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HOW RURAL DEVELOPMENT POLICY DISCOURAGES

FEEDER ROAD MAINTENANCE IN BANGLADESH

EXPERIENCE AND LESSONS LEARNED FROM THE
USAID FEEDER ROADS MAINTENANCE AND IMPROVEMENT PROJECT
AND COMMENTS ON THE ROLE OF THE PLANNING COMMISSION
RURAL DEVELOPMENT STRATEGY

by

Olivier Carduner

Deputy Director
Project Development and Engineering Office
USAID/Bangladesh

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I. Introduction

This paper was prepared for presentation at the Seminar on Road Maintenance organized by the Local Government Engineering Bureau (January 22-23, 1989). The paper has two objectives: 1) to summarize experience and lessons learned on the USAID assisted Feeder Roads Maintenance and Improvement Project (FRMIP); and, 2) to review the role of the Planning Commission's Rural Development Strategy in relation to road maintenance. The paper concludes that the Feeder Roads Maintenance and Improvement Project failed to achieve its maintenance objective because key institutional and financial constraints were not adequately addressed. The Planning Commission's Rural Development Strategy, which governs projects such as FRMIP, promotes the type of road investments for which the institutional and financial conditions for maintenance do not exist. There is a high risk that projects implemented under the present circumstances may inadvertently result in a negative contribution to rural economic growth. Unless the Planning Commission Strategy is substantively modified to address maintenance, it will not be a viable tool for promoting rural development. Modification of the policy environment and increased awareness of the issues by senior policy makers is critically needed to correct this situation.

The next two sections of this paper provide an overview of FRMIP strategy and implementation efforts. Some readers may wish to skip directly to section II.C. on page five, which summarizes findings of various project assessments and leads to a discussion of lessons learned.

II. Experience and Lessons learned from the Feeder Roads Maintenance and Improvement Project

A. Background

The Feeder Roads Maintenance and Improvement Project (FRMIP) was initiated in August 1981. It was the first, and to date the only, major donor funded project with the primary objective of increasing the institutional capability of local governments to maintain feeder roads. The second and, in USAID's view, secondary objective was to accelerate the pace of feeder road development. The three old districts of Rangpur, Faridpur and Sylhet were selected as the project area. Project duration and cost were originally planned to be five years and US\$ 11.5 million.¹ The Local Government Division of the Ministry of Local Government, with its Works Programme Wing (latter renamed Local Government Engineering Bureau) was the implementing entity along with the three district governments.

1 Of this amount, USAID was to finance US\$ 9.2 million, and the Bangladesh Government Tk 6.9 Crore.

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The following four prong implementation strategy was adopted:

- 1) Strengthening the capacity of the three district governments through improved staffing and organizational structures, development of maintenance standards and procedures, and modernization of road maintenance equipment pools;
- 2) Improving road maintenance and construction techniques through on-the-job training of road contractor personnel;
- 3) Identifying and mobilizing additional local revenues to finance road maintenance;
- 4) Carrying out limited but strategic improvements on selected road segments to increase road usability.

A US consulting firm, Wilbur Smith and Associates (WSA), was engaged with its partner, Bangladesh Consultants Limited (BCL), to assist the Bangladesh Government in implementing the project. WSA/BCL prepared a number of inception reports which analyzed staffing requirements, equipment needs and training needs. They then developed several manuals on maintenance and improvement standards and developed training programs for district officials and road contractors. A major part of their effort also involved monitoring and certifying road work quality to ensure that standards were maintained. Finally, WSA/BCL acted as procurement agent for importation of new road equipment.

A separate contract was made with Syracuse University in the US to carry out a comprehensive two year study of the local government revenue system and recommend ways to generate increased revenues for district level road maintenance.

B. Early Implementation Progress and Difficulties

The first year of the project was taken up with mobilization of the consulting teams and other implementation preparation. During the next three years, 83 Km of feeder roads were improved to all weather bituminous carpeting standard, another 40 Km was partially improved, and 147 Km of paved and dirt roads received some repair work classified as maintenance. Several training programs took place with participation of local government staff and road building contractors. The distinction between maintenance and improvement work was clarified with establishment of practical working definitions. Some modifications in the engineering staff organization at the district level also were made which integrated two separate engineering units into one organizational structure. After lengthy discussions on equipment needs, a list of equipment for

each district was agreed upon. The equipment was procured, but due to the initial selection delays, did not start arriving until 1986.

