

SECOND AMENDMENT TO PROJECT AUTHORIZATION

99233

Name of Country: Republic of Zaire

Name of Project: Central Shaba Agricultural Development

Project Number: 660-0105

1. Background

Pursuant to the Foreign Assistance Act of 1961, as amended, the Central Shaba Agricultural Development Project was originally authorized on August 29, 1986, with a Life-of-Project ("LOP") of \$33,907,000 in grant funds over a seven year period. The authorization was amended on May 12, 1987 to adjust the source of funding among appropriation accounts without changing the overall LOP funding or timing.

2. Authorization of Additional Funds

Pursuant to the Foreign Assistance Act of 1961, as amended, and the Foreign Operations, Export Financing and Related Programs Appropriations Act, 1990, I hereby authorize an additional Four Million, Nine Hundred and Seventy-four Thousand (\$4,974,000) United States dollars in grant funds for said Project, for a new authorized LOP of not to exceed Thirty Eight Million, Eight Hundred and Eighty-one Thousand (\$38,881,000) United States dollars, which sum shall be available to finance both foreign exchange and local currency costs for the project. The planned life of the project will be seven years and one month from the date of initial obligation.

3. Amendmend Project Description

The purpose of the Project is revised to read as follows:

"to increase the production of corn, and other food crops in Shaba, relying to the extent practicable on private sector interests mobilized to induce and support small cultivator productivity."

Paragraph 2 of the original Authorization is deleted in its entirety and replaced with the following:

"The Project will improve food security and contribute to broad based market oriented economic growth through increased production by farmers in central Shaba. This will be accomplished by providing improved seed varieties to central Shaba farmers and training them in improved farming practices through an extension service developed under the project; in conjunction with improved rural road connections to railheads and market centers, and temporary

storage at railheads for agricultural produce in transit to market centers. The project seeks to help re-establish the pre-conditions for sustainable development in Shaba by restoring the basic infrastructure of the agricultural sector, and to move the region towards food self-reliance by increasing the production, processing, and marketing of basic food crops. To this end the project will finance the rehabilitation and maintenance of selected earth roads, distribution of improved seeds, extension services to train farmers in improved agricultural techniques, and construction of covered loading docks at key railheads for temporary storage of agricultural produce in transit to market centers. The project will also finance evaluations, impact assessments, studies and monitoring activities concerning the agriculture and transport sectors, as well as the project impact on the environment in the central Shaba project area." X

4. Source and Origin of Commodities/Nationality of Suppliers of Services

With respect to the additional funds authorized under Paragraph 2 above, except as A.I.D. may otherwise agree in writing;

(a) Goods and services required for the Project, shall have, in the case of goods their source and origin, and in the case of services their nationality, in countries included in Code 935 of the A.I.D. Geographic Code Book in effect at the time orders are placed or contracts are entered into for such goods or services ("Foreign Exchange Costs"), except as provided in the Project Grant Standard Provisions Annex, Section C.1.(b.) with respect to marine insurance and except as specified in subsections (b) and (c) below. All reasonable efforts will be used to maximize U.S. procurement whenever practicable.

(b) Air travel and transportation to and from the U.S. shall be only upon certified U.S. flag carriers.

(c) Ocean shipping costs financed under the Grant shall be only on vessels under flag registry of the countries included in A.I.D. Geographic Code 935 and Zaire, subject to the 50/50 shipping requirements under the U.S. Cargo Preference Act and the regulations promulgated thereunder.

5. Additional Conditions Precedent

The Project Grant Agreement shall be amended to include the following additional conditions precedent pertaining to disbursements for road rehabilitation.

"Except as A.I.D. may otherwise agree in writing, prior to disbursement of funds obligated by this Sixth Amendment or

AFRICA, ZAIRE AND PROJECT 105 LOCATION

Figure 1

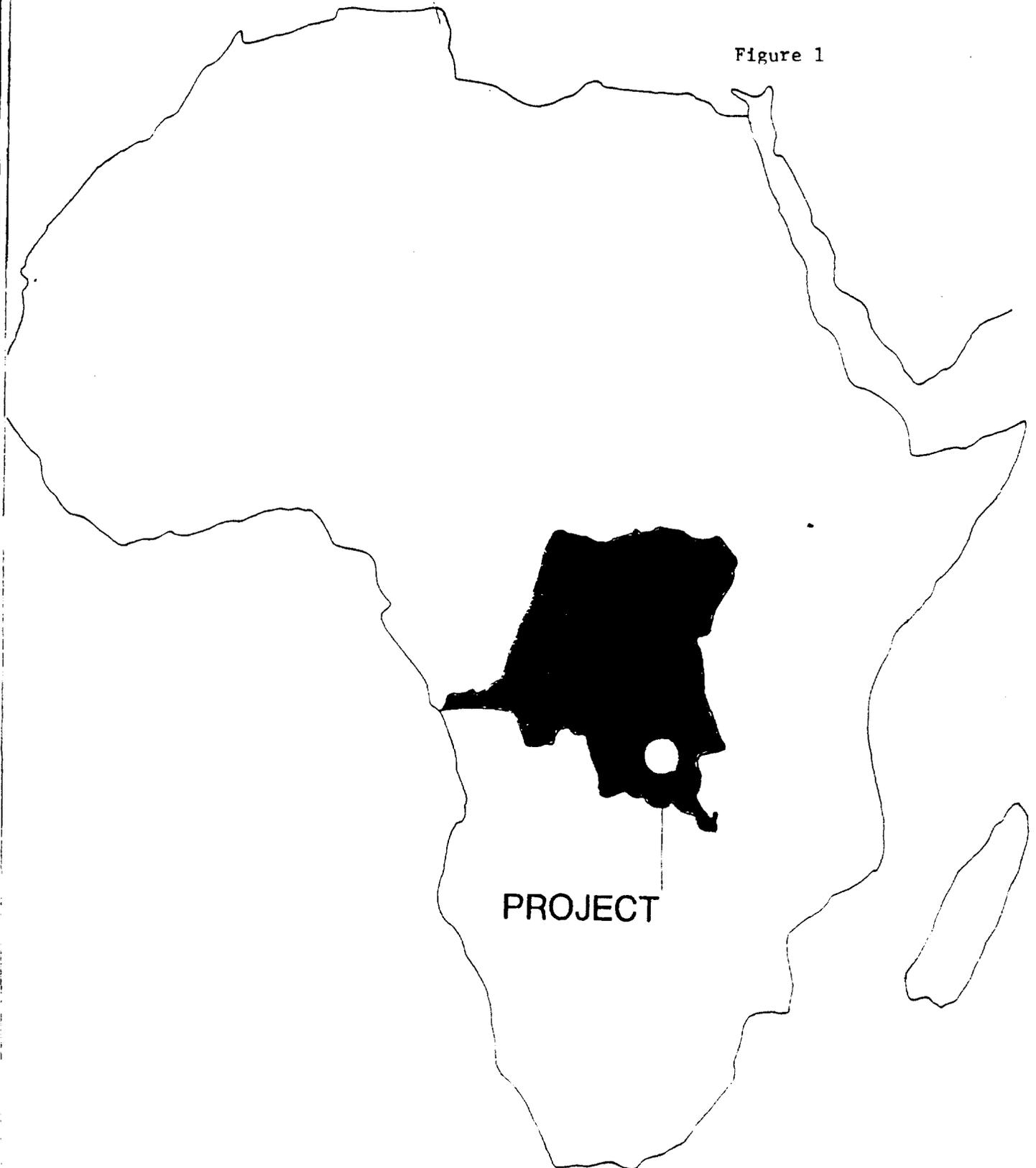


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I. PROJECT RATIONALE

A. Project Amendment Rationale.

While the basic philosophy behind the design of Project 660-0105 remains valid, experience gained since the project was authorized in June, 1986, changes which have occurred within the GOZ , and delays suffered by the project have combined to necessitate an amendment. The amendment will better define the project as it has evolved, recognizing through experience and studies funded under the project the social and economic realities of the project area. Also, due to delays in implementing the project, particularly as pertains to the roads component, and the cost of contracting for road rehabilitation, the LOP budget will be increased by almost five million dollars.

The goal of Project 660-0105, as originally designed, was to achieve self-sufficiency in basic food production, in particular corn. Beneficiaries of the project were expected to be the corn producers of Central Shaba who could increase their incomes through the export of corn to Kasai Oriental and raise their nutritional level through increased consumption of locally grown corn. It was assumed that the consumers of corn in Kasai Oriental would benefit as well, which they have.

The design of the project rightfully assumed that corn production could not be increased unless there was a way to market the surplus, and that roads in the project area, which were essentially impassable, had to be improved to transport the surplus corn to market centers. The combination of roads and agriculture in this project is essential. There is no reason to increase agricultural production without a way of exporting the surplus (roads), and there is no reason to improve roads unless there is a traffic demand (agricultural production).

Preliminary data gathered by the original project design team were basically sound. However, project studies conducted over the past four years, and experience gained first hand under the project, indicate that there are certain major deviations from the conclusions drawn during the design. For example, under the roads component it was assumed that a major link road improvement from Kongolo to the paved road 1,000 kilometers south, interconnecting with a number of railheads, would provide an essential link from the corn producing areas to Lubumbashi. However, it has been determined that very few truckers use the 218 kilometer section of link road between Ebondo and Budi because secondary roads in the area provide shorter routes from the corn growing regions to the railheads. It was also assumed that increased corn production would increase income and nutrition to central Shaba inhabitants. Increased corn production will perhaps increase income, but will probably have little short-term affect on nutrition, since the people of Central Shaba do not use corn as a food staple, but prefer manioc. Corn is

basically a cash crop. These subjects will be discussed in detail in the Project Description and Project Analyses Sections of this Project Paper Supplement. The information collected by the studies performed over the past four years, experience gained under the project, and the GOZ's changing approach to road maintenance indicate the need for an amendment to the project which will redefine project objectives and outputs according to the realities in the field and increase the budget to allow project goals to be met.

B. Amended Project Goal and Purpose.

The Project Paper states the purpose of the project as follows: "To increase the production of corn in Shaba, relying to the extent practicable on private sector interests mobilized to induce and support small cultivator productivity."

A major shift towards diversification has taken place in the project as corn is mostly a cash crop, rarely consumed in the project area because it is difficult to process by hand-pounding, and village level milling capacities are lacking. Manioc is the staple crop. To satisfy farmers' demands, other food crops (basically peanuts, and manioc) have been included in the project's extension program.

The purpose statement is thus changed by this amendment to take into account the shift of emphasis from corn production to multicropping that characterizes the implementation of the agricultural component of the project.

The amended project purpose reads: "To increase the production of corn, and other food crops in Shaba, relying to the extent practicable on private sector interests mobilized to induce and support small cultivator productivity."

Quoting from page 9 of the Project Paper, "In summary, the basic objectives of the Central Shaba Agricultural Development Project are to help re-establish the pre-conditions for sustainable development in Shaba by restoring the basic infrastructure of the agricultural sector, and to move the region towards food self-reliance by increasing the production, processing, and marketing of basic food crops." Thus, the move under the amendment to supporting a multi-cropping system is not a major deviation from the original Project Paper. Rather, it is recognizing the present agricultural activity in Central Shaba and support of crop diversification--a move toward sustained agriculture.

Section II, Project Description, discusses constraints, what has been done to date, and what is planned to be accomplished under the amendment.

II. PROJECT DESCRIPTION

A. Original Project Description.

The original Project Paper stated that the purpose of the project would be attained by:

- providing farmers with the means and incentives (improved extension services, storage facilities, feeder roads, higher-yielding seeds) needed to increase the production of corn and other food crops;
- providing the physical and institutional infrastructure needed to support the private sector in the storage, processing, and marketing of the agricultural production of Central Shaba; and
- creating opportunities for greater numbers of local private organizations (particularly entrepreneurs and non-profit agencies) to provide reliably the services and materials needed to stimulate and sustain food-crop production.

Provision of the improvements and services listed above was to be accomplished through the following project outputs:

1. Agriculture Component.

- The production of basic food crops, in particular corn, will have increased sufficiently to obviate the present need for imports.
- Small farmer income will have increased both in absolute amount and in relative share.
- A regional seed company will have been established. It will supply improved seed for sale to the farming population. The seed enterprise will be operated by a private company on a profitable (financially self-sustaining) basis.
- Agricultural extension services for small cultivators will have been introduced, working with PVOs and other local entities. Extension services will provide information about improved farming practices and varieties of seed.
- Simple village crop storage facilities will have been installed and tested. These will have reduced crop damage and loss caused by vermin and spoilage.

2. Roads Component.

- A 1,000 kilometer regional link road, connecting the major agricultural zones of the project area to railheads (and thence to the major urban markets of Shaba and the Kasai regions), will have been rebuilt.

- The regional Roads Bureau will have increased its capacity to maintain the regional highway system through an expanded work force and fleet of road maintenance equipment.
- In the major agricultural zones of the project area, at least 1,000, and up to 2,000 kilometers of feeder roads connecting with the link road will have been rehabilitated, facilitating the marketing of food crops.

B. Project Status to Date.

1. Agriculture Component.

Much progress has been made under the agricultural component to achieve project outputs. However, experience gained since the project began has indicated the need for changes in approach to some elements of the project.

Extension services began well under the project and continue to make significant progress. At this writing, 35 project extension agents, including 5 women, in collaboration with 12 Peace Corps Volunteers (7 of whom are women) are working with 1581 contact farmers in 494 villages. Of the contact farmers 415 (26%) are women. Demonstration fields are considered to be the key extension tool, and to date 1,632 fields have been installed.

Grain storage facilities are under construction at four railhead sites, and structures have been prefabricated for an additional four sites. These eight covered loading docks will provide temporary storage for approximately 16,000 tons of corn.

The seed production/distribution and the information office elements of the agricultural project component have both got off to slow starts. These will be discussed in the context of actions to be performed under the amendment in Section D. below.

2. Roads Component.

The roads component was initially delayed due to late arrival of project procured equipment and spare parts, combined with delayed contracting actions for technical assistance on the southern two-thirds of the project roads (Sections II and III). Technical assistance for road rehabilitation on Section I began immediately as USAID obtained a sole-source waiver to retain the TA team already in place on Project North Shaba (660-0059). However, road work proceeded very slowly due to lack of a proper construction equipment fleet and the late arrival of project equipment mentioned earlier.

During the 1989 dry season (April-October) a considerable amount of progress was made. Project equipment finally arrived in late

1988-early 1989 and was transported to the base camp at Kime in time for dry season use. The Office des Routes base at Kime for equipment storage, maintenance and repair, including spare parts warehousing and residences for five families, was completed in January 1989. Road work completed at present totals 1,140 kilometers opened to traffic, of which 575 km have been rehabilitated to specification. All the 205 km of the Section I Link Road plus 40 km of the Section II Link Road have been completed. The remaining 330 km of rehabilitated roads are priority regional roads which are the responsibility of Office des Routes to maintain. In addition to road rehabilitation, two bridges have been constructed and four bridges have been rehabilitated.

The part of the link road that was designated as Section III in the original PP - the 420 km from Musao to Mukulakulu - has now been divided into two sections. All 420 km of the original Section III were to have been rehabilitated by a private section firm. When cost estimates, however, were carried out in 1988, it became apparent that the budget in the original PP had underestimated the cost of rehabilitation work by private firms. The section of the link road to be rehabilitated by the private sector was therefore reduced to the 150 km from Musao to Kinkondja, becoming a shortened Section III. ODR has now signed a contract with a private firm, and rehabilitation work will begin during the 1990 dry season. The remainder of the link road, the 270 km from Kindondja to Mukulakulu, became Section IV and is to be rehabilitated by force account as ODR already has the equipment and personnel needed to complete the work.

