I. PROJECT TITLE AND NUMBER

North Shaba Rural Development (660-0059)

II. PROJECT DESCRIPTION AND DEVELOPMENT PROBLEM

The objective of the North Shaba Project is to transform the project area from an economically depressed area to a productive and commercially active rural area upon which regional urban centers can rely for staple foods. The keys to this transformation include opening rural market routes, introducing higher-yield corn seeds, and establishing a supportive agricultural extension service.

III. PURPOSE OF EVALUATION

The primary purpose of this mid-course evaluation was to assess the progress made towards establishing the project's activities on a self-sustaining basis as planned in the Project Paper Amendment.

IV. FINDINGS

A. All of the quantifiable impact and output targets have been met or exceeded. The key indicator is quantity of maize marketed which will be at least 42,000 tons in 1985 compared to the end of project target of 30,000 tons. (USAID note: Subsequent data, collected after the evaluation, revealed that total corn marketed in 1985 was actually 55,700 MT.) Other targets that were met or exceeded include: number of farmers using improved seed; number of farmers receiving extension; quantity of seed produced by PNS and decline in the rate of subsidy; and kilometers of roads rehabilitated.

B. Road maintenance has been officially integrated into ESTAGRICO but in practice remains an automomous organization. PNS and ESTAGRICO had a common extension program in 1984 but there has been no progress toward formal institutional integration.

C. The essential development activities that must be continued after the end of PNS -- road maintenance, seed production, and extension -- will require technical assistance to maintain an acceptable level of performance.

LESSONS LEARNED

A. The essential requirements for a successful agriculture based rural development project are a technology that will increase small farmer production and a market that will absorb the increased production.

B. It is a mistake to go too much too fast in integrated rural development projects. The first objective should be to increase small farmer production and incomes. Other interventions such as

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self-help activities, social services, cooperative development, and off-farm employment generation generally do not succeed if there is not a strong economic base to build on. Trying to do everything at once wastes money and diverts effort and management attention away from the key agriculture production objectives.

C. It is extremely difficult to make rural development programs financially sustainable. Government budgets are rarely able to cover all of the road maintenance and agricultural extension costs, and even when a project succeeds in generating its own tax base, finding alternatives to government budgetary funding is bureaucratically and politically complicated. Therefore, even on the most successful projects preparations for sustainability must be initiated at the very start of the project and be pursued systematically and diligently to be accomplished.

RECOMMENDATIONS

Please refer to the PES facesheet.

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Mission Comments on Evaluation

1. In the early part of the report, the evaluator discusses the possible consequences of discontinuation of AID support to PNS. The impression given in this section of the evaluation is that USAID is abandoning the project. This is emphatically not the case. As the evaluator notes in a later part of the evaluation, the project is now generating more than enough resources through increased corn and other crop production to pay for the cost of maintenance of the basic infrastructure put into place by the project. In addition, viable institutions with adequately trained staff are established and essentially running the project. USAID's involvement in this phase of northern Shaba's regional development is coming to an appropriate and timely conclusion. USAID does see, however, a need for continued technical assistance in key positions for the roads (PRE) and seed farm organizations and has proposed such assistance as part of the follow-on Central Shaba Agricultural Development Project (660-0105).

2. Long-term funding, as pointed out in the report, is dependent on GOZ political will and administrative support. Funding sources, outside of PNS, have been found in the cotton sector and are now being sought from the food grain FCD (Fonds des Convention de Developpement). FCD and regional taxes can only be realized via the GOZ. The GOZ has been reluctant, at regional and national levels, to suggest (or implement USAID-suggested) measures; on [illegible] occasions it has backed down from agreements which were about to be concluded. While satisfactory solutions are not yet in hand, this is not for any stinting of effort. There are signs now that the GOZ is beginning to appreciate what is at stake (i.e. the very real gains of the project) and is more nearly prepared to consider financing (taxes) commensurate with the gains to be sustained.

3. As noted in the evaluation, ESTAGRICO's capabilities to manage the road and bridge activities have not been fully tested as recommended three years ago. A number of steps are now being taken to test those capabilities. As of January 1986, ESTAGRICO is assuming full responsibility for budgetary and personnel control. Dependency on PNS will remain only with regard to U.S.-purchased spare parts. ESTAGRICO has agreed to assume these responsibilities with the understanding that its contract with the GOZ (Ministry of Agriculture), as signed in June 1984, is to be respected by both parties. In addition, plans for post-PACD activities are being drawn up by ESTAGRICO and will be proposed to USAID and the GOZ.

4. PNS phasedown activities have begun with detailed budget and activities phasedown objectives, charted month-by-month. Decreases in personnel and activities will follow the declining budgetary support. By PACD, September 1986, there will have been achieved a reduction in personnel, both roads and seed/extension, to a maintenance level. There are [illegible] phasedown activities in the

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report, the evaluator does not take into account the "code du travail" provisions that allow for reductions in force.

5. The Project Paper Amendment called for a local tax survey to be conducted; Syracuse University was contacted, but was unable to provide a qualified researcher. Local candidates were also interviewed but deemed unqualified to conduct the study. Project personnel are continuing their search for appropriate candidates.

6. The end-of-project date used consistently in the evaluation report is March 31, 1987. The PACD is September 30, 1986, and all direct AID support to the project will end on that date. The final 25% counterpart fund (local currency) contribution to road and bridge activities ends nine months later on June 30, 1987 (as called for by the agreement between Ministry of Agriculture and ESTAGRICO).

(Attachment to PES# 86-02

EVALUATION COST DATA

USAID/ DEO or Bureau/Office

1. No. and Title of Project/Activity: NORTH SHABA RURAL DEVELOPMENT (660-0059)
   (or Title of Evaluation Report)

2. Date of Evaluation Report: OCTOBER 1985
   Date of PES (if different): JANUARY 1986

3. Purpose of Evaluation: The primary purpose of this mid-course evaluation was to assess the progress made towards establishing the project's activities on a self-sustaining basis as planned in the Project Paper Amendment.

4. Mission Staff Person Days involved in this Evaluation (estimated):
   - Professional Staff 12 Person Days
   - Support Staff 5 Person Days

5. AID/W Direct-Hire or IPA TDY support funded by Mission (or office) for this evaluation:

Name	Period of TDY (Person -Days)	Dollar Cost: (Travel, Per Diem, etc.)	Source of Funds*
Mr. Rudy Griego , Project Manager	5 days	$4,050	OE
Ms. Debra A. Roetenwald, Evaluation Officer (Personal Service Contractor)	7 days	150	PDS

6. Contractor Support, if any, for this evaluation:**

Name of Contractor	Contract #	Amount of Contract (US Dollars)	Source of Funds*
Mr. Roger Poulin	PIO/T 660-0059-3-50061	$13,000 est.	Project

*Indicate Project Budget, PDS, Mission O.E. or Central/Regional Bureau func

**IQC, RSSA, PASA, PSC, Purchase Order, Institutional Contract, Cooperative Agreement, etc

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I INTRODUCTION

Project North Shaba started in 1978 as an integrated rural development project based on increased maize production. ("Maize" is the word commonly used in Zaire to refer to corn.) The project had seven components:

- Agricultural extension and applied research (SSAV)
- Farmer group development to carry out economic and social village-level projects (DGF)
- Marketing and credit to address maize marketing constraints (SSAC)
- Data gathering and analysis to identify production constraints and monitor project impact (SCAD)
- Intermediate technology development (IT)
- Road and bridge construction and rehabilitation (INFRA)
- Project management unit to provide coordination, planning, personnel management, and financial control (PMU).

As originally designed the project called for a 13 person technical assistance team consisting of:

Senior advisor to the PNS Director
Financial management advisor
Agronomist advisor for extension and research
Women's participation advisor for DGF
Agricultural economist as advisor to SCAD and SSAC
Intermediate technology advisor
Chief of Party for road and bridge construction
Road construction advisor
Bridge construction advisor
Mechanic, advisor for equipment maintenance
Pilot
Logistics advisor in Kinshasa.

The project had certain end-of-project targets dealing with:roads to be rehabilitated, numbers of farmers adopting improved seeds and improved practices, and quantity of maize produced and marketed. The first external evaluation of PNS was in 1979. DAI then conducted two internal evaluations of the project in 1980 and 1982, and a major external evaluation was conducted in 1982, one year before the scheduled end of the project. The two DAI evaluations identified important shortcomings, especially in the agricultural extension and farmer group development components. The activities of the intermediate technology and marketing and credit components were also recognized as marginal to the achievement of project objectives. Finally, the technical assistance provided to the infrastructure and extension components was found to be inadequate. The 1982 DAI evaluation also identified benefit sustainability as a serious unresolved issue. However, because the key impact targets (farmers adopting improved seeds, maize production and maize marketed) were being exceeded, PNS and DAI were slow to take corrective action.

When the external evaluation was conducted in 1982, the evaluation team found the same deficiencies as had been found earlier and recommended the immediate termination of the project. The AID Mission, however, recognized that the project was having a significant impact and adopted the approach of improving the project design to lower costs and improve performance, and taking steps to increase the chances of sustainability. In this context, the project was extended from 1983 to 1986, with AID and counterpart fund disbursements scheduled to end on March 31, 1987. The Project Paper Amendment extending the project emphasized phasing out certain project activities, redesigning others, and taking steps to achieve institutional and financial sustainability. A major result of the redesign reduced the technical assistance team from 13 persons to seven persons.