The two year local revenue study by Syracuse University culminated in a widely attended workshop in early 1985, during which findings and recommendations were presented. Twelve reports were produced analyzing the additional income generating potential of the land development tax, the immovable property transfer tax, union, upazila and zilla revenue sources, and the possibility of instituting toll payments on roads. An executive summary with recommendations was also produced and widely distributed.²

In the early years of implementation, a modification in the project's road improvement strategy was made which ultimately had a major impact. A determination was made that most of the feeder roads in the project area were in such bad condition that significant improvement was required before a routine annual maintenance program could be effectively carried out. Hence, the original project strategy of limiting improvement work to a large number of small but strategic road segments was abandoned in favor of upgrading entire roads to full bituminous carpeting standard. Twelve roads were selected to receive this level of improvement and other roads received only limited attention. The assumption was that routine annual maintenance programs would be put in place once the full scale improvement work was completed.

The result of this change in strategy was that in the fourth year of the project it became clear that improved maintenance capacity was not yet institutionalized because attention had been focused chiefly on improvement work. Routine annual maintenance was not yet being performed on any roads. This factor, in addition to equipment procurement delays, meant that more time was required to achieve the primary project objective.

Another event occurred which complicated timely achievement of project objectives. In 1982, one year after project start up, the government began implementing a new decentralization policy which involved creation of the upazila system and a temporary "suspension" of activities at the zilla parishad level. The 22 existing districts were to be divided into 64 "new" districts. This meant that the institutional level the project was designed to support was rendered administratively irrelevant and sapped of its previous power and legitimacy. Nevertheless, since the roads in question were still important and district

2 Copies of the Syracuse University reports are available at USAID.

level staff was still in place, it was felt that road improvement work could be continued and that, given more time, the project's institution building strategies could be gradually adjusted to the new framework.

These two factors ultimately led to a decision to extend the project for another four years, to 1990, and to provide an additional US \$11.8 million in USAID funds and Tk 9.7 crore in BDG funds to raise the total project cost to US\$ 27.6 million (Tk 88.3 crore). New documentation was prepared and a revised agreement signed in August 1986. In this agreement, the project implementation entities were modified to conform to the new decentralization policy. A Project Implementation Office (PIO) was created to assume implementation responsibilities at the center in lieu of the LGEB. The government urged USAID to shift implementation to the upazila level, but USAID was not prepared to do so without a researched determination of upazila capacity. It was agreed however, that pilot maintenance efforts be initiated in several upazilas. To provide a legal basis for issuing road contracts at the district level (the "suspended" districts had no authority), fourteen "District Road Development Committees" (DRDCs) were created to substitute for the three original districts. No new road work was taken up during the 1985/86 work season while discussions on this extension were underway.

Just as it seemed a new agreement had been reached, it was found that the project design conflicted with another major new government policy, the Planning Commission's Rural Development Strategy. This strategy had been announced in 1984, but it was only in 1986, when the revised project proforma documentation was circulated, that FRMIP became affected. In the area of rural infrastructure, the policy required that new projects focus exclusively on upgrading selected rural markets identified as "growth centers" and improving the "type B" feeder roads which provided the shortest possible connection from these markets to the national road network. The policy included a target of 4000 miles of feeder roads to be improved to bituminous carpeting standard over a 10 year period, but road maintenance was not discussed.³ It was generally assumed that the newly created upazilas would be capable of, and accept, all maintenance responsibilities.

The Planning Commission wanted all donors to conform to this strategy and planned to assign each project to a separate

3 See Bangladesh Planning Commission, "Strategy for Rural Development Projects - A Sectoral Policy Paper" (Rural Development and Institutions Division, January 1984).

geographical region in order to eventually implement the policy nationwide. Several months of discussion ensued concerning the extent to which FRMIP, a previously existing project, should be revised to conform to the new policy. A compromise eventually was reached giving, on paper at least, equal emphasis between road maintenance and road improvement. A growth center development component was also added.⁴

Unfortunately the additional delay created by this discussion resulted in loss of a second work season (86/87). Although some previously started road work was being completed, no new work was initiated, and the project lost substantial and valuable momentum. An external USAID audit was performed during that time which highlighted the lack of overall progress, and questioned whether the original objectives were being met.

Concerned that the project environment may have changed to the point that original strategies, modified to suit a variety of new concerns, might no longer be viable, USAID undertook a rapid field appraisal of the project in May 1987. In the ensuing year, special assessment of the training programs and equipment use were also made. The main findings of these reviews follow.

C. Findings of Project Implementation Reviews

The major finding of the May 1987 field appraisal was that, after six years of implementation, little or no discernable progress had been made in achieving the original project objective -- institutionalizing routine annual maintenance at the district level -- although significant progress had been made in accelerating the pace of road improvement.⁵ In other words, after six years of implementation, the project had not made a visible dent in achieving its original objective.