C. Project Evaluation.

The Central Shaba Agricultural Development Project (660-0105) was evaluated by an outside consulting firm, Experience Incorporated, in December 1988, and the AID Evaluation Summary was completed in April 1989. As a result of the evaluation, the Mission agreed to take the following actions:

1. Project objectives will be amended to account for the shift of emphasis from corn production to multi-cropping; additional funding will be considered to reflect these changes. (Done by this amendment)
2. A basic economics training plan will be developed for extension agents to improve the quality of advice given to farmers, concerning the mix and rotation of crops. (The Mission subsequently decided against the economics training plan for extension agents).
3. Baseline agricultural data will be collected and analyzed. If further delays in staffing the Information Office are anticipated, the task should be performed under a short-term contract. (Data collection in process)

4. Simple crop storage facilities will be constructed at railhead centers to avoid losses due to spoilage. (In process)
5. TRABEZA will submit to USAID an action plan detailing its strategy for developing a maize seed sales and distribution network in the project area. (Trabeza contract terminated)
6. TRABEZA and the Zimbabwe Seed Coop (ZSC) will submit to USAID a joint technical assistance plan outlining TRABEZA's needs and ZSC's ability to meet those needs. If it is determined that ZSC cannot meet TRABEZA's needs, USAID will consider other sources of technical assistance as well as additional funding to obtain required support. (Trabeza contract terminated)
7. USAID will discuss with OR the possibility and implications of providing operational funding to the Roads Bureau. (Extensive negotiations resulted in both parties agreeing this was not feasible)
8. A thorough inventory of project roads will be developed to identify the extent of actual road closure (defined as the inability to travel from point A to point B). 1989 work plan will emphasize opening key agricultural roads, before resuming systematic road rehabilitation work. (Done April-September 1989)
9. The use of private contractors for rehabilitation of at least 150 kms of Section III road will be explored. Additional private sector participation will be determined. (Contract for 150 kms signed; amendment proposes increased private sector involvement in maintenance)
10. The Project Paper will be amended based on a detailed analysis of available dollar and local currency funding, equipment needs, staffing requirements, and the financial viability of the Roads Bureau. (Done by this amendment)

Under the agriculture component, decision number one to amend the project objectives reflecting the shift in emphasis from corn to multi-cropping will be met by this amendment. The remaining agriculture component actions resulting from the evaluation will be discussed in Section D following.

Under the roads component, decision number eight was met in 1989 when the technical assistance team, in collaboration with the project office for the agriculture component, inventoried key project roads and identified work required to open these roads prior to the corn harvest season. The emergency road opening was completed prior to harvest; however, this activity limited systematic rehabilitation in Section II to 40 kilometers. The remaining evaluation decisions relating to the roads component, as with the agriculture component, will be discussed in Section D, following.

D. Continuing and Amended Project Activities to PACD.

1. Agriculture Component.

a. Seed Enterprise.

The Central Shaba Agricultural Development Project Paper envisioned the establishment of a private sector seed production and distribution enterprise to provide open-pollinated maize seed for the project area. A key assumption was that the seed enterprise could make an acceptable profit based on the level of demand for improved seed, market price of improved seed, and costs of seed production and distribution. USAID contracted with a private sector company in Zaire, Trabeza Mbeko-Shaba, for this activity. In addition, a subcontract with Seed Coop of Zimbabwe was awarded for technical assistance and training to be provided to Trabeza Mbeko-Shaba personnel. Unfortunately, the mission's efforts at establishing the private seed enterprise with Trabeza Mbeko-Shaba proved to be unsuccessful. This was due to several factors, including: internal management problems of the parent company, which detracted Trabeza personnel from focusing on the seed activity during its second year of operation (eg. no seed was distributed) thereby not fulfilling the terms of its contract with USAID; and the high costs of seed production and distribution incurred by Trabeza, which precluded selling seed at or near full market price to farmers.

Following the termination of its contract with Trabeza Mbeko-Shaba in late 1989, the Mission has carefully assessed alternatives for achieving a sustainable system for maize and other food crop seed production and distribution in Central Shaba. USAID consulted with Department of Agriculture and Rural Development officials, NGOs, cooperatives, private sector entities and project personnel. Various relevant technical studies were reviewed (SENESEM evaluation, Central Shaba evaluation/seeds component, report on maize seed and grain marketing in Central Shaba, Seed Coop proposed strategy for project seed production/marketing). Lastly, findings and recommendations, provided by an international seed industry specialist in May 1990, as part of an analysis of the potential for maize hybrids, joint ventures and seed policy issues were considered.

b. Proposed Seed Production/Distribution Strategy.

In order to assure adequate quantities of high quality seed of various food crops at an affordable price to small farmers the project will support the following strategy:

USAID will support, beginning in 1990, the establishment of several small-scale (estimated 50-200 tons/year capacity)

private sector (including NGOs) activities in Central Shaba for the production of open-pollinated maize and grain legume seed. Cassava multiplication will be done by farmer groups and NGOs working in close collaboration with project personnel and SENARAV (Project 660-0124). In addition, USAID will support two or more small-scale operations in Southern Shaba for the production of maize hybrids, initially responding to demand for hybrids in Southern Shaba and over time for Central Shaba farmers. Although at present there is limited demand in Central Shaba for hybrids (eg. most hybrid use is limited to Southern Shaba), the mission believes that as project-assisted farmers become accustomed to using improved seeds, transport infrastructure improves, and access to other inputs (ie. fertilizer) increases, the more progressive farmers in Central Shaba will switch to hybrids using highly productive varieties developed by SENARAV. Furthermore, the long-term financial viability of the seed companies will hinge on both their efficiencies of operation as well as eventually moving into marketing of higher value products such as hybrids.

The project will provide seed enterprises with technical assistance, training, financial support for advertising, and seed processing equipment (with equipment cost to be reimbursed by payment in processed seeds furnished to USAID development projects). TA and training will come from several sources including SENASEM, SENARAV, Central Shaba project personnel, and, as needed, from outside organizations (ie. Seed Coop of Zimbabwe). Seed producers will provide their own land, labor, management, production equipment, production and processing inputs, and seed storage facilities.

SENARAV will produce foundation seeds and planting stock of improved maize, grain legumes and cassava varieties for sale to seed multiplication enterprises. The project will contract with these enterprises for delivery of specified quantities of different maize and grain legume varieties at a negotiated price. Seed enterprises will be encouraged to use more progressive farmers in their geographic areas as contract growers of seed. The project extension personnel will closely monitor seed production, furnishing necessary technical assistance to producers. SENASEM will monitor seed operations to assure that reasonable seed standards are met.

The Central Shaba Project has identified several private sector entities (NGOs, cooperatives, merchants) who are interested in distributing seed. Processed, packaged seed will be provided by the project to seed distributors at a subsidized price during the initial years. This will be reduced each year and completely phased out by the end of the project. The project will encourage seed distributors to develop business relationships directly with seed producers so that the project's role in providing processed seed for distribution will be phased out over time along with the subsidies.

The project, based on consultation with Department of Agriculture and Rural Development and Shaba regional officials, will recommend a sales price to seed distributors (which takes into account yield difference for improved varieties, market price of commercial grain and factors such as farmers' ability to pay and his/her risk consideration). However, seed distributors will be allowed to sell seed at any price they choose based on their own analysis of the seed market and retain all profits from sales. Seed distributors will provide their own vehicles, seed storage and sales facilities, labor, management, and all operational costs associated with seed distribution. In addition, they will be responsible for establishing their own distribution networks.

Depending on the evolution of the seed activity and the level of support furnished by other Department of Agriculture agencies (ie. SENARAV, SENESEM), the project may also contract with a local-hire Zairian seed specialist and/or micro-enterprise specialist to assist both seed producers and distributors.

The mission is optimistic regarding the viability and sustainability of the maize seed production/distribution system described above. This strategy:

- i. involves several producers and distributors (ie. NGOs, cooperatives, merchants, private farmers) who have vested interests in the project area and are likely to remain in area after the project ends;
- ii. employs mechanisms of contract growers, use of appropriate technology and seed delivery through existing distribution systems within the project area to maintain costs of production and distribution at the lowest possible levels;
- iii. structures the use of subsidies in a manner which should encourage operational efficiencies and promote private sector involvement of committed entities in both seed production and distribution;
- iv. encourages seed producers to establish linkages directly with seed distributors;
- v. promotes maximum involvement of government agencies (SENARAV and SENASEM) which have legitimate responsibility for development of new varieties, foundation seed production, seed quality certification and technical assistance, and
- vi. enables seed producers and distributors to branch into other activities when opportunities arise (ie. producers producing hybrid seed; distributors selling other agricultural inputs or becoming involved in marketing of commercial grain).

c. Grain Storage.

The Central Shaba Agricultural Development Project Paper envisioned a village and railhead grain storage program. The storage program has been modified somewhat, as described below.

In 1988, after approximately 20,000 T of corn in sacks was stored in the open air in railway stations during the rainy season and many tons were spoiled due to improper storage facilities, the Interdepartmental Project Coordinating Committee chaired by the Director of the Department of Agriculture's Studies and Planning Division recommended that the project plan for a 1989 railhead storage program. A plan was developed in conjunction with the Governor of Shaba and Department of Agriculture officials to construct covered loading docks (CLD) at strategic railheads in the project area to ensure that corn and other food crops awaiting rail transport would be protected from rain.

At present, most railheads have no storage facilities. Corn is stacked on the ground before being loaded onto protected railway cars. In normal times, the waiting period can average two weeks. If corn shipments by rail continue into the rainy season, which in the project area begins in late August in the north and late September in the south, rain and standing water can severely damage the corn stacked on the ground. The CLDs will make short term waits in the railway stations more secure from water damage, thereby helping to assure traders temporary storage of their corn at the railheads.

The CLD construction involves a raised concrete floor covered by metal roofing. They will be simple and relatively maintenance free. USAID has contracted with a construction engineer to supervise the CLD construction, with oversight from USAID's Senior Engineer. Upon completion, the CLDs will be ceded by convention to the National Railway (SNCZ). SNCZ will assume responsibility to manage the CLDs. The convention stipulates priority use of the CLDs for transit storage of agricultural commodities.

The GOZ has shown support for CLD construction through both SNCZ and ODR. SNCZ is providing free shipment of construction materials and equipment to the CLD sites, and ODR is providing equipment and operators for CLD foundation earthfill construction.

The sites selected for construction of eight CLDs are as follows:

	Site	Capacity	Estimated completion date
1)	Nyunzu	3,000 T	4/90
2)	Niamba	2,000 T	5/90
3)	Kitenge	3,000 T	6/90
4)	Kongolo	3,000 T	7/90
5)	Luizi	1,000 T	8/90
6)	Kitanda	1,000 T	12/90
7)	Kamungu	2,000 T	12/90
8)	Kabongo	1,000 T	12/90

An additional two CLDs of 1-2,000 tons each may be added to the program for CY 1990 to provide total protected transit railhead storage of 18,000 to 20,000 tons of corn. Proposed sites for the additional two CLDs are Nguena and Kabondo-Dianda.

*subject to
fund availability*

Including CLDs in the amendment responds to the evaluation decision to provide simple storage at railheads (Evaluation decision No. 4).

Grain storage at the village level is de-emphasized in the amendment. The original PP planned for the construction of 68 concrete village silos based on a prototype developed under North Shaba Project (660-0059) in 1983-85. As the villagers in the North Shaba Project abandoned use of the project-constructed concrete silos after PACD in 1986, USAID no longer recommends this prototype. Instead, the Central Shaba Project will test the technical and social feasibility of new prototypes, adapted from cribs already in local use. These cribs will be constructed completely from local materials and will be designed for storage of corn and other crops.

d. Marketing Policy Improvements.

In addition to constructing railhead storage facilities to improve marketing conditions, USAID is working with the GOZ to address marketing constraints on a policy level. Since colonial times, an official decree by the Governor of Shaba has announced a market season for different agricultural commodities outside of which buying, selling, and transporting of crops is illegal. Corn trade is prohibited from January 1 to April 15. Enforcement is highly effective because all corn shipped out of the production area by road and rail require a local permit issued by the zone authority and local agriculture inspector authorizing transport before a shipment is loaded. The fixing of a market season is both contrary to economic liberalization policies which have been put into effect since 1983 and to the vegetative cycle of agricultural products where corn in the northern zones of the Central Shaba project area, for example, is ready to be harvested in February. The lag time between corn

maturity and sales results in significant losses. The establishment of a market season also imposes an enormous strain on transportation systems (roads and rail) to evacuate crops during a limited time frame. In 1990, after a market analysis was conducted in the project area, USAID requested the Governor of Shaba to consider alleviating the ban on corn trade in the Shaba region. USAID's request was favorably received and, on a pilot basis, the market season for the Kaniama zone was officially opened in March 1990. USAID is following up with the Governor on advancement or abolition of the market opening date in other zones for 1991.

In addition to policy dialogue on liberalizing the market season, USAID has made progress on price liberalization for corn. After a 1989 marketing study, USAID recommended that in order to stabilize corn prices in Shaba, Gecamines should abandon its practice of unofficially attempting to set the price of corn. USAID recommended instead a new system whereby Gecamines simply announced how much corn it wished to purchase at a given time and then accepted the lowest bid from among the individual competing suppliers. At the writing of this amendment, it appears that Gecamines has accepted the move towards a more competitive corn purchasing system.

e. Agriculture Extension

The number of target farmers estimated to receive extension services should be reduced from the 133,000 farmers estimated in the Project Paper, to 74,400. The basis of this change is the reduction in the number of farm families per village from 100 to 50. (372 villages x 50 farm families x 4 farmers per family equals 74,400 farmers attainable by PACD.).

The geographic area for extension service activities is modified to include the Manono zone on the left-bank of the Lualaba in addition to the Kabalo, Kabongo, Malemba-Nkulu, and Bukama zones. (See Fig. 3) The Manono zone has good agricultural potential and will be served by roads to be rehabilitated by the project. The original PP provided for including the zones of Kongolo and Nunza at some time during the project if including those two zones seemed practicable. The World Bank has included these two zones in their agriculture project and therefore the Project Coordination Committee has decided against Project 660-0105 working there.

The technical package offered to project area farmers will include a natural resource management component (see Environmental Impact Analysis). Planting cover crops, nitrogen fixing trees, and alley cropping to improve soil fertility and intensify crop production will be the agronomic management practices stressed by the project. Additionally, the extension services will stress integrated pest management programs

(primarily biological control) to combat the ever present pest problem in lieu of an environmentally risky chemical control program.

The agricultural extension service of the project has 35 extension agents (5 of whom are women) and 11 Peace Corps Volunteer extension agents (7 are women) active in five zones (Kabalo, Kabongo, Malemba-Nkulu, Bukama, and Manono) of the project area. The agents receive continued technical training through the project and are supervised by three expatriate contract extension specialists. The 44 extension agents work through 1581 contact farmers (415 are women) to extend agricultural technical packages including improved seeds/manioc cuttings and improved production practices. More than 10,000 farmers (one third of whom are women) have benefitted from improved agricultural practices transmitted through field days and extension meetings. The project is making a concerted effort to involve women through training and extension of technical packages. An informal estimate concluded that 25% of the farmers are adopting part or all of the recommended production techniques.

The project has distributed 29.8 tons of improved corn seed, 39 tons of peanut seed, and 175,000 meters of manioc plant cuttings. During the 1988-89 cropping season and the first half of the 1989-90 cropping season, and in conjunction with contact farmers, the project planted 792 demonstration fields to show farmers the results of traditional versus recommended production practices or the difference between local versus improved crop varieties. Adaptive research trials on basic food crops and natural resource management activities are being performed in conjunction with SENARAV, the national food crops research service.

Through contact farmers and cooperatives (or pre-cooperatives), the project is multiplying improved manioc cuttings on over 250 ha of land. The project is also involved in multiplication of peanut and corn seed.

The varied extension services presently being performed in the field are responsive to evaluation decision number two requiring that information be given to farmers relating to the mix and rotation of crops and the ensuing benefits.

f. Research and Information Office

The Research and Information Office will be staffed by contract employees instead of by GOZ officials seconded to the project, as stated in the original Project Paper. In addition, the location of the office headquarters is changed from Lubumbashi to Niembo (the heart of the project area).

The Research and Information Division activities got off to a slow start due to Contractor difficulties in finding a suitable candidate. A suitable contractor is now on site (since February 1990). A priority task for this division is to monitor project progress and impact. Project impact indicators include traffic counts, crop yields, total crop production, adoption rates for food crop marketing data, household income, and nutrition.

Baseline studies completed to date include a Baseline Commercial Study of a) the project area in May 1987, and b) the area east of the Zaire River and north of the link road in March 1989. A traffic census of the project area began in February 1989 and will continue through the life of project.

The project amendment recognizes the merits for having changed the approach to staffing the Research and Information Office. With the Research and Information Office in place and operational, and a baseline study completed, the project has responded to evaluation decision number three requiring action on these two items.

2. Roads Component.

The original project goal of rehabilitating 1,000 kilometers of link road, and between 1,000 and 2,000 kilometers of regional and agricultural roads will still be achieved under the amendment. The approach to rehabilitation and maintenance will be modified in light of experience to date under the project and changes within the GOZ regarding the roads bureau, Office des Routes (ODR), and the creation of the Service National des Routes de Desserte Agricole (SNRDA), which is responsible for management of the agricultural road network. The capabilities of the agencies responsible for road rehabilitation and maintenance are discussed in the Project Analyses Section VI.A.2.

