Rural Works Programs in Bangladesh: Community, Technology and Graft

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SUMMARY AND RECOMMENDATIONS

I - The Graft and the Monitoring of Rural Works Programs

Graft is a constant in construction projects in all countries. Attempts to deal with it through monitoring and supervision have to keep it within reasonable bounds at a reasonable cost and, at the same time, not simply drive it underground from whence it will resurface elsewhere in another form. Project implementation, moreover, may suffer from successful graft control if past graft has played the role of "incentive" payments to dedicated workers. Because of this delicacy of the question of graft, monitoring systems and special institutional arrangements to inhibit graft should be evaluated as to (1) whether their cost, both nominal and in terms of encumbered project administration, is less or more than the resulting decrease in misappropriation; and (2) whether existing graft is actually harmful to project execution, and whether decreases in graft will result in an improvement in the quality of implementation.

Decentralized works projects executed by local bodies are considered by some to be particularly vulnerable to graft. In Bangladesh, however, there seems to be no evidence that graft takes a greater share of project costs than in the case of centrally-executed, larger, and more capital-intensive construction. Graft in the rural works programs of Bangladesh, moreover, is not associated with considerable failure of projects to be started or completed.

The concern for graft, and for the designing of adequate monitoring and supervision systems, can have a considerable influence on project design. Over time, for instance, USAID and CARE have tended toward larger projects in implementing the Food-for-Work program because this minimizes the demand made on scarce monitoring staff. Earthworks have been preferred over structures for the same reasons, as well as road works over water works. Partly for the same reasons, reinforced concrete bridges have been preferred over brick bridges because brick "tends to fall down" if not properly built. Finally, structures projects have been chosen that are concentrated on a few embankments, or in one geographic area, so as to minimize demands made on the time of supervisory staff.

In some cases, these kinds of choices result in costlier projects or contravene program objectives. The preferred larger projects, for example, may be less within the capabilities of local bodies than smaller projects; yet local execution is a cornerstone of the rural works

programs. Similarly, larger projects are more likely to result in the use of contractors and migrant labor, also contrary to the intentions of the works program. Larger projects, moreover, tend to have lower completion rates than smaller ones.

The preference for earthworks over structures on monitoring grounds has had important cost implications: the construction of many embankments and canals without their appurtenant structures. This reduces the usability and durability of such infrastructural investments, not to mention the damages inflicted on the facility itself and on surrounding agricultural production when embankments are built without drainage. Similarly, though brick bridges may tend to fall down, if their construction is not properly supervised, they cost approximately half as much as the preferred reinforced concrete. Though roads are managerially easier than irrigation works, moreover, the preferences of rural users and the relative economic benefits often run in the other direction. Finally, the most socially profitable set of appurtenant-structure projects--out of all the missing structures that need building in Bangladesh--is not likely to be concentrated on one embankment or in one area. Giving paramount importance to monitoring and supervision constraints in making the above types of decisions will, in some instances, be worth the extra project costs and the compromised project objectives--and, in some instances, will not.

The concern for graft often takes attention away from other problems that, in contrast to graft, are actually impairing project execution. The problem of delays in wheat distribution in Food-for-Work projects is an example. These delays have significantly impaired the rate of project execution and markedly reduced the real wage paid to workers--in that workers frequently have to sell their wheat in advance at a discount as a result of delayed wheat payments. The issue of paying workers in cash instead of wheat, however, has not called forth the attention and time of the implementing agencies that graft has--though graft has not inflicted as significant costs.

Graft is sometimes given more credit than it deserves for causing certain repeated problems in project execution. The lack of compaction is an example. Though this problem is usually attributed to faulty contractor performance and government supervision, there are also some strong economic arguments for not doing compaction at all on earth roads. The fact that it is not done, then, reflects the force of this economic logic, in part, rather than just graft. Though the two explanations are not mutually exclusive--indeed, each may reinforce the other--the exclusive attention to graft and supervision makes it difficult for attention to be devoted to the economic and technical side of the compaction question. Another frequent problem in works

projects, which has an etiology similar to compaction, is the inadequate finishing of embankment slopes.

Graft on works projects takes many different forms and has markedly different effects. If graft is taken out of total wage allocations of an earthmoving project in Bangladesh, for example, the result will be less earth moved and less workers hired than is reported. If graft is taken out of the individual worker's wage, in contrast, the reported amount of earth moved and laborers hired will be accurate, but the worker will receive a lower wage than specified. In the former case, less employment is generated and the donor or government agency finances the graft, since it results in a lower-quality project (less earth moved) for the same money. In the latter case, the worker "finances" the graft, since it results in a lower wage for him. This latter form of graft represents a more regressive form of project financing, especially relevant for a program in which an important objective is to increase the incomes of the rural unemployed.

The underfulfillment of specifications, or overstatement of work done, is a common form of misappropriation in construction projects. The underfulfillment of specifications on earthworks projects has very different implications than that on structures projects. Bridges that threaten to fall down and culverts that do not drain properly can reduce the benefits of the facility of which they are a part and, in the case of inadequate drainage, can cause damage to agricultural production; repair costs will be incurred. A road or flood embankment that is lower than reported, in contrast, will inflict much smaller damages, if any at all.[1]

In various ways, cheating on earthworks is easier to deal with than that on structures. It is easier to measure the cost of underfulfilled specifications on earthworks after the project is

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[1]Exceptions are cheating on flood embankments and on the base width of an embankment. In the case of a flood embankment with over-reported measurements, the embankment will not protect from as severe flooding as was planned, though it takes only a small discrepancy between reported and actual heights to generate a significant amount of misappropriable cash, given an embankment of some length. If cheating comes out of the base width of the embankment, as opposed to the height or the crown width, this will make the slopes steeper, and result in erosion, higher maintenance requirements and, perhaps, earlier reconstruction.

completed--i.e., the earth paid for and not there--as opposed to underfulfillment on structures, which may be buried under concrete. Though the cost of cheating on earthworks can be immediately identified by taking one's own measurements after project completion, the cost of cheating on structures may not manifest itself for some time; when it does become manifest, as in a fallen bridge, the real cost can be much greater than the shortfall in the materials used. Finally, it is easier to identify the "cheater" on the earthworks project--he who took the final measurements--as opposed to the structures project, where opportunities abound to blame various parties and uncontrollable forces for things having gone wrong. Since earthworks projects without structures have accounted for at least 80% of the value of rural works programs in Bangladesh in recent years, it is clear that monitoring and supervision demands have been much less than they would be with a program that built earthworks along with their structures.

Though graft may be undesirable, it may also help get projects done. The graft to be earned on rural works projects, for example, is probably one reason why the implementation of the works component of rural development projects frequently goes more smoothly and rapidly than that of other components like agricultural extension, health, and education, where opportunities for graft are less. In construction programs where contracts are let by government field offices rather than headquarters, engineers have been found to prefer living and working in the field rather than the capital city, because of the greater opportunities there for graft. Since the problem of getting professionals to work in the field is a major one for many rural development programs, this constitutes a certain achievement, which might be lost if graft were discontinued.