More critically, the risk of building paved roads that would not be maintained became quickly apparent while visiting

4 This growth center component was financed exclusively from Bangladesh Government funds.

5 Of the 270 Km of type B feeder roads in the project area, none had been maintained over more than one annual work season. Of the 123 Km of roads improved by FRMIP, only 21 Km (17%) had received any maintenance. See page 1, "Rapid Rural Appraisal of the Feeder Roads Maintenance and Improvement Project" dated July 19, 1987. Copies available at USAID.

non-project roads paved in the previous five years. It was found that roads built to bituminous carpeting standard and not maintained often quickly deteriorated to worse than dirt road condition in as little as two to five years. This unusually rapid deterioration was said to be caused primarily by poor construction practices combined with high rainfall. Because of this situation, road improvement efforts can inadvertently result in a negative development impact and significant financial liability because unmaintained roads become unusable to all but pedestrian traffic, and repairs have to begin with expensive removal of broken pavement. In some areas, local residents had requested district deputy commissioners to remove broken pavement and return roads to dirt surface condition in order to make these roads, which had been "improved" only three to five years earlier, passable by rickshaw. These worrisome findings showed that financing continued road improvements without a corresponding increase in maintenance capacity would result in a worsening rather than improvement of the road system in rural Bangladesh.

Moreover, the assessment identified several major problems which made it clear that the maintenance objective could not be met without substantial changes in project design and the overall implementation environment. Three strategic issues emerged which need to be addressed: Lack of consensus on the maintenance objective; lack of adequate institutional framework for road maintenance; and, insufficient local resources to finance maintenance costs.

1. Lack of consensus on the maintenance objective

When interviewed, virtually all local officials involved with FRMIP explained the project objective in terms of improvement of type B feeder roads. None mentioned institutionalization of maintenance as a primary objective. The views of these officials, ranging from Upazila Chairmen to Deputy Commissioners and Executive Engineers, reflect the project's shift in emphasis from maintenance to improvement, both as a result of the new Planning Commission Strategy and the early shift in project strategy towards instituting a maintenance routine only on roads that had reached final bituminous carpeting standard.

It also appeared that many officials saw the application of bituminous carpeting pavement as a solution to the problem of maintaining dirt roads and were not yet concerned about, nor aware of the significant problems and costs involved in maintaining paved roads. This perception is not surprising given that about 74% of type B feeder roads (and probably about 98% of all roads) in the project area are still dirt and that

most (about two thirds) of the bituminous roads had only been completed in the preceding three years.⁶ By shifting the project strategy to start with full bituminous carpeting improvement rather than institution building for maintenance of existing roads, the type of problem addressed by the project shifted from one that was familiar to local people (dirt road maintenance) to one that was unfamiliar (paved road maintenance). With the assumption that pavement would be a type of permanent solution, any interest in the problem of maintenance that may have existed had disappeared.

The clear lack of consensus between project documentation, on the one hand, and views of local officials on the other, regarding the major problem to be addressed by the project made rapid resumption of implementation progress virtually impossible.

2. Lack of adequate institutional framework for road maintenance

At the time the appraisal was completed (July 1987), the future status and role of the new districts was still unclear and the technical capacity of upazilas for maintaining paved roads was untested. What did become clear was that the road development committees (DRDCs), although adequate as a temporary mechanism for issuing road improvement contracts, could not be expected to take over routine maintenance work. A major problem in this regard was their temporary nature and limited role in road selection. DRDCs were expected to be active only as long as a donor financed project provided funding. Most of the upazila chairmen and MPs interviewed did not like the DRDC system, and some stated they would refuse to participate because their roles in the DRDC were too limited and they were left out of key decisions, such as road selection. Hence, it appeared unlikely that DRDCs could coordinate general planning of maintenance or improvement work that might be financed by the Government outside of a donor project framework or after project completion.

In looking for alternatives, the appraisal team sought to assess the relative capability of upazilas, "new" new districts, and "old" new districts. "Old" new districts refers to the 22 newly created districts which were the headquarters seat of the old districts and which still retained stronger staffing, equipment, and financial resources than the "new" new districts converted from earlier sub-districts. The conclusion

⁶ See page 13, USAID, "Rapid Rural Appraisal of the Feeder Roads Maintenance and Improvement Project" (July 19, 1987).

was that, of the three, upazilas were strongest in overall administrative and planning capability, followed by "old" new districts, followed at considerable distance by "new" new districts. In terms of overall technical capability for large scale activities such as improving entire stretches of road, the "old" new districts clearly ranked first, with upazilas and "new" new districts about equal. All in all, the "new" new districts were clearly the weakest of the existing government units.

Given the additional facts that the 1982 Local Government Ordinance had given upazilas authority to carry out type B feeder road maintenance and improvement, and that they managed much larger shares of local and centrally generated resources than districts, the strategy of focusing long term institution building on new district governments was seriously put in question. The alternative of shifting entirely to the upazila level was not obvious however, because of road equipment constraints and the sheer number of upazilas involved in relation to remaining project resources. Finally, it became increasingly unclear how a project which was in the last years of an implementation effort originally structured to develop the institutional capacity of just three government units, could possibly be successful in quickly redirecting its efforts to work with over 30 upazilas, let alone 14 new districts.