Table 1 lists the sections of link road, the sections of regional road, and the agricultural roads that are proposed to be rehabilitated under the project. These roads are identified on the map which appears as Figure 2. Table 1 also lists the length of each road section and the priority assigned to each; either priority 1 or 2. Two sections of the link road have been given a priority 2 rating. These two sections located between Ebondo and Budi, totaling 218 kilometers, were given a low priority because the population density in that area is quite low and there is very little traffic demand. This reflects knowledge that has been gained while working on the project. The Project Paper assumed that there would be a traffic demand along the entire length of link road connecting to railheads. In reality, this is not the case. Transport of agricultural produce in the Ebondo - Budi region follows transportation corridors leading from collection points in villages to railheads via secondary roads which provide a shorter hauling distance. Recent studies have shown that it is impractical to

transport produce further than between 150 and 200 kilometers by truck due to road conditions, the price of fuel, and the relatively cheap transport offered by rail. Priority roads listed in Table I will be rehabilitated under the project since they lead from agriculturally productive areas to railheads. It is also for this reason that covered loading docks are being constructed at railheads under the agriculture component of the project. The amount of priority 2 roads which will be rehabilitated under the project will depend on time and funds available.

The original project planned for a 390 kilometer section of link road (Section III) to be rehabilitated by a private sector contractor. The remainder of the project roads, including agricultural roads, were to be rehabilitated by ODR on a force account basis. This approach will be modified under the amendment.

The Project Paper estimated the rehabilitation of Section III by private sector contracting to cost six million dollars. Cost estimates conducted by the TA team during preparation of bid documents indicated a cost of 40,000 dollars per kilometer for rehabilitation by contract. As a result Section III was shortened to 150 kilometers and bids were taken in November 1989, with the low responsive bid being six million dollars plus one million dollars equivalent in local currency. For this reason a fourth Section has been created from Kinkondja to Mukulakulu as shown in Figure 2, a distance of 270 kilometers. Section IV will be rehabilitated by force account, which was not anticipated in the original PP.

The total length of link and regional roads to be rehabilitated by ODR is 1866 kms (852 kms link road and 1014 kms regional). Of this amount 615 kms have been completed to specification, and an additional 270 kilometers have been opened to traffic.

There are 980 kilometers of agricultural roads to be rehabilitated under the project. Under the original project, this work was also scheduled to be completed by ODR on a force account basis. Given the ODR mandate to rehabilitate national and regional roads throughout Zaire, rehabilitation of agricultural roads places an unfair burden on ODR requiring it to operate outside of its priority network, using already limited resources. Under the amendment, the project will contract with ODR to perform the rehabilitation of agricultural roads, after which they will become the responsibility of SNRDA to maintain. The project will enter into contracts with ODR on a fixed amount reimbursement basis for the rehabilitation of the agricultural roads, based on availability of counterpart funds. Supervision of the ODR work will remain the responsibility of the USAID- funded technical assistance team.

Under the amendment, the project will provide funding, contracting supervisory support, and limited training coordinated with the UNDP-funded SNRDA program to contract for manual maintenance with private sector contractors through ODR or SNRDA. The road sections receiving manual maintenance must be located in populated areas so that a labor force is readily available. This approach to maintenance is consistent with the Transport Reform Program recently designed by the USAID/Zaire mission, the present mandate of SNRDA, the World Bank pilot feeder road project, and the reorientation of ODR.

The original Project Paper envisioned all road work under Project 105 being completed by mid-1991, at which time most of the TA for the road activities would be phased out. For a number of reasons, however, it has proved impossible to adhere to that schedule. To begin with, the road component TA was late in arriving, and even then, they had to wait another six months before the road equipment arrived in country. This resulted in road work on Section I, the first section to be worked on, not getting fully under way until the 1988 dry season (May - November). The 1989 dry season saw work carried out on both Sections I and II, and the 1990 dry season will see work begin on the remaining part of the link road. Because of the delays encountered in the start-up of the road activities, the present level of TA for the road component will be continued through PACD.

TABLE I

REHABILITATIONS PROPOSEES DANS LE SHABA CENTRAL

PROJET 105

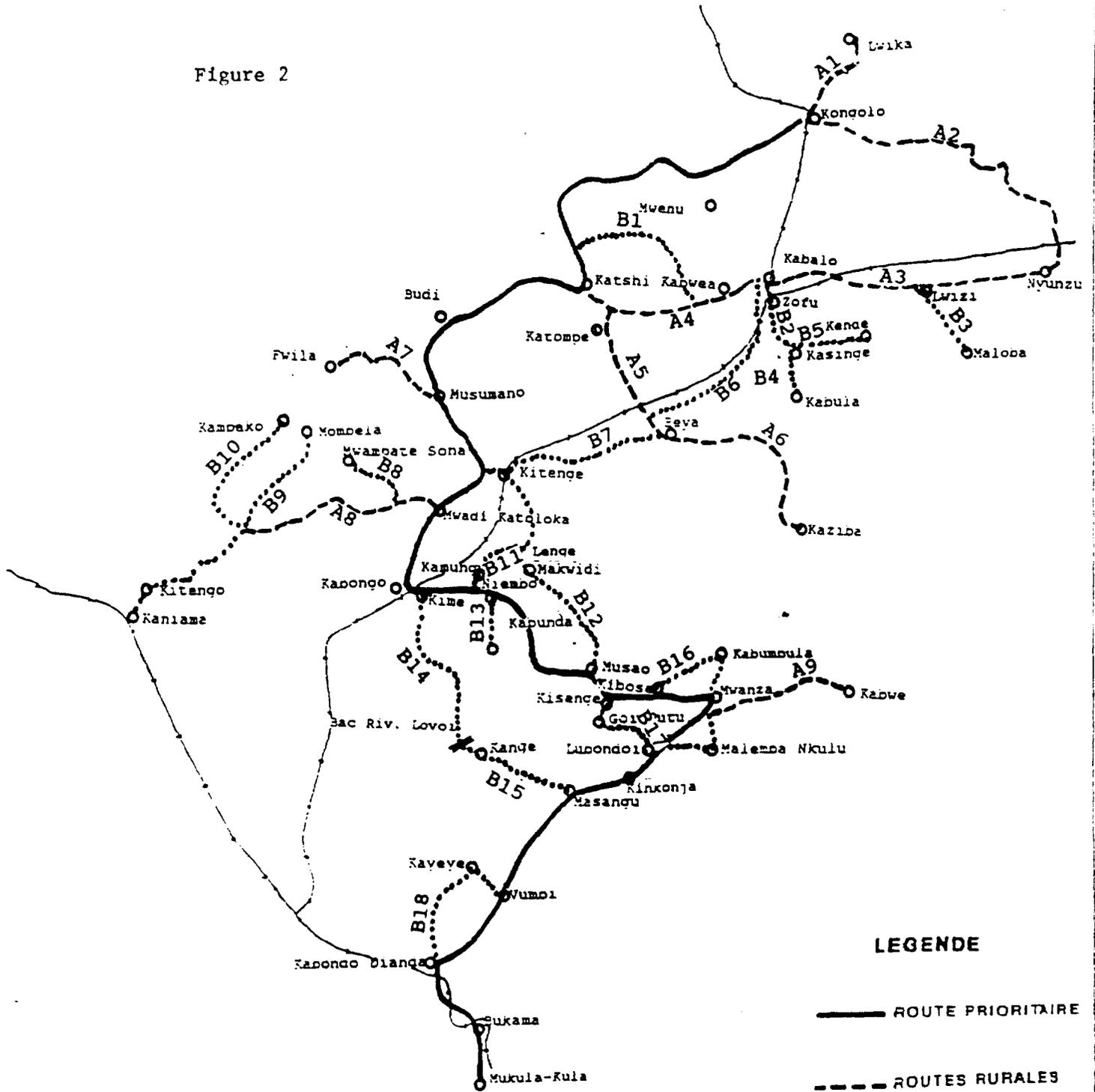
NUMERO D'ORDRE	No. DES ROUTES	DESTINATION	KMS	PRIOR AGRI	
LINK ROAD	SECT I	Kongolo - Ebondo	135	1	
		Ebondo - Katshi	70	2	
	SECT II	Katshi -Budi	148	2	
		Budi - Luguvu - Kabongo	119	1	
		Kabongo - Musao	128	1	
	SECT III	Musao - Kinkondja	134	1	
	SECT IV	Kinkondja - Mukulakulu	268	1	
	A-1	RR 632	Kongolo - Lwika	51	1
	A-2	RR 631	Kongolo - Nyunzu	182	1
	A-3	RR 630	Nyunzu - Kabalo	139	1
A-4	RR 631	Kabalo - Katombe - Katshi	115	1	
A-5	RR 628	Katombe - Kakuya - Kitanda - Beya	67	1	
A-6	RR 628	Beya - Ankoro - Kaziba	105	1	
A-7	RR 634	Fwila (bac many) - Mujumano	51	2	
A-8	RR 633	Mwadi - Katoloka (Kambo)			
		Kibila - Kitengo No Kaviawa	234	1	
A-9	RN 33	Mwanza - Bac Kabwe - Mukwende	10	1	
B-1		Bif.630 - Link Road 631	60	2	
B-2		Kabalo - Zofu - Kasinge	37	2	
B-3		Lwizi - Malona	27	2	
B-4		Kasinge - Kende	20	2	
B-5		Kasinge - Kabula	20	2	
B-6		Kabalo - Ngwena - Kitanda	86	1	
B-7		Bif.LK.Rd - Bif Kitenge - Beya	60	1	
B-8		Bif.Mwadi Katokola - Niundo			
		- Mwandate Sona (bac Mwadi			
		- Katoloka) Bukunga	25	2	
B-9		Bif.RR-633 - Kamai - Mombelo	70	2	
B-10		Bif/RR-633 - Mundidua -			
		Lambwe - Kapako	70	2	
B-11		Kamungu (LK.Rd) - Lenge - Kitenge	85	1	
B-12		Musao - Kingombe - Makwidi			
		Bif.B5 route Kamongo - Kitenge)	70	1	
B-13		Niembo - Kabunda	23	1	
B-14		Kime - Riviere Lovoi (Pont Bac)	70	2	
B-15		Masangu - Kande - Lovoi	40	2	
B-16		Mwanza II - Kabumbulu - Kikose	77	1	
B-17		Luvondoyi - Goe Putu - Kisanga	60	2	
B-18		Kabongo-Dianda - Kayeye - Vumbi	80	1	

REHABILITATIONS PROPOSEES DANS LE SHABA CENTRAL



REHABILITATION PROPOSEE DANS LE SHABA CENTRAL PROJET 105

Figure 2



LEGENDE

- ROUTE PRIORITAIRE
- - - - ROUTES RURALES
- ROUTES DESSERTE AGRICOLE
- · - · CHEMIN DE FER

Echelle : 1/2.500000

CENTRAL SHABA

- PROPOSED 105 PROJECT BOUNDARY
- PROPOSED AGRICULTURAL TARGET AREAS
- FORMER PMS AREA
- NORTH-SOUTH TRUNK ROAD
- RAILROAD
- 105 SEED FARM
- AGRICULTURAL TARGET AREA ADDED BY THIS AMENDMENT

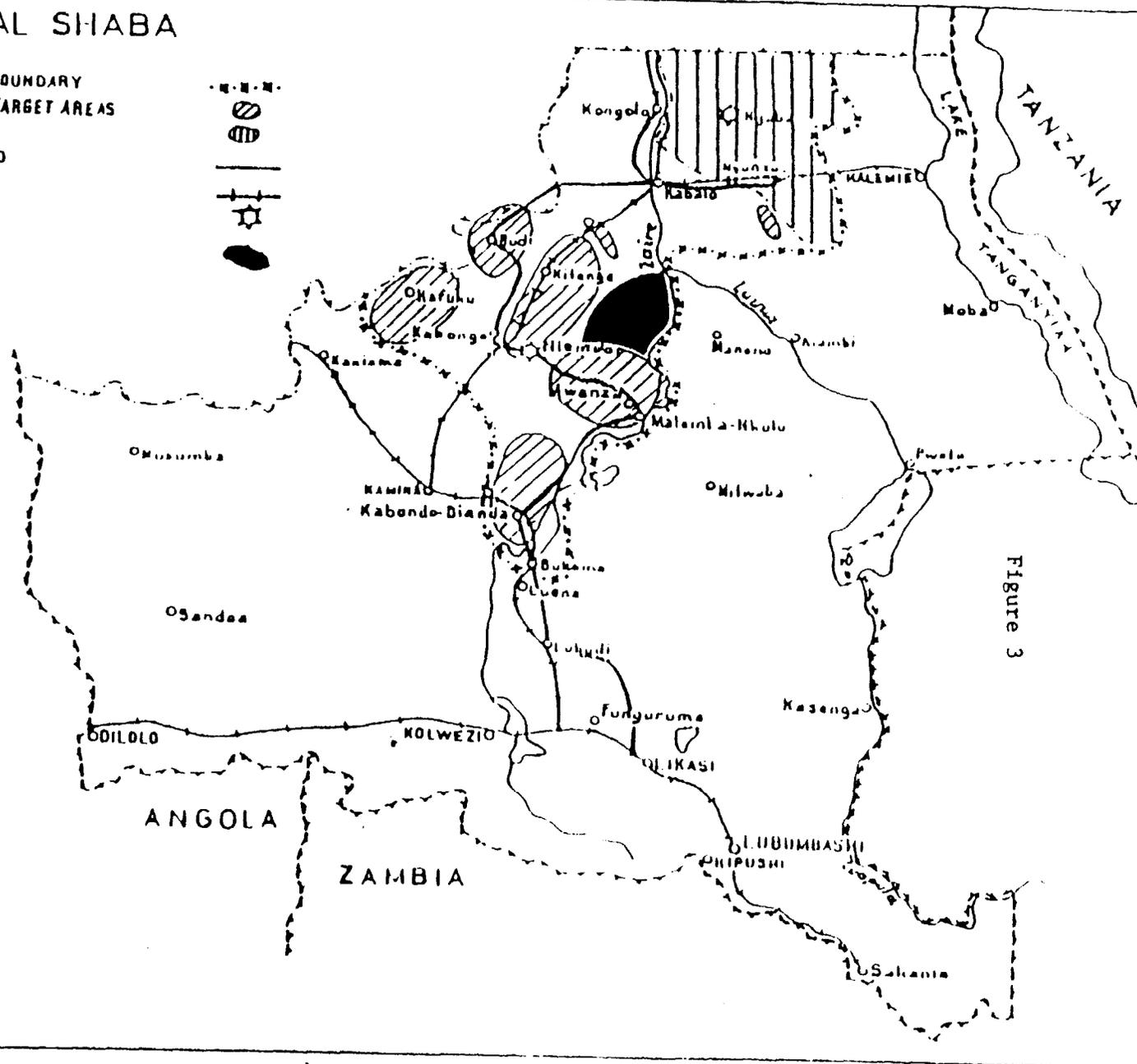
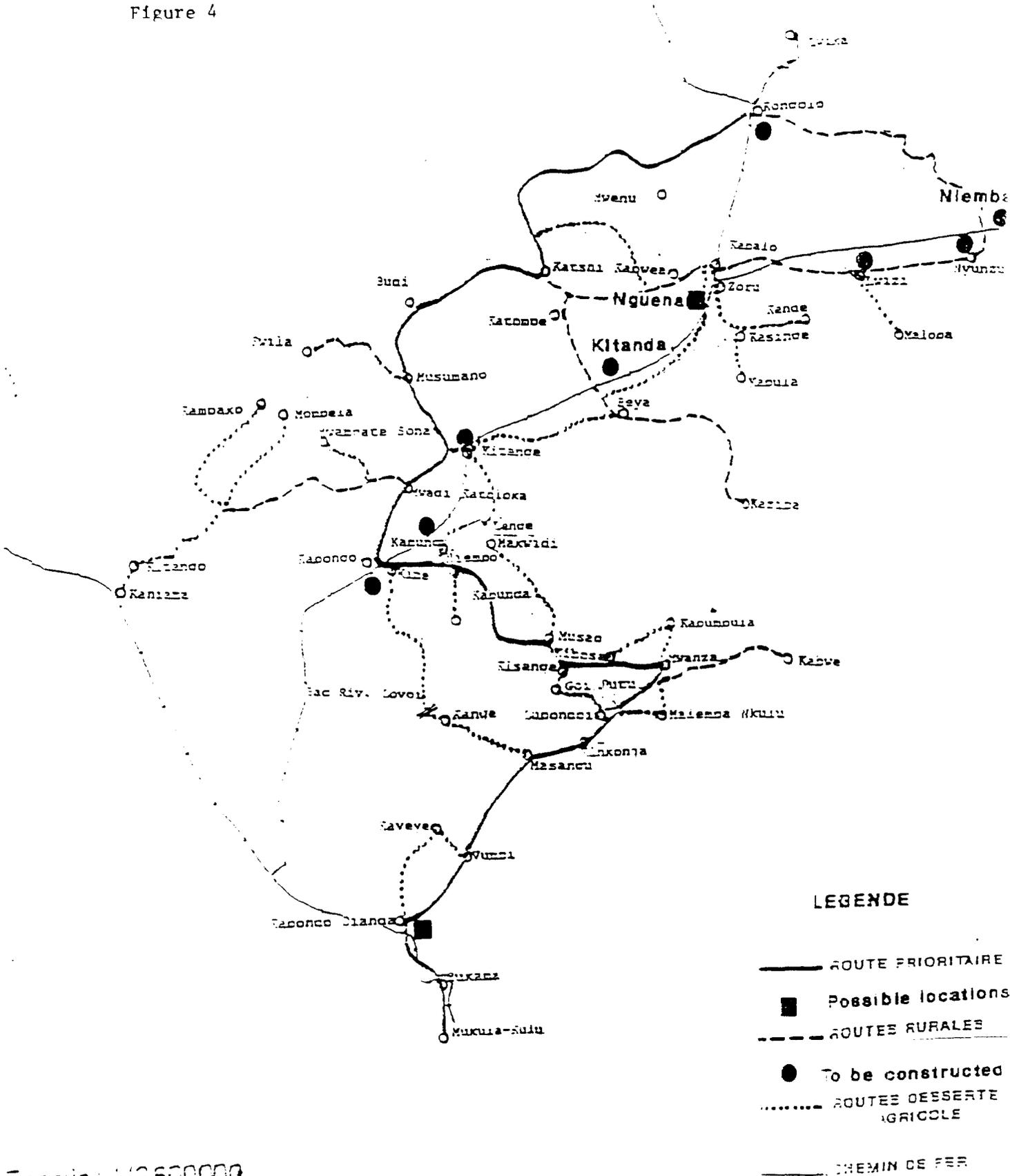