The purpose of this evaluation is to: 1) assess the performance and development impact of the overall project since 1983, and 2) assess progress toward sustainability.

II ASSESSMENT OF PROJECT PERFORMANCE

A. REDESIGN AND PHASE DOWN OF PROJECT ACTIVITIES

The Project Paper Amendment in 1982 called for the elimination of two project components, Intermediate Technology Development and Farmer Group Development, and the termination of AID support for the Marketing and Credit component. The Intermediate Technology and Farmer Group Development components were terminated in 1983. This eliminated three technical assistance positions. With respect to farmer group development, the approach that has been adopted by PNS is that if farmer groups need to be formed for economically viable activities this could be done by the agricultural extension staff. The only significant activity along these lines thus far has been the construction of village-level grain storage facilities. As expected, there has been little if any adverse impact from the termination of these two activities, although farmers frequently ask why PNS no longer supplies the low-cost agricultural tools that had previously been produced by IT. However, a PNS analysis has shown that the lack of tools was not a critical production constraint at the time that the intermediate technology activity was discontinued, and the situation has not changed since then.

The Marketing and Credit component has been renamed the Marketing Assistance component and is now entirely self-financed. Its main activities are to rent trucks to small maize merchants, and collect data on maize and other agricultural products being exported from North Shaba.

The Data Collection and Analysis component was to have been transferred to the Department of Agricultural Studies Bureau in Kinshasa. The activities of this component were to be continued under the supervision and financing of the Bureau d'Etudes. This was done officially in 1983, thus eliminating one technical assistance position. However, in practice the transfer never occurred. The Bureau d'Etudes has not provided any supervision or financing. In May 1984, PNS with the prior approval of AID, sent a letter to the Department of Agriculture suggesting that PNS assume responsibility for funding and day-to-day supervision of Data Collection and Analysis activities. These activities have now been integrated into the agricultural extension component where they should have been all along. This activity is the only source of data on the impact of the project on agricultural production and incomes.

As provided for in the Project Paper Amendment, the Infrastructure component, now called Ponts et Routes de l'Est (PRE), was kept more or less intact, and transferred over to ESTAGRICO. The details of how this was done and the implications for sustainability are discussed in the next section.

The only activity expended in the redesign was the addition of seed production to the Agricultural Extension and Adaptive Research component. When it became clear that PNS could not depend on outside sources of seed, it was decided to start seed production at the Ngaba training center with a view

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to eventually transferring the activity to a private farm. A seed production advisor was added to the technical assistance team to assist with the seed program. In addition, the extension activities of PNS, Department of Agriculture (DOA) and ESTAGRICO were to have been coordinated and integrated into ESTAGRICO. DOA extension activities are non-existant in North Shaba but considerable progress had occurred in coordinating the PNS and ESTAGRICO programs. Geographic overlap had been eliminated and both organizations have a common extension program and supervision structure. However, as discussed in the next section, there has been almost no progress on the formal integration of the organizations. Also, ESTAGRICO has recently been forced to abandon virtually all of its extension activities because of financial problems thus effectively negating most of the benefits of the coordination that had previously occurred.

At the present time it is impossible to predict how agricultural extension and seed production will be institutionalized after the scheduled end of PNS in September 1986. Another major shortcoming in the agricultural extension component is that no use has yet been found for the Ngaba training Center. Training requirements are simply too low to justify a facility of its size. The offices, training areas, and storage space are being well utilized, however, as a base for the extension program and seed processing.

All of the anticipated changes in the Project Management Unit have occurred as planned. The Financial Management Advisor and pilot positions were eliminated in 1983 with no adverse effects on project performance. The main tasks of the PMU at present are to provide administrative backstopping and financial management for the remaining PNS activities (agricultural extension, adaptive research, and seed production) and, through the Kinshasa office, provide logistic support for PNS and PRE. It also continues to play an important role as the main advocate for development activities in North Shaba in dealings with the GOZ and the Government of Shaba, and USAID.

B. PROJECT ACCOMPLISHMENTS SINCE 1983

The Project Paper Amendment and the Project Agreement did not have quantitative end-of-project targets, mainly because PNS had already exceeded output and impact targets, and the extension was seen primarily as a transitional period toward institutional and financial sustainability. Nevertheless, PNS has continued to increase its impact in the project area. The key indicator is maize marketed which had increased from 6,000 tons in 19[illegible] to [illegible],000 tons in 1983. Quantity marketed dropped to 36,000 tons in 19[illegible], mainly because of weather, and increased to an estimated 42-45,000 tons in 19[illegible]. The other key indicator is that virtually all of the maize farmers are [illegible] Kasai I and about 60 percent have adopted the recommended package of improved practices. Since the improved technology has now been widely adopted future increases will be less dramatic than in the past. The next major increase in production will probably require the introduction of [illegible].

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At the operational level, project performance since 1983 has been mostly positive. PRE, which had rehabilitated 687 km during the first phase of the project, rehabilitated an additional 169 km in 1984, and 111 km the first nine months of 1985. At the same time road maintenance activities are increasing with no increases in equipment or personnel: 399 km in 1983, 564 km in 1984, and 837 km during the first 9 months of 1985. PRE has also constructed 209 bridges and culverts compared to the end of project target of 135.

However, the most significant improvements in performance have occurred in the agriculture related activities. In 1983, PNS was just starting to produce seed and was struggling with poor quality control and high costs. In particular, seed production costs at Ngaba, where quality control was easier, proved to be much higher than seed grown by contract farmers. With the arrival of a seed production advisor, production has shifted from Ngaba to contract farmers so that in 1985/86 95 percent of maize seeds will be grown by farmers. At the same time production has increased from 53 tons in 1982/83 to 115 tons in 1984/85, and costs have declined from 5 times the grain market price in 1982/83 to twice the grain market price in 1984/5. Project data show that PNS seeds can double yields over degenerated seed. The major remaining problem is the sale price. A 1983 PNS report on seed production estimated that about 200 tons per year would be needed to replenish degenerated seed and recommended that these seeds be sold at twice the grain market price. This year, PNS seed was sold at twice the grain market price, but demand was only slightly more than 100 tons. Further, the seed consultant on the Central Shaba Agricultural Development Project (CSADP) PID team felt that the sale price should be increased from Z6/kg percent to over Z20/kg. In fact, PNS has itself been selling seed outside of the project area for Z12/kg. The next step is for PNS to determine the maximum price that farmers can economically pay for Kasai I, G2 seed, and work out a strategy for increasing the sale price to that level. For instance, the sale price next year could be three times the grain market price, and two years from now, four times the grain market price. During 1986, there needs to be a training program for all of the extension agents on the value of PNS seed to the farmer and on how to effectively market that seed, especially in Nyunzu where farmers have been most reluctant to pay the PNS price.

The extension program has also improved considerably since 1982. Two very able agronomists joined the technical assistance team, one in October 1982 and the other in July 1984. The adaptive research program is now much better designed and executed. New crop varieties are being tested, fertilizer response demonstrations are being carried out in different ecological areas, and trials to measure the rate of Kasai I degeneration are underway. The extension staff is participating fully in these activities thus giving them a much better understanding of the technical packages they are extending to farmers. Equally important, PNS has an active program of continuous in-service training for extension agents. Increasing the quality of extension is, of course, a constant battle. At the moment it seems that the Nyunzu zone where relatively few farmers have adopted the recommended practices, is in greatest need of attention. A final positive development has been the

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introduction of village level grain storage silos. Four of these have been constructed with the entire cost borne by the villagers and other villagers have requested similar silos.

Although the SCAD activity, which has now been merged into the extension sub-system, provides useful information for the extension program and project management, the quality of its work could be greatly improved. By far the best data being generated is on marketing. There are also reliable general orders of magnitude on area planted, yields under the different conditions that prevail in the project area, and total production of maize. The data, however, are not accurate enough to measure year-to-year changes unless they are very large, or accurably discern medium-and long-term trends. Consequently, it is usually not possible to reconcile SCAD's data on changes in production with the data on changes in maize marketed. What is needed is improved supervision of the data gathering and a better overall methodology. It is recommended that short-term technical assistance be used to advise SCAD on how it can improve the quality and utility of its information within the resources that it has available.

The marketing subsystem continues to operate as a self-financing activity. It has been redesigned as a much less ambitious program than had been provided for in the original Project Paper. Its activities now consist of 1) the collection of marketing data for maize and other crops, and 2) leasing trucks to small maize traders who do not have the means to buy their own. The leasing of trucks is a valuable service for small businessmen and is easily self-financing. In fact, the profits from the lease of trucks could be used to provide credit for the construction of silos which would also fall under the category of marketing assistance.