In the year following the USAID appraisal, two other studies on equipment utilization and training program effectiveness were completed. These studies further revealed the complexity and difficulty in achieving the project's institution building objectives. The equipment study reviewed the usage and condition of all road equipment available at the district level in the project area, including that which had been purchased under FRMIP. It was found that overall utilization rates were less than a fifth of actual capacity. Simple preventive maintenance steps such as regular changing of oil was not being performed. WSA/BCL equipment experts estimated that if all unused but repairable equipment currently in the districts (including R&H, BWDB, and LGEB owned) were rehabilitated and made available, this could meet most or all road equipment needs for the next five to ten years. The major problems hindering greater use of equipment were found to be lack of spare parts, lack of maintenance and repair capability in local workshops (both private and government run), lack of maintenance funds, lack of interest in keeping equipment maintained, lack of spare parts standardization due to the multiplicity of equipment brands from different donor countries, lack of trained manpower, and near total absence of equipment dealer support.

These findings cast serious doubt on the near term success of instituting a road maintenance system that is dependent on effective equipment operation. Unfortunately, maintenance of paved roads is much more equipment intensive than maintenance of lower standard roads. Much stronger institutional support at the local government level is needed to maintain heavy road equipment in usable condition. Hence it appears that the strategy of first improving roads to bituminous carpeting standard had the effect of greatly increasing the burden of project success on one of the weakest links - institutional capacity.

Training was used in the project strategy as the major component to effect systematic institution building. An evaluation of the training programs was undertaken in 1988 to determine to what extent training was effective in improving work output and increasing capacity for road maintenance. The training evaluation interviewed 125 of the 306 individuals who had benefited from FRMIP training. These ranged from foremen and surveyors to executive engineers. The evaluation found that training had generally been good and that broadening of knowledge and perspective as a result of the training was significant and would be beneficial over the long run. On the other hand, "very few trainees could show that they had specifically used something of what they had studied. It was commonly said there was no system, no scope, or no order to specifically implement what they had learned, or insufficient funds, equipment, or personnel.⁷ A basic problem identified in the evaluation was the lack of incentive to change existing systems and practices which would have to be modified if the content of training courses was applied. Of several recommendations to address this problem, the evaluation emphasized strongly the need for greater commitment and support from top government officials and Ministries to the objectives of the training.

In sum, the task of institutional strengthening remains formidable. Drastic changes in the local government structure had the effect of creating a moving target which the project was not flexible enough to respond to. Maintenance of heavy road equipment, emerged as a major bottleneck which is not cured by new equipment procurement, and which will require much stronger institutional capacity to solve. A major tool of institution building - training, was found to be generally ineffective in promoting maintenance practices when a vacuum of commitment exists at higher levels of government.

7 See page 2, Clarence Maloney and Mahfuzar Rahman, "Evaluation of Training Component; Feeder Roads Maintenance and Improvement Project" (July 1988).

3. Insufficient Local Resources to Finance Maintenance Costs

Maintaining roads is expensive. Actual experience in FRMIP shows that the average annual cost of maintaining one kilometer of road is Tk 8,000 for dirt roads, Tk 80,000 for FRMIP-standard paved roads, and Tk 183,000 for the average paved road.⁸ The lower cost of maintaining FRMIP paved roads is due to higher design and construction quality which makes the roads more resistant to deterioration. This dramatic difference illustrates the importance of good construction techniques in limiting maintenance costs. The project achieved these standards by strict monitoring and certification of quality by the consultant (WSA/BCL) prior to reimbursement of road work costs.

Not maintaining paved roads was found to be much more expensive than maintaining them. As discussed above, roads in the project area which were built to common bituminous carpeting standard and not maintained, were found to deteriorate to worse than dirt road condition in a period of two to five years.

The USAID appraisal found that FRMIP road improvements in Rangpur (26 Km of new bituminous carpeting) and Sylhet (17 Km) had increased the annual maintenance budget requirement by at least Tk 22 lacs and Tk 12 lacs for each district respectively. The total current annual budget requirement for maintaining all type B feeder roads in those two districts was estimated at Tk 321 lacs. Unfortunately, it appeared that only about 10% this total was currently available.⁹ It was clear that the critical link between budgeting for new investments and budgeting for maintenance was not being made. Given the disastrous results of no maintenance, it seemed quite possible, indeed likely, that the feeder road network would be left in worse shape after the FRMIP project than before.