Figure 3

COVERED LOADING DOCKS LOCATIONS PROJECT 105

Figure 4



LEGENDE

- ROUTE PRIORITAIRE
- Possible locations
- - - - ROUTES RURALES
- To be constructed
- ROUTES DESSERTE AGRICOLE
- CHEMIN DE FER

Echelle: 1/2500000

III. COST ESTIMATE AND FINANCIAL PLAN

A. Introduction

The Central Shaba Agricultural Development Project Amendment increases A.I.D.'s planned contribution to the project by \$4,974,000 raising the total A.I.D. contribution from \$33,907,000 to \$38,881,000. The planned GOZ contribution in counterpart funds and non-CPF contributions remains at \$24,413,000 which represents 63% of the total A.I.D. contribution, including the additional funding added by this amendment. The Peace Corps contribution of \$800,000 also remains unchanged. All of the \$33,907,000 originally planned to fund the dollar portion of the project have been obligated, and \$29,000,000 of that sum have been earmarked. The \$4,974,000 remaining will be committed to fund some of the additional technical assistance, studies, evaluations, commodities and training costs through PACD. An obligation of \$1,800,000 will be made with the signing of the Project Agreement Amendment for this PP Amendment. The revised Illustrative Financial Plan is presented in Table II; the Illustrative Financial Plan for funds already committed appears as Table III; Table IV is the Illustrative Budget by fiscal year for the remainder of the project; and Table V provides details of the methods of implementation and financing.

B. Host Country Participation

To help ODR and SNRDA overcome their continuing financial problems, the World Bank and USAID are developing projects which will promote the regular funding of those organizations, and thus, the GOZ is expected to be able to make its contribution to the project. Direct GOZ contributions will continue to consist of salaries for ODR project personnel, fuel and lubricants for project equipment operations, materials and equipment purchased in local currency and provision of housing and office space for TA personnel at the project sites. In kind GOZ contributions will continue to consist of ODR regional administrative supervision as well as coordination provided by the Regional Roads commission. Direct and in kind contributions from the GOZ to date total \$8,231,000. Future direct and in kind contributions shall be \$16,182,000 for a LOP total contribution of \$24,413,000.

C. Additional USAID Costs

Table II shows a breakdown of project costs through PACD. The increase in costs result primarily from an increase in the time and level of effort of the technical assistance and the higher than estimated cost of the private sector contract for Section III rehabilitation.

Obligations to date have been from ESF, ARDN and DFA for a total of \$33,907,000. The GOZ's local currency contributions have come from counterpart funds generated by the mission's PL-480 and commodity import programs (CIP) as well as from direct GOZ contributions of personnel, fuel and lubricants.

The \$4,974,000 in funding being added to the project with this amendment are expected to come entirely from deobs/neoks and will be credited to the project as coming from the Development Fund for Africa (DFA) account. Local currency costs will remain the same as the GOZ contribution is already at 63% of the USAID FX budget. Although local cost financing is not expected, it will take place should local currency generations fall short of expected goals.

D. Disbursement Plan and Financial Control

USAID will continue to assist the GOZ in the disbursement and financial management of dollar funds under the project. The institutional contractors chosen to implement the project will be responsible for the disbursement of local currency funds under the project including the reporting of zaïre expenditures to USAID. The USAID controller has established a project reporting format that is certifiable and compatible with the USAID system and is currently being implemented by the institutional contractors. ✓

and 602. E. Obligation Schedule

Of the \$4,974,000 being added to the LOP funding, \$1,800,000 will be obligated with the signing of the Proag Amendment for this project amendment. Planned future obligations are \$2,200,000 in FY 91 and \$974,000 in FY 92.

TABLE II

ILLUSTRATIVE FINANCIAL PLAN

(\$000 or dollar equivalents for local currency)

Category	A.I.D. Contributions to date	Future A.I.D. Contributions	GOZ Contributions	Total Contributions
Technical Assistance	12,600	1,474	1,960	16,034
Ops/Road Rehab/Maint	6,000	1,000	9,992	16,992
Commodities	12,650	1,230	8,740	22,620
Evaluations and Studies	340	240	219	799
Local hire personnel	0	0	1,767	1,767
Training	400	270	435	1,105
Covered Loading Docks	0	260	700	960
Contingency	1,917	500	600	3,017
Total	33,907	4,974	24,413	63,294

TABLE III

ILLUSTRATIVE FINANCIAL PLAN FOR FUNDS ALREADY COMMITTED

Category	USAID COMMITTED TO DATE	GOZ COMMITTED TO DATE	TOTAL COMMITTED TO DATE
Technical Assistance	11,695	823	12,518
Ops/Road Rehab/Maint	6,000	2,942	8,942
Commodities	10,152	2,992	13,144
Evaluations and Studies	329	106	435
Local hire personnel	0	682	682
Training	120	201	321
Covered Loading Docks	0	254	254
Contingency	578	231	809
Total	28,874	8,231	37,105

TABLE IV
Illustrative Budget by Fiscal Year *
LOP (\$000)

Category	FY90		FY91		FY92		FY93		TOTAL	
	AID	GOZ	AID	GOZ	AID	GOZ	AID	GOZ	AID	GOZ
Technical Assistance	750	260	4,031	260	313	260	0	240	5,094	1,020
Ops/Road Rehab/Maint	0	2,304	500	2,170	500	1,600	0	1,300	1,000	7,374
Commodities	750	1,200	750	1,200	700	1,200	0	709	2,200	4,309
Evaluations and Studies	200	80	150	80	200	59	0		550	219
Local hire personnel	0	425	0	425	0	425	0	400	0	1,675
Training	135	120	135	120	0	45	0		270	285
Covered Loading Docks	260	700	0	0	0	0	0		260	700
Contingency	150	155	150	160	150	160	150	125	600	600
Total	2,245	5,244	5,716	4,415	1,863	3,749	150	2,774	9,974	16,182
		^		^		^		^		

* This budget illustrates project expenditures by fiscal year for the \$4.974 million authorized under this PPS and the \$5.0 million uncommitted under previous obligations. In addition, it reflects an anticipated GOZ contribution in local currency equivalent to \$16.182 million.

*break between
 CPF
 and
 Regular Gov Budget
 PIP, B.O., and
 in kind.*

b2

TABLE V

Methods of Implementation and Financing				
Method of Implementation	Method of Financing	Contributions To Date	Future Contributions	Total A.I.D. Contribution
Ag TA- Checci AID Direct Contract	Cost reimb.	4,376	85	4,461
Ag TA- Project support PSCs	Direct Pay	2,767	125	2,892
Roads TA- LBI & MM HC contract	Direct pay	4,750	1,389	6,139
Roads TA- Project support PSCs	Direct pay	2,624	125	2,749
Commodities	B/LCom&D/LCcom	12,650	1,230	13,880
Training	Direct pay	400	470	870
Studies and evaluations	Direct pay	340	550	890
Road Rehabilitation HC contract	Direct pay	6,000	1,000	7,000
Total		33,907	4,974	38,881

IV. IMPLEMENTATION PLAN

Since the Project Paper was signed, June 30, 1986, all road construction equipment has been procured, brought on site and put to work. There is no plan to procure more equipment under the amendment, although there will be a need for 7 vehicles and spare parts for previously procured equipment. An equipment specialist working under a short term personal services contract has developed a list of spare parts required for project equipment through LOP.

There have been 225 kilometers of link road and 390 kilometers of regional roads completed in Section I, and all the 270 km link road has been opened to traffic on Section II, about 40 kilometers of which have been completed to specification. Additionally, two bridges have been constructed, four bridges have been rehabilitated, and two ferries are under construction. A contract has been awarded to a private sector contractor for construction of Section III (150 km.); and work should commence in the 1990 dry season. The construction contract is for a time period of 18 months which means work should be completed by the end of 1991.

The technical assistance contract with Morrison-Maierle for supervision of force account work on Section I ended in March 1990. Although work is not completed on several important regional roads in the southern part of Section I, the TA contract was not extended. The USAID-funded equipment on Section I will be moved to the Section II base at Kime, and Section I work will be completed from there under the supervision of the Louis Berger International (LBI) technical assistance team. Force account road rehabilitation on Section IV will commence in mid 1990 under the supervision of LBI. Road rehabilitation and attendant technical assistance will be required until the PACD of September, 30, 1993, in order to meet project objectives. Since the contract with LBI for technical assistance expires in March 1991, an RFP will be issued during 1990 for ongoing technical assistance. The project information office is now staffed and data collection will continue to the PACD. Covered loading docks are scheduled for completion in December 1990. All project agricultural activities have already begun and actions to the PACD will be continuous.

The revised Project Implementation schedule from May 1, 1990 through September 30, 1993 (PACD) follows.

IMPLEMENTATION SCHEDULE

<u>ACTION</u>	<u>AGENT</u>	<u>DATE</u>
1. Annual training of extension agents	Contractor USAID	May, 1990
2. Complete orders for road equipment spare parts	USAID	May, 1990
3. Begin project impact data collection	Contractor USAID	May, 1990
4. 90 Distribute 80 tons of corn seed to farmers	Contractor	May-Oct, 1990
5. 90 Place 11 new Peace Corps Volunteers for Ag. extension (4 replacement, 7 new posts)	Peace Corps	May-Oct, 1990
6. PP (amendment) Approved	USAID	June, 1990
7. Private Sector Contractor mobilized on Section III	Contractor	June, 1990
8. ODR mobilizes to begin force account rehabilitation	ODR	June, 1990
9. Issue RFP for Technical Assistance to Roads component	USAID	Sep., 1990
10. RIG Audit	RIG/USAID	Aug., 1990
11. Complete covered Loading Dock construction	Contractor	Dec., 1990
12. Complete 450 km systematic road rehabilitation	ODR/TA/Contractor	Dec., 1990
13. Award TA contract for roads component	USAID/Contractor	Jan., 1991
14. Mobilize roads TA contractor	Contractor	Mar., 1991
15. Award four contracts by ODR and/or SNRDA for manual maintenance by private sector	ODR/SNRDA/ USAID/Contractor	June, 1991
16. Annual training for agricultural extension agents	Contractor/USAID	May, 1991

17. Complete Section III	Contractor	Nov., 1991
18. Complete Additional 450 km of road rehabilitation including Section III	Contractor/TA/ODR	Dec., 1991
19. Project evaluation	Contractor/USAID	May, 1992
20. Annual training for agricultural extension agents	Contractor/USAID	May, 1992
21. Award Four additional contracts by ODR and /or SNRDA for manual maintenance by private sector	ODR/SNRDA/USAID/Contractor	June, 1992
22. Complete Additional 450 km. of road rehabilitation	ODR/TA	Dec., 1992
23. Final training for Ag. extension agents	Contractor/USAID	May, 1993
24. Complete additional 450 Km of systematic road rehabilitation	ODR/TA	Sept. 1993
25. PACD		Sept., 1993

V. MONITORING AND EVALUATION PLAN

The original PP identified the specific information requirements of the project as arising from the potential need for modifications or redesign of project components during implementation and stated that experience and knowledge gained through implementation could be used to improve the effectiveness of the project. Additionally, the PP recognized that sound project management required an array of economic and social data concerning the project environment, local commercial development, market conditions, and the effects of project interventions on Central Shaba's small farmers. An information office was envisioned within the project management unit.

The Research and Information Office was to be based at the Central Project management headquarters in Lubumbashi. The office was to be headed by an expatriate research specialist and staffed with a small core group of permanent employees, complemented by local GOZ members seconded to the information office by interested ministries.

Operations of the Research and Information Office were delayed due to difficulty in finding a qualified candidate to head the office. A qualified research specialist was identified in early 1990 and the information office is functioning under his guidance. It has become evident that the office will function more effectively if it is headquartered at the project agriculture base at Niembo, and the process of establishing the office there has begun. The office will be staffed with a small core group that has been in place since early in the project. In fact, this group has collected basic project-related data, pertinent to both agriculture and transport, since the beginning of the project. Beginning in the 1990/91 cropping season, the information office will launch a household survey to measure project impact on agricultural production, marketing, income, and the environment. In addition, systems for monitoring the effectiveness of the extension program and benefits from the transport component have been established.

As discussed in Section II, above, a project start-up evaluation was completed in December, 1988, by the consultant firm Experience Incorporated. Results of the evaluation have influenced this Project Paper Amendment.

There have also been several important studies conducted under the project which provide a variety of baseline data. A commercial baseline study was completed in May, 1987; a study on women as farmer leaders in February, 1988; and a traffic census of the central Shaba area in January-February, 1989.

The Research and Information Office (combined with the above project-funded studies) will provide a continuous source of data for monitoring project impact, and now that the office is functioning properly, the data can be analyzed. An interim evaluation is scheduled for January, 1992.

May

VI. PROJECT ANALYSES

A. Technical Analyses.

1. Agriculture Component

The concept of the agriculture technical analysis (seed enterprise, extension service, village and railhead grain storage, information office) included in the original Project Paper is still valid with the exception of GOZ secondment of employees to the Information Office. The project is instead contracting employees for the Information Office (see Section II.D.1.f. of this PP Supplement). It is also worth noting that due to failure of the seed enterprise contracted in 1989 to produce and distribute improved corn seed in the project area, the project's seed production and distribution strategy has been revised to include assistance to a variety of interested private sector entities including NGOs, agriculture cooperatives, and private farmers (see Section II.D.1.b. of this PP Supplement).

The GOZ continues to play a supportive and active role in the project through formal interactions. For example, a protocol agreement was signed for adaptive research trials between SENARAV (National Agriculture Research Service) and the Project; Project coordination meetings are held semi-annually whereby ODR, Department of Plan, the Regional Agriculture Inspector, and USAID report on and discuss project activities and issues under the chairmanship of the Director of the Ministry of Agriculture's Study and Planning Division (SEP-Service d'Etudes et Plannification); and SEP (Project 660-0119) lends support on in agriculture policy. Other collaborating institutions include SENASEM (National Seeds Service) for seed production, distribution, and quality control, and SNCZ (National Railways) for free transportation of materials for the important Covered Loading Dock program. The SNCZ contribution to date is valued at approximately \$188,000.

The project currently works with 40 farmer groups or pre-cooperatives in agriculture extension. A regional NGO, Maman Kipendamo, concentrates their activities at Niembo where the project Technical Assistance team is headquartered. There is potential for project assistance to other NGOs in the project area: the Catholic Mission in Budi, which is involved in farmer training and animal traction; the Catholic Mission in Kabalo, where the project already trains extension agents in production of rice; and the Pentacostal Community (work in legumes), located on the left bank of the Lomami River.

2. Roads Component.

Two major topics will be discussed under the technical analyses of the roads component: the capability of the GOZ agencies responsible for rehabilitation and maintenance of the national, regional, and local interest roads, and the standards to which project roads should be maintained.

a. Responsible GOZ Agencies. There are two agencies directly responsible for the rehabilitation and maintenance of the nation's road network: Office des Routes (ODR) and the Service National des Routes de Desserte Agricole (SNRDA). ODR has responsibility for the national and secondary road network, while SNRDA has responsibility for the local interest or agricultural roads. A third entity which has existed for a long time, but which has only recently gained recognition, is the Regional Roads Committee. These committees are chaired by the governor of the region and can be very influential on the selection of roads to be maintained, and the degree of maintenance performed, depending on the individual governor.

