-and-burn agriculture and overgrazing by livestock.

- IV. Why do project planners believe that intended beneficiaries will adopt the proposed technology?

Because Singida Region is a semi-arid area, there is a felt need for water. Because the area is food deficient, there is a felt need for an improved and more regular food supply. Due to Tanzania's economic situation, there is a pent-up demand for consumer/producer goods, such as agricultural implements.

The technology transfer is being presented in a very appropriate manner using traditional implements but upgraded techniques. Adult education communication methods have been adopted by the trainers.

- V. What characteristics do intended beneficiaries exhibit that have relevance to their adopting the proposed technology?

The well construction is being done on a self-help basis with villagers who are accustomed to contributing 3 days/week for communal activities. Most of the farmers doing the gardening training are already gardeners. Many of the school children have planted trees.

- VI. What adoption rate has this project achieved in transferring the proposed technology?

In well construction, four well diggers have been trained in each of the two villages. No attempt has yet been made in the other four. In four of the villages self-help labour was immediately forthcoming while in two villages cooperation has been minimal.

The vegetable gardening seminars, although only a month old, have been filled to capacity (40) with immediate request for more. It is too early to measure increased vegetable production.

Tree nurseries were started in 3 schools in 1982 but little follow-up occurred after the seedlings were planted out, resulting in varied survival rates. In 1983, two of the original 3 schools have increased their number of seedlings while one school has failed entirely to prepare a nursery. However, 5 neighbouring schools have also started nurseries, one of which is the largest of all.

- VII. Will the project set in motion forces that will induce further exploration of the constraint and improvements to the technological package proposed to overcome it?

The water site improvement component follows the example set by the Dutch and Australian water projects, using national specifications. The UHAI Project involves more self-help participation, though, and is encouraging more use and maintenance follow-up.

In the agriculture and afforestation components, the goal is to design packages which are immediately adoptable by the relevant government departments due to their low cost and the use of appropriate technology. Already the gardening seminars are being conducted entirely by the Regional Horticulture Officer with the only external inputs being transportation to the site, implements, seeds and lunch costs. Agricultural extension agents from the regular government service have already been trained, transferred to the project villages and equipped with bicycles to allow for a "spreau effect".

A nutrition component is now being explored at the instigation of the project staff with a seminar being planned including female officials from five departments to be held at district, ward and village levels, using appropriate communication techniques.

The afforestation approach has been adopted on a pilot basis for inclusion in the demonstration syllabus in the schools involved. A seminar has been conducted including both school teachers and resident forestry extension agents.

VIII. Do private input suppliers have an incentive to examine the constraint addressed by the project and come up with solutions?

Due to Tanzania's socialist economy, there are no private input suppliers. The only incentives offered are bonuses to wage labourers for above average production and the potential for individual marketing of surplus vegetable crops.

IX. What delivery system does the project employ to transfer the new technology to intended beneficiaries?

Well construction is supervised by the project staff (expatriate) with local craftsmen working with and training village labour. A Tanzanian supervisor is scheduled to be seconded by the Water Department soon.

Vegetable gardening seminars are conducted by the Regional Horticulture Officer using 10 professional village gardeners as trainers. Follow-up will be done by resident extension agents.

Afforestation is being taught to school children by trained teachers and resident forest attendants, encompassing both the theoretical and practical aspects.

X. What training techniques does the project contemplate using to transfer the technology?

Well construction specialists have been hired from a major nearby well construction project to train villagers according to a standardized national approach.

Adult education techniques in two-way communication are being used by Tanzanian gardeners in teaching their peers under the direction of a Tanzanian official trained by an Australian.

The Tanzanian nutritionist will receive training in nutrition education at one or two successful projects elsewhere in Tanzania.

Peace Corps Volunteers have worked closely with the forestry extension agents and school teachers on upgraded afforestation techniques.

APPENDIX X

UHAI PROJECT

PROJECT EVALUATION SUMMARY (PES) - FACESHEET

1. PROJECT TITLE VILLAGE ENVIRONMENTAL IMPROVEMENT (UHAI)	2. PROJECT NUMBER 621-0160	3. MISSION/AID/W OFFICE DAR ES SALAAM			
4. EVALUATION NUMBER _____ <input checked="" type="checkbox"/> REGULAR MID-TERM EVALUATION					
5. KEY PROJECT IMPLEMENTATION DATES <table style="width:100%; border: none;"> <tr> <td style="width:33%;">A. First PRO-AG or Equivalent FY <u>80-81</u></td> <td style="width:33%;">B. Final Obligation Expected FY <u>84-85</u></td> <td style="width:33%;">C. Final Input Delivery FY <u>84-85</u></td> </tr> </table>	A. First PRO-AG or Equivalent FY <u>80-81</u>	B. Final Obligation Expected FY <u>84-85</u>	C. Final Input Delivery FY <u>84-85</u>	6. ESTIMATED PROJECT A. Total \$ _____ B. U.S. \$ _____	7. PERIOD COVERED From (month/yr.) <u>April 1981</u> To (month/yr.) <u>September 1983</u> Date of Evaluation Review <u>September 12, 1983</u>
A. First PRO-AG or Equivalent FY <u>80-81</u>	B. Final Obligation Expected FY <u>84-85</u>	C. Final Input Delivery FY <u>84-85</u>			