Unfortunately, since completion of the Syracuse University studies in 1984 with its extensive recommendations for raising revenues, no further effort was made on the problem of long term financing of road maintenance. The 1986 FRMIP project amendment added a road maintenance budget with gradually increasing BDG contributions, but because these funds are provided through the projectized development budget (ADP) rather than the revenue budget, this can only be considered as

8 Paved is used here to mean full bituminous carpeting. See Attachment A, "Rapid Rural Appraisal of FRMIP", op cit.

9 See pages 8 and 9, "Rapid Rural Appraisal of FRMIP", op cit.

a temporary band-aid measure that can not ensure maintenance fundin; after project completion. The main problem of establishing a stable and protected revenue source at central or local government level is still unsolved. Until substantial progress in this direction is made, the potential economic growth resulting from road investments will remain largely unrealized. Moreover, it appears that the net result will be negative growth as the economic liability of unmaintained, unusable roads is added to the opportunity cost of investing in other more productive sectors of the economy. Such negative development will make it even more difficult to raise revenues for future development purposes, thus promoting a downward spiral which saps efforts toward overall economic self-sufficiency and growth.

D. Current Status and Lessons Learned

The three major issues outlined above proved too much for FRMIP to address in its final years and within existing resource and time constraints. After some effort to consider a major redesign, USAID and the Local Government Division decided to phase out FRMIP ahead of schedule, upon completion of previously started road improvement work. To reduce risk of negative development impact, a ban was imposed on use of bituminous carpeting for completing final road work. At the same time it was decided that development of a new project would be initiated to continue USAID support for rural roads and local government capacity building.

The basis of this latter decision was grounded in recent studies showing the potentially dramatic impact that infrastructure, especially roads, can have in developing rural areas, and the sense that an apparently increasing awareness of the maintenance issue at senior government policy levels could improve the chances of future success.¹⁰ It was also felt that lessons learned from FRMIP and other programs could be applied

10 See R.Ahmed and M.Hussein, Infrastructure and Development of the Rural Economy of Bangladesh (International Food Policy Research Institute in collaboration with Bangladesh Institute of Development Studies. February 1988). This USAID financed study found that villages ranked high in infrastructure had 31% to 42% greater crop production, and 33% higher household income levels than those with little infrastructure. Most of these benefits accrued to lower income groups. This means that effective investments in infrastructure such as roads can have a significant poverty alleviation effect. Copies of this study are available at USAID.

to design more effective and less risky implementation strategies that could help provide a framework for new road development efforts in the 1990's. As the first effort in developing the new project, a Rural and Feeder Roads Sector Assessment is being undertaken in collaboration with the Planning Commission, which will analyze in detail the major strategic issues discussed above and seek to identify the most effective approaches to building greater long term infrastructure maintenance capacity at the local government level.

In anticipation of more complete findings from the Sector Assessment, the lessons learned so far through the FRMIP project can be summarized as follows:

1) Developing a sustainable feeder road network is akin to building a stool to sit on. Three legs are required. If any one is missing the result is painful. For a road network the three legs of the stool are technical, institutional, and financial. In the course of implementation, FRMIP made the error of seeking a solution to the road maintenance problem through mainly technical means - i.e. building higher standard, more costly, and in theory more durable bituminous carpeted roads. This technical solution will not work unless the other legs of the stool, institutional and financial, are also built to the corresponding length and strength. In other words, it will take more than engineers to build a feeder road network. Without the public finance economist, institutions experts, policy makers and local politicians, as well as bureaucrats, the necessary structure cannot be built.

2) Until the implementation and policy environment can adequately support building the institutional and financial supports for a sustainable high standard road network, the technical solutions will have to be scaled down to more realistically match existing institutional and financial constraints. The idea here is to keep all three legs of the stool at the same length even if they have to be shorter.

In practical terms, this would mean explicit adoption of a stage approach to road improvement in which the first stage is limited to bridging critical gaps and building a good quality dirt surface. Stage two would involve partial hard surface treatment such as water bound macadam and perhaps addition of some structures to permit year round access and proper flood drainage. Only the final stage three would involve bituminous carpeting. Progression from one stage to the next would not take place unless at least two preconditions are met: i) actual traffic counts reach a defined threshold calling for the next

stage of improvement; ii) the institutional and financial capacity to maintain the road at the next higher stage is in place. If the second condition does not clearly exist while the first is met, then restrictions on road use need to be imposed such as prohibiting overweight vehicles or closing roads after heavy rains or flooding. Such an approach would greatly reduce the risk that overambitious improvement efforts result in negative development impacts.