ODR is presently in the midst of a major reorientation. Created in 1971 with the support of World Bank and USAID, ODR was mandated responsibility for the entire road network of Zaire, some 145,000 kilometers of national, regional and local interest roads. The mandate was amended in 1978 and again in 1979 resulting in a reduction in the ODR management responsibility to 57,000 km. ODR was credited as being generally capable to perform its mandate until the GOZ financial crises which began in 1987, and is continuing today. Perhaps more devastating to ODR than the general financial crisis was fact that the GOZ refused to raise the price of fuel, taxes on which are a primary source of funding for ODR. Between 1987 and late 1989 ODR did not have the funds to meet full salaries, let alone operational funds, and very little work was performed. In mid 1989 the GOZ agreed to raise fuel prices in response to IMF, World Bank and donor demands, and since then ODR has begun to receive funds. Since much of the recent funding must go to pay past debts to contractors and supplies, ODR remains in difficult financial straits, but the situation appears to be improving. As the financial situation slowly improves, ODR is restructuring to drastically reduce staff and equipment fleet and to reorient itself toward contracting for rehabilitation and maintenance with private sector contractors.

The reorientation of ODR is the result of a technical audit of ODR co-funded by the World Bank and USAID in late 1988. As a result of the technical audit, the World Bank funded a follow-on study which recommended a complete reorientation of ODR. The recommended reorientation would make ODR principally a contracting agency for rehabilitation and maintenance of the national road network, with only minimal direct force account responsibility.

Under the recommendation ODR is to reduce its staff from the present 5,800 employee level to 2,000 employees in 1993. Most of the road construction equipment (all provided by donors) would be seconded to a yet-to-be-identified entity for lease and/or sale to the private sector. ODR is taking the recommendations of the study quite seriously, and is presently working on determining the best mechanisms for following the recommendations, While it is much too early to forecast the results of this reorientation, efforts to date by ODR to follow recommend changes are reason for a degree of optimism.

SNRDA was created under the Ministry of Rural Development in 1986 to be responsible for maintenance of the nation's agriculture roads. SNRDA is a contracting agency only, with a small cadre of administrative personnel, and is mandated to use ODR as its technical arm, both for reviewing contracts and monitoring work in the field. The agency was less than a year in existence when the GOZ financial crisis began, and therefore has not had a real chance to prove itself. In an effort to strengthen the organization, the World Bank is funding a pilot feeder roads project which will fund technical assistance to SNRDA as well as maintenance contracts.

Regional Roads Commissions have been established in all the regions of Zaire, and the commission in Shaba is active. The roads commissions work with limited funding, some of which comes from the Governor's fund, and some of which is generated locally. Local tax mechanisms are not well structured, and collection systems leave much to be desired. USAID has participated in two studies through the centrally funded Decentralized Financial Management (DFM) project which have resulted in several suggestions for both local funding of road maintenance and local contracting for maintenance. USAID plans to carefully study the possibility of a pilot decentralized project in Shaba under the Transport Reform Project (660-0126).

b. Rehabilitation and Maintenance Standards. There is frequently confusion in discussions of standards for rehabilitation and maintenance, usually relating to the geometry of the road, i.e., roadway width, radius of horizontal curves, degree of slopes, etc. The confusion probably stems from equating rehabilitation with reconstruction, and the two are quite different. Reconstruction is the rebuilding of a road that has become so deteriorated that essentially new construction is required or the improving of an existing road to meet greater vehicular demands.

Highway geometrics come into consideration in reconstruction projects.

Road rehabilitation means just that, restoring an existing road to its original condition, and geometrics are not a concern unless some sections of roadway would be dangerous or perhaps not drain effectively if restored to the original condition. In that case, local reconstruction would be in order, and geometrics would be

considered. The project is rehabilitating roads, not reconstructing them, and the geometrics are well established and obvious. It is much easier and cheaper to rehabilitate a road to its original geometric configuration, even if the width is greater than some set standard for that type road, than it is to "reconstruct" sections of road to meet that standard. Given the low traffic volumes on project roads (10-15 trucks per day at most during peak harvest season) reconstruction is not justifiable except in the most degraded sections, and there reconstruction should be a continuation of the existing roadway standards. Project roads will be rehabilitated to their original condition except in severely degraded sections which require reconstruction. Reconstructed sections will match the configuration of the original road.

Maintenance, for project purposes, means keeping the road in its rehabilitated condition. Geometrics have no place in discussions of road maintenance. The prime concerns are the required level of intervention to maintain the road in its rehabilitated state or, alternatively, the level of intervention required to keep the road open during certain periods of time. Obviously, there is an economic trade off if the latter alternative is chosen, since reduced frequency of maintenance will probably (not always) result in earlier and more costly rehabilitation. Traffic volume on project roads is quite low, and it is seasonal as well. There are a number of project roads that will remain in satisfactory condition for 5-6 years without heavy mechanized maintenance (scarifying, reshaping, and compaction) if manual maintenance of the road surface is performed immediately before and immediately following the corn harvest.

Drainage of surface water is the key to road maintenance. If side ditches and drainage structures are not kept clear, erosion will certainly take place whether there is traffic or not. A single light vehicle on a saturated earth road can destroy the surface to the extent that mechanical maintenance will be required. If proper drainage is maintained the road will not become saturated, except during the heart of the rainy season, and the road will be open for a longer period of time. This requires constant grass cutting in the side ditches and keeping the ditches and drainage structures open throughout the rainy season.

For project purposes, maintenance standards mean "the level of intervention required to keep roads passable during the corn harvest season and the planting season". This level of intervention will vary throughout the project due to differences in soil types, the fact that the rainy season varies in duration and intensity from north to south, and differences in traffic volume. The USAID-funded technical assistance team will work with ODR and SNRDA to establish required levels of intervention on the various rehabilitated project roads.

B. Economic Analysis.

1. Introduction.

This economic analysis essentially updates the analysis prepared for the Central Shaba Agricultural Development Project Paper (660-0105) in 1986. Modifications incorporated here to reflect amendment changes include: switching from a single crop (maize) extension program to a multi-crop (maize, cassava, and peanuts) program; adding a covered loading dock activity to the storage component; using actual accrued costs from the first three years of the project (1987-89), projected remaining LOP costs (1990-93), and modified recurrent costs after the PACD (1994 and beyond); and using more realistic schedules for link and feeder road rehabilitation versus PP projections.

The PP economic analysis stated that none of the four project components (agricultural technology transfer, roads, storage, and seed production) could be isolated and analyzed as stand-alone investments due to their interdependent nature. The same approach has been adopted here. Although benefits have been specified for each component, costs have not been separated out for each component (except for recurrent costs after the PACD). This still allows one to come up with net present values and internal rates of return for the project as a whole. One shortcoming, however, is that it does not permit detailed financial analyses of the potential profitability of project interventions for individual participants (i.e. farmers, merchants, and seed multiplication entities). As better data become available on production, labor productivity, marketing, and income and expenditure, analysis will be refined to gain a greater appreciation of the financial incentives for project participation.¹

2. Benefits -- Major Assumptions by Project Component.

For the agricultural extension component, crop budgets have been formulated for the three crops which are currently the focus of 105 extension efforts -- maize, cassava, and peanuts. These budgets assume an incremental per hectare yield increase of 67 % for maize, 33 % for cassava, and 46 % for peanuts resulting from a combination of adoption of improved seed varieties and cultivation practices. In addition, a "learning curve" is assumed whereby the extension message is picked up gradually by the target population -- beginning in Year 1 (1987) of the project with 5% of the population and rising to 70% by Year 6 (1992).

The PP economic analysis assumed that no new area would be brought into cultivation. Reflecting PNS experience, the project amendment more realistically states that production increases will

¹ There are currently plans for the Research and Information Office to embark on a household survey that will provide valuable information related to these variables.

not only result from increased yields per hectare on existing fields, but also from expansion of farming to new land (beginning in 1991). As a result, substantial benefits will accrue from the opening up of virgin land.² This area expansion will be largely the result of improved transportation infrastructure. However, it may also partially result from developments beyond the control of the project itself (i.e. policy changes related to market liberalization).

For the roads component, benefits flow from time saved in traveling and reductions in transport costs.³ Although one can hypothesize that the opening up of new land and more intensive cultivation of already farmed land would be mainly the result of better roads, these have already been accounted for in the agricultural component. Incorporating them here would amount to double-counting.

One major difference between the PP analysis and this one concerns the substantial delays that have occurred in initiating the road rehabilitation program. Whereas the PP assumed that rehabilitation activities would begin in 1988, it is only this year that substantial progress is expected to be made.

The storage component has also been altered as a new activity at SNCZ railheads (covered loading docks) has been added while the initially envisaged village-level storage activity has been shifted to the household level after a judgment was made that village storage was culturally and organizationally inappropriate within the Central Shaba context.

For the seed component, benefits appear in the extension component as one factor contributing to improved yields per hectare. However, the relative contributions of improved seed and adoption of new farming techniques have not been separated out. The costs of establishing a seed multiplication and distribution network are subsumed in the overall cost calculations for the project through 1993, and in recurrent cost calculations after the PACD (not altered from PP assumptions).

² For new land cultivated, adoption of improved technology is assumed to follow the same learning curve schedule as for land already cultivated (5% in 1991, growing to 70% by 1996 and beyond.

³ The methods and parameters used for calculating these benefits (or rather cost savings) have not been changed from the PP economic analysis (see PP, pages 12-2 to 12-4).

3. Benefits -- Results by Projects Component.

Table VI presents benefits by project component as a percent of gross project benefits from Year 1 through Year 23.⁴ Benefits from agricultural extension are divided into: 1) benefits derived from more intensive cultivation of already farmed land (an average of 26.3% of gross project benefits from 1990 to 2009); and 2) benefits flowing from bringing virgin land into cultivation (19.2%). The extension activity comprises the largest share of overall gross benefits (45.5%), although as previously noted, road improvements will share a great deal of responsibility for increased agricultural production, especially that resulting from area expansion. Overall transport benefits average 40 % of gross project benefits. The storage component is a relatively minor contributor to gross benefits (14.5%).

4. Internal Rate of Return Analysis.

The internal rate of return (IRR) is defined as the interest rate that drives the discounted net present worth of a project to zero. As such, it represents the rate of return for an investment project. An investment is judged acceptable from a social point of view if the IRR is greater than the opportunity cost of capital (in real terms). In practical terms, this usually means an interest rate on a safe investment such as treasury bonds backed up by a stable government.

In Zaire, the World Bank usually uses an interest rate of 10% for project appraisal.⁵ It should be remembered that the IRR is only one criterion used to judge the acceptability of an investment. For example, another criteria that might be used is equity in income distribution. This could involve targeting disadvantaged populations or distant geographic regions where long-run development potential may be great, but short-run investment costs are considerably higher than for regions close to major population centers or ports (such as Central Shaba). Such investments are generally more expensive and riskier to implement. Pursuit of such objectives in investment projects almost always implies lower IRR's.

USAID/Zaire believe that calculating the IRR from 1990 does not abuse this method because: 1) it is still relatively early in the project, and 2) the actual question at hand is whether or not economically justified as of 1990. At this point, justification as of 1987 is largely an academic question.

⁴ For economic analysis of investment projects, a time horizon of 20 or 25 years is normally chosen.

⁵ The PP economic analysis also used 10% as the opportunity cost of capital.

For the current analysis, two IRR's have been calculated -- one since project inception and extending 20 years (1987-2006), and another beginning in 1990 and extending 20 years (1990-2009). This second IRR is included because costs already incurred (1987-89) can be considered sunk. Because sunk costs have no opportunity cost (as these funds can not be retrieved and therefore have no alternative uses), an argument can be made for not considering them in the decision on whether or not to finance a project amendment from 1990-93. Care must be taken not to abuse this method. For example, one could positively evaluate a very economically unprofitable project simply by picking the most advantageous year to begin calculations. For example, one could begin calculations for a project with 15 years of massive negative returns in Year 14 and come up with a highly favorable IRR.

USAID/Zaire believes that calculating the IRR from 1990 does not abuse this method because: 1) it is still relatively early in the project, and 2) the actual question at hand is whether or not placing additional funding at the disposal of Project 105 is economically justified as of 1990. At this point, justification as of 1987 is largely an academic question.

The IRR for the project since inception is calculated as 7.8%. If the opportunity cost of capital is evaluated at 10%, and IRR is considered as the only criterion for deciding on project acceptability, financing the project from its inception is no longer acceptable. For the more specific question of whether to provide additional funds beginning in 1990, the IRR is much higher -- 21.8 % -- because the sunk costs of the 1987-89 period have been disregarded.

5. Sensitivity Analysis.

Because any investment decision entails considerable risk and a number of important assumptions of this analysis are based on admittedly weak data, it is prudent to perform sensitivity analysis to check the robustness of the IRR calculations when some of the more crucial parameters are altered. Table 1 showed that the extension and roads components generate the highest proportion of benefits. Although not broken out in detail, the roads component also accounts for the highest portion of costs. Therefore, the sensitivity analysis will deal with altering major assumptions pertaining to these two components.

Table VII gives IRR's for the 1987 and 1990 scenarios when a number of agricultural extension component assumptions are changed. These tests include 10% reductions in: incremental yields related to adoption of improved technologies for maize, peanuts, and rice; area expansion for maize and cassava; adoption

of new technologies on existing and new fields. Results of raising the price of seed paid by farmers by 10% are also identified. In addition, 10% changes in economic values for land, labor, and maize are tested.

Yield and adoption rate assumptions are most sensitive to change. These findings underline the importance of effectively communicating the extension message to contact farmers and the target population. Now that is fully operational, this division will be working actively with the team to monitor and improve the quality and clarity of the extension message. This will be assured through thorough and regular review of extension agent monthly reports and by collecting household level data. These will provide valuable feedback on the incentives facing farmers with regard to the decision to adopt new technologies promoted by the project. Recommendations for extension workers training programs and refinements in the technical package will logically flow from these analyses.

The third most sensitive factor is the border price of maize. Because Shaba and Kasaiian consumers prefer white maize over yellow maize, and because the bulk of formal maize imports to Southern Shaba have traditionally originated in South Africa, the South African maize price is the most relevant border price. Illegal imports of heavily subsidized Zambian maize flour are also important although quantities and prices are difficult to track. With the help of USAID missions in Southern Africa, USAID/Kinshasa will continue to monitor maize sector policy changes in South Africa and Zambia that could have a significant impact on the economic soundness of maize production in Central Shaba.

Sensitivity analysis was performed on the shadow price of labor because this is notoriously difficult to estimate with precision in LDC's. The original shadow price of \$0.75 per man/day was borrowed from the World Bank's economic analysis for its upcoming pilot extension project in Zaire, and was suspected to be too high for rural Shaba where alternative employment opportunities, either in the cultivation of other crops or in off-farm activities, are rare.⁶ The economic valuation of labor is fairly sensitive as a 10% reduction in the shadow price of labor raises the IRR calculation by 4.3%. This is because labor is by far the most important cost component of the farm budgets, other inputs being minimal in the largely subsistence agriculture of Central Shaba. By contrast, changes in the economic valuation of land result in only negligible changes in the IRR calculations. These findings make perfect sense because of the labor scarce/land abundant nature of agriculture in the project area. They also have important implications for the technologies promoted by the project. To the greatest extent possible, these technologies should address the labor constraint. In other words, strategies will be pursued that seek to maximize farmer returns per labor input, with yield maximization per hectare as only a secondary goal.

This is not to minimize the importance of efficient land use, as the technologies promoted must be sustainable. Otherwise, project benefits will be reduced in the long-run. Personnel are

¹ The one exception to this are parts of the south-eastern project zone where fishing is an important sources of employment, with wages generally higher than those in agriculture.

aware of this and have incorporated agro-forestry and green manuring techniques into their extension program.

Changes in area expansion (especially for cassava) have a somewhat significant effect on the IRR, but not nearly as great as changes in yield and adoption rates. Research and Information Office will be closely monitoring areas cultivated throughout the rest of the LOP.

Finally, a rise in the price of maize seed does not have a significant impact on economic returns. However, a detailed financial analysis is still required at the farm level to determine the private profitability of improved seed for individual farmers.

With regard to the transport component, sensitivity tests include: a 10% reduction in kilometers rehabilitated (with no commensurate reduction in costs); an additional one year delay in getting the road rehabilitation activities into full operation; and a 10% rise in recurrent costs after the PACD date. Table 3 gives results of these tests.