Many costs incurred by field officers in development programs often go unreimbursed, except through graft payments taken by them. The project-committee members in charge of Food-for-Work projects in Bangladesh, for example, have to advance their own funds for wheat-transport costs, and are not reimbursed for the lodging and food costs of their various trips to requisition and obtain wheat from storage. A successful graft-control program that touches any of these "legitimate" and project-related misappropriations, then, could also result in footdragging on project execution.

Recommendations

Monitoring and supervision strategies should try to focus on those forms of graft that (1) result in delays in project execution and in significant impairment of project quality, and (2) seriously

compromise program objectives, such as the graft that is taken out of the individual worker's wage. At the same time, careful attention should be paid to the potential deleterious effect of successful graft control--to the extent that project executors have been using graft payments for project-related expenses. One way of preventing the latter problem is to transfer legitimate graft costs to project financing--through increased salaries or commissions paid to project executors. The remuneration now received by local bodies in executing works projects should be reviewed with this consideration in mind. Any increase in project costs that causes the financing of graft costs to be transferred from workers to project funders is also desirable.

Because graft is good at surviving formal systems of monitoring and sanction, incentives to do things other than misappropriate should be provided outside the formal monitoring system--incentives that have the effect of raising the opportunity costs of graft. One such incentive would be cash rewards for good performance in project execution and in wage payment, as described more fully in Sections II and IV.

Project types and techniques should be evaluated as to their vulnerability to graft, and as to the costs that graft inflict on projects and project beneficiaries. Just as USAID and CARE have developed a graft-minimizing set of preferences about earthworks projects, a similar evaluation should be made of the experience with structures--because they are more demanding of monitoring and supervision, and because their role in works programs in Bangladesh is on the increase. Where graft costs and vulnerability are high, alternative techniques, project types, or project organization should be sought. Because earthworks and structures vary so considerably in their vulnerability to graft, for example, there is some argument to separate their monitoring and supervision and, as discussed in Section III, even their execution.

If project costs are increased considerably by the choices of less graft-prone alternatives--or project objectives undermined--then it should be determined whether the diminished vulnerability to graft is worth these costs, and whether there are other, less costly choices. Before deciding that reinforced concrete bridges are preferable on monitoring grounds over brick, for example, one should determine whether brick bridges "tend to fall down" because of contractor irresponsibility or because experience in building them is insufficient. Even if the answer is a mixture of the two explanations, there is still a chance that increased training and supervision will be less costly than the twice-as-costly bridges. The costs to

communities of bridges falling down, moreover, may not be as great as the costs to implementing organizations, especially if the communities are instructed in how to prevent such occurrences, or repair them.

Recurrent problems in works projects can be caused by sloppiness, the traditional way of doing things, and lack of experience--in addition to graft. Problems that are usually attributed to graft, but have other less attention-getting causes, will require different approaches than problems caused by graft alone. If the lack of compaction and treatment of embankment slopes can be explained in part by economic logic, for example, then it may be necessary to change specifications and organizational design in a way that adapts to how these tasks are traditionally done. In such cases, a "lowering" of specifications may result not only in diminished project quality but also in real project costs that are lower than (1) providing the supervision or monitoring necessary to guarantee that specifications are properly filled, and (2) ending up with projects for which specifications are routinely and predictably not filled.

The bridges and culverts under construction in a rural works program are numerous, dispersed and, in many cases, of difficult access--making it difficult to meet the greater demands of structures over earthworks for constant supervision. At the same time, bridges and culverts in construction are, like any construction project, out in the open for anyone to see. The villagers in Bangladesh who routinely gather around construction sites should be drawn upon for some of the constant attention that is required by structures projects and yet is so difficult to provide through field organization. Villagers can be instructed in some of the simple operations that should be carried out repetitively during construction, such as the wetting of bricks or concrete. They are well qualified as monitors because they are interested in the project turning out well--since it will serve their village--and because they have a healthy distrust of contractors and local leaders. The villagers are very available, moreover, because they live nearby and because construction takes place during the time of ebb in agricultural activity.

During the appraisal of the proposed project, advantage should be taken of CARE's experience with the monitoring of works projects. In particular, an analysis of CARE's project-by-project data on non-reimbursement for over-reported earthwork could suggest which types of circumstances and projects tend to be associated with graft. These records should also give an idea of whether graft is fairly constant, or whether it varies considerably from one project to the next. A constant level of graft across all projects would require a

different approach to monitoring than graft that varied widely between projects.

II - Workers, Wages and Misappropriation

Laborers on works projects often receive lower real wages than specified because of wage payments that are lower than reported, or because of long delays in payment, which necessitate their borrowing at high interest rates or selling their expected wheat payments in advance at a discount. At least a part of this shortfall between real and specified wages usually represents graft payments taken by project executors. The difference can also be seen as the price charged by project executors in rationing out scarce jobs to a highly unemployed labor force.

When contractors delay wage payments--and use their funds to cover other costs or as a hedge against delayed reimbursement--this represents a forced interest-free loan by laborers to contractors. Delay in wheat payments to workers on Food-for-Work projects, in turn, represents the bearing by workers rather than program funders of the costs of inadaquacies in the wheat-distribution system. Financing these costs and graft out of workers' wages compromises the asset-creating objectives of rural works programs as well as the income-redistributing ones, in that lower wages in construction work are associated with decreased productivity.

As noted above, graft taken out of total wage allocations before determining the number of workers to be hired--instead of out of workers' wages--results in less employment, overreporting of earth moved and underfulfilled specifications. This represents higher real project costs, paid for by program funders instead of by workers. Graft through underfulfilled specifications, then, is less regressive than graft taken out of workers' wages. Since earthwork measurements are easy to verify, moreover, it has been possible for USAID and CARE to identify and penalize the graft taken out of total wage allocations--by refusing to reimburse for shortfalls in reported earthwork specifications. This successful mechanism of post-hoc measurement, however, may also have the effect of driving graft toward the unmonitored area of laborer wages.

Wages paid by the rural works projects of Bangladesh are vulnerable to misappropriation because unemployment is high and workers are willing to be "charged" for obtaining and keeping a job--and because it is difficult for laborers to monitor their own wage payments, which

results from a certain confusion as to what is actually owed them. Confusion about the wage payment arises because (1) workers are paid by the task--a given amount of earth moved--rather than on an hourly or daily basis; (2) the completed task is measured for a group of workers, a gang of approximately 20, and the individual's wage is determined by dividing the amount owed the gang by the number of workers in it; (3) payment is made to a gang leader or a labor contractor, rather than to the individual laborer; (4) workers are paid irregularly and often at long intervals, so they do not become accustomed to receiving a certain amount; and (5), most important, the wage is composed of a two-part rate--a basic wage plus a "ration rate" for more arduous work, the latter rate being difficult to calculate. The ration rate can account for a significant share of wages, averaging 20% to 35%, and its payment is often withheld until the project is completed. Because of the ambiguity surrounding the calculation of the ration rate, it is looked upon by implementing agencies as providing an additional opportunity for misappropriation.

The vulnerability of workers to wage misappropriation on the decentralized and labor-intensive works projects of Bangladesh contrasts strikingly with the "natural" monitoring potential of such projects--in contrast to more centralized and capital-intensive projects. In the decentralized projects, graft costs are inflicted on a homogeneous, socially distinct class--local laborers--who work and live together in a small geographical area. This aggrieved party has a substantial self-interest in monitoring the way funds are handled. There is no such aggrieved class resulting from the graft that occurs in centrally-managed capital-intensive projects.