3) In the current conditions of rural Bangladesh, the textbook theory that greater investments in harder, higher standard roads will reduce maintenance costs does not seem to hold true. This phenomenon is illustrated by the large ten fold disparity in cost of maintaining dirt roads compared to that of maintaining paved roads under FRMIP (see figures on page 10). While further investigation is needed, the following factors may explain this phenomenon;

i. The textbook case assumes that roads are paved only when traffic has reached such a level that continuous maintenance becomes cumbersome and very costly. Hardening the road with pavement will, at this point, reduce maintenance costs. By contrast, actual traffic surveys conducted under FRMIP show that few type B feeder roads sustain the traffic volumes to justify much more than a good quality dirt surface. Premature paving in this case will result in an increase rather than decrease in maintenance costs if the minimum maintenance required to protect the roads from rain and flood is more costly for bituminous carpeted roads than dirt roads. Analysis of labor costs involved in moving and compacting earth compared to the cost of bitumen, heavy equipment, and higher skilled technicians may show that such is the case.

ii. Poor construction quality is a major problem on most feeder road improvement work. This results in a road surface that is actually much "softer" and more fragile than the standard textbook case assumes. Such a surface will be much more expensive to maintain as the improvement work will in fact have to be repeated, even if gradually, under the guise of maintenance. FRMIP experience shows that poorly constructed roads can be more than twice as expensive to maintain than those of the same design that are constructed properly. While dirt roads also suffer from construction quality problems, the cost of maintenance repairs appears to be much less.

If these two factors operate simultaneously, and there is substantial indication that this is often the case, then we have the perverse result that increased investment in road improvements causes general increases rather than decreases in maintenance budget requirement. This effect would further

contribute to the downward spiral tendency discussed above whereby unsustainable investments are made which sap resources and undermine resiliency and growth in the economic base. Avoiding this effect is possible if a stage construction policy is adopted and effective means for ensuring construction quality are insisted upon. The latter would not be easy to institutionalize given the limits of trained technical staff and resources at local government levels and common practices of bribery in exchange for acceptance of substandard work.

III. Comments on Current Planning Commission Strategy

A: Importance of the Rural Development Strategy

Dissatisfied with the slow progress of rural development efforts, the Planning Commission in the early 1980's sought to revise current government strategies with a view toward simplification and focusing of objectives. In January 1984, a new comprehensive policy was announced and introduced to donors. The official policy document is entitled "Strategy for Rural Development Projects - A Sectoral Policy Paper". This strategy describes a ten year plan which, among other things, would result in paving 4000 miles of feeder roads and developing 1400 "growth centers". The document states that all future rural development efforts would follow the strategy outlined in the policy document. Subsequently, all donor and government projects involving rural development efforts were reviewed in terms of adherence to this policy.

In the area of rural infrastructure, growth center development became the cornerstone concept of the new policy. A national survey was completed some time in 1981 collecting infrastructure and economic data on sixty six variables for each union in the country. Using this data, rural markets in each upazila were rank ordered. Depending on the size, population and number of unions in each upazila, the top two to five markets on the rank ordered list were designated as "growth centers". Upazila headquarters were automatically designated as growth centers. The growth centers were to receive priority government and donor funding for various infrastructure improvements such as installing tube wells, sewerage and drainage, paving market streets, installing food go-downs, electrification etc. Feeder roads were defined to be those roads which connected the growth centers to the closest possible regional or national highway. Special priority was given to "type A" feeder roads which connected the upazila headquarters. Improvement of type A roads was made the responsibility of the Roads and Highway Department. All other feeder roads were designated as "type B", and were to be given priority by donor projects. All feeder roads were to be paved to bituminous carpeting standards.

As discussed earlier, the FRMIP project proforma and grant agreement had to be modified to reflect this new policy. In order to insure correct implementation, the Planning Commission required that each project proforma list the specific type B feeder roads which would be improved. Changes in the list could only be made with prior Planning Commission approval. Since 1984, all new or revised donor projects involving rural infrastructure activities were made to follow the policy. To date, close to \$250 million in donor funds, plus corresponding government counterpart funds, have been programed in projects which implement the policy.

Since its inception five years ago, sufficient time has passed to permit a review of the effectiveness of this policy. The preceding discussion of experience under FRMIP has identified several major difficulties with the Rural Development Strategy as currently conceived and implemented. The final section of this paper will briefly present these major issues as they affect infrastructure development.

B. Major Policy Issues with Rural Development Strategy

There are at least four major problems with the current policy which need to be urgently addressed if the Rural Development Strategy is to make a sustainable contribution to the rural infrastructure development of Bangladesh.

1) The first major difficulty is that the policy involves major new investments in infrastructure, but makes no apparent provision for maintenance of this infrastructure.