As far as staffing is concerned, the situation appears satisfactory at the middle and lower levels. The PMU and PRE senior staff are also very strong. The one weak link appears to be at the senior levels of the Extension sub-system. Clearly much of the improved performance of the sub-system is due to the technical and managerial guidance of the two expatriate agronomists. The current chief of the sub-system is not a university graduate and is relatively young and does not have the qualifications for this very important position. Further, the other senior positions in SSAV are filled by individuals who are a grade lower than is called for in the staffing pattern. During the final year of the project PNS needs to determine what are the minimum qualifications required at the senior levels of the extension program to assure the continuation of a satisfactory level performance. As soon as a firm decision is made to continue extension activities in North Shaba after September 1984 PNS should give top priority to recruiting a university graduate to head to extension and adaptive research program.

Thus, from the standpoint of achievements, the last two years have been among the most productive of the entire project. However, despite the strong emphasis on training, it is doubtful that the same level of performance could

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continue without technical assistance. This is perhaps inevitable in Zaire, where qualified personnel are in very short supply. It is also understandable that senior staff do not wish to remain permanently in Kongolo. Once key senior staff leave, it is not easy to replace them. This is especially true of the technical and managerial positions in the Extension and Adaptive Research sub-systems.

The recommendations relating to implementation for the final year of the project are:

1. PNS should determine the maximum economically feasible sale price for Kasai I seed and formulate a strategy for raising the sale price to that level. As part of this effort, PNS should train extension agents on the value of seed and ways of communicating that value to farmers.

2. PNS should recruit a university graduate to head the Extension and Adaptive Research subsystem, and determine the minimum qualifications necessary for other senior positions in this sub-system.

3. Short-term technical assistance should be provided to increase the quality and utility of PNS data gathering and analysis activities.

C. OVERALL ASSESSMENT OF PROJECT SUCCESS

The essential difference in North Shaba between 1985 and when the project started in 1978 is that for several years there has been a sustained increase in the production of maize as a cash crop by thousands of small farmers. In response to the increased production capacity the private sector marketing system has expanded and become more effective as well as more competitive. The increased purchasing power of small farmers has led to increased commercial activity which in turn promises to make North Shaba an attractive location for further investments. Much of this activity now has a momentum of

its own and is not directly dependent on PNS, but the process began when PNS started improving roads, distributing improved maize seeds, and working closely with Shaba authorities to assure a remunerative producer price at a time when real incomes throughout Zaire were declining drastically.

PNS has also put in place key support services that are needed to keep the process going. Mostly since 1982, PNS has succeeded in creating a largely adequate seed production system, a well functioning multi-crop extension system, and a road maintenance capacity that is highly efficient by Zairian standards. Unfortunately it does not appear that this support system can continue at its present level of performance without AID support. Technical assistance is still needed for road maintenance, adaptive research and seed production. More important, there is no reliable source of financing for these activities. As things now stand, if AID discontinues its support in March 1987, all development activities will depend on financing from the GOZ Shaba budgets. If this happens, the road maintenance and extension staffs will have to be greatly reduced, salaries will be late and irregular, and equipment will gradually deteriorate because of lack of maintenance and spare parts. The inevitable result will be economic stagnation after a few years, and gradual decline to the conditions that prevailed prior to the start of PNS.

Assessing overall project success boils down to two issues:

Could better project design and implementation have resulted in significantly greater impact or lower project costs?

Would a different project approach have led to greater benefit sustainability without greatly reducing impact?

The answer to the first question is clearly yes. During the early years, the project should have focused on roads, adaptive research and extension. Soon afterwards the need for seed production capacity would have become evident and could have been added. A more careful design would have recognized that there was no need for the DGF sub-system and the Marketing Sub-system as than conceived, but on the other hand an effective Data Collection and Analysis component would have greatly helped the project focus on key production constraints. Reducing the number of project components would have resulted in substantially reduced technical assistance, and project management would have been better able to focus on the issues that were most critical to project success. It is possible that the quality of roads constructed by PNS was too high, but this is less certain. The PNS approach is essentially to clear a road at the level of the surrounding terrain, add laterite only when the local soils cannot support traffic, and assure adequate drainage to prevent erosion. The end result was roads that are better than needed but the rationale behind the design is durability, not speed. Finally, the Ngazi facility turned out to be much more expensive than necessary.

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The key implementation shortcoming concerned extension and seed production. For the first four years the project conducted essentially no adaptive research with the result that the technical package was not well understood by the extension staff. As it turned out, the performance of this sub-system improved greatly in 1982 and, with the three year project extension, is now performing effectively in extension, adaptive research and seed production. If the project had ended in 1983 as originally planned, this key component of the project would have been an embarassing failure.

Despite design and implementation shortcomings, however, the project was certainly a success in terms of impact. Although overdesigned, it was essentially a small farmer oriented project aimed at eliminating constraints to increased production and marketing. Once the implementation problems were corrected important accomplishments were achieved and today there is a dynamic rural development process underway, based on small farmer agriculture and effectively supported by PNS programs.

However, the problem of sustainability remains. Could the same impact have been achieved in a more sustainable way? The PNS approach was to create its own road construction and extension capacity, along with the necessary logistic and analytical back up and a central Project Management Unit. The alternative would have been to depend on existing institutions in the project area or possibly elsewhere in Shaba.

For road construction, the need was to construct 750 km of agricultural roads, including bridges and culverts. The PNS experience showed that this involved major logistic and financial problems, many of which were overcome only with the help of the PMU and effective Morrison Maierle backstopping. There is also little doubt that fewer roads would have been rehabilitated without the technical assistance team. This approach was essentially an alternative to depending directly on OR which clearly did not have the implementation capacity to construct the road network. The other alternative would have been to use Zairian construction firms. It is unlikely that firms capable of taking on a job of this size were available. If they had been, they almost certainly would not have been as productive as the Infrastructure Sub-system, but on the other hand the technical assistance and logistical support costs would probably have been much less.

On the agriculture side, the key requirements were for seed production and distribution and extension. Seed production on the scale needed for the project area required the organization of contract farmers and good quality control, including seed drying and processing. Effective extension required adaptive research, carefully supervised demonstration plots, and continuous technical training for extension agents. It was clear that the DOA was not in a position to perform any of these tasks. PVOs and missions could have produced and distributed small quantities of seed but it is unlikely that they would have been able to cover the entire project area. Similarly, they could explain to farmers the value of improved seeds, but they could not have mounted the comprehensive multi-crop adaptive research and extension program that is now underway.

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It is difficult to determine what would have been the development impact of using existing institutions instead of creating new ones, but it is quite likely that production increases would have been less, fewer roads would have been rehabilitated, and there would now be less of a capacity to address the next generation of production constraints following the introduction of the Kasai I maize variety. Also, and critically important for the first five years of PNS, it is almost certain that without the PMU, maize producer prices would not have increased as rapidly as they did. PNS was extremely effective in making the case and mobilizing support for higher producer prices to a government that was primarily concerned with maintaining low consumer prices in Southern Shaba.

In terms of sustainability, it is doubtful that there would have been any significant advantages in using existing institutions. Without the AID-financed technical assistance, road rehabilitation would have been less efficient and of a lower quality, and the extension system would probably not have been worth continuing. The key, however, is finances. Sustainability requires, on the one hand, something worth sustaining, (i.e. a significant development impact) and on the other hand, the necessary resources. The two are related. Roads, for instance, should pay for themselves. This means that for PNS the transport savings and increased agricultural production should generate the revenues needed to maintain the roads. For agriculture, the basic support services needed for increased production, in this case improved seeds, should be self-financing. The field testing and extension of new technologies, however, are development related activities that should not be expected to be totally self-financing. These basic sustainability requirements apply equally to the PNS approach or alternative approaches that depend more on existing non-government institutions. In the final analysis, sacrificing impact means that fewer resources will be available to finance development activities, and therefore the level of development effort will be lower over the long-run. A well-designed, but more expensive development program generates economic growth and the resources necessary to finance its activities.

III THE SUSTAINABILITY OF PROJECT BENEFITS

A. ACTIVITIES TO BE CONTINUED

The previous section generally confirms what is already known about the project, most output targets and development impact targets have been met or exceeded. However, as noted in the introduction, the purpose of the three year extension was not so much to add to these outputs as to assure the sustainability of project benefits. Narrowly defined, this means assuring road maintenance and the distribution of high quality maize seeds so that the increases in the quantity of maize marketed can be maintained. Broadly defined, it means continuing the rural development process that was started by PNS. This involves:

1. Continuing to increase the productivity of small farmer maize production. The past year's experience shows that farmers in North Shaba are not assured of steadily increasing lucrative maize markets year after year. In a competitive situation productivity must continuously improve. This will require 1) new maize varieties, 2) fertilizer, and 3) further improvements in farming practices, including grain storage. Also it appears that the movement of Nyunzu farmers into new forests should be slowed down to prevent deforestation. At the present time it seems that the only way to do this is to introduce fertilizers, if and when they become economically feasible at the farm level.

2. Increase the production of crops other than maize. Cassava, palm nuts, peanuts, and to a lesser extent cotton are important cash crops in the project area. Productivity, however, is very low and the project is now beginning to extend improved technical packages for all of these crops except palm nuts. Adaptive research is also being done on less traditional cash crops: rice and soybeans. It is conceivable that these crops combined could exceed maize source of cash income and food supply in the project area.