B. ACTION DECISIONS APPROVED BY MISSION OR AID/W OFFICE DIRECTOR

A. List decisions and/or unresolved issues: cite those items needing further study. (NOTE: Mission decisions which anticipate AID/w or regional office action should specify type of document, e.g., airgram, SPAR, PID, which will present detailed request)	B. NAME OF OFFICER RESPONSIBLE FOR ACTION	C. DATE ACTION TO BE COMPLETED
(1) EXTEND END OF PROJECT FROM JUNE 84 TO DECEMBER 85	USAID (DAR)	OCTOBER 1983
(2) APPROVE 1983 PROJECT REVISION	USAID /LWR	OCTOBER 1983
(3) SECOND TANZANIAN WELL CONSTRUCTION SUPERVISOR	REGIONAL WATER DEPT.(SINGIDA)	OCTOBER 1983
(4) PROCURE TWO SUZUKI PICKUPS	USAID (DAR)	DECEMBER 1983
(5) DE-OBLIGATE EXCESS FUNDS	USAID/LWR	OCTOBER 1983
(6) COMPLETE BASELINE DATA COLLECTION	UHAI CONSULTANT	DECEMBER 1983
(7) PURCHASE 3 ADDITIONAL SETS OF WELL-DIGGING EQUIPMENT	UHAI P.D.	OCTOBER 1983
(8) CONFIRM APPOINTMENT SUCCESSOR TO P.D.	LWR (NEW YORK)	MARCH 31, 1984
(9) APPOINT 4 ADDITIONAL AG EXTENSION OFFICERS	RADD (Singida)	OCTOBER 1983
(10) INVESTIGATE IN-COUNTRY TRAINING POSSIBILITIES FOR STAFF	USAID (DAR) + P.D.	OCTOBER 1983
(11) DETERMINE CONTINUOUS DATA COLLECTION PROCEDURES	P.D. + GOT	DECEMBER 1983
(12) HOLD VILLAGE MEETINGS IN ALL SIX VILLAGES	P.D. + GOT	DECEMBER 1983
(13) PURCHASE ALL COMMODITY SUPPORT (AG IMPLEMENTS, CEMENT, TUBING)	P.D.	JUNE 1984
(14) LOCATE PROCUREMENT AND CLEARING AGENTS	P.D. + LWR (NAIROBI)	OCTOBER 1983
(15) HIRE DRIVER	P.D.	OCTOBER 1983
(16) OPEN CASH BOOK	P.D.	OCTOBER 1983
(17) INCLUDE WOMEN IN ALL COMPONENTS	STAFF + GOT	DECEMBER 1983
(18) PREPARE PHASEOVER PLANS	GOVERNMENT + SYNOD + UHAI STAFF	DECEMBER 1984

9. INVENTORY OF DOCUMENTS TO BE REVISED PER ABOVE DECISIONS <table style="width:100%; border: none;"> <tr> <td><input type="checkbox"/> Project Paper</td> <td><input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network</td> <td><input type="checkbox"/> Other (Specify) _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> Financial Plan</td> <td><input type="checkbox"/> PID/T</td> <td></td> </tr> <tr> <td><input checked="" type="checkbox"/> Logical Framework</td> <td><input type="checkbox"/> PID/C</td> <td><input type="checkbox"/> Other (Specify) _____</td> </tr> <tr> <td><input checked="" type="checkbox"/> Project Agreement</td> <td><input type="checkbox"/> PID/P</td> <td></td> </tr> </table>	<input type="checkbox"/> Project Paper	<input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____	<input checked="" type="checkbox"/> Financial Plan	<input type="checkbox"/> PID/T		<input checked="" type="checkbox"/> Logical Framework	<input type="checkbox"/> PID/C	<input type="checkbox"/> Other (Specify) _____	<input checked="" type="checkbox"/> Project Agreement	<input type="checkbox"/> PID/P		10. ALTERNATIVE DECISIONS ON FUTURE OF PROJECT A. <input type="checkbox"/> Continue Project Without Change B. <input checked="" type="checkbox"/> Change Project Design and/or <input checked="" type="checkbox"/> Change Implementation Plan C. <input type="checkbox"/> Discontinue Project
<input type="checkbox"/> Project Paper	<input checked="" type="checkbox"/> Implementation Plan e.g., CPI Network	<input type="checkbox"/> Other (Specify) _____											
<input checked="" type="checkbox"/> Financial Plan	<input type="checkbox"/> PID/T												
<input checked="" type="checkbox"/> Logical Framework	<input type="checkbox"/> PID/C	<input type="checkbox"/> Other (Specify) _____											
<input checked="" type="checkbox"/> Project Agreement	<input type="checkbox"/> PID/P												

11. PROJECT OFFICER AND HOST COUNTRY OR OTHER RANKING PARTICIPANTS AS APPROPRIATE (Names and Titles) SHARON FEE, USAID JOSEPH SPRUNGER, LWR ANDREW CLARK, P.D.	12. Mission/AID/w Office Director Approval Signature _____ Typed Name _____ Date _____
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