The common practice of withholding part of a worker's payment until project completion results, in part, from the fact that the construction season encompasses one of the peaks in the demand for agricultural labor--the roughly six-week period following the spring rains of April. Project committees and labor contractors feel that workers may leave them during this period, when wages for casual agricultural labor, and demands to work on one's own plot, increase. Thus the timing of the construction season from January to June results in (1) a decrease in the net employment-generating impact of works programs, to the extent that works jobs simply substitute for jobs offered after the spring rains; (2) a reduction in the real wages of workers to the extent that wage payments are withheld from them in order to keep them from leaving during April or May; and (3) increased use of labor contractors and migrant labor, which contravenes the regulations of the Food-for-Work program and the intentions of the Rural

Works Program to give employment to local labor.[1]

Recommendations

Implicit in the following recommendations is the recognition that formal regulations and sanctions regarding the payment of laborers cannot be expected to work because of (1) the collusion of workers in breaching the regulations to protect their wages, as a price for obtaining and retaining jobs; and (2) the absence of an institutional mechanism to enforce such regulations. The recommendations fall into two categories: those that increase the ability of laborers to monitor their own wage payments, and those that provide incentives to project executors to pay the specified wage, or decrease the opportunities to take graft payments out of wages.

Worker Monitoring. Measures should be taken to increase the ability of workers to know how much payment is owed them. Principally, the present two-part wage rate--the basic wage plus the ration rate--should be substituted by a single rate set in accordance with the conditions of each particular project.

A worker representative should be appointed to the project committee, perhaps filling the "landless" position on that committee, and literacy requirements should be waived for this particular position. The worker representative should be given supervisory or grievance responsibilities; or, two worker representatives should be appointed, one for each purpose. These representatives should be paid, as is the labor supervisor on current project committees. As representatives of the workers, these committee-members would have a self-interest in preventing misappropriation, in contrast to existing members of the project committees, who are drawn from the rural elites. Because of this "natural" monitoring interest of the workers, the project committees might succeed in playing the watchdog role intended for them.

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[1]The use of labor contractors and migrant labor also deprives rural works projects of two important sources of pressure to get them started and completed: (1) the interest of local landowners, who comprise project committees, in having off-season employment provided for the local unemployed, so that the latter will be available for agricultural work during peak periods; and (2) the political benefit to the local elected officials who control such projects of "doing something" about extreme local unemployment.

If the mixing of workers and elites on the project committee is unrealistic in the social context of Bangladesh, an alternative grievance mechanism outside the project committee should be considered. The approach taken to the problem should be informed by a more careful investigation of the constraints and possibilities of social organization at the local level. In particular, the allegiances of the gang leader should be assessed, along with his potential for successfully representing the workers. An incentive or payment scheme could be devised that keeps the gang leader on the side of the laborers.

Increased incentives and decreased opportunities. Local bodies are very responsive to unambiguous signals from the central government as to what types of works-project proposals will be approved--especially given that only a small portion of such project proposals is ever approved. Criteria should be introduced for project approval which consider the "wage performance" of a project committee on last year's projects. (Project construction is usually completed at about the same that next year's project proposals are being submitted.) "Wage performance" could be measured in two ways: variation of the actual wage received from the specified wage, and variation in the frequency of wage payments from the specified frequency--e.g., from the once-weekly standard of the Food-for-Work regulations.

Project committees that paid the specified wage, and regularly, might also receive cash bonuses for doing so. These performance bonuses could be paid to central-government implementing entities as well, just as CARE imposes a penalty for underfulfillment of specifications on the Ministry of Relief and Rehabilitation. The proposed measures would have the effect of raising the cost to project executors of not paying workers properly--in terms of the cash bonus or the project approval foregone.

The construction season for works projects should be altered so as to exclude the period of demand for labor after the commencement of spring rains in April. To the extent that the partial withholding of wages results from the fear of losing workers during this period, such a modification would reduce the withholding of payments or, at the least, the justification for it. The construction season could be advanced a few weeks from mid- to early January or late December, and terminated in April when the rains begin, instead of in June; or, there could be a two-phase construction season, before and after the spring peak, with acceptance by project committees of considerable labor turnover between the first phase and the second. Such turnover, though perhaps cumbersome for project supervision, is actually desirable from the point of view of employment-generation, since it

spreads scarce employment opportunities across more individuals. A shorter construction season would require smaller projects, which would lessen the need for and the desirability of using migrant labor and labor contractors.

The possibility should be explored of depositing wage payments directly in individual accounts for workers at local post offices or bank branches, as has been done in a works programs of the Indian state of Kerala. This would make more difficult the misappropriation of wages by project committees, and the withholding of wage payments by contractors to cover other costs. To deal with the latter problem, and in the case of projects with non-labor cost components, wage payments might be authorized and transferred in a way that they could not be used to finance these other costs. Finally, in works projects where the local community pays a part, the government might limit its contribution to cover only wage costs, while the local community would pay for materials and equipment. This is exactly the opposite of the current practice, and would reverse the incentive of the present system for the community to minimize the cash cost of its contribution by relying on conscript or underpaid labor. (This last recommendation is the subject of Section IV.)

If these recommended actions were effective, they would probably result in some increase in project cost in the form of cash outlays for bonuses or commissions and the deflection of graft from worker wages to total allocations for wages or to non-wage cost components. Though this might result in more underfulfillment of specifications, such a deflection of misappropriation would also represent a shift of the costs of financing graft from workers to those who fund programs. Though underfulfillment of specifications is undesirable, then, it is also a less regressive form of financing the graft costs of works projects.

III - Earthworks Without Structures

Because of the overwhelming role of relief agencies and employment-generating objectives in the rural works programs of Bangladesh, many earthworks have been built without their structures--embankments without bridges or culverts, and canals without drains or sluice gates. The economic losses of this way of building infrastructure are obvious: the facility does not yield all its intended benefits and, in the case of missing culverts and drains, the absence of the structure causes damage to the embankment and to surrounding agricultural production.

The earthworks-only experience in Bangladesh suggests that there are also certain advantages in this piecemeal form of construction. Even in an asset-creating program, that is, there may be good reason to de-couple the task of earthwork construction from that of appurtenant structures. This will be particularly relevant in an environment where (1) technical and monitoring capabilities are scarce, (2) graft is a problem, and (3) local execution and employment generation are important program objectives.

Building earthworks separately from their structures is a much less complicated task, technically and organizationally, than building the two together. As carried out in Bangladesh, earthwork is entirely labor-intensive, requiring no equipment or materials except for the headbaskets and hoes usually supplied by workers. The equipment and materials required for structures complicate the supply logistics and management of the earthworks task considerably. The greater simplicity of the earthworks task, then, has facilitated its execution by unsophisticated local bodies, and its management by relief organizations with lean technical and monitoring staffs.