Now that the basic maize production package has been widely adopted the focus of the extension program is on 1) achieving further increases in maize productivity, and 2) diversification into other crops as alternatives to or in rotation with maize. Both increased maize productivity and movement into other crops will require extension and adaptive research.

PNS has used the broad definition of sustainability in deciding which activities should be continued. Thus PNS has consistently advocated the continuation of road maintenance, seed production, and adaptive research and extension. Although this certainly seems to be the appropriate approach, the level of each activity proposed by the project does not reflect the commitment to road maintenance that is needed to achieve sustainability in Zaire. PNS has generally been reluctant to reduce or terminate activities. There are two main reasons for this. One is that it is very difficult to terminate large

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numbers of employees in Zaire. Related to this is a feeling on the part of Zairian management that they have an obligation to keep their permanent staff (i.e. not part-time or short-term) on the payroll for as long as they can get funding.

The more important reason, however, is that the project is now functioning better than it ever has. This means that, in general, a reduction in level of effort will result in reductions in outputs, and the only output clearly destined for termination is road construction. More specifically, reduced inputs across all project components would result in declining road quality, less progress in seed production, and a lower level of extension services for farmers. Perhaps not surprisingly the project has found it difficult to decide which outputs should be reduced and by how much.

PNS in conjunction with AID should give top priority to defining a minimum level of activity to be continued after March 31, 1987. This exercise should be based on the recognition that the present level of activity is too high to be financially sustainable in a purely Zairian context. Therefore, outputs to be reduced or terminated should be specifically identified as soon as possible, and movement toward the reduction of those outputs should begin well before the scheduled PNS completion date.

At AID's request, PNS has taken a close look at alternative approaches to road maintenance. This effort began in 1984 with the report, Alternative Methods of Maintaining PNS and ESTAGRICO Rural Roads in North Shaba. This report recommended a mechanized approach that would maintain the roads at their existing level. More recently, this analysis was updated. The three levels of maintenance considered in the latest analysis are:

	Cost/km	Total Cost
Mechanized (60 km/hr)	Z 8,200	Z12.0 million
Mechanized (30km/hr)	6,100	9.1 million
Manual (15km/hr)	4,700	7.0 million

The personnel, equipment, and fuel requirements for each of these options are presented in Annex A. These costs are based on productivity standards that are much higher than OR has achieved nationwide, but are also considerably lower than those achieved by PNS in recent years. Assuming continued technical assistance (at least a mechanic) and the presence of the CSMP or some other entity to facilitate access to fuel and spare parts and to provide general logistic support, the productivity standards used in the PNS calculations for Options I and II are probably on the conservative side.

PNS recommends Option 1 (60 km/hr roads) on the grounds that this is what is needed to maintain the roads at their existing level and the cost is in line with what can be financed with revenues

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generated in the project area. A standard economic analysis based on traffic flows would almost certainly recommend Option III, or something lower. The choice of whether to maintain the roads at a higher level than Option III would depend on whether the increased economic activity resulting from the higher quality of road would justify the additional annual costs.

Although there is a lack of data for calculating the benefits of improved roads, it is unlikely that Option I would generate a significant increase in economic activity over Option II. The level of traffic and economic activity in North Shaba is extremely low by any standard. Increases in road quality can be justified only as long as they contribute to increased agricultural production. Improvements beyond that level simply result in transport savings which in North Shaba are likely to be miniscule compared to the investment and road maintenance costs involved. However, there is evidence that Option II could generate a sufficient increase in economic activity over Option III to justify the additional cost. The maize marketing experience in 1985 might be an example of benefits to be obtained from roads that are more than barely passable. Because of low maize prices in south Shaba and other problems such as scarcity of credit, maize marketing in north Shaba was not as profitable as in previous years. Perhaps for the first time since the project started, traders had to consider the costs of transporting maize from villages to the railhead. The result was that in Kongolo Zone where most of the improved roads are located, maize marketed increased by 33 percent, from 12,000 tons in 1984 to 16,000 tons in 1985. In Nyunza where most roads have not been rehabilitated, maize marketed increased by a maximum of 5 percent.

Although the evidence is far from conclusive, it appears that a quality of rural road that is above the bare minimum for crop evacuation can generate sufficient economic activity to justify the additional expense. In north Shaba, the additional cost would be Z 2 million per year (equivalent to 500 tons of maize at Z 4/kg). It is hard to imagine that in the entire project area the economic, not to mention social benefits from the higher level of road, would not exceed Z 2 million.

The alternatives for continuing the agricultural activities have not been analyzed in as much detail. PNS has established that the project area requires at least 200 tons of third generation Kasai I seed per year to replace degenerated seeds. Determining the appropriate size of the extension and adaptive research program is more complicated. PNS maintains that an extension program should have one agent for 200 farm families. Thus, if there are 35,000 farm families in the project area, the need is for 180 extension agents plus supervisors. PNS has about 60 agents and ESTAGRICO has about 70 currently employed but not being paid. The general position of PNS is that funding should be sought for about 100 agents, recognizing that a fully staffed extension program is not realistic in the current Zairian context.

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What does not appear to have been adequately considered is that to a certain extent, there is a tradeoff between adaptive research (i.e., on-farm testing and demonstration of technical packages received from research stations) and extension. The better the technical package the less extension effort is needed. PNS should explore the staffing and cost implications of an extension program that emphasizes adaptive research and extends only technical innovations that are demonstrably superior to what farmers are now doing. The objective should be to develop as clear an understanding as possible of the implications of a joint PNS/ESTAGRICO extension program that is no larger, and possibly smaller, than the existing PNS program. As noted above, the extension program is now working about as well as can be expected. A reduced or more diffused level of effort will almost certainly result in reduced impact as measured by increases in farmer productivity.

In summary, this report recommends that the PNS broad definition of sustainability be retained in selecting which activities are to be continued. The activities to be continued are: 1) a level of road maintenance that will permit travel at 30km/hr, 2) an extension program that emphasizes adaptive research, and 3) seed production using the personnel, equipment and facilities of the extension program. The basic issue to be addressed is whether these activities can be sustained without AID support after the project completion date of September 30, 1986.

B. INSTITUTIONAL SUSTAINABILITY

The Project Agreement for the three year extension called for institutional sustainability to be achieved by integrating road maintenance and agricultural extension into ESTAGRICO and finding a private enterprise to produce seeds. The first step was to have been the integration of the Infrastructure sub-system into ESTAGRICO. This occurred on June 9, 1984. Now called "Ponts et Rou[illegible] de l'Est ([illegible])", the road rehabilitation and maintenance program is an autonomous organization attached to ESTAGRICO with the PRE Director reporting to the Director General of ESTAGRICO.

In contrast to road maintenance which has been institutionalized as foreseen in the Project Agreement, seed production and extension are still part of PNS. The demand for seeds in North Shaba is too low for seed production to be profitable. AID and PNS have both recognized that the seed program will not be taken over by a private business. It has therefore remained part of the Adaptation and Extension Sub-system (SDAV). As will be discussed in more detail later, this has turned out to be an acceptable solution because, by sharing overhead and personnel costs with extension, the seed program is approaching financial self-sufficiency. Beginning in June 1984, PNS began making preparations for the integration of

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SSAV into ESTAGRICO by preparing a preliminary joint workplan for the 1984/85 agricultural year. This was followed by a meeting of ESTAGRICO, Department of Agriculture, AID and PNS to agree on steps to follow in reaching an agreement on how to integrate the three extension systems in the project area under ESTAGRICO. This meeting was initiated by AID and PNS.

All subsequent actions have been essentially PNS initiatives. In January 1985, joint PNS/DOA/ESTAGRICO sub-committees were set up to coordinate grade structures, set up a geographic organization, and prepare a 1985/86 workplan and budget. Also, a draft agreement was prepared based on the agreement integrating PRE into ESTAGRICO. In May 1985, meetings were held in Kongolo which appeared promising. The situation soon deteriorated, however, when the Department of Agriculture in Kinshasa began openly expressing long-held reservations about integrating a largely food crop oriented extension program into a financially and managerially weak cotton company. The latest development is that ESTAGRICO has verbally informed the DOA and AID that it is no longer interested in integrating extension systems mainly because there are no assured sources of financing.

The present situation with respect to institutional sustainability is that road maintenance has been attached to ESTAGRICO as proposed in the Project Agreement and progress is at a standstill as far as the formal integration of the two extension programs is concerned. It appears that for the next several years the PNS extension program can be continued as part of the Central Shaba Agricultural Development Project (CSADP). In the meantime, there has been no real test of whether the Agreement between DOA and ESTAGRICO creating PRE is a workable approach to institutional sustainability for development activities in North Shaba.

The assumption behind the agreement is that ESTAGRICO is better able to keep up activities going than the DOA or OR. However, it was recognized at the time that the agreement was negotiated that full integration presented several problems. On the ESTAGRICO side, the firm was unwilling to assume responsibility for road maintenance in the entire project area without assured financing. On the DOA/AID side, there were reservations about ESTAGRICO's management capabilities and its commitment to PNS objectives and priorities. For these reasons both the existing PRE agreement and the draft agreement on the integration of extension stress the autonomy of the organizations being ceded to ESTAGRICO. PRE is responsible for its own day-to-day management; the equipment is "made available" to ESTAGRICO, not given or sold; and the PRE work program is approved and evaluated periodically by a "Comite Special" consisting of representatives from the local authorities, the Department of Agriculture, ESTAGRICO, AID, and OR. ESTAGRICO cannot unilaterally

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make changes in the PRE program approved by the Comite Special. The agreement calls for ESTAGRICO to provide overall management for a fee of 15 percent, but does not list the specific management tasks to be performed.