By default, it is assumed that local government units will absorb the maintenance burden with their own resources. However simple calculations show that the cost of maintaining the proposed type of infrastructure would be prohibitively expensive given the current financial position of local governments. For example, if the planned 4000 miles of feeder roads were improved to full bituminous carpeting standard using existing standards of construction, it would cost approximately Tk 120 crore or US\$ 40 million annually to maintain these roads after completion.¹¹ This amount is roughly half of the total

11 This figure was calculated using the FRMIP consultant estimate, based on actual experience, of Tk 183,000 as the average annual cost of maintaining one Km of paved Type B feeder road. This figure represents 1987 prices. An inflation adjustment to 1989 price levels would raise the cost by 15% or more. See item 6e in Attachment A of the FRMIP Appraisal Report, op cit.

annual upazila block grant budget in the government's Annual Development Plan. Costs of maintaining other investments, such as the growth center, and the upazilas' own infrastructure investments would be additional. Of course the cost of replacing these investments if they are not maintained would be several times higher.

Even if we assume that money becomes available, institutional constraints affecting equipment use, availability of sufficiently skilled and organized staff, and presence of adequate incentives to ensure a major change in orientation towards maintenance would still have to be addressed. None of these issues seem to have been adequately appreciated, and the very lack of discussion regarding maintenance in the policy is itself a major inhibiting factor to its occurrence.

Like FRMIP, the policy appears to be a stool with only one leg. The institutional and financial issues related to maintenance must be addressed if this policy is to become a viable tool for development.

2) The formula for road selection excludes reasonable economic considerations and too often results in poor investment choices.

Although the methodology for selecting growth centers has not been released by the Planning Commission, one may assume that economic data gathered in the 1981 survey was a guiding factor. From any given growth center however, there is usually more than one road and sometimes also a boat landing or train station as well. Rather than considering possible alternative economic benefits from selecting among available choices, the policy requires that only the road providing the shortest, most direct connection to the national highway system may be selected to receive priority funding as a type B road. This approach of cost minimization may provide the simplicity needed for a central planning exercise. However, this simplicity is bought at the cost of economic efficiency.

In one example in greater Rangpur district, a type B feeder road selected for FRMIP funding was found to rank last on an economic priority ranking of 13 roads in the new district. The number one ranked road connected the same growth center to the same regional highway. This first ranked road could not be selected because it was about 20% longer than the defined type B feeder road. Along its path the desirable road connected union headquarters, schools, a clinic and a cash crop agricultural area, while the selected road connected no such points. The upazila parishad recognized the obvious economic benefits of investing on the longer road and had devoted

substantial resources to improving it while ignoring the FRMIP selected road. It is unlikely at best that the upazila will devote resources to maintaining the type B road after it is improved. Many examples of this sort can be found. In three of four upazilas visited during the FRMIP field appraisal, locally controlled resources allocated to feeder roads were almost always spent on roads other than those selected under FRMIP.

3) Unintended windfall benefits to local elites

Recent studies on the current status of local revenue generation by the "Like Minded Group" of donors reveal that an average of up to 90% of revenues generated from growth center type markets is retained as profit by private market managers.¹² For an average upazila this 90% may amount to as much as Tk 36 lacs per year. It is generally expected that investment in growth centers, including improved market stalls, food storage go-downs, and roads significantly increase the value of the market to vendors. This provides an opportunity for managers to substantially increase their profits. Unfortunately, no mechanism is presently in place which would capture the incremental income generated as a result of the infrastructure investment so that it may be directed to public use such as maintenance of the infrastructure. Typically, the market managers are influential and wealthy local elites and there is known to be considerable collusion and other practices which defeat free market mechanisms and ensure a monopoly situation. Occasional efforts by upazila bureaucrats to manage the markets directly is said to usually result in even lower revenues to the upazila. Through this presumably unintended effect, the Rural Development Strategy contributes to increasing income disparities in rural areas while missing an opportunity to capture a portion of the benefits generated by investments.

12 Each year upazilas, who are responsible for rural markets, auction off each market to the highest bidder. The winning bidder collects rental fees from vendors who sell their produce at the market. Average revenue to upazilas from such auctions ranges around Tk 3 to 5 lacs. This is the most important "own" revenue sources for upazilas. Results of the Like Minded Group study were discussed at a workshop on January 8th, 1989. A consolidated written report is currently being drafted.

4) Conflict with Decentralization Policy

As alluded to earlier, there exists a potentially serious conflict between the current Rural Development Strategy and the Decentralization Policy over the questions of road maintenance and selection of investment priorities.¹³ It should be clear that each of these two national policies directly and independently affect development of rural infrastructure. The Decentralization Policy created the existing local government structure and set the terms and limits of local government authorities in all fields, including rural infrastructure development.