Another aspect of earthwork construction without structures is that the incomplete facility often spontaneously elicits private local contributions from surrounding communities to complete it--financing that would not be forthcoming if the complete facility were undertaken from scratch. Communities, that is, will put bamboo and timber bridges into embankments without them and they will tunnel under embankments without culverts. Though the response to missing drainage is damaging to the embankment, which will ultimately cave in over the tunnelings, both reponses illustrate the willingness of local communities to invest their own resources in the completion of infrastructure facilities. Recent grants and loans for such missing structures by donor agencies show that donors are also willing to supply the missing pieces, after it has become clear that the earthworks are in place and are missing a vital part.

Given a significantly larger number of unbridged spans than funds available to bridge them,[1] the community-supplied bridges can indicate to central planners which spans are most profitable to bridge first. Local decisions about where to put structures and how to do them

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[1]The construction activity of the WFP half of the Food-for-Work program will alone result in 1,000 missing bridges and culverts per annum for the next several years.

can therefore result in a more economically desirable mix of projects. Local choices of technique and design can also be more economically efficient and, at the same time, more compatible with the employment-generating objectives of rural works programs. For communities that raise their own funds, that is, the scarcity of capital is a more compelling constraint on project design than it is for central-government technicians choosing project designs in a capital-city ministry. Decisionmaking by such technicians is influenced equally by the professional prestige and familiarity of certain design choices, and the supervisory effiency of concentrating projects in one place--e.g., spending a budget for appurtenant bridges and culverts on one or two embankments in the same area, as CARE has done, so as to minimize expenditures of scarce monitoring and supervision resources and problems of materials and equipment supply.

Local choices, being more technically rustic, can diminish problems of supervision and supply becuase the cruder techniques rely more on locally available skills and materials. Since most equipment and materials used by contractors are imported, and subject to major delays in arrival at the project site, the use of techniques reliant on local skills and materials can reduce significantly the economic cost of structures projects. The more rustic local approach, then, may do better than "rational planning" at counteracting a certain tendency for cost inflation to occur in structures projects when choices about their design are made by technicians in central-government ministries.

Recommendations

Because earthworks will continue to be produced without their structures for some time in Bangladesh, the proposed works program should exploit some of the advantages of de-coupling the two tasks. Community willingness to respond to missing bridges and culverts with funds and organization should be encouraged by providing technical and financial support for such responses--and, in the case of missing culverts, to facilitate a response that is not damaging to the facility. A central-government matching fund should be set up to elicit these community rrsponses, as discussed in Section IV.

Technical assistance should be provided to communities in a way that increases their ability to make good use of skills and materials already in the community. Such an approach, it should be noted, might result in less a standardization of design than is usually proposed for such programs. Brick bridges merit particular attention, because rustic brick manufacture is widely dispersed throughout Bangladesh, and the use of brick as a substitute for stone and concrete in construction is common. Brick bridges, in turn, can be half as

costly as the reinforced concrete bridges preferred by central-government implementing agencies in Bangladesh.

With respect to programs that continue to rely on complete central-government funding for missing structures, two criteria for project selection could be introduced. One would give preference to missing culverts over missing bridges: the absence of culverts in an embankment gives rise to greater economic costs than that of bridges--including the fact that the community's response to the missing culvert is damaging to the embankment, whereas the makeshift bridge enhances it. Priority should also be given, in the selection of appurtenant bridges for central-government financing, to those spans that already have makeshift bridges supplied by the community. This selection criterion is a convenient proxy for choosing the spans for which the economic returns to bridging are the greatest. This will simplify considerably the identification of desirable bridge projects and the justification of their benefits, though it will not result in the concentration of project sites that minimizes supervisory resources.

IV - Financing Local Works Initiatives

The Ministry of Local Government should modify and expand its "local-participation" program so as to assist local bodies (unions) with matching funds to finance the installation of missing structures in earthwork projects. Such a program would (1) offer unions a flat allocation of government matching funds, which could be used for any project without approval and subject only to the criteria listed here; (2) limit matching-fund financing to appurtenant-structure projects only; (3) be available only to unions, the smallest administrative unit in Bangladesh; (4) limit the central-government contribution to labor costs only, while the local contribution would cover equipment and materials; (5) reward good performance in project execution and payment of labor with (a) a larger matching contribution from the central government for next year's projects, and (b) commissions paid to project executors; (6) be executed through the existing system of project committees, without use of contractors.

Providing flat allocations to unions, without requiring approval by government field officers or ministries, would remove some of the disincentives to economic project selection that now exist--i.e., ambiguous selection criteria or the bypassing of such criteria through political pressures or bribery. Local resources previously invested in bribes to get the project approved, moreover, would now go to the project itself. The resulting project choices may come closer

to those intended by "rational planning" than choices resulting from the present filtering-up system, and its incentive to maximize the number and variety of proposed projects, in the blind hope that a few will strike someone's fancy. The severing of project choice from official approval would also be consistent with the government's interest in transferring power over project selection in rural works programs from technicians to local bodies.

Projects financeable under the matching fund would be limited to appurtenant structures because (1) this would result in project choices that were by definition asset-creating or -preserving, without having to impose formal criteria on the selection process; (2) this limitation would severely circumscribe the area in which rural elites could manipulate project selection and location so as to benefit only a few of them; (3) earthworks without their structures have already proven to be a powerful magnet in drawing financing and organizing out of communities; and (4) in comparison to earthworks, structures in Bangladesh have a high non-labor cost component (60%-70%), which makes it possible for the central government to cover all labor costs and still leave a substantial amount of non-labor costs to the community.

For the central government to cover all labor costs, leaving equipment and materials costs to the community, is to reverse the traditional pattern of financing for "self-help" schemes, whereby the community "contribution" takes the form of unpaid labor. Keeping the community contribution away from labor costs, is one of the only ways of preventing the drafting of conscript labor, and the resulting regressive pattern of financing that is typical of such projects. The financing of labor costs by the central government would also encourage appropriate technical choices to the extent that the community tries to maximize the government contribution (labor) and minimize its own (equipment, materials). Since the present system of central-government responsibility for design decisions and financing of equipment and materials costs carries a tendency toward overdesign, the incentive to minimize equipment and materials costs should result in less costly projects. Finally, the limitation of the community's contribution to equipment and materials will create some natural checks on graft. Under the present system, the rural elites lose nothing of their own as a result of graft-caused faulty project execution, if the local contribution has been in the form of unpaid labor. Graft under the proposed scheme, in contrast, would compromise resources invested in the project by the elites themselves.

The limitation of the proposed matching fund to unions, the smallest administrative unit in Bangladesh, is meant to put interunion

rivalry to work for project selection and execution--instead of this rivalry being disruptive, as under the present system, which seeks to promote "integrated" planning and design of projects by groups of unions (the thanas). Unions would be allowed to continue behaving in an "unintegrated" way under the proposed mechanism, which would stimulate them to compete with each other to get scarce project funds and execute projects well. Appurtenant structures, as opposed to earthworks, are more suited to this "unintegrated" approach, since they are less likely than earthworks to involve more than one union.

The use of contractors would be discouraged under the proposed scheme, as in the Rural Works Program of the 1960s. According to Bank research, the use of contractors in rural works programs is associated with various tendencies that the proposed program is trying to avoid: higher costs, lesser labor intensity, more graft, and less efficient project selection. The use of local bodies rather than contractors would also tend to decrease that part of structures costs that results from delays in the delivery of equipment and materials because (1) local execution and local financing of equipment and materials will result in projects that use less equipment and materials from outside the area; (2) local execution will not be characterized by the juggling of equipment and materials back and forth between various projects in construction, as occurs with contractors; (3) the construction season, the busiest for contractors, is the slow time for agricultural production and hence for local elites, who will have more time available to work on the breaking of bottlenecks in supply deliveries; and (4) local bodies may be more interested than contractors in resolving delay problems--particularly in the case of drainage structures, where the lack of drainage during and after the monsoons can inflict heavy damages on agricultural production.

Rewards to local bodies for good performance would be based on measures of (1) the rapidity with which projects are executed, (2) the extent to which specifications are met, and (3) "wage" performance, a combination of the extent to which laborers are paid the specified wage, and the frequency and regularity of wage payments. These rewards would act as incentives to execute projects well and would impose costs on graft-takers, since graft-taking could result in foregone rewards. This system may be more effective than formal sanctions in dealing with graft, because it is immediate and because it is politically easier to mete out rewards rather than punishments.

The proposed scheme is consistent with the ongoing interest in the Bangladesh government in exacting contributions from the local beneficiaries of works projects. The matching fund would elicit such contributions in a way that is less regressive than current custom,

without encumbering the process with the introduction of a new tax. The proposed scheme, finally, is capable of raising funds for decentralized works programs at a time when the central-government budget for such programs is not likely to increase--because of the greater bureaucratic power of the government ministries in charge of more capital-intensive and centralized contruction programs.

I - THE GRAFT AND THE MONITORING OF RURAL WORKS PROGRAMS

Donor agencies working in Bangladesh are preoccupied with the subject of graft. They point to it as an explanation for why projects are not going well and for insisting on unusual institutional and loan-monitoring arrangements. The overriding concern about graft in works projects in Bangladesh, and the attempts to control it through monitoring and special institutional arrangements, can lead to (1) the neglect of problems that inflict greater damage on projects than graft, or the reliance on graft as a catchall explanation of problems that have other causes; (2) monitoring costs exceeding the value of decreased misappropriation, to the extent that cheaters quickly learn to avoid the monitored behaviors and shift their cheating to unmonitored areas; (3) real monitoring costs being higher than cash outlays for monitoring because of the resulting encumberment of project execution; and (4) footdragging and disinterest by project implementers, if graft control is successful and if past graft has represented an "incentive payment" to work hard and well.

The latter result may be inevitable in many less-developed countries, where salaries of field personnel are typically low,

and the unavailability of transport, fuel, spare parts and other necessary materials makes field work extremely difficult. In such circumstances, dedicated workers will often "finance" expenditures on such items out of their own pockets, an expense they compensate for through graft. A successful graft-control program, then, may also result in projects being done more slowly, or not getting done at all.

There is no doubt that the question of graft and how to minimize it is an important one, but the concern over it has obscured other questions about graft that are also important for project design. Is the graft of decentralized rural works programs different in any way from the graft that is typical of construction projects in general? Does graft in the rural works projects of Bangladesh result in project costs that are significantly greater than they are in other types of projects or in other countries? Are there certain forms of graft that actually contribute to project success, and can one distinguish these forms of graft from those that are harmful to the execution of the project? Do the successful projects have less, more or the same amount of graft as the unsuccessful ones? Are certain organizational and technical designs found to be associated with

less graft than others? Are there some non-graft-related causes of project problems that have remained insufficiently diagnosed and explored because of the preoccupation with graft? Are there reasons for under-fulfillment of specifications, for example, that are distinct from those related to graft?

Are current and proposed monitoring systems and graft-avoiding institutional arrangements producing a decreased incidence of graft that is worth the costs of these arrangements? Are there some graft-deterring measures and project designs that will have less of a tendency than other designs to simply drive the graft "underground", from whence it eventually emerges in another form? In that graft on construction projects often takes the form of cheating on specifications, do some types of projects or technologies suffer more than others when specifications are not met? What are some of the incentives and rewards that might be built into project design so as to minimize graft? Are there ways of imposing costs on project executors who engage in graft, outside of formal sanctions?

Implicit in the above questions is the assumption that graft is a constant in many countries, and that one can make room for it in designing programs with measures that minimize

its harmful effects and leave the beneficial ones undisturbed. Because graft is part of a broader socio-economic context, moreover, it will resist many of the standard attempts to control it or avoid it. Thus graft-limiting strategies should be devised that are specific to the costly forms of graft, and that rely on incentives and disincentives outside traditional monitoring systems.

With respect to the proposed rural works program, it will be important to identify those aspects of graft that result in high costs to the program and its objectives--mainly, the underpayment of labor and the impairment of project execution, in terms of poor quality or lack of completion. This section, and parts of Sections III and IV, take up the effects of graft on the quality of the project. The subject of graft and labor underpayment is discussed separately in Section II. The discussion of these matters attempts to give some answers to the questions posed above, and to explain why they are of importance to the design of a rural works program in Bangladesh.

Separating out the good from the bad

Officers of the Bank have at times commented on the graft that occurs in the rural-works component of the Bangladesh Rural Development project. They have also noted that it is the only project component that is "working well." Indeed, the Integrated Rural Development Department of the Ministry of Local Government, which is responsible for the project, complains that the rural-works component tends to engulf the others--drawing more resources and attention than it should. (The component accounts for 25% of total project costs). There are various explanations, of course, for this better performance of the rural-works component--not unusual in the Bank's integrated rural development projects. An important factor, however, is certainly that there are more opportunities to earn through graft on a rural-works component than there is on an agricultural-extension, health or education component. Though graft takes place, then, it seems to be helping to get the project done--which is not happening with the other components.

A similar example of graft being helpful--or at least not harmful--to the objectives of a project relates to the posting of Water-Board engineers to the field. Many Water-Board engineers, it is said, prefer to work and reside in the field rather than in Dacca. This is a surprising preference, given the problems experienced by

most governments in trying to get their professionals to reside in the field--whether they are engineers, doctors, or agricultural extension agents. Because of this problem, many World-Bank appraisal teams have tried to devise incentive schemes to attract competent and dedicated professionals to work and reside in the countryside.

The Water-Board engineers prefer the field, it is said, because the opportunities for "commissions" from contractors is considerably greater there than in Dacca--given the decentralized nature of project bidding and execution, and the numerous water projects undertaken in Bangladesh. Though this explanation may be excessively cynical, it illustrates how the opportunities for increased income through graft can substitute for formal incentives to live in the field.[1] Such incentives are often politically impossible to grant through an existing civil-service system. When a way is found to get around the system and provide the incentives

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[1]How these field opportunities for graft affect the quality and pace of execution of Water-Board projects is a separate issue. One indication that quality is not adversely affected is that both the Bank and the WFP have expressed more satisfaction with the quality of Water-Board work than with that of other public-sector entities. The public-sector water-works agency in Mexico--Secretaria de Servicios Hidraulicos--has also been characterized as graft-ridden and at the same time highly competent at getting projects done well. See Martin H. Greenberg, Bureaucracy and Development (Lexington, Massachusetts: D.C. Heath, 1970).

through higher salaries, institutional jealousy by other employees or entities can result, and they will not give the support necessary for program execution--as has occurred in some Bank projects where better salaries or perquisites were obtained for some entities.

The Extent of Graft

As in most countries, there are no accurate estimates of the amounts of construction funds that are misappropriated in Bangladesh. A partial exception is a measure resulting from CARE's method of reimbursement on Food-for-Work (FFW) projects. CARE wheat is not used to pay ongoing project costs, but is paid as reimbursement for government wheat outlays for FFW projects only after the project has been completed and CARE has taken final measurement on the earthwork claimed. For each project, then, workers are paid during project construction out of government wheat stocks, based on interim measurements taken by the local project committee in conjunction with the Project Implementation Officer, who is the thana-level representative of the Ministry of Relief and Rehabilitation (MRR). The comparison of the project committee's and project officer's measurements to those of CARE provides an unusually specific proxy measure for misappropriated funds.

In 1976, CARE found measurements to fall short, on the

average, by 18% of the earthwork claimed and paid for by the project committees; it refused to reimburse the MRR, that is, for 18% of the wheat advanced by it on CARE/FFW projects. The Ministry of Relief and Rehabilitation expressed considerable dissatisfaction about the unreimbursed percentage--not only because CARE would not reimburse, but because there was such irrefutable evidence of misappropriation. In 1977, the unreimbursed percentage fell slightly to 15%, and the MRR instituted court proceedings against 720 individuals involved in the execution of FFW projects. The cases were tried in the martial-law courts to facilitate rapid and example-setting prosecution; 400 persons, mainly project-committee and union-council members, were found guilty of misappropriation. In 1978, CARE's unreimbursed percentage fell to 11%.[1]

The fact that the Ministry of Relief and Rehabilitation succeeded in almost halving the misappropriation resulting from overstated post-measurements in a period of three years is a notable achievement. One might have expected a much higher level of non-reimbursement by CARE during the first year of the program--given

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[1]It is not possible to obtain similar data on misappropriation for the other 50% of FFW projects that are administered by the World Food Program. WFP does not use the post-hoc measurement and reimbursement system, disbursing its wheat as demands for payment arise. This is partly a result of its considerably smaller field staff--six vs. 36 for CARE.

the state of political and economic instability of the country at that time, the emergency situation resulting from the floods of 1974 and the ensuing mass unemployment and starvation, the newness of both the MRR and CARE to a program of this magnitude in Bangladesh, and the complete absence of MRR field staff for project supervision during the first two years of the program. The halving of the shortfall in project measurement within three years, then, might be seen as the expected outcome of experience and fine-tuning by USAID/CARE and the MRR, the training and placement of 400 implementation officers in the field by the MRR, and the willingness of the MRR to seek out and prosecute offenders. CARE and USAID monitoring personnel, moreover, report that project selection, execution and monitoring have improved considerably since the program started in 1976.[1]

To what extent can the 11% non-reimbursement of CARE be taken as representative of the "graft costs" to be expected in Bangladesh rural works projects? The figure may not be representative to the extent that it accounts for only FFW projects and among those, only the CARE-administered projects--representing roughly 50% of

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[1] The increased orderliness of project implementation, of course, does not necessarily mean that misappropriation has decreased; misappropriation could be continuing, but irrelevant to the quality of project execution.

FFW projects and 40% of all rural works projects. This leaves out the other half of the FFW projects administered by the World Food Program, and the smaller Rural Works Program of the Ministry of Local Government, where payment is made in cash rather than wheat. The annual budget of the latter program is roughly US$12 million in comparison to US$60 million for the Food-for-Work program.

The Rural Works Program of the MLG is the descendant of the original works program of the 1960s, and hence may be more representative of future rural works activities than the more relief-oriented operations of CARE and the WFP. The CARE and WFP projects are run through the Ministry of Relief and Rehabilitation, moreover, though many of them are managed at the field level by MLG staff. (Of the WFP/FFW projects, 80% are managed by the Water Board.) Finally, the CARE/FFW projects are more closely monitored than those of the WFP; CARE has a considerably larger field staff than WFP (36 vs. 6), and its program in Bangladesh is considered to be one of its most carefully monitored.[1]

The CARE program <u>can</u> be considered representative of

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[1]This exemplary monitoring by CARE of its Bangladesh program has provoked not only the consternation of the MRR, but also of a joint USAID/CARE evaluative team, who thought the monitoring was excessive. USAID, "Special Evaluation...," 8 April 1978.

graft costs to the extent that it has accounted for 40% of the value of rural works projects carried out during the last three years. In the field, moreover, the distinction between ministries is substantially blurred during execution and supervision of CARE and RWP projects. The system of execution by local bodies is the same as that for all rural works projects--a union-level project committee appointed by the union council, whose chairman and members are elected.[1] Thus though a clear distinction is made at the central-government level between the MLG's Rural Works Program and the CARE portion of the MRR's Food-for-Work Program, the cast of characters dealing with these projects in the field is very much the same.[2] The CARE percentage of 11% misappropriation in 1978,

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[1]Project committees at the higher thana level are appointed by the thana council, which is presided over by the MLG field officer and whose members are the elected union-council chairmen. Though the MRR has recently created 400 Project Implementation Officers (PIOs) and placed them in the field at the thana level to supervise its FFW projects, these PIOs are subordinate to the thana-level Circle Officers, who deal with all rural works projects. An interested Circle Officer will often keep closer watch on the FFW projects than the MRR's PIO. In one of the best-executed CARE projects, for example, the Circle Officer actually lived in a tent at the construction site until the project was completed.

A union is the smallest administrative unit in Bangladesh, comprising about 15 villages and from 10,000 to 15,000 inhabitants. The thana is the next smallest unit. Each thana has ten to 15 unions, and there are about 450 thanas in Bangladesh.

[2]To the extent that 80% of the WFP's share of the FFW program is channeled through the Water Board, what happens in the field is somewhat different. Water-Board projects are larger, require an engineering input, and thus are more centrally-managed and executed.

then, may or may not be representative of the potential for misappropriation in an expanded rural works program, run through a different ministry, and paid for in cash rather than wheat.[1] Is the percentage likely to be in error on the low or high side?

Resurfaced graft

The 11% CARE figure for non-reimbursement in 1978 should be seen as a minimum for the amount of wheat misappropriated because post-measurement represents only part of the opportunity for misstatement. The halving of the measurement shortfall on these projects, in other words, may simply represent the time it took for those "on the take" to learn ways of cheating other than on final measurements. Most embankment and canal-excavation work in the rural works programs of Bangladesh amounts to reconstruction and repair of existing works--partly because funds are not available for land acquisition. A flood or road embankment will be built on top of a previously existing embankment; canal excavation will involve the deepening of an existing canal. In order to estimate the amount of work to be done, measurements of the existing

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[1] The USAID/CARE evaluation considers the opportunities for misappropriation to be greater with cash than with wheat, because of the bulkiness of wheat. Others think the opposite.

embankment or canal are taken;;this is referred to as the "pre-survey" or project "previewing." If existing heights and depths are understated in the pre-survey, this will result in an overestimate of the amount of earthwork necessary to meet the specifications of the project. Even though final measurements may be accurate, then, they may result in payment for earthwork that was not done--because of the understated measurements of what existed before.