There has been considerable progress in the ability of PRE to manage its day to day operations. PRE now has its own personnel and financial management offices, and it has its own set of auditable accounts. As was the case prior to the integration, PRE has a well qualified and motivated staff that is able to effectively carry out the road maintenance program as well as maintain the equipment and manage the inventory. There continues to be a need for technical assistance, however, especially for the chief mechanic position. The overall issue of personnel sustainability and technical assistance requirements is discussed further below.

Thus, experience since 1984 indicates that PRE, with logistics support from PNS, can manage the day-to-day implementation of the road maintenance program. What is not yet known is how well ESTAGRICO can provide overall management support. Early in the transition period, PRE needed help in setting up its overall management structure and its personnel and financial management systems. This support came from PNS. It was generally recognized at the time that PNS could perform this function better than ESTAGRICO and there were no objections to this support being provided. Normally it would be expected that in an agreement such as this one, the parent organization would be responsible for broad management oversight of PRE activities and would initiate corrective actions when major problems arise. ESTAGRICO has not been performing this function, partly because most of the PRE activities continue to be financed by AID or counterpart funds through PNS. PRE also has a continuing need for logistic support, primarily to assure a steady supply of fuel and spare parts and to facilitate communication with institutions and businesses in Kinshasa and Lubumbashi. Much of this support is now being provided by the PNS logistics office in Kinshasa, as called for in the DOA/ESTAGRICO agreement. The DOA Chief of Party also provides management support in his capacity as advisor to the Managing Director of ESTAGRICO. This is also provided for in the agreement.

The end result is that ESTAGRICO has been only minimally involved in the overall management of PRE. The main reason is that the agreement provides for considerable PNS support until the scheduled completion of the project. Another reason is that it has proved difficult for PNS to refuse requests for assistance that require a minimum of effort or resources. It is common practice in Kongolo for institutions and businesses to help each other whenever they can. As the largest and best funded activity in the area, PNS is often called on for assistance, but it should be noted that there are also many times when PNS benefits from the help of others.

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For these reasons, it now appears that another year after the end of the project will be needed to fully test whether the PRE arrangement can function without PNS support. In the meantime, special efforts are required to begin increasing the involvement of ESTAGRICO in PRE management, within the limits of the agreement and the realities of working in Kongolo. The experience of the next two years will indicate whether:

1. PRE is functioning well with effective support from ESTAGRICO, or

2. PRE is receiving very little support from ESTAGRICO but is able to function effectively anyway, or

3. for PRE to function effectively it needs more support than ESTAGRICO is able to provide.

The first outcome implies that ESTAGRICO not only provides all of the logistic support needed by PRE to operate effectively, but also takes initiatives when necessary to maintain overall PRE performance at a high level. This is what had been hoped for in 1983 when AID decided to try to integrate road maintenance and agricultural extension into ESTAGRICO. The second outcome implies that PRE can function more or less autonomously as long as it has an institutional home. In this case the only issues are whether ESTAGRICO provides a better institutional home than DOA or OR, and whether ESTAGRICO brings enough to the arrangement to justify its 15 percent fee or even to make the agreement worthwhile.

Based on the experience of recent years, the third outcome appears to be the most likely. It will be extremely difficult for PRE to maintain a satisfactory level of performance unless it is part of a larger organization that sets goals, priorities and productivity standards. PNS has performed this function in the past with individual good results. Also, PRE cannot implement its program without effective logistic support, including a logistics office in Kinshasa.

The main problem is that ESTAGRICO is not a well managed organization. This is most obvious in its extension managed organization. For a maximum production of 3,000 tons of cotton ESTAGRICO had an extension staff of 140 agents (compared to PNS which has 66 agents for 90,000 tons of maize) and maintained its roads using a manual system that costs twice as much per kilometer as either the OR or PNS systems. No action was taken to correct these deficiencies until early 1984 when financial problems (and the availability of PRE) caused them to fire all of their road workers. This year they laid off most of their extension agents. ESTAGRICO has also not been able to organize an effective logistics support office in Kinshasa and has had to depend on PNS for this support.

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The owners of ESTAGRICO have been trying to turn things around. There has been a steady turnover of personnel and it now appears that there is improved management at top levels. This, however, may not be enough to improve ESTAGRICO's performance. ESTAGRICO has been operating at a loss since its inception, mainly because the cotton industry in Zaire is in the doldrums, and it is not clear if anything can be done to improve the situation. One possibility, of course, is for ESTAGRICO to shift out of cotton into foodcrops. This would be a positive step as far as the sustainability of road maintenance and agricultural extension is concerned, but so far ESTAGRICO has not moved significantly in that direction.

In short, it is not at all certain that ESTAGRICO will provide the institutional susbtainability that had been hoped for when the project was extended in 1983. However, it still appears to be the only alternative to the DOA and OR, neither of which has the capacity to manage rural development programs. USAID in conjunction with the GOZ should continue to look for alternatives. In the end, the only possibility may turn out to be agreements creating autonomous organizations attached to DOA and OR, following the same model that was used in the DOA/ESTAGRICO agreement.

Another aspect of institutional sustainability is the continued availability of qualified personnel. The key personnel requirements for road maintenance and agricultural extension are:

Director of PRE
Chief mechanic
Field supervisors for road maintenance (2)
Directors for extension, adaptive research and seed production (2)
Senior supervisors of extension agents (3)
Director of Finance and Administration for PRE
Director of Finance and Administration for extension.

In recent years PNS has succeeded in obtaining qualified senior staff from the Department of Agriculture and OR. This, however, required considerable effort by PNS and AID. What will happen in the future will depend largely on what approach is taken to personnel recruitment and development. PNS has always given a high priority to this aspect of management. In contrast, ESTAGRICO does not place great importance on the recruitment and training of senior Zairian staff. The key management positions are generally held by nonZairians.

Whatever organization is responsible for continuing PNS activities must place a high priority on senior staff development. The key, however, is likely to be salaries. A highly qualified and motivated staff will have to be attracted by high pay and good

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benefits. This has been reflected in the PRE budgets presented in Annex A. Similar salaries would have to be provided to senior agricultural personnel. Qualified personnel do exist in Zaire. However, most of them are in the private sector where they can earn much more than in government.

It must be emphasized that the present level of performance of PNS and PRE activities cannot be expected to continue without technical assistance. The most critical need is in the agriculture area. At present there are no university trained Zairian agronomists on the PNS staff. Even if there were, they would not be able to keep the adaptive research and seed production activities going without technical assistance. They have the necessary technical training but are unlikely to have the necessary experience and managerial skills. For road maintenance, the most critical requirement is for a mechanic. PNS was able to keep its equipment going 90 percent of the time in 1985 which is almost unheard of in Zaire. In short, technical assistance must be considered an essential element in assuring the sustainability of PNS benefits in the medium term.

C. FINANCIAL SUSTAINABILITY

When PNS was extended in 1983 it was recognized that the most difficult sustainability issue would be how to finance the activities that were to be continued. The problem was that, even if activities were reduced to the baze minimum, the GOZ would not be likely to have the budgetary resources to assure sustained funding. Financial sustainability, therefore would have to be based on local and regional revenues. The Project Paper Amendment was not specific about how these revenues were to be generated but it did call for a study of local revenue generation to be undertaken in early 1984.

The Project Agreement extending the project required a GOZ plan to assure the financing of PNS activities and a Caisse de Stabilisation Cotonniere (CSCO) commitment to finance at least 25 percent of road maintenance costs. This same agreement projected that by September 30, 1986:

- local revenues would finance 100 percent of road maintenance costs;
- agricultural extension would be fully financed by a combination of public and private sources; and
- seeds would be produced by a private business with diminishing government subsidies.

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Thus far, progress toward achieving financial sustainability has been far from satisfactory. The contract between the Department of Agriculture and ESTAGRICO on road maintenance commits the GOZ to cover all costs in accordance with the provisions of the Project Agreement, which means that CSCO is responsible for financing part of the costs at a level comparable to what ESTAGRICO had been receiving prior to the creation of PRE. The agreement also provided for counterpart funds to finance 75 percent of PRE costs in 1984, 50 percent in 1985, and 25 percent in 1986. Extension activities continue to be financed by counterpart funds and the GOZ budget. Private seed production for North Shaba has proven to be not profitable for a private firm because demand is too low. However, the objective of steadily diminishing government subsidies has been achieved. In 1982, PNS seed was produced at 5 times the grain market price for maize and sold at 50 percent over the grain market price. In 1985, the cost of production and distribution was about three times the grain market price and the sale price was double the market price.

In 1984, the GOZ and CSCO financed about 30 percent of the costs of road maintenance. CSCO, however, made its payment only recently and part of that payment has not yet actually been transferred to ESTAGRICO. The total CSCO contribution is much less than ESTAGRICO had been receiving prior to the PRE agreement. For 1985, the situation is expected to worsen. Counterpart funds will finance most of the extension activities. The GOZ will probably provide at least Z 3 million for PRE and CSCO appears unlikely to make any payment. The funding shortfall for PRE could be as high as Z 7 million.

The most likely source of non-GOZ financing was to have been the Fonds de Convention de Development (RCD), a tax paid by private sector industrial enterprises for the financing of agricultural development projects. There are two problems related to this source of funds. The first is that FCD funds are usually made available through an agreement ("convention") between the contributing firm and the recipient and is usually for a production related activity that directly benefits the contributor. For instance, BRASIMBA might normally be expected to help finance PNS if it could have preferred access to the maize being produced in the project area. The second, more difficult, problem is that the FCD was never intended to provide grants or finance recurrent costs. It was intended to finance agricultural production projects on a loan basis with provision for grants for related social services equal to no more than 20 percent of the total cost of the project.

It might be possible to get an exception to the 20 percent grant rule but it would require high level interventions and would certainly not be given for an indefinite period of time. From the

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standpoint of tax policy, using FCD funds to finance the recurrent costs of a development program in North Shaba would be a bad precedent. The recurrent cost financing requirements in this country are enormous. Making the FCD available to meet these needs would virtually assure that no funds would be left for the types of agriculture production projects it was meant to finance. However, FCD support for PNS could be justified on the grounds that it is still a development project and not a permanent GOZ program. The implication is that FCD funding would be temporary.

USAID has been pursuing this possibility since early 1984. Numerous discussions were held with the FCD and its contributors. At the FCD's request, AID provided detailed information on the costs of road maintenance and other development activities financed by PNS in North Shaba but, one year later there has been no response. As noted above, part of the problem is that financing the recurrent costs of road maintenance in the PNS area would be an unconventional and presently unauthorized use of FCD funds. This means that there is no established procedure for USAID, PNS and ESTAGRICO to follow in trying to obtain FCD approval.

USAID has also made continual attempts to get the GOZ to focus on the broader issue of financial sustainability of PNS activities. Most of these efforts have been through direct contracts with the DOA and the Shaba authorities, supported by several official communications from the Mission Director to the Commissaire d'Etat for Agriculture. The subject has also been discussed with the Prime Minister by the AID Assistant Administrator of Africa and the owners of ESTAGRICO. The GOZ is fully aware that USAID support is due to end in March 1987. There have been general expressions of concern and assurances that something will be done about it, but so far there have been no concrete actions.

The problem is that the GOZ simply does not have sufficient resources to fund all of its development activities. The DOA is particularly underfunded and PNS is only one of many small farmer development projects for which it is responsible. In fact, as unsatisfactory as the situation is, it appears that PNS has been doing better than most other agriculture projects in obtaining GOZ funding.

As was correctly recognized in the Project Paper Amendment, the only long-term solution to this problem is to finance ongoing PNS activities from local and regional sources. The Project Agreement was to have committed the GOZ to generate local revenues to finance the continuation of PNS activities. The GOZ refused, maintaining that a commitment to assure the financing of continuing activities was sufficient and it was inappropriate for the ProAg to dictate how that commitment was to be met. USAID has continually emphasized in

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its contacts with the GOZ that it considers local sources of financing, including FCD, as essential for the financial sustainability of PNS activities. So far these efforts have not had any viable results.

USAID initiated a major concerted effort to find local and regional financing about three months ago. The PNS Chief of Party was detached from day-to-day management responsibilities to concentrate on resolving sustainability problems, especially the financial ones. As part of this effort, Georges Conde of the Department of Agriculture Bureau d'Etudes conducted a study of possible regional and local funding sources for continuing PNS activities. This study, which was done very quickly, identified the following possible sources:

			Z Million
1.	Regional fund for the maintenance of agriculture roads	7.0	
2.	Tax on agricultural products exported by rail from North Shaba	15.0	
3.	FCD (excl. CSCO)	10.0	
	BRASIMBA	(7.0)	
	AMATO	(1.0)	
	SABUNI	(1.0)	
	TARICA	(1.0)	
	T O T A L		32.0

In 1985 prices it is estimated that the costs of road maintenance are about Z10 million and the costs of a combined PNS-ASTAGRICO extension service would be between Z10 and 15 million. The Director of PNS has very recently communicated the findings of the Conde Report in a letter to the Govenor of Shaba, along with a strong justification for keeping PNS activities going.

The regional agricultural road maintenance fund, financed from the GOZ budget, would seem to be the most logical and reliable. For Shaba, this fund is supposed to be Z20 million, of which one third would be available for North Shaba based on its share of agricultural products marketed. This being Zaire, however, this source of funding is no more certain than any other B.O., B.A., or B.I. funds. The fund may not even exist next year, and even if it does North Shaba would not be expected to get its appropriate share in the normal course of events, i.e. without continuous prodding at high levels of government.

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The efforts of the PNS Chief of Party have focused on the FCD contributions from firms that process maize, i.e. breweries and flour mills. As noted above there are bureaucratic and possibly legal problems involved in using FCD to grant finance the recurrent costs of road maintenance, however, a procedure for PNS to use in applying for grant funds has apparently been established and there have been general assurances from the contributors and the FCD that a funding request from PNS/ESTAGRICO would be favorably considered. A proposal for submission to BRASIMBA and other FCD contributors in Lubumbashi is in the final stages of preparation.

Hopefully, this latest concentrated effort has heightened the FCD's awareness of PNS and its financial needs. It is extremely important that the application process not be interrupted. The proposal for PRE financing should be finalized as soon as possible and presented to BRASIMBA, TARICA, AMATO and any other firm that has an interest in continued PNS success. Questions or requests for additional information should be quickly responded to. If and when contributing firm approval is obtained, ESTAGRICO, with appropriate support from USAID, should present the proposal to the FCD and immediately begin the process of obtaining an exception to 20 percent grant rule. Given the amount of effort required in this process, the initial proposal should cover a three to five year period. It should be clear from the process described above, however, that the FCD cannot be considered a long-term and reliable source of funds for PNS.

Another possible source of funds is the CSCO. These funds are legally part of the FCD but are in fact a continuation of contributions by textile companies to the Fonds de Relance Cotonniere which was to be used to increase cotton production in Zaire. Most of these funds were used to finance extension and road maintenance. After the FCD was created, these contributions by textile companies were made part of that Fund but continued to be used as they had been previously. Thus, these funds continue to be managed by CSCO. Their use is excepted from normal FCD rules and procedures, including the requirement that all projects must be at least 80 percent loan financed. For this reason it was expected that CSCO would be a reliable source of funding for at least part of the costs of activities that were to be integrated into ESTAGRICO.

Since 1983, when the project was extended, the situation has changed drastically. The textile companies are experiencing serious if not critical financial difficulties. FILTISAF in particular appears to have made no payments to FCD in 1985. Consequently, ESTAGRICO which normally could have expected to receive Z20 million for extension and Z10 million for road maintenance in 1985 expects to receive nothing for road maintenance and little if anything for extension. The feeling of ESTAGRICO management is that the price at

which they sell cotton fiber to FILTISAF may have to be raised in order to reduce its dependence on CSCO. The short-term prospects for financial support from this source are very poor. In the longer run it all depends on whether the textile industry in Zaire can once again become profitable.

As was pointed out in the Condé Report, the largest potential source of funds is a tax on agricultural products exported from North Shaba. In 1985, approximately 45,000 tons of maize will be exported by rail from North Shaba. Maize is also exported by truck but in smaller quantities. At Z4/kg the farmgate value of the maize exported by rail is approximately Z180 million. A five percent tax on this maize plus some of the maize exported by truck would exceed Z10 million. The revenues from a similar tax on other products could easily add Z4 million. Although a detailed study has not been carried out, it does not appear that a tax of this size would have a significant impact on farmer incomes, trader margins, milling profits, or consumer prices. Thus, in theory, the project area could generate sufficient revenues to finance a large portion of the costs of road maintenance and agricultural extension. From a financial sustainability standpoint, the best that can be hoped for in a small farmer production project is that the impact on production can generate enough of a revenue base to keep some of the essential development activities going. PNS is one of the very rare instances of where this has occurred and it is incumbent on the GOZ to make every effort possible to convert part of the increased resources generated by the project into revenues to at least pay for road maintenance and extension activities.

It must be recognized, however, that there are serious policy issues related to the introduction of a new tax. Some of the most important are:

1. It is unusual for a government to tax a relatively productive area and return all of the revenues back to that area. Part of the taxes are usually and appropriately channelled into the general regional and national budgets. The Vice Governor of Shaba has already indicated that he is opposed to a new tax that would be used exclusively to finance development activities in North Shaba.

2. In a situation of serious budgetary constraints such as exists in Zaire once a tax of this type is instituted, two problems generally occur. One is that tax revenues are diverted to other politically higher priority uses. The second is that there is pressure to keep increasing the tax until it becomes a disincentive to production and a hardship on consumers. It is partly because of such abuses that the GOZ recently rescinded the authority for regions to create new taxes.

3. Given the very limited tax base in Zaire, the GOZ must make decisions on new taxes in the context of its overall national priorities.