The Rural Development Strategy, on the other hand, provides the framework for donor and national level investments in rural infrastructure which are not directly controlled by local governments. This latter policy has been applied by the BDG to FRMIP and similar donor projects, while Food For Work related activities more closely follow and support the Decentralization Policy (i.e. resources have been more directly controlled by local governments). Of the two, only the Decentralization Policy provides a clear context for addressing maintenance issues, because the Planning Commission Strategy focuses exclusively on new investments and does not address the question of maintenance except to say that it is the responsibility of local governments.

As discussed above, achievement of the Planning Commission's feeder road improvement targets would add an annual recurrent cost burden on upazilas which would be roughly equal to \$ 40 million or more than 50% of their annual central block grant allocations for all development activities. Unless modifications are made which cause a parallel expansion of maintenance budgets, local governments risk being incapacitated by recurrent cost burdens which they cannot fully control. The lack of control stems from the extremely limited role local governments have in determining investment priorities under the Planning Commission Strategy. These combined factors clearly undermine the intent of the Decentralization Policy. In turn, the lack of substantive upazila participation in determining investment priorities from the center only decreases the likelihood that they will be willing to maintain centrally made investments. Hence the potential benefit of the Planning Commission Strategy would also be undermined.

13 The Decentralization Policy has been implemented through the 1982 Local Government Ordinance and the 1988 Zilla Parishad Bill.

Resolution of these conflicts is not clear cut. The decentralization policy has devolved substantial responsibilities for infrastructure planning and maintenance to local governments, but the capacity to effectively use the large amounts of resources which are needed to meet current development needs will take some time to develop. This point may justify continued existence of a Planning Commission Strategy as a means to channel supplementary resources.

Donors and the government are becoming increasingly aware of the complex linkages between infrastructure investments, recurrent cost financing, and local government capacity, but more analysis and experience will be needed to put in place practical solutions. At this point, it seems that the two national policies affecting rural infrastructure cannot be pursued independently, but must be implemented in a mutually supporting way. The Planning Commission Strategy will need to incorporate specific initiatives to address budgetary and organizational constraints to maintenance, and the decentralization policy will need to be sustained with continued efforts to increase local government capacity to deliver infrastructure related services.

C. Conclusion and Recommendations

Experience over the past few years has demonstrated that the present Planning Commission Rural Development Strategy, as currently promulgated and implemented, is not viable for development of a sustainable feeder road network. There is a real risk that unless the major gaps are addressed, projects in this sector may inadvertently result in a negative contribution to rural development. Over the past year and a half, the government and donors have increasingly recognized this problem and have taken a variety of measures. These measures can be categorized as follows:

1. Chipping away at the margins of policy. Recent examples of this include: requiring confirmation or modification of road selection by upazila parishads, reducing levels of infrastructure investment in growth centers, giving greater priority to other rural roads, and avoiding bituminous carpeting. These deviations from the prescribed approach have been implemented unevenly depending on decisions taken for individual projects. Over time this ad hoc chipping away on a project-by-project basis may result in a blurring of strategy so that it may not always be clear what priorities are being pursued in the sector as a whole.

2. Using funding conditionalities to compensate for critical gaps in policy. This is exemplified in the newly approved

World Bank and ADB projects which have linked major portions of infrastructure investment to satisfactory resolution of institutional and financial issues. Such conditions are intended to limit risk on the part of the donor, but in themselves neither substitute for nor ensure that well thought out and effective solutions will emerge.

3. Shifting resources to other sectors which appear to pose lower risks of failure. Given the current concern with the pace of project aid utilization, the problems encountered in this sector provide an example of situations which discourage greater donor investment in Bangladesh's development.

Development can be seen as the progressive loosening of successively appearing constraints. New constraints emerge and gain salience as old ones are overcome and fade from view. There are times for concentrated efforts on achieving planned strategies and times for reviewing progress and direction. Ten years ago discussions were probably starting which ultimately led to the existing strategy and policies. It now appears time to once again review direction and use the experience and knowledge gained in the past few years to synthesize new approaches to on-going problems. In the feeder and rural roads sector the challenge for the 1990's is to develop new strategies and policies which will achieve a breakthrough on the problem of road maintenance. Such a breakthrough can be realized if a concerted effort is made and a commitment to achieve it is clearly expressed at the most senior levels of government.

The following recommendations are proposed:

1. A special senior level committee or task force should be organized to review the Rural Development Strategy and its implementation. This task force should be charged with presenting specific policy changes for formal consideration and adoption by the government. Membership should be constituted to permit participation of all concerned government entities and donor organizations.

2. Until a revision of policy is formulated and in place, the government should encourage current and planned projects to initiate creative new efforts to develop and test strategies which address the maintenance issue.

3. On-going projects should be reviewed to ensure that infrastructure is planned, designed and built in a way which minimizes recurrent costs. For road work, this should include adoption of a staged construction approach as described earlier, combined with stringent measures to ensure quality of all improvement work.

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