Deliberate understatement of pre-survey measurements is possible on CARE projects for various reasons. CARE does its own pre-survey on only 30% of its projects--mainly the largest ones, which account for 70% of the wheat.[1] The pre-survey, moreover, is frequently carried out after the monsoon rains, when the proposed project site is still under water; this makes it necessary to guess the heights, depths and widths of the existing earthworks and to rely on local officials for these guesses. Also, because the pre-survey measurement is taken after the project has been approved for financing, local officials can be completely certain that project monies will be forthcoming; thus there is a guaranteed return to bribing the person responsible for the pre-survey to overstate the

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[1]The World Food Program does not preview any of its projects, accepting the pre-survey measurements reported by local bodies and field officers.

earthwork requirements. Finally, pre-survey measurements have been taken by thana-level field officers in conjunction with members of the union council, so that no single person could be held accountable.[1]

Because CARE previews only 30% of total projects, a shift in cheating from post- to pre-measurement on the non-previewed 70% could easily account for the decline in the unreimbursed percentage.[2] Given the possibilities for misappropriation by understatement of pre-survey measurements, and given the guaranteed return on doing so, it may not be unreasonable to assume that pre-survey misappropriation could account for half of the total misappropriated wheat. This assumption, made by some observers, would increase the misappropriation percentage to about 22%, close to the 18% overstatement of final

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[1] In an attempt to diminish some of these pre-survey opportunities for graft, and responding to the pressures of USAID and CARE, the MRR recently made significant modifications in the pre-survey system, which will take effect in the 1980 construction season. Mainly, (1) pre-surveying will be moved up in the project-planning cycle so as to take place before the monsoon; (2) a government field officer will have to sign the pre-survey document, so responsibility for deliberately understated measurements can be traced; and (3) pre-surveying will be done before projects are submitted for final approval by the MRR. This last modification means that the returns to bribing to get an understatement of pre-survey measurements will be reduced, in that project approval will no longer be a certainty.

[2] In that the previewed projects are the largest ones, any comparison of graft on previewed vs. non-previewed projects would be biased by differences between small and large projects.

measurements which occurred in the first year of the program.

It is difficult to evaluate the significance of the 22% estimate of misappropriation in CARE projects. Not only is it unclear whether the figure is accurate, but there are no reliable estimates of graft costs on other types of projects and in other countries, with which the CARE figure can be compared. Though one might be tempted to consider a 22% misappropriation percentage as high--and partly attributable to the relief character of the program--it is within the range of graft percentages estimated by observers for the projects of the Water Board--a technically- and development-oriented entity. The 22% estimate for the CARE projects, moreover, is not that much out of line with an estimate of another kind of graft cost for capital projects in Bangladesh. A recent study of the overinvoicing of equipment and materials imports into Bangladesh estimated that, in 1970, these items were overinvoiced by an average of 15%.[1] In that such overinvoicing would represent only one kind of graft cost in a project, it does not seem very much out of line with the 22% estimate for all misappropriation in the CARE projects.

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[1]Gordon Winston, "Overinvoicing, Underutilization, and Distorted Industrial Growth," in Jagdish Bhagwati, ed., Illegal Transactions in International Trade (Amsterdam: North Holland Publishing Company, 1974) pp. 49-65. The overinvoicing was in response to differences between the low official rate at which foreign exchange for imports could be purchased, and the high black-market rate at which that same foreign exchange could be resold.

Does monitoring matter?

In order to design a better approach to graft problems, further evaluation should be made of the experience with the CARE/FFW projects. CARE's audits of final measurements can help identify the projects toward which graft tends to gravitate, and the projects for which it has particularly deleterious results. The non-reimbursement percentage of 11% for 1978, moreover, is an average; the worst project in the average showed non-reimbursement of 83% of project costs. It is important to determine whether the 11% represents a few, large cases like this latter one, in combination with many smaller projects with non-reimbursement rates near zero. This would represent generally good performance, requiring a monitoring approach that focused on the possibility of a few large exceptions. If there were relatively little variance around the 11% mean, in contrast, a different and more comprehensive monitoring approach would be required.

An important question to ask about monitoring is whether it makes any difference. As seen above, the decline in CARE's non-reimbursed percentage from 18% in 1976 to 11% in 1978 may represent merely a shift of cheating from the post-measurement to

the pre-measurement stage.[1] The CARE system of previewing some projects and not others can provide information on how graft has varied with the two different monitoring systems. CARE believes that its previewed projects are freer of graft than the non-previewed. Yet the extreme example cited above, where only 17% of the wheat could be accounted for, was one of CARE's previewed and well-monitored projects. Was this case the exception proving the rule, or just the opposite? Even if the CARE view is correct, were the resources spent on post-audit measurement worth their while only in the case of the 30% of the projects that were previewed?

Some CARE officers believe that the cost of doing an adequate monitoring job would be overwhelming, and that the returns to devoting its scarce personnel to the less-than-complete monitoring job now being done are questionable. This thinking, together with pressures within CARE and USAID to make the FFW program more "development-oriented", has resulted in efforts to transfer some

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[1]Some students of organization argue that the easier it is for would-be cheaters to understand monitoring measures, the more likely they are to find ways of cheating on these measures. According to this view, a set of independent or overlapping measures, whose purpose is not obvious to cheaters, may be a more effective monitoring device than the single and easy-to-understand one--like the height, width and length of an embankment. March and Crozier, "An Introduction to Cheating in Organizations."

of CARE's monitoring resources to the project planning stage. This would not only counteract the pre-survey mismeasurement problem, according to CARE and USAID, but would insure a more "efficient" project-selection process, which would have projects ready for execution earlier in the dry season. Since CARE's current monitoring is far from complete, any tendency to retrench on monitoring in favor of "planning" suggests some rather strong assumptions, or lessons learned about the efficacy of various forms of monitoring in combination with other activities. The proposed program should find out what the lessons are, and try to build on them.

What the graft goes for

Some of the "misappropriated" wheat in the Food-for-Work program is used to cover legitimate project costs, as noted by even the most cynical observers. Some of these costs are officially recognized and reimbursed. The Rural Works Program of the Ministry of Local Government pays two percent of the cost of the project to the secretary of the local project committee, who is supposed to spend full time at the construction site. There is no percentage commission on FFW projects, but the project-committee member who is "labor supervisor" receives 3 seers of wheat per day of 100 laborers

supervised.[1]

In addition to the time spent by labor supervisors, execution of FFW projects requires various cash outlays by the committee chairman or secretary, related to the requisitioning, drawing down and transporting of wheat from the storage depot at subdivisional headquarters to the construction site. Even before the wheat is obtained, the project chairman typically makes some trips to subdivision headquarters, since it is only at this level (rather than the thana) that authority is vested to order and release wheat. Though the Ministry of Relief and Rehabilitation reimburses for wheat transport costs on the basis of Tk. 4-5 per maund of wheat, the project chairman must still advance these carrying costs out of his personal funds.[2] The reimbursement claim procedure is said to be cumbersome, moreover, and reimbursements are received with delays of several months. Thus the project chairman not only advances his own cash for wheat transport, but must also pay for his own transport, meals and lodging for the several trips

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[1]Or five gangs, each of which has roughly 20 laborers. Three seers of wheat is the basic FFW wage for 70 cubic feet of earth moved, and is roughly equivalent to between Tk. 6 and Tk. 7, depending on the price of wheat. (One seer is equivalent to 2.057 lbs.; there are approximately 15 takas to the U.S. dollar.)

[2]One maund = 82.28 lbs.

he makes to subdivisional headquarters during the course of a project. The chairman will usually cover all or part of these costs by keeping a part of the wheat shipment for himself.

Because it is generally accepted that the project chairman will have to undergo a certain amount of project-related expenses, the project committee routinely accepts and signs for less wheat than it actually receives--the shortfall usually amounting to a few percentage points. USAID and CARE cannot report this practice to the MRR because they are not able to obtain concrete evidence of it. Perhaps they also feel that this "take" represents reimbursement for legitimate expenditures. They have complained to the MRR that reimbursement for transport costs is slow and cumbersome, and that the project chairman and secretary should receive some formal compensation.

For the proposed rural works program, an assessment should be made of these unremunerated project-related costs. It should be determined whether the 2% commission on RWP projects is sufficient, and what expenditures are incurred by local officials in the execution of FFW projects, since the latter will continue to account for the major part of funds spent on rural works. If RWP project executors receive a commission and FFW do not, this may result in undesirable variations in quality and graft as between the two types of projects.

In that these "legitimate" graft costs tend to get taken out of laborers' wages, moreover, financing them out of project funds is preferable.

Formal payment for administrative expenses, of course, may not necessarily result in a termination of the payment taken "informally" by the project executor. An increase in formal payment for local administrative costs, then, might conceivably produce little change in the amount misappropriated, resulting in an increase in the total costs of the project inclusive of graft. The opposite effect, however, seems more likely. Assume that the project chairman, upon appropriating wheat for "legitimate" expenditures, is used to taking twice the amount he needs, just because it is so easy. Instituting a formal payment for the legitimate costs will then make it difficult for him to justify taking <u>any</u> wheat. If this is the case, then the introduction of formal payment for legitimate and currently unremunerated expenses by project executors could eliminate the non-legitimate part of the current "informal" payment. To clarify this issue, a comparison could be undertaken of costs and measurements for earthwork done under the RWP and FFW programs. One would expect FFW costs to be somewhat higher per cubic feet of earthwork actually done, given the fact that FFW executors do not receive the commission that RWP executors do.

FFW wheat is also misappropriated for expressly prohibited expenditures that are nevertheless related to project execution. One project committee, for example, paid five maunds of wheat (roughly Tk. 450) to a small landowner in compensation for allowing his plot of land to be taken for a flood embankment. (Payment for land acquisition is prohibited in both the RWP and FFW programs.) Similarly, FFW wheat has been used in a considerable number of cases to pay labor contractors to bring in and supervise labor for the project. Because the program's principal objective is to relieve local unemployment, FFW regulations prohibit the use of labor contractors and migrant labor. Finally, FFW wheat was used in some cases as the "local contribution" in self-help projects of the Ministry of Agriculture, the so-called Ulashi-type schemes.

In all three cases of improper wheat use, the misappropriations can be seen as having furthered the execution of projects--rather than as having lined someone's pocket--by getting around constraining program regulations. In the case of the small land purchase, the flood embankment would have had to detour from the riverside if the small farmer's plot could not be used. In the case of labor contractors, it would have been difficult for the project committee to find local labor at FFW wage rates because the project was in a low-unemployment region. Finally, the "local

contribution" of FFW wheat to the self-help schemes did go toward building works projects, even though they belonged to the program of another ministry. In all these cases, the diversion of wheat was public and agreed upon as worthwhile at the local level.[1] From an economic point of view, then, the diversions of wheat do not represent losses, though they do convey the somewhat casual atmosphere surrounding the FFW projects, and the difficulty of monitoring them.

Giving too much credit to graft

In view of the preoccupation with corruption in Bangladesh, there is a surprising lack of stories about where the misappropriated funds go to--at least with respect to rural works programs. In most countries, tales of graft in infrastructure programs usually end with incomplete or unstarted projects, and assets that suddenly materialize in the hands of the misappropriators. Though donors and Bangladeshis alike are always telling stories of how and where various project implementers take their cut of the funds, they seem to have few stories to tell of private construction or consumption that substituted

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[1] A partial exception was the use of migrant labor, in that local unemployed laborers in some cases objected.

for the proposed project.[1]

In the FFW program, there are several documented cases of uncompleted and unstarted projects due not to graft, but to bottlenecks in the wheat-distribution system. In some districts, a majority of the programmed projects were not started, or were left incomplete, because of the unavailability of wheat to pay the workers.[2] In addition, problems in wheat distribution frequently caused workers to be paid with considerable delay. This made it necessary for them to borrow cash at high interest rates, as discussed in section II, or to sell their wheat in advance at a discount. A USAID field-trip report on CARE/FFW projects in March of 1978 found that 75% of the projects in three subdivisions had not yet been started because of bottlenecks in transporting wheat to the local storage depots. This was almost two months into the FFW construction season, which starts in mid-January and ends in

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[1]An exception can be found in the field studies of CARE/FFW projects by a consultant of the USAID Mission in Dacca. USAID/Hjalmar Brundin, "FFW Secondary Effect Methodology Study," Preliminary Report, 4 May 1979.

[2]Other reasons for delay were the onset of spring rains in April and the corresponding desertion by laborers for their agricultural plots or for better-paid agricultural work--a problem discussed in section II; and the complete preoccupation of local officials and government field officers with the local election campaigns in January of 1977 and 1979--the start of the construction season.

mid-April for smaller projcts and in late June for larger ones.

The delays in wheat-distribution were mentioned frequently in the field-trip reports of USAID's FFW monitors. In these reports, the only explanation ventured for the delays was a bottleneck at the point where wheat transported by rail had to be transferred from a broad-gauge to a narrow-gauge track.[1] The state-owned railway, it was implied, was not giving sufficient priority to the FFW wheat shipments in making these transfers. (Here is a case where a well-placed bribe may have solved the problem.)

In discussions of the mission with USAID, CARE and WFP officers, the wheat-distribution problem did not receive the time that the graft problem did. USAID and CARE seem to have invested more thought and energy into devising better graft-control measures and convincing the government to adopt them than they have, for example, to the question of whether

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[1]WFP evaluations also referred to shortages of wheat shipments by EEC countries.

payments might be made in cash rather than wheat.[1] Given the concrete evidence of the high cost of the wheat problem to the program, it would seem that the expected returns to working on the wheat-vs.-cash problem would be even greater than those to working on graft. Though the graft problem has caused the most concern at CARE and USAID, in sum, it seems to have been in no way as damaging to project execution and to relief objectives as the wheat-distribution problem. The wheat-distribution story, then, illustrates the importance of putting graft problems in their proper place.

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[1]There are other issues involved in the wheat-vs.-cash discussion. The most frequently-cited objection to paying in cash instead of wheat is that the former would cause price inflation in local food markets where payments were being made. This point is debatable, since a government wheat-distribution system is already functioning of which FFW shipments represent a small percentage. This system would allow distribution of wheat for sale in areas where FFW workers were being paid in cash--just as wheat is now distributed to these areas to pay workers directly. This was actