

PARTICIPATION OF PME'S
IN THE MAINTENANCE
OF PRIMARY ROADS
IN THE N'DJAMENA
AGENCY

PROJECT 677 - 0050

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PARTICIPATION OF PME'S IN THE MAINTENANCE OF PRIMARY ROADS IN THE N'DJAMENA AGENCY

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I. INTRODUCTION

The Office National des Routes (OFNAR) of Chad, a governmental organization of the Ministry of Public Works, has the responsibility to maintain primary roads which have been rehabilitated or constructed by other organizations.

There is at present great demands placed upon OFNAR by the donor community to embark on a privatization plan for road maintenance work.

There exists an office within the Direction des Travaux of OFNAR, called the Service PME, headed by Mr. Gossadina seconded by an advisor from the BCEOM, MR. Blanchard, whose specific purpose is to deal with PME's. There are 3 part-time assistants for work inspection. This was created in September of 1990 and has so far awarded three contracts to PME's for the maintenance of earth surfaced roads. Its purpose is to prepare the tender documents, receive and evaluate the offers, award the contracts and supervise the work to approve payments. In the case where a maintenance contract is given to an international organization to subcontract the work to PME's, the Service PME also monitors the transfer of technology from the main contractor to the PME's.

There are no known systematic plans for involving the private sector of the PME's. It would presumably be done gradually as the capability of the market is being assessed by OFNAR. It has already been determined by the Service that mechanical road maintenance at the present time is not possible by the PME's due to the lack of equipment and lack of access to financing.

Another approach to privatization would possibly be by transforming OFNAR into a profit motivated concern operating as a non governmental entity. Steps have already been taken in that direction with the work done by the Brigade Routiere Autonome. A detailed study has recently been completed by Fiduciaire de La Tour, a french accounting consulting firm, of the commercial potential for the new earth surfaced road construction activities of the brigade as a profit motivated concern operating in the Guera region of Chad. The study shows that for a particular road from Saour Galback-Oum Hadjer the cost per kilometer for the new construction would amount to some US\$89,000 (including the

technical assistance) at a production rate of about 6 kilometers per month. This appears to be a very high cost for a non-paved road in what may be relatively flat country.

The rationale for the privatization of the road maintenance work is good. It assumes that ultimately private organizations would be able to perform the work more economically than does OFNAR and that involving the small and medium size concerns would spur a sector of the economy of the country.

This report presents some of the aspects of involving the Chadian private sector in some road maintenance in the N'Djamena Agency which could be financed by USAID. This is done by briefly describing the type of work that is required for the maintenance of roads, what it takes to do it and how best to introduce the private sector to share some of the work.

There is room for original action which in many cases may only become apparent as certain details reveal themselves in the course of privatizing. It may also become evident after a while that privatization through PME's is an idea whose time has not yet come.

II. ROAD MAINTENANCE AS PRACTICED IN THE N'DJAMENA AGENCY

There are two types of primary roads in the N'Djamena Agency, the earth and bitumen paved surfaces. The total primary road network is about 1,250 km of which some 250 km are paved.

The N'Djamena Agency of OFNAR is presently equipped to mechanically maintain about 700 km of earth surfaced roads during the nine and a half months of the dry season campaign, which is the only time period where this type of work can be done. The Agency has no capability to either maintain bitumen paved roads or to manually maintain the drainage structures.

The cost of maintaining the earth road surfaces during the campaign of 1991-1992 was about 2,800 US\$ per kilometer, including equipment depreciation and the replacement of spare parts. The total annual cost of maintaining the primary road system was two million dollars. Because of a lack of equipment and trained personnel, the entire network of about 1,000 km of earth surfaced roads within the agency cannot be maintained. Without the financial and technical assistances from donors, neither OFNAR nor its N'Djamena agency would be capable of maintaining what it now does maintain.

The primary role of the Agency in maintaining the earth surfaced roads is to keep the roads trafficable to commercial trucks (mainly tractor-trailer type) as soon as the rainy season is over, starting in about September each year.

The 250 km of bitumen covered roads are a very recent acquisition to the network of the Agency and steps are under way to impart a capability to the Agency to maintain this type of surfacing.

To date, only some drainage maintenance has been done under contract by PME's on a couple of the primary roads. Neither mechanical nor bitumen maintenance has ever been done by them. Because the work given to the PME's involved both maintenance and new construction (concrete headwalls to culverts), the maintenance part of the work was grossly neglected and indicated that given a preference the PME's might prefer new but small construction to routine maintenance.

There are thus three basic types of road maintenance that could possibly be transferred gradually to the private sector.

The most important at present is the mechanical maintenance of the earth surfaces because it has a direct beneficial effect on the cost of commercial truck traffic, it is also the most capital cost intensive. Next in urgency is the manual maintenance of the drainage structures. It is the least capital cost intensive because it relies mainly on manual labor. In today's context because of the newness of the bitumen surfaces, last is the maintenance of the paved highways.

III. MECHANICAL MAINTENANCE OF EARTH SURFACE ROADS

Mechanical maintenance of earth surface roads as practiced in the N'Djamena Agency is actually a combination of minor rehabilitation and maintenance. This is because the soil of the road surface is usually of poor quality and therefore not able to carry traffic during the rainy season. Earth surface roads are closed during the rainy season in the Agency. The road surfaces deteriorate under the action of the rain and, immediately after, under the action of the truck traffic.

The first phase of maintenance consists then of a quick pass with graders to restore the side drainage and smooth out the uneven road surface. This is followed by the heavy grading and importation of some soil from borrow areas to restore the grades to a crowned cross section of roadway. This may involve the placement of anywhere from 250 to 450 cubic meters of soils per kilometer of road. That is equivalent to about one hundred truck loads per kilometer, at the most.

These operations require the use of bulldozers, graders, front end loaders, compactors, water trucks, fuel trucks, supply trucks, dump trucks, maintenance trucks and office and administrative spaces usually provided by a house type trailer. In addition there is a need to have equipment repair facilities at a permanent base to keep the equipment in good running condition. Qualified operators, drivers and mechanics are needed to run the equipment and there must be administrative and managing staff capable of running a multi-million dollars operation efficiently.

IV. MANUAL MAINTENANCE OF ROADS

Because of the scarcity of manpower in villages of the Agency's geographical area, the manual maintenance concerns almost exclusively maintenance of drainage structures. There is not enough manpower in rural areas to staff earth road surface maintenance crews.

Drainage maintenance relates to detail type work such as cleaning ditches of vegetation, removing minor obstructions, cleaning out the inside of culverts and under bridges, scraping and painting bridges and railings, replacing and repairing road markers. Where excessive siltation of channels has occurred there may be a use for a backhoe or mechanical shovel to redefine ditches and drainage channels.

This type of work requires mainly manual tools such as picks, hoes, shovels, wheelbarrows, machettes, saws, axes, some masonry tools, brushes, hand scrapers, string lines, and a means of transporting the manpower and equipment to and from the daily work sites. Most of the work force can be unskilled labor of either men or women.

This type of maintenance is applicable to any kind of road as long as the roadway space is more or less defined and man-made drainage features exist.

V. BITUMEN SURFACES MAINTENANCE

The maintenance of bitumen surfaces requires expensive and very specialized equipment and trained personnel. Neither are available at OFNAR nor in the private sector of the PME's as later defined for the purpose of this paper. This type of maintenance is therefore no longer considered in the discussions that follow because it is the consultant's opinion that the capability to transfer this type of maintenance to the PME's within the next five years is extremely unlikely. It must be remembered that any work contracted to PME's will have to be inspected and approved for payment by OFNAR or the Ministry of Public Works and that in order to evaluate the quality of work, there will have to be a qualified staff within these organizations to do the inspection. This qualified staff will only become available from the pool of employees which will be doing paved road maintenance by force account work.

VI. PARTICIPATION OF THE PME'S

PME's are defined by USAID as being exclusively Chadian private organizations with small to medium capitalization. Typically, these may be small construction companies, traders, trucking concerns and agricultural associations. The "small" adjective is not defined.

Specifically excluded are the non-Chadian or expatriate firms which are now legally incorporated and operating in Chad. Such firms are building bitumen paved roads within the city of N'Djamena.

The PME's which meet the definition of USAID are by a large not equipped to do mechanical road maintenance because they do not own heavy construction equipments and they lack means of financing new operations. They also lack the skilled labor and managerial personnel to run a multi-faceted operation such as is required for the mechanical maintenance of the earth roads. They are also probably not equipped to operate away from N'Djamena for any extended period of time.

There is however one aspect of the mechanical maintenance which could be contracted out to the private sector and, if successful, may turn out to be of considerable benefit to the Agency transport situation. That is the light grading that is done with graders at the beginning of the dry season.

This operation consists of running a grader, supported by one fuel truck and one dump truck which is used to transport mechanics and their tools, drivers and consumables such as oil and grease. It also occasionally hauls some import soil material which would be loaded by hand labor at designated borrow areas.

Two or three passes per year over the same stretch of road of one grader over a period of two or three months out of the year by one PME would keep about 200 kilometers of riding surfaces in an acceptable condition. This assumes that the grader would do about 10 kilometers per day and work about 18 to 20 days per month on the average.

In addition to this, and this has already been tried by the Agency, PME's can be contracted to perform manual maintenance of drainage appurtenances. As was mentioned earlier, the quality of work was poor because the PME's appear to be more interested in performing new work included in their contract.

There is at present a drainage maintenance need observed by the consultant and communicated to USAID with a recommendation to issue a request for proposal to the PME's for the manual maintenance of drainage facilities of the road between Djermaya and Ngoura. The preparation and finalization of the tender documents is going to be done by the Direction des Travaux. They will prepare and issue the tender documents.

VII. CONCLUSION AND RECOMMENDATION

There is an office within OFNAR set up to deal with all of the aspects of contracting PME's for the construction and maintenance of roads. At present, this office anticipates to award only manual maintenance contracts to the PME's because this part of the private sector does not have either the physical or financial means to do other type of work.

It is recommended that to the extent that funds of USAID for the road project can be made available, they be used to finance the manual maintenance of drainage structures over some sections of earth-surfaced roads within the N'Djamena Agency. It is recommended that as the road inventories are made by Louis Berger International Inc, that the information where manual maintenance work may be done by PME's be transmitted to the Service PME of the Direction des Travaux of OFNAR for them to issue tender documents and receive bids. Later, USAID would be in a position to determine what aspect of the work it would be able to finance and inform the Service PME.

It is recommended that for each campaign, the consultant make an independent evaluation of the work of the PME's and issue recommendations to USAID as to what the next campaign share of the PME's in the earth-surfaced road maintenance of the Agency of N'Djamena could be.