The decision to tax North Shaba agricultural production to finance PNS should be part of a policy decision on how to finance rural development. In Zaire decisions of this type are often made on an ad hoc rather than fiscally sound basis but that does not mean that USAID should accept or encourage what amounts to an ineffective and often economically harmful policy making process.

Given the complex and difficult policy decisions that are involved and the inevitable slow movement of the GOZ on this issue, it is very unlikely that a new railhead tax on agricultural products can be instituted before March 31, 1987. However, the tax base in North Shaba is still there and it is generally agreed that the development momentum started by PNS should be continued. For these reasons, it is still not too late to begin a high level dialogue with the Government.

The first step should be an official meeting with the DOA to review the progress or lack of progress thus far and to explain why USAID thinks that the continued financing of ongoing PNS activities is not yet satisfactorily assured. The meeting should discuss in detail USAID's generally unfavorable assessment of the situation with respect to the B.O., B.A., the Regional Agricultural Road Rehabilitation Fund, FCD, and CSCO. The meeting should also present the latest analysis of the tax base in North Shaba based on estimates of agricultural products exported from the area.

The main objective of this meeting should be to obtain GOZ agreement to study further the possibility and advisability of generating revenues from the increased agricultural production in North Shaba. A suggested scope of work for such a study is presented in Annex B. This study should result in a specific proposal for how to tax the increased agricultural production in North Shaba, including a full analysis of the pros and cons of such a tax. The findings of this study would then become the basis for a high level policy dialogue between USAID and the GOZ, including the Shaba administration, aimed at finding ways of generating local revenues to finance continuing rural development activities in North Shaba. USAID's leverage on this issue would be increased if this study could be made part of the broader policy dialogue on decentralization rather than as currently underway in the context of the PL 480 Title I program.

Since it is very unlikely that this process will be completed before August 31, 1987, the immediate issue is how to finance project activities between the scheduled end of USAID support and the time

when an assured source of funding can be put in place. The key to financial sustainability is a meaningful commitment on the part of the GOZ and the Shaba authorities to keep PNS activities going. There are steps that the GOZ should take in 1986 to demonstrate this commitment. First, North Shaba should receive a reasonable share of the Regional Agricultural Road Maintenance Fund. Second, the GOZ must continue to finance road maintenance from the Budget Annexe, and both road maintenance and agricultural extension from the Budget Ordinaire. Finally, if the cotton sector can remain solvent and ESTAGRICO continues to function as a cotton company, funds would need to come from CSCO. Illustrative numbers for 1986 in 1985 prices would be:

Regional Agricultural Road Maintenance Fund	Z5.0 million
B.A. funding for PRE	Z2.0 million
B.O. funding for PRE and ag. extension	Z3.0 million
CSCO funding for roads and extension	Z3.0 million
T O T A L	Z13.0 million

If funds are forthcoming from maize processors through the FCD that would be additional. This level of host country funding plus meaningful progress on local taxation should be a precondition for continued AID-funded activities in North Shaba and possibly even going ahead with Project 105. Progress on local taxation is particularly critical because PNS activities almost certainly cannot be sustained if they must depend on the national budgets for their financing.

For the long-term, however, it should be recognized by USAID and the GOZ that support for rural development is at least partly a government responsibility. The incomes of small subsistence farmers in remote areas cannot be increased exclusively by development activities that are self-financing. This continues to be true of North Shaba. In particular, an extension program that is oriented toward finding ways of increasing farmer productivity and diversifying crop production has development objectives that imply the need for government support. This should be reflected in the final agreements concerning road maintenance and agricultural extension in North Shaba.

IV CONCLUSION AND RECOMMENDATIONS

Although PNS is widely regarded as a very successful project whose activities should not be terminated, sustainability has not yet been assured. The extension program has not been formally integrated into ESTAGRICO, and the long-term viability of the institutional arrangements for road maintenance has not yet been established. The main problem, however, is the lack of assured funding. This is in spite of the fact that PNS is one of very few USAID projects that has created a tax base large enough to finance most of the costs of those activities that need to be continued. Another sustainability issue is the continuing need for technical assistance in order to maintain a satisfactory level of performance.

At this time, it does not appear that the sustainability problems will be resolved by the scheduled end of USAID support on March 31, 1987. However, the benefits achieved through PNS are worth sustaining and the Central Shaba Agricultural Development Project will make it possible to continue essential PNS activities and will give USAID and the GOZ more time to achieve sustainability.

The recommendations of this report pertaining to the sustainability of PNS benefits are:

A. PNS should finalize the details and budgets for a substantially reduced program consisting of road maintenance, agricultural extension, and seed production. The total cost of the program should not exceed Z25 million in 1985 prices.

B. North Shaba will require support from CSADP. Technical assistance requirements are: a Senior advisor to the Director of PRE, a mechanic for PRE, and an agronomist advisor for adaptive research and seed production. Also, logistic support will be needed to assure reliable supplies of fuel and spare parts.

C. Every effort should be made to continue road maintenance under the overall management of ESTAGRICO, but since there is some possibility that this approach will not be viable over the long run, USAID should begin exploring alternatives for both road maintenance and agricultural extension. It appears that the only realistic alternative is to integrate road maintenance into OR and agricultural extension into the Department of Agriculture, but keeping the autonomy that is provided for in the DOA/ESTAGRICO agreement creating PRE.

D. The recommended next steps for finding sources of financing are:

1) Continue to pursue possibilities for FCD support with the objective of getting a decision prior to the departure of the present PNS/DAI Chief of Party.

2) Inform the GOZ that continued support for North Shaba depends on concrete evidence that the GOZ is committed to providing adequate financial support for essential development activities in the project area. This evidence would consist of:

- An appropriate share of the Regional Fund for Agricultural Road Maintenance allocated to North Shaba.

- Timely payment from the B.O. and B.A. for PNS and PRE activities.

- Agreement to study ways of taxing the increased production in North Shaba and using at least some of the revenues to finance ongoing development activities.

3) Carry out the study of local revenue generation described in Annex B, and use the findings as the basis for a high level dialogue on the generation of local revenues to finance rural development activities in North Shaba.

ANNEX A

OPTIONS FOR ROAD MAINTENANCE IN NORTH SHABA

The tables in this annex present budgets for three levels of road maintenance for the joint PNS-ESTAGRICO road network (1,500 km) in North Shaba. Option I is the level required to maintain the roads at their existing level, which would permit travel of small vehicles at a speed of 60 km/hr. Option II is the level needed to maintain a quality of road permitting a speed of 40 km/hr. Both of these options are based on mechanized maintenance, which means that graders instead of laborers are used to smooth out the roads and keep the ditches clear of vegetation. Option III depends largely on manual labor and permits a speed of 15 km/hr.

Several key assumptions need to be highlighted.

1. Grader productivity is based on 5 km/day x 20 days/mo x 8 months/year. This is very conservative by PNS standards but very optimistic by OR standards.

2. Laborers are paid less than ESTAGRICO road workers but slightly more than OR. Also, the number of laborers is much less than ESTAGRICO would have used. The key assumption is that vegetation outside of the ditches rarely has to be cut because it is burned during every dry season. This is probably the weakest premise of the calculations because PNS has had no direct experience with manual labor. Of course, if more laborers are needed this raises the costs of Option III relative to mechanized labor.

3. All three options are designed to keep all roads passable for the purpose of evacuating agricultural crops. For this reason, Option III provides for a loader and two trucks which are needed to maintain areas around bridges and culverts and stretches of road subject to heavy erosion.

OPTION I (Qualité des routes du PRE présent)

- Dans le contexte de l'entretien courant de 1.500 Km des routes déjà réhabilitées, mises en bonne forme pour circulation des picks ups avec une vitesse de base de 60 Km/hr
- Avec un barème de salaire (y compris soins médicaux) assez raisonnable pour engager des agents compétents travaillant comme dans une société privée avec salaire forfaitaire avec primes.
- Avec une composition d'engins pour l'entretien courant appuyé par interventions limitées des points chauds avec le chargeur.

I. PERSONNEL (54 permanents)

No d'ordre	Fonctions	Eff.	Salaire de base/pers.	Primes /person.	Total /pers.	Total Gén.
01	Directeur	1	15.200	10.000	25.200	25.200
02	Conducteur des travaux	1	9.600	5.000	14.600	14.600
03	Chef Mécanique	1	6.000	3.000	9.000	9.000
04	Chef de Comptabilité et d'Administration	1	6.000	3.000	9.000	9.000
05	Caissier Comptable	1	2.800	1.200	4.000	4.000
06	Dactylographe	1	2.200	800	3.000	3.000
07	Magasinier	1	2.200	800	3.000	3.000
08	Mécaniciens	3	2.800	1.200	4.000	12.000
09	Opérateurs	4	3.000	1.300	4.300	17.200
10	Chauffeurs	4	2.200	1.000	3.200	12.800
11	Chefs de Chantier	2	4.500	2.000	6.500	13.000
12	Dessinateur	1	2.800	1.200	4.000	4.000
13	Permanents	33	1.000	700	1.700	56.100
14	Temporaires (6 mois)	60 / 2	700	200	900	27.000
					Total	209.900 Z. /mois.-

Dépenses sur salaire par an : 209.900 Z X 12 mois = 2.518.800 Z.

II. Equipement (1.000 Z)

Equipement	Prix	Vie	Amortissement	Pièces de rechange
Jeep	600	4 ans	150, 00	78, 00
Camion - benne	1.400	6	233, 33	182, 00
Camion - benne	1.400	6	233, 33	182, 00
Camion - plateau	1.100	6	183, 33	143, 00
Chargeur	3.000	7	428, 57	390, 00
Niveleuse	4.240	7	605, 71	551, 20
Niveleuse	4.240	7	605, 71	551, 20
			2.439, 98	2.077, 40.-

OPTION 1 (cont.)

II. CARBURANT ET LUBRIFIANTS

HYPOTHESES DE BASE.

a/ Une niveleuse fait un réprofilage de 5 Km par jour de 8 heures de travail effectif. Elle travaille 20 jours par mois, avec 6 mois en plein temps, 2 mois en demi temps et 2 mois en repos pour l'entretien au garage.

5 Km x 20 jrs x 8 mois = 800 Km...

Consommation par jour 15 l x 8 h = 120 litres

Prix d'un litre de gasoil = 35 Z y compris transport et stockage.

b/ Le Chargeur travaille dans les mêmes conditions de jours, de mois comme niveleuse mais avec 6 heures de travail par jour et avec 20 l de consommation par heure.

c/ Jeep et Camion 30 000 Km/an

Consommation carburant : Jeep 0,15 l/ Km

Lubrifiant : Jeep et Camion 3 % du volume carburant

Camion 0,35 l/Km

Niveleuse 5 % 100 Z/ l

EQUIPEMENT	N o	KM ou Hr par mois	CONSOMMAT. l/Km ou l/Hr	Mois	Annee	DEPENSES EN 1000 Z Carburant	Lubrifiant
JEEP	1	2 500 Km	0,151	375 l	4 500 l	157,50	13,50
CAMIONS	3	7 500 Km	0,351	2625	31 500	1102,50	94,50
CHARGEUR	1	120 Hr	20 l	2400	19 200	672,00	96,00
NIVELEUSES	2	320 Hr	15 l	4800	38 400	1344,00	192,00
				10200 l	93 600 l	3276,00	396,00

Depenses d'entretien sur 1 500 Km de route :

SALAIRE	2 518 800 Z
AMORTISSEMENT	2 439 980 Z
PIECES DE RECHANGE	2 077 400 Z
CARBURANTS	3 276 000 Z
LUBRIFIANTS	396 000 Z
FOURNITURES D'ENTRETIEN	500 000 Z
	11 208 180 Z
Imprevus & divers 10 %	1 121 820 Z
Coût d'exploitation mecanique par Km de route :	12 330 000 Z

= 12 330 000 / 1500 Km = 8 220 Z/Km

I. PERSONNEL (43 permanents)

No d'ordre	FONCTIONS	EFF.	SALAIRE/mois	PRIMES	TOTAL PER.	TOTAL GEN.
01	Directeur	1	15.200	10.000	25.200	25.200
02	Conducteur des Travaux	1	9.600	5.000	14.600	14.600
03	Chef Mécanique	1	6.000	3.000	9.000	9.000
04	Chef de Comptabilité et d'Administration	1	6.000	3.000	9.000	9.000
05	Caissier Comptable	1	2.800	1.200	4.000	4.000
06	Dactylographe	1	2.200	800	3.000	3.000
07	Magasinier dactylographe	1	2.200	800	3.000	3.000
08	Mécaniciens	2	2.800	1.200	4.000	8.000
09	Opérateurs	2	3.000	1.300	4.300	8.600
10	Opérateur-Mécanicien	1	3.200	1.400	4.600	4.600
11	Chauffeurs	3	2.200	1.000	3.200	9.600
12	Chefs de chant.	2	4.500	2.000	6.500	13.000
13	Dessinateur	1	2.800	1.200	4.000	4.000
14	Permanents	25	1.000	700	1.700	42.500
15	Temporaires 6 mois	60/2	700	200	900	27.000

Total/mois = 185.100 Z

Dépenses sur salaire par an = 185.100 X 12 = ... = 2.221.200 Z

II. EQUIPEMENT : (1.000 Z)

Equipement	Prix	Vie	AMORTISSEMENT	Pièces de rechange
Jeep	600	4 ans	150,00	78,00
Camion	1.400	6 ans	233,33	182,00
Camion	1.400	6 ans	233,33	182,00
Chargeur	3.000	7 ans	420,57	390,00
Niveleuse	4.240	7 ans	605,71	551,20
			1.650,94	1.383,20

III. CARBURANT & LUBRIFIANTS

EQUIPEMENT	No	KM OU H. PAR MOIS	CONSOMMATION L/Km ou L/H.	mois	An	DEPENSES EN 1000 Z Carburant	Lubrifiant
Jeep	1	2500 Km	0,15 l.	375 l.	4500 l.	157,50	13,50
Camion	2	5000 Km	0,35 l.	1750	21000	735,00	63,00
Chargeur	1	120 Hrs	20 l.	2400	19200	672,00	96,00
Niveleuse	1	160 Hrs	15 l.	2400	19200	672,00	96,00
				6.925 l.	63.900 l.	2.236,50	268,50

Dépenses d'entretien sur 1500 Km de route :

- Salaire : ..... 2.221.200 Z
- Amortissement : .... 1.650.940 Z
- Pièces de rechange 1.383.200
- Carburant : 2.236.500
- Lubrifiant : 268.500
- Fournitures & entretien [illegible]
  8.[illegible].340 Z
- Imprévus & Divers 828.600
  9.087.000 Z

Coût d'entretien par Km de route

$$\frac{9.087.000 \text{ Z}}{1500 \text{ Km}} = 6.058 \text{ Z}$$

6.058 Z/Km

Option III (Routes saisonnières 15 Km/h)

I.- Personnel (37 permanents)

Nº	Fonction	Eff.	Salaire/mois	Primes	Total/per	Total gen.
1	Directeur	1	15.200 Z	10.000 Z	25.200 Z	25.200 Z
2	Conducteur des travaux	1	9.600 Z	5.000 Z	14.600 Z	14.600 Z
3	Chef Mecanique	1	6.000 Z	3.000 Z	9.000 Z	9.000 Z
4	Mecaniciens	2	2.800 Z	1.200 Z	4.000 Z	8.000 Z
5	Chauffeurs	3	2.200 Z	1.000 Z	3.200 Z	9.600 Z
6	Operateur	1	3.000 Z	1.300 Z	4.300 Z	4.300 Z
7	Chefs de chantier	2	4.500 Z	2.000 Z	6.500 Z	13.000 Z
8	Commis comptable	1	2.800 Z	1.200 Z	4.000 Z	4.000 Z
9	Dactylographe+ Magasinièr	2	2.200 Z	800 Z	3.000 Z	6.000 Z
10	Charpentier	1	2.400 Z	10000 Z	3.400 Z	3.400 Z
11	Chef de comptabilite et d'Administration	2	6.000 Z	3.000 Z	9.000 Z	9.000 Z
12	Dessinateur	1	2.800 Z	1.200 Z	4.000 Z	4.000 Z
13	Permanents	20	1.000 Z	700 Z	1.700 Z	34.000 Z
14	Temporaires (3 mois)	200/4	700 Z	200 Z	900 Z	45.000 Z

Total/mois ———— 189.100 Z

Depenses sur salaire par an = 189.100 Z x 12 mois = 2.269.200 Z

II.- Equipement : (1.000 Z)

Equipement	Prix	Vie	Amortissement	Pieces de rechange
Pick-up	600	4	150,00	78,00
Camion	1400	6	233,33	182,00
Camion	1400	6	233,33	182,00
Chargeur	3000	7	428,57	390,00
			1045,23	832,00

III.- Carburant et Lubrifiants

Equipement	No	Km ou H/mois	Consommation 1 Km 1/H	Mois	An	Depenses en 1000 Z Carburant	Lubrifiant
Pick - up	1	2.500 Km	0,15 1	375 1	4500 1	157,50	13,50
Camions	2	5.000 Km	0,35 1	1750 1	21000	735,00	63,00
Chargeur	1	120 heures	20 1	2400	19200	672,00	96,00
				4500 1	44700 1	1564,50	172,50

Depenses d'entretien sur 1500 Km de route :

Salaire	=	2.269.200 Z
Amortissement	=	1.045.230 Z
Piece de rechange	=	832.000 Z
Carburants	=	1.564.500 Z
Lubrifiants	=	172.500 Z
Fourniture et entretien	=	500.000 Z
Subtotal		6.383.430 Z
Imprevus et Divers		638.570 Z
		7.022.000 Z

Cout d'entretien par Km de route :

$$\frac{1.022.000 \text{ Z}}{1500 \text{ Km}} = \underline{4.681 \text{ Z/Km}}$$

Recapitulation :

Option I : Budget par an	12.330.000 Z	= 8.220 Z/ Km
Option II : Budget par an	9.087.000 Z	= 6.058 Z/ Km
Option III : Budget par an	7.022.000 Z	= 4.681 Z/ Km