IRR calculations are most sensitive to transport component assumptions pertaining to reductions in link road kilometers rehabilitated and delays in getting the link road rehabilitation activity operational. However, IRR reductions are almost certainly understated because poor road infrastructure would have a negative impact on agricultural production and marketing. Farmers would be less apt to expand hectarage, as well as less likely to work more intensively on existing land. Because the agricultural supply response associated with improved transport infrastructure is unknown in the project area, no attempt has been made to perform sensitivity analyses on the combined effects of changing transport and agriculture parameters. However, upcoming household surveys by Research and Information Office will be able to shed light on interactions between agricultural production and road improvement.

Overall economic benefits are relatively insensitive to higher recurrent costs of road maintenance after the PACD. This is partly because discounted measures of project worth allocate less weight to dollars spent in latter years of the project as opposed to early years. However, it is also because these costs are quite small in current terms compared to benefits in the later years.

TABLE VI: BENEFITS OF PROJECT COMPONENTS AS SHARE
OF GROSS BENEFITS

YEAR	OVERALL EXTENSION	OF WHICH:			TOTAL BENEFITS (\$ 000)	
		NEW LAND	OLD LAND	STORAGE TRANSPORT		
1987	100.0%	0.0%	100.0%	0.0%	0.0%	136.86
1988	100.0%	0.0%	100.0%	0.0%	0.0%	273.72
1989	99.7%	0.0%	99.7%	0.3%	0.0%	548.95
1990	30.4%	0.0%	30.4%	26.8%	42.9%	2704.69
1991	33.8%	1.0%	32.8%	23.3%	42.9%	4170.12
1992	39.8%	5.0%	34.8%	18.1%	42.1%	5503.35
1993	42.1%	9.4%	32.8%	17.0%	40.9%	5846.52
1994	44.2%	13.3%	30.9%	16.1%	39.7%	6191.78
1995	48.2%	20.1%	28.1%	14.6%	37.2%	6812.77
1996	51.5%	25.8%	25.8%	13.4%	35.1%	7435.99
1997	51.0%	25.5%	25.5%	13.2%	35.8%	7514.30
1998	50.4%	25.2%	25.2%	13.1%	36.5%	7594.97
1999	49.9%	24.9%	25.0%	12.9%	37.2%	7678.06
2000	49.3%	24.7%	24.7%	12.8%	37.8%	7763.64
2001	48.8%	24.4%	24.4%	12.7%	38.5%	7851.78
2002	48.2%	24.1%	24.1%	12.5%	39.2%	7942.57
2003	47.7%	23.8%	23.8%	12.4%	40.0%	8036.09
2004	47.1%	23.5%	23.6%	12.2%	40.7%	8132.41
2005	46.5%	23.3%	23.3%	12.1%	41.4%	8231.62
2006	46.0%	23.0%	23.0%	11.9%	42.1%	8333.80
2007	45.4%	22.7%	22.7%	11.8%	42.8%	8439.06
2008	44.8%	22.4%	22.4%	11.6%	43.5%	8547.47
2009	44.2%	22.1%	22.1%	11.5%	44.3%	8659.13
AVERAGE SINCE						
1990	45.5%	19.2%	26.3%	14.5%	40.0%	

TABLE VII: INTERNAL RATE OF RETURN SENSITIVITY ANALYSIS
 AGRICULTURAL COMPONENT, 1987 AND 1990 SCENARIOS

	IRR AFTER SENSITIVITY TEST		IRR % CHANGE AFTER 10% CHANGE IN PARAMETER	
	1987	1990	1987	1990
10% YIELD REDUCTION				
MAIZE	7.40%	21.07%	-4.52%	-3.44%
PEANUTS	7.70%	21.71%	-0.65%	-0.50%
CASSAVA	7.39%	21.09%	-4.65%	-3.35%
ALL 3 COMBINED	7.00%	20.27%	-9.71%	-7.12%
10% NEW AREA REDUCTION				
MAIZE	7.73%	21.77%	-0.32%	-0.22%
CASSAVA	7.53%	21.43%	-2.87%	-1.77%
BOTH	7.50%	21.38%	-3.26%	-2.00%
10% ADOPTION REDUCTION				
EXISTING FIELDS	7.35%	20.95%	-5.16%	-3.97%
NEW FIELDS	7.50%	21.38%	-3.26%	-2.00%
BOTH	7.09%	20.51%	-8.54%	-5.99%
10% RISE IN PRICE PAID FOR MAIZE SEED				
	7.68%	21.66%	-0.94%	-0.75%
10% REDUCTION-SHADOW PRICE OF LABOR				
	8.08%	22.44%	4.32%	2.84%
10% RISE-SHADOW PRICE OF LAND				
	7.72%	21.77%	-0.37%	-0.25%
10% REDUCTION-BORDER PRICE OF MAIZE				
	7.13%	20.46%	-8.04%	-6.22%

NOTE: THE BASE SCENARIO IRR'S FOR THE AMENDMENT ARE 7.75% FROM
 1987 TO 2006, AND 21.82% FROM 1990 TO 2009.

TABLE VIII: INTERNAL RATE OF RETURN SENSITIVITY ANALYSIS
 TRANSPORT COMPONENT, 1987 AND 1990 SCENARIOS

	IRR AFTER SENSITIVITY TEST		IRR % CHANGE AFTER 10% CHANGE IN PARAMETER	
	1987	1990	1987	1990
10% KM REHAB. REDUCTION				
LINK ROADS	7.42%	21.17%	-4.32%	-2.97%
FEEDER ROADS	7.54%	21.41%	-2.68%	-1.90%
BOTH	7.20%	20.76%	-7.11%	-4.87%
1 YEAR DELAY IN REHAB.				
LINK ROADS	7.47%	20.70%	-3.60%	-5.15%
FEEDER ROADS	7.58%	21.10%	-2.15%	-3.28%
BOTH	7.30%	20.05%	-5.75%	-8.13%
10% RISE IN RECURRENT COSTS AFTER PACD				
LINK ROADS	7.69%	21.72%	-0.75%	-0.46%
FEEDER ROADS	7.72%	21.76%	-0.42%	-0.26%
BOTH	7.65%	21.66%	-1.23%	-0.73%

NOTE: THE BASE SCENARIO IRR'S FOR THE PROJECT AMENDMENT ARE 7.75%
 FROM 1987 TO 2006, AND 21.82% FROM 1990 TO 2009.

C. Social Soundness Analysis

The social soundness analysis contained in the original Central Shaba Agricultural Development Project Paper remains as appropriate today as when it was written in 1985. The project area is still characterized by relatively low population densities and considerable ethnic homogeneity, with the more densely populated quasi-urban areas located along the main roads, rail lines, and rivers. Agricultural production, which continues to be the primary activity and livelihood of most of the Central Shaba population, had been constrained, prior to project start-up, by the absence of improved crop varieties, improved agricultural production practices, and a viable means of evacuating surplus production.

This update will examine the social consequences and benefit incidence in the context of the changes in the implementation strategy and activities proposed by this amendment.

Improving transportation infrastructure will directly benefit, as identified in the original project paper, both the users of the improved infrastructure and the village communities located along these routes. Experience with the earlier North Shaba Project (PNS) and the current Central Shaba Project has shown that similar improvements reduce travel times, decrease vehicle down time lost to repairs, and increase the potential range and volume of transporters. At the same time, the improvements bring the previously isolated areas into contact with the market economy as traders extend their agricultural buying operations and increase the extent of trader competition, causing upward pressure on farmgate prices. In the PNS and, to some extent, in the Central Shaba Project areas, farmers in distant parts have shown that they will almost spontaneously increase production when roads are improved allowing traders easy access to these areas. This trend can be expected to continue as road improvements progress.

Further studies will be required during the next phase of this project to assess the effects of road improvements on changes in demography, personal mobility, and nutritional standards. The first of these issues was identified in the project paper: as roads are improved and economic activity increases in these areas, there could be demographic shifts to areas along these arteries, which could cause increases in deforestation. The second has been identified in recent World Bank and USAID studies. These studies point out that road improvements result in increases in personal mobility and changes in volume of transport, but that the former might have a more significant effect on rural development than the latter. The third issue requires attention to ensure that as rural farming communities gain greater access to markets and income, that nutritional levels not suffer as a result of selling more than surplus produce.

The production and distribution of improved seed varieties under the original project design was to be the task primarily of a private sector seed enterprise with the active participation of contract farmers to grow and sell their production to area residents. The primary beneficiaries were to have been the seed enterprise itself and those directly associated with the firm's seed farm. Since the termination of the contract with the private firm due to nonperformance, the project has modified its strategy to rely more heavily on contract farmers, PVOs, pre-cooperatives, and small private businesses to fill this void.

The original social soundness analysis suggested that the introduction of private sector distribution could cause problems related to differential access to improved seed stocks. The new approach reduces significantly the potential inequalities in distribution as a variety of non-governmental organizations, pre-cooperatives, and individual farmers will be contracted to produce/distribute improved seed in the project area. Along with the close ties with the national agriculture programs of SENARAV and SENASEM, these indigenous organizations will help to assure the sustainability of the seed project elements.

Agricultural extension activities, which were initially to be focused on corn and are expanded by this amendment to include manioc and peanuts, consist of a three-tiered system to transfer improved farming technologies. This system includes at the first tier 35 (five women) project-financed extension agents (some of whom are linked to religious missions or pre-cooperatives) and 12 project-associated Peace Corps volunteers (seven women); at the second tier, 1581 (415 women) village-based contact farmers; and at the third tier, the participating farmers themselves. Experience with the North and Central Shaba Projects has shown that farmers, the ultimate beneficiaries, are receptive to proposed innovations when advantages to adoption are made clear, especially through demonstration, and when friends, family, and neighbors begin to use the new methods.

The original social soundness analysis pointed out that working through religious missions may pose a potential constraint to farmer participation in that some farmers might be reluctant to cooperate because of denominational differences. Thus far, there is little evidence to substantiate this fear. In addition, much of the initial organization of project activities takes place with the approval and blessing of the traditional and local authorities, which, for the most part, diminish the potential for conflict.

There remain several gender-related issues that will need to be addressed during the following years of the project. Some of these were identified in the project paper, while others surfaced during the course of project studies and evaluations. It should be noted that the project has made tremendous strides in including women in many of the project's activities: as project extension agents, as contact farmers, and as recipients of improved technologies. This

notwithstanding, further attention will be given to the ramifications of women's participation. What is the relationship of increasing production of corn and other crops to division of labor and the allocation of time for that labor? If the acceptance of these innovations falls on the woman, what does this mean in terms of her time? What changes occur? If increased corn production brings increases in women's involvement in that activity and subsequent increases in household income, to what extent are the benefits equitably divided?

Corn storage facilities were to have played an important role in preventing post-harvest losses and in allowing farmers to hold on to part of their surplus production to be sold at a later date, both of which would bring the farmer increased revenues. Despite the absence of project-specific studies to determine the incidence and relative importance of crop losses due to inadequate storage, the farm, village, and railhead storage elements of the project have been de-emphasized in favor of covered loading docks at the railhead. This was primarily due to the resistance on the part of the concerned populations to accept collective storage and the high cost of individual or family-owned facilities. Covered loading docks were not meant to replace other types of storage but were in response to irregularities in and occasional absence of rail transportation services.

The project should consider examining the effects of abandoning village or farm-level storage on the small farmer. The Project Paper argued that improving access to previously isolated areas without some improvements in local storage might shift the benefits away from the rural small farmers to the large traders. As the small farmer has been identified as the primary beneficiary of project interventions and as it is his standard of living the project seeks to improve, close monitoring is warranted to ensure that benefits intended for him are not neglected.

D. Administrative Analysis

As stated in the original Project Paper, Project implementation of the Central Shaba Agricultural Development Project involves USAID, the GOZ, local and international private voluntary organizations, and national and expatriate private sector firms. However, some approaches within this basic framework have changed over time from what was described in the PP, as discussed below.

1. USAID

Project management will continue to be divided between the Agriculture and Rural Development Office (ARD) and the Project Design and Operations Office (PDO), as described in the PP. ARD will fund two PSC project officers, one stationed in Kinshasa and the other in Lubumbashi, to provide both central and field oversight of the agricultural component. PDO has the responsibility for management of the road rehabilitation and maintenance component of the project. To this end, as with the agriculture component, two PSC project officers will be funded for central and field supervision. Field supervision will continue to operate from the Shaba Development Office (SHADO), a Project Office established in Lubumbashi for this purpose. Since the Mission now has a direct hire engineer, the PSC engineer provided under the original project will not be funded under the amendment.

The internal USAID project management committee described in the PP has been formed and will continue to function.

2. GOZ

The GOZ will provide personnel for road rehabilitation and maintenance, both for force account work and for monitoring contractors. The project will fund most of the rehabilitation and maintenance, including equipment (already purchased) and technical assistance. The GOZ will provide the materials and the fuel used in force account work, as well as pertinent operating costs.

The Research and Information Office will not utilize Zairian staff seconded from GOZ agencies as envisioned in the PP, but will continue to operate with technical assistance funded by the project and Zairian staff contracted by the project through PACD. It should be noted that the Information Office was never intended to last beyond the end of project.

The GOZ plays a major role in project monitoring through participation in an oversight committee which meets twice a year, as described in the PP.

3. PVOs and Other Local Organizations

The project currently works with 40 farmer groups or pre-cooperatives. A regional NGO, Maman Kipendamo, concentrates its activities in Niembo. This NGO works with women groups and in all crops. The Catholics at Kayeye are involved in marketing soy (40 T in 1989). A pre-cooperative, the Communauté Pentacoste du Zaïre, located on the left bank of the Lomami river, works with legumes. The Catholic Mission in Kabalo is involved in growing rice. The rice fields are used for project training purposes.

4. Private Firms

The project will continue to promote private sector involvement. A contract has been awarded to a private firm for rehabilitation of 150 kilometers of the link road between Musao and Kinkondja, and contracts will be awarded to private firms for project road maintenance. These maintenance contracts will be funded by either counterpart funds or through Local Cost Financing, depending on the availability of counterpart funds. USAID will enter into Fixed Amount Reimbursement (FAR) agreements with ODR and SNRDA, which in turn will contract with private sector contractors. USAID will reimburse the contracting agency (ODR or SNRDA) for an agreed upon amount per kilometer of road satisfactorily maintained by the private sector contractor, after receiving proof that the private sector contractor has been paid.

Under the agriculture component, private sector entities will be identified to produce and distribute improved seeds for farmers. Contracts have already been awarded to two private contractors for the fabrication and erection of covered loading docks at eight rail centers.

5. Technical Assistance Teams

Contracts have been awarded for technical assistance to both components; Morrison-Maierle and Louis Berger International (LBI) for the roads component and Checchi Company for the agriculture component. The contract with Checchi Company extends until the PACD; although modifications to the contract adds to budget requirements as explained in Sections II and III above.

The Morrison-Maierle contract expired in March, 1990, and the LBI contract expires in March 1991. A RFP will be issued for technical assistance for the roads component which will extend to the PACD. This is discussed above in detail in the Project Description, Section II, above.

E. Environmental Impact Analysis

The Initial Environmental Examination prepared during PID design was carried out by the REDSO/WCA Regional Environmental Officer. A negative determination was recommended and approved. As project activities under the project amendment will remain the same as they were under the original project, the negative environmental determination set forth in the IEE will remain in force.

Project 105 has been sensitive to its natural surroundings and has not had an adverse on the environment. With regard to the road component, it should be stressed that the work already carried out, and the activities that are planned from now until PACD, are concerned with rehabilitation, not construction. Thus, the existing right of way is being used, and there is no additional encroachment on the natural vegetation along the roads. The only trees that have been cleared are secondary growth that have established themselves in the right of way. The project area is largely open savanna far removed from the tropical rainforest in the northern part of the country.

All road work is closely monitored by USAID engineering and project staff, so any damage or threat to the environment would be immediately known and acted upon. The Transport Reform Program (660-0126) will also monitor the impact of rehabilitated roads on the environment and concern itself with trying to devise ways of mitigating any adverse effects.

USAID, as required, has acted on the one specific environmental recommendation concerning roads made in the IEE. The IEE recommended that some funds be budgeted in the project for non-lethal support of anti-poaching activities in the Upemba National Park area since there will be project road improvements near the park which could provide access to poachers. In 1989, USAID procured one hundred (100) bicycles to be used for transportation by park rangers and a Toyota pick-up for use by park officials, at a total cost to the project of \$50,000. The bicycles and the pick-up truck have been delivered to the park and are now in use.

The agricultural component has been equally concerned with the need to protect the environment. The project is fully aware of the environmental problems confronting agriculture in Zaire, and the project's agricultural activities have been sensitive to those concerns.

Zaire, despite its apparent abundance of land, faces serious short to near-term environmental degradation in many of its agriculturally productive regions. Extensive degradation of the natural resource base has already occurred in some areas. Extensive soil erosion is clearly a problem in Central Shaba.

In many areas, traditional production systems are incapable of meeting farmers' needs. In Central Shaba, fallow periods in the traditional shifting agricultural system are decreasing, leading to lowered

yields, greater and more rapid overall degradation of the soil resource base, and declining returns to labor per unit area of land. Farmers encountering decreased productivity per unit area are increasing the amount of land under cultivation, thereby increasing the effective man-to-land ratio and reducing the fallow period still further. This pattern, repeated throughout much of Zaire, indicates that traditional production systems are becoming unstable and is a warning that agricultural production practices must change.

Even though Zaire has a low overall rate of deforestation, the threat to Zaire's forest resources is still serious. In Central Shaba, farmers are no longer able to meet their production needs on the traditionally farmed savannah soils. As a result they have moved into the gallery forests along waterways. These forests, threatened throughout the tropical world, represent unique and important biological systems.

These concerns may seem unrealistic in a country where only three percent of the national territory is utilized for agricultural production. However, Zaire's growing food deficit shows that the natural resource base is in fact under stress. In addition, by the year 2000, it is estimated that half of Zaire's population will be urban. Given the poor transportation infrastructure, food for urban dwellers will need to be produced on a small portion of the total land available in Zaire. Food produced far from the few existent roads and railroads, or navigable waterways simply cannot be moved to urban centers. These areas will come under greater and greater stress in the short-term. Lessons learned in Brazil, Mexico, Kenya and many other nations have shown that ignoring potential environmental deterioration is very costly. Too often agricultural research has focused on increasing production without adequately considering agricultural scientists' and farmers' responsibilities to protect the natural resource base upon which all agricultural production ultimately depends.

Zaire is fortunate to have a large natural resource base which remains, in some areas, untouched. The Project will focus its efforts on preserving that resource base to ensure that agricultural production in Zaire can be maintained over the long term.

Environmentally responsible agriculture development involves in the first instance, protection of soil, forest, and water resources. It also involves, in the second instance, improving agricultural practices to limit further degradation and rehabilitate environments which have already been degraded. The traditional slash and burn agriculture used by most Zairian farmers, for example, contributes directly to worldwide environmental deterioration. Large amounts of carbon dioxide are released by burning, which interacts in the upper atmosphere, contributing to ozone depletion. Further, the system destroys major germplasm resources for the world; Zaire's tropical rain forests, its tropical deciduous forests, and its gallery forests all represent ecotypes which are threatened worldwide.

Environmental issues will be addressed in the agriculture component of the project through the following mechanisms:

1. training in the principles of ecologically sound agricultural development for NGO or project staff;
2. development of linkages between the project on the one hand and SENARAV (Project 660-0124), other USAID projects, and international organizations on the other hand, that are willing to contribute financial resources and expertise to preserving and rehabilitating Zaires's natural resources; and
3. in conjunction with SENARAV, development and distribution of ecologically responsible technologies that are adoptable by Zairian farmers. A SENARAV employee will be stationed at Niembo, the Project's agricultural station.

Environmental activities promoted by the agricultural extension component of the project include promotion of tree nurseries, nitrogen fixing trees, alley cropping, cover cropping, and lengthening fallow periods to improve soil nutrition and control erosion. These efforts reflect the continuing awareness and concern within the Mission relating to environmental issues.

The Project will monitor the effects of project activities on the environment through the Research and Information Office. Data will be maintained on the land area under cultivation each year to determine if agricultural activity is expanding, and what land has been put under cultivation; ie, forested or savannah land. Data will also be collected on the distances from cultivated areas to the roads being rehabilitated to determine if road rehabilitation has an effect on agricultural activity.

In response to AID/W's concerns about the environmental impact of the project (see Annexes B and C), USAID has requested that the REDSO/WCA Regional Environmental Officer/Advisor carry out a thorough evaluation of the environmental impact of the project to date, assess the expected impact resulting from the PP amendment, and design a system for monitoring environmental impact during the remainder of project implementation. The Regional Environmental Officer's/Advisor's scope of work will include all the points raised in Annex C.

VII CONDITIONS AND COVENANTS

The original PP contained three conditions precedent: the standard CP requiring the name and specimen signature of the GOZ agent specified in Section 8.3 of the Grant Agreement, a CP to disbursement under the roads component, and a CP to disbursement under the agriculture component. The CP requiring specimen signatures and the CP to disbursement under the agriculture component have been met. The CP for the roads component required the GOZ to assure USAID that roads not under the responsibility of ODR would be maintained by the GOZ prior to USAID obligating funds for rehabilitation of these roads. Since the CP did not relate to roads within the ODR network, the Project has only rehabilitated roads for which ODR is responsible. SNRDA is now responsible for these local interest roads and the CP for the roads component will be modified accordingly in this amendment.

In addition there were 10 covenants, most of which will be retained in the amendment. Modified Conditions Precedent and Covenants are listed below.

A. Conditions Precedent to Disbursement.

1. Conditions Precedent to First Disbursement. Prior to the first disbursement under the Grant, or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made, the government of Zaire will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D. a statement of the name of the person holding or acting in the office of the Government of Zaire specified in section 8.3. of the Grant Agreement, and of any additional representatives together with a specimen signature of each person specified in such statement.

2. Conditions Precedent to Disbursement for Roads.

- a. Prior to disbursement under the Grant (as amended), or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made for the rehabilitation of roads, the Government of Zaire will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D., evidence that the Government of Zaire has included project roads scheduled for rehabilitation in their annual road maintenance schedule, either through the responsible national agency or through a local government entity. Funding will be provided by A.I.D. for only those roads included in the GOZ annual maintenance schedule.

- b. Prior to disbursement under the Grant (as amended), or to the issuance by A.I.D. of documentation pursuant to which disbursement will be made for the rehabilitation of roads by force account after July 30, 1990, the Government of Zaire will, except as the Parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactorily to A.I.D., evidence that the Government of Zaire will provide adequate equipment and personnel to perform the rehabilitation work, as well as ample fuel, oil, and lubricants to maintain continuous daily rehabilitation operations.

3. Conditions Precedent to Disbursement for Seed Enterprise.

Prior to disbursement under the Grant, or to issuance by A.I.D. of documentation pursuant to which disbursement will be made for the financing of the seed enterprise contract, the Grantee will, except as the parties may otherwise agree in writing, furnish to A.I.D. in form and substance satisfactory to A.I.D. evidence that the seed enterprise has been organized under the laws of Zaire and has a suitable establishment agreement with the Grantee. (This CP has been met).

B. Covenants

1. Project Evaluation.

The parties agree to establish an evaluation program as part of the project. Except as the Parties may otherwise agree in writing, the program will include during the implementation of the project and at one or more points thereafter:

- a. Reassessment of project goal and purpose to ascertain if the project rationale and its associated economic justification continue to be sound;
- b. Evaluation of progress toward attainment of the objectives of the project;
- c. Identification and evaluation of problem areas or constraints which may inhibit such attainment;
- d. Assessment of how the information obtained in c. above may be used to help overcome such problems; and
- e. Evaluation, to the degree feasible, of the overall development impact of the project.

2. Other Covenants.

The Grantee shall covenant:

- a. To maintain and encourage adherence to the present policy which permits inter-regional trade to be freely carried out between Shaba and neighboring regions;
- b. To pursue further refinement of economic liberalization policies including agricultural marketing campaigns.
- c. To maintain all roads rehabilitated by the project to a standard agreed to by the GOZ and A.I.D., as described in the Technical Analysis of this amendment;
- d. To continue to develop assured financing sources, including locally generated revenues, for road maintenance.
- e. To provide increased levels of GOZ resources, from other than USAID-generated counterpart funds, to the project in order to assure sustainability of project agricultural activities beyond the project assistance completion date.
- f. To fund environmental training of project technical advisors, ODR, SNRDA, and private construction contractor personnel on the road side and technical advisors, peace corps volunteers and extension agents on the agricultural side, to increase awareness of environmental issues and measures for mitigating the negative impact road rehabilitation and agricultural activities.
- g. To authorize the use of local currency and limited U.S. dollars to research the questions related to (1) damage to good roads caused by vehicles, (2) damage to vehicles caused by bad roads, and (3) the economic cost and benefit ratios associated with road rehabilitation standards, follow-up mechanized/manual road maintenance techniques, and local transport practices in the project area.

Project Title & Number: Central Shaba Agricultural Development (f

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE IN	
	FX	LC
Project Inputs:	(\$000's)	
	<u>A.I.D.</u>	<u>GOZ</u>
Technical Assistance	14,074	1,960
Ops/Road Rehab/Maint	7,000	1,311
Commodities	13,880	8,740
Evaluations and Studies	580	219
Local hire personnel	- -	1,767
Training	670	435
Covered Loading Docks	260	700
Contingency	<u>2,417</u>	<u>600</u>
Total	38,881	15,732

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ANNEX B

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E.O. 12356: N/A

SUBJECT: CENTRAL SHABA AGRICULTURAL DEVELOPMENT PROJECT PAPER AMENDMENT (660-0105)

REFS: (A) KINSHASA 03908 (B) STATE 110553

1. SUMMARY: AS INDICATED REF B, THE AID/W PROJECT COMMITTEE (PC) MET ON APRIL 6 TO REVIEW MISSION'S REQUEST FOR AN AD-HOC DELEGATION OF AUTHORITY TO AMEND SUBJECT PROJECT TO INCREASE LOP BY DOLS 5.0 MILLION TO A NEW TOTAL OF DOLS 39.907 MILLION. ALTHOUGH THE BUREAU HAS SEVERAL CONCERNS REGARDING THE PROJECT WHICH ARE DISCUSSED BELOW AND MUST BE ADDRESSED BY THE MISSION PRIOR TO AUTHORIZATION, THE BUREAU CONCURS IN THE REQUESTED AD-HOC DELEGATION OF AUTHORITY TO THE MISSION. END SUMMARY

2. COST ESTIMATES: THE PROJECT COMMITTEE (PC) NOTED THAT THE DECEMBER 1988 START-UP EVALUATION ALSO CALLED FOR A DOLS 5.0 MILLION AMENDMENT TO THE PROJECT BASED ON COST OVERRUNS AT THAT TIME. THE PC QUESTIONED WHETHER THESE COST ESTIMATES WERE STILL VALID SIXTEEN MONTHS LATER, AND THE EXTENT TO WHICH THE MISSION HAD UPDATED THEIR ASSESSMENTS OF THE OVERRUNS. PRIOR TO

AUTHORIZATION OF THE PROJECT, THE MISSION SHOULD DO A COMPLETE AND THOROUGH COST ANALYSIS OF ALL REMAINING CONSTRUCTION/REHABILITATION UNDER THE PROJECT.

3. ENVIRONMENTAL ASSESSMENT: ZAIRE IS NOW A PRIORITY NRMS COUNTRY, AND WITH THE DESIGNATION OF ZAIRE ALSO AS THE PRINCIPAL GLOBAL WARMING EMPHASIS COUNTRY FOR THE AFRICA BUREAU, THERE IS MUCH ATTENTION FOCUSED ON ENVIRONMENTAL ISSUES RELATING TO ZAIRE. THEREFORE, THE PC FELT IT PRUDENT TO ASK FOR A REVIEW OF THE ENVIRONMENTAL IMPACT OF THE PROJECT. THE AMENDMENT SHOULD INCLUDE A THOROUGH ASSESSMENT OF THE ENVIRONMENTAL IMPACT OF THE PROJECT TO DATE, ANY IMPACT EXPECTED AS A RESULT OF THE CHANGES IN THE ROAD REHABILITATION PROGRAM, AND A SYSTEM FOR MONITORING ENVIRONMENTAL IMPACT AS THE CONSTRUCTION/REHABILITATION CONTINUES. THE BUREAU ENVIRONMENTAL COORDINATOR IS

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PRESENTLY REVIEWING THE ORIGINAL LIFE COMPLETED IN 1986, AND WILL BE ADVISING MISSION BY SEPT/87 OF INFORMATION NEEDED IN ASSESSMENT.

4. ROAD MAINTENANCE: THE EARLIER EVALUATION CITED THE LACK OF PROGRESS TOWARDS AN EFFECTIVE ROAD MAINTENANCE SYSTEM, PARTICULARLY TOWARDS A SYSTEM OF LABOR-INTENSIVE MAINTENANCE. REF A DOES NOT ADDRESS THE ISSUE. AS ROADS ARE REHABILITATED UNDER THE PROJECT, THIS ISSUE BECOMES MORE CRITICAL TO THE SUCCESS OF THE PROJECT AND ITS LONG-TERM SUSTAINABILITY. THE PP AMENDMENT SHOULD DISCUSS PROGRESS TOWARDS A FINANCIALLY SUSTAINABLE SYSTEM OF ROAD MAINTENANCE FOR THE PROJECT ROADS.

5. TECHNICAL ASSISTANCE: IN VIEW OF THE DECEMBER 1986 EVALUATION'S RECOMMENDATION THAT THE PROJECT MAY HAVE MORE THAN ADEQUATE TECHNICAL ASSISTANCE, THE PC QUESTIONED THE EXPANSION OF TECHNICAL ASSISTANCE. THUS, ANY EXPANSION OF TECHNICAL ASSISTANCE SHOULD BE JUSTIFIED IN THE PP AMENDMENT.

6. MULTI-CROPPING: IT IS UNCLEAR FROM REF A, WHETHER THE PROJECT HAS MADE THE SHIFT IN THE AGRICULTURAL COMPONENT FROM SIMPLY A FOCUS ON CORN PRODUCTION TO MULTIPLE CROPS RECOMMENDED IN THE PROJECT EVALUATION. AS A RESULT, THE PC QUESTIONED WHETHER ALL THE COROLLARY ADDITIONAL FUNDING NEEDS HAVE BEEN TAKEN INTO CONSIDERATION FROM THIS SHIFT IN THE DOLS 5.0 MILLION LEVEL INCREASE FOR THE LOP. THE PP AMENDMENT SHOULD INCLUDE A REVISION OF

THE LOGFRAME TO ACCOMMODATE THE EXPANDED AGRICULTURAL FOCUS AND ALL COSTS (SEEDS, FERTILIZERS, DISSEMINATION

TECHNIQUES, ETC.) BE CAREFULLY IDENTIFIED AND INCLUDED IN THE PP AMENDMENT.

7. ONCE THE MISSION HAS ADDRESSED ALL THE CONCERNS IDENTIFIED IN THE PARAGRAPHS ABOVE, THE MISSION DIRECTOR, USAID/ZAIRE IS HEREBY DELEGATED AUTHORITY TO EXECUTE AN AMENDMENT TO THE CENTRAL SHABA AGRICULTURAL DEVELOPMENT PROJECT (662-21050 TO INCREASE THE LOP TO DOLS 38.987 MILLION.

8. PLEASE FORWARD THE PP AMENDMENT TO AID/W UPON APPROVAL BY THE MISSION. BAKER

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E.O. 12356: N/A
TAGS: N/A

SUBJECT: CENTRAL SHABA AGRICULTURAL DEVELOPMENT PROJECT
PAFER AMENDMENT (668-3105) EVALUATION OF ENVIRONMENTAL
IMPACTS

REF: (A) STATE 283555 (B) KINSHASA 86881 (C) KINSHASA
85827

1. BUREAU ENVIRONMENTAL COORDINATOR HAS REVIEWED SUBJECT
PP AMENDMENT. ORIGINAL IFF CALLED FOR SOME MONITORING
EFFORT INCLUDING THE USE OF REMOTE SENSING IMAGERY. ALSO
NOTE THAT IN THE 1989 NATHAN REPORT, THE REVIEWERS CITED
THE POSSIBLE INCREASE IN MANPOWER AND TRANSPORT COSTS (IN
ADDITION TO ENVIRONMENTAL IMPACTS) AS REASONS FOR
RECOMMENDING A REVIEW OF THE LONG TERM IMPACT OF MAIZE
CULTIVATION EXPANSION IN NEW AREAS WITHIN THE PROJECT
REGION. REC THEREFORE RECOMMENDS A THOROUGH EVALUATION
OF THE ENVIRONMENTAL IMPACTS OF THE PROJECT TO DATE,
EXPECTED IMPACTS AS A RESULT OF THE PP AMENDMENT, AND
INSTITUTION OF A SYSTEM FOR MONITORING ENVIRONMENTAL
IMPACTS DURING THE REMAINDER OF PROJECT IMPLEMENTATION.
FOLLOWING IS A DISCUSSION OF THE CONCERNS RAISED BY
AFR/TR/ANR AND SOME SUGGESTED ITEMS FOR SOA FOR
ENVIRONMENTAL EVALUATION REFERRED TO IN REF 1.

2. BUREAU ENVIRONMENTAL COORDINATOR NOTED THAT THE
ORIGINAL IFF (1989) WAS A VERY GOOD TREATMENT OF THE MANY
DIFFERENT ASPECTS OF FIRE ECOLOGY IN AFRICA. ESPECIALLY
IT MADE A GOOD CASE FOR THE FIRE/FALLOW ROTATION SYSTEMS
IN USE IN THE PROJECT AREA. AFR AGREES THAT PRESENTLY
QUOTE...THE FIRE SITUATION IN THE PROJECT REGION IS
UNDOUBTEDLY FAR MORE ADVANTAGEOUS THAN DISADVANTAGEOUS TO
MAN...UNQUOTE. HOWEVER BY THE AUTHOR'S OWN ADMISSION (IEE
P.9) THERE IS ALSO LITTLE DOUBT THAT BURNING IS CURRENTLY
MORE FREQUENT AND LESS INTENSE THAN IT WAS PRIOR TO HUMAN
SETTLEMENT IN THE AREA. PRESUMABLY THIS TREND WILL
CONTINUE AND INCREASE IN ITS PROGRESSION, SO THAT IT IS
ONLY A MATTER OF TIME BEFORE CHANGES WILL OCCUR WHICH ARE
DISADVANTAGEOUS. GIVEN THE FACT THAT THIS PROJECT IS A 6-
7 YEAR EFFORT INVOLVING 36,000 SQ. MILES AND AFFECTING
163,000 PEOPLE, THE MISSIONS SHOULD BE CLOSELY MONITORED

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3. THE CENTRAL THESIS OF THE IEE (3.1) IS THAT THE PROJECT WILL: (A) BRING ABOUT A SUSTAINABLE INCREASE IN LOCAL PRODUCTION; (B) ENCOURAGE URBAN-TO-RURAL MIGRATION; AND (C) AT FIRST INCREASE, THEN LATER STABILIZE, THE AMOUNT OF LAND UNDER CULTIVATION. THE IEE (3.1) NOTES THAT OVER THE LONG RUN, PROGRESS SUSTAINABLE LONG-TERM CROPPING OF INDIVIDUAL FIELDS SHOULD RESULT IN A PATTERN OF INCREASED LAND CLEARING PER FAMILY. THE EFFECT OF THE PROJECT ON WOODY VEGETATION WILL BE TO REDUCE HUMAN INTERRUPTION OF VEGETATIVE SUCCESSION. THIS IS AN IMPORTANT HYPOTHESIS, AND SHOULD BE CONSIDERED ONE OF THE MEASURABLE INDICATORS OF PROJECT SUCCESS. IN ADDITION THE IEE NOTES THAT IN TERMS OF COOLANT AND SAVANNAH TREES, THE PROJECT SHOULD RESULT IN A NET, ALTHOUGH PROBABLY INSIGNIFICANT, REDUCTION IN BURNING AROUND THE URBAN CENTERS BY ENCOURAGING URBAN-TO-RURAL MIGRATION AND CONCOMITANT REDUCTION IN CHARCOAL USE. AGAIN, THIS IS AN IMPORTANT, MEASURABLE INDICATOR. THE MISSION SHOULD REFER TO THE LATEST GUIDANCE ON THE USE OF NATURAL RESOURCE INDICATORS IN SUSTAINABLE AGRICULTURAL DEVELOPMENT (REF A FOR A MORE DETAILED DISCUSSION OF THIS SUBJECT).

4. THE PROJECT IEE DID NOT TOUCH ON MONITORING AND/OR EVALUATION OF THE ABOVE, ALTHOUGH THERE IS MENTION OF A COMPARATIVE STUDY OF SAVANNAH FOREST DURING THE FIRST TWO YEARS OF THE PROJECT. IT WOULD BE MORE MEANINGFUL FOR FUTURE PROJECT EVALUATIONS TO HAVE A MINIMUM SET OF THE GROUND DATA RELATIVE TO THE ABOVE INDICATORS.

5. SOME SUGGESTED ITEMS THAT SHOULD BE ADDRESSED BY THE EVALUATION ARE:

A. HOW CAN SOAD, THE LOCAL INFORMATION OFFICE REFERRED TO IN THE IEE, ADAPT ITS QUESTIONNAIRE TO ENABLE PROJECT STAFF TO GATHER SOME BASIC INFORMATION ON ENVIRONMENT OR NATURAL RESOURCES OF PARTICULAR CONCERN? THIS COULD BE: LAND USE; SUSTAINABLE AGRICULTURE; LOCAL AGRICULTURAL TECHNOLOGIES; ETC. IN ADDITION, HOW CAN THE PROJECT MAKE A MORE SERIOUS EFFORT AT IDENTIFICATION OF SAMPLE SITES, SAMPLING TECHNIQUES AND/OR STAFF TRAINING IN ENVIRONMENTAL MONITORING?

B. OVER THE LONG-TERM HOW CAN THE PROJECT CARRY OUT BASELINE STUDIES SIMILAR TO THOSE BEING CARRIED OUT ON AGRICULTURAL PRODUCTION AND MARKETING? THE PROJECT WOULD BE TO GATHER INFORMATION THAT WOULD BEAR ON THE ENVIRONMENTAL INDICATORS MENTIONED ABOVE.

C. IT WOULD ALSO BE OF HELP TO HAVE THE EVALUATION REVIEW AND INCORPORATE SOME OF THE GENERAL INFORMATION FROM

SECTION'S TABLE REPORT REGARDING CONSERVATION VEGETATION TYPES, ESPECIALLY INFORMATION THAT MAY BE OF IMPORTANCE TO PRESERVATION OF BIODIVERSITY WITHIN THE PROJECT AREA.

D. THE EVALUATION SHOULD ALSO ASCERTAIN THE STATUS OF ANY OTHER PROJECT ACTIVITIES, SUCH AS, PESTICIDE USAGE. IN ADDITION, IT SHOULD IDENTIFY SITES AND AREAS SUBJECT TO ESTABLISH LOCAL ENVIRONMENTAL ORGANIZATIONS THAT COULD CARRY OUT FUTURE MONITORING AND EVALUATION OF ENVIRONMENTAL IMPACTS.

E. LASTLY, THE EVALUATION SHOULD OUTLINE HOW ENVIRONMENTAL INFORMATION GAINED FROM MONITORING THIS PROJECT WILL BE COORDINATED WITH SIMILAR INFORMATION FROM: (1) THE STUDY D'INFORMATION BEING PLANNED AT THE NATIONAL LEVEL FOR THE TRANSPORT IMPROVEMENT PROGRAM (867-1106); (2) PANAMA MISSION PROGRAM, SUCH AS, REGULATORY MARKET DEVELOPMENT PROGRAM (867-1109); AND (3) OTHER LOCATIONS, SUCH AS THE WORLD BANK PILOT HIGHWAY ROADS PROJECT (REF 2).

G. PLEASE INFORM BUREAU ENVIRONMENTAL COORDINATOR WHEN EVALUATION HAS BEEN CARRIED OUT. BEO WOULD THEN LIKE TO DISCUSS WITH REGIONAL ENVIRONMENTAL OFFICER STRATEGY TO BE USED TO FOLLOW UP FOR PROJECT ENVIRONMENTAL MONITORING IN COUNTRY.
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REVISED LOP COMMODITY PROCUREMENT PLAN (PROJECT 660-0105)

I. AMOUNT OBLIGATED IN GRANT AGREEMENT THROUGH FY90: \$33,907,000

COMMODITY ELEMENT \$12,650,000

ITEMS ALREADY EARMARKED + ESTIMATED COST

<u>Item</u>	<u>Commodity</u>	<u>Quantity</u>	<u>Unit cost</u>	<u>CIF cost (\$)</u>
<u>Agricultural Component</u>				
	<u>PIL #</u>			
1.	Honda XL 125 motorcycles	10	2,500	25,000
2.	Nissan Patrol station wagon	2	30,000	60,000
	<u>PIL # 18, Amt # 1</u>			
3.	Motorcycles	12		30,000
4.	Vehicles	2	20,000	40,000
5.	Spare parts (tires)			20,000
	<u>PIL # 20</u>			
6.	4 x 4 Toyota Land Cruiser HJ60	4	25,000	100,000
7.	4 x 4 pick up truck (Toyota)	1	20,000	20,000
8.	4 x 4 Toyota Land Cruiser HJ60	2	25,000	50,000
9.	Spare parts			34,500
10.	Microcomputer systems, software and supplies	3		20,000
	<u>PIL # 21</u>			
11.	Toyota Land Cruiser 4WD Pick up 3.4l	1	25,000	25,000
12.	Bicycles	100		25,000
	<u>PIL # 24</u>			
13.	Toyota bus	1	30,000	30,000
14.	Computers & Related Equipment	4 sets	25,000	30,000
15.	Spare Parts	as needed		15,000
	<u>Checchi Procurement</u>			255,255
16.	Video cassette players SONY	3		
17.	Video Camera	1		
18.	Slide Projectors 35mm	2		
19.	Cassette tape recorders	3		
20.	35mm Camera	1		
21.	Rain gauges	6		
22.	Thermometers	3		
23.	Indicating weather station	1		
24.	Seed and grain cleaner	1		
25.	Grain moisture testers	4		
26.	Moisture testers	4		
27.	Spare parts and supplies			
28.	Motorcycles Helmets	36		
29.	Training materials & technical publications			
	<u>SUBTOTAL</u>			774,755

<u>Item</u>	<u>Commodity</u>	<u>Quantity</u>	<u>Unit cost</u>	<u>CIF cost (\$)</u>
<u>Roads Component</u>				
	<u>PIL # 5</u>			
1.	Caterpillar d7H	5		3,877,877
2.	Caterpillar Wheel Loaders 950 B	5		in above amt
3.	Caterpillar Excavator Backhoe	1		in above amt
4.	Caterpillar Motor Graders	10		in above amt
5.	Vibratory Compactor	4		273,520
6.	Ford Tractors	6		240,451
7.	40 T Capacity Trailer	1		31,792
8.	25 T Capacity Trailer	3		87,350
9.	Mobil House Trailer	4		152,645
10.	Off-Highway Trailer	10		38,000
11.	Concrete Mixers	10		149,528
12.	Lubrication Units	2		80,326
13.	Compressor	1		14,712
14.	Concrete Vibrators	5		13,118
15.	Welders	8		91,655
16.	Toyota Landcruiser Pickups	10		176,732
17.	Toyota Landcruiser	2		47,466
18.	Toyota Landcruiser	4		95,641
19.	Mack Trucks	28		1,867,477
20.	Lubricant Units	11		124,810
21.	Hardware Tools & Equip			13,414
22.	Hardware Tools & Equip			13,877
23.	Sinker Drill & Compressor			14,025

	SUBTOTAL			7,404,416
	TOTAL EARMARKINGS			9,679,505
II.	UNEARMARKED BALANCE IN OBLIGATED FUNDS			2,980,595

III. *COMMODITY LIST OF NEW PROCUREMENT FOR FY90-93, 660-0105

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<u>Item</u>	<u>Commodity</u>	<u>Qty</u>	<u>Approx. Unit cost</u>	<u>Approx. CIF</u>	<u>Source Code</u>	<u>Action Agent</u>
<u>Agricultural Component</u>						
1.	4WD Vehicle Toyota HJ60 or eq.	12	25,000	300,000	000/935	AID
2.	Computers, hardware, software	6	10,000	60,000	000/935	AID
3.	Motorcycles + spare parts	30	3,000	90,000	935	AID
4.	Generator 15KVA	03	15,000	45,000	000	AID
5.	Plow	1	3,500	3,500	000	AID
6.	Harrow	1	3,500	3,500	000	AID
7.	Parts/Vehicles	1 lot		20,000	000/935	AID
8.	Tires 750x16	300	167	50,000	000	AID
9.	Tires, Tractor	3 sets		3,000	000	AID
10.	9T truck, Mack or eq. + spares	1	60,000	60,000	000/935	AID
11.	Communication radios	15	3,000	45,000	000	AID

SHADO

1.	4WD Vehicle Toyota or eq.	2	25,000	50,000	935	AID
2.	Computers, hardware, software	2	10,000	20,000	000	AID

Roads Component

1.	Communication radios	10	3,000	30,000	000	AID
2.	Heavy-Duty shop trailers	2	50,000	100,000	000	AID
3.	4WD Vehicles Toyota HJ60 or eq.	5	25,000	125,000	935	AID
4.	100 KVA Diesel/electric Generator	1	25,000	25,000	000	AID
5.	Spare parts	3 lots		1,500,000	000	AID
6.	Computer Systems	6	10,000	60,000	000	AID

SUB-TOTAL 2,590,000

IV. *ANTICIPATED FY91 OBLIGATIONS 5,000,000

COMMODITY PORTION 1,230,000

*Project Paper amendment in process now to increase funding for, in part, commodity procurement.

ANNEX A

PROJECT DESIGN SUMMARY
REVISED LOGICAL FRAMEWORK

Life of Project:
From FY 86 to FY 93
Total U.S. Funding \$38,881,000
Date Prepared: 8/86
Date Revised: 6/90

Project Title & Number: Central Shaba Agricultural Development (660-0105)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Program Goal:			
Increase agricultural production, productivity and rural household income, with emphasis on the Bandundu and Shaba Regions.	<ol style="list-style-type: none"> 1. Real returns to crop labor hours increase. 2. Crop yields per hectare increase. 3. Rural household incomes increase. 4. Food consumption increases. 5. Natural resource management improves. 	<ol style="list-style-type: none"> 1. GOZ statistics on agricultural production and income. 2. Project reports. 3. Special studies and assessments. 4. Evaluations. 	<ol style="list-style-type: none"> 1. Technology transfer process maintained through continued existence and strengthening of public and private sector outreach entities. 2. GOZ maintains liberalization of food and agricultural marketing policies. 3. Transportation and communication infrastructure maintained.

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PROJECT DESIGN SUMMARY
REVISED LOGICAL FRAMEWORK

Life of Project:
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Project Title & Number: Central Shaba Agricultural Development (660-0105)

NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
<p>Project Purpose: To increase the production of corn, and other food crops in Shaba, relying to the extent practicable on private sector interests mobilized to induce and support small cultivator productivity.</p>	<p>End-of-Project Status.</p> <ol style="list-style-type: none"> 1. Greater quantity of corn and other food crops being produced in the project area. 2. Higher incomes and improved living standards for farmers participating in the project. 3. Ongoing private sector involvement in seed production and distribution. 4. Roads rehabilitated under the project open and being maintained. 	<ol style="list-style-type: none"> 1. GOZ statistics on agricultural production and income. 2. Information supplied by Research and Information Office. 3. Office des Routes records. 4. Evaluations, studies and surveys. 	<ol style="list-style-type: none"> 1. Project area farmers adopt improved seeds. 2. Private sector is interested in the seed industry. 3. SNCZ functions at an acceptable level. 4. Office des Routes has financial and human resources to maintain roads.

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
Project Outputs:			
1. Improved, high-yield maize seed available to all project area farmers.	1. 100 MT of improved seed produced and distributed annually by the end of the project.	1. Extension agent reports. 2. Project contractor reports. 3. Surveys of village.	1. Price structure for corn remains such that production of corn continues to be competitive with production of other crops.
2. Improved cultural practices employed by project area farmers.	2. 11,000 farm households have received and adopted the advice on improved cultural practices communicated by the extension services.	4. Interviews with farmers. 5. Visual observations of cultivated fields.	2. Incentives exist for farmers to increase income through increasing agricultural production and productivity.
3. Improved grain storage facilities are located throughout the project area and result in a higher quality grain product.	3. 8 covered loading docks are constructed at strategic railheads in the project area.	6. Reports by project management staff. 7. Analysis of the quality of the grain and the flour produced.	3. Farmers are willing to pay market prices for improved seed and renew their seed stock every three years.
4. Rehabilitated roads and bridges.	4. 1000 Kilometers of link road rehabilitated to specification from Mukulakulu to Kongolo.	8. Roads Bureau reports and statistics.	4. Farmers readily realize the value of adopting improved cultural practices.
5. Increased technical and management capabilities of NGO, ODR and project staff.	4.1 2000 Kilometers of local interest roads rehabilitated to specifications within the project area. 4.2 Three ferries installed at critical river crossings.		5. Farmers, corn buyers, and millers will all realize the economic advantages to be gained from improving the quality of grain and its resultant flour.

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NARRATIVE SUMMARY	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
	<p>5. At least 10 personnel have received training in technical and project management annually.</p>		<p>6. Roads Bureau and local entities have the capacity to maintain the link road and priority local interest roads.</p> <p>7. GOZ supplies Roads Bureau with sufficient funds to fulfill its mandate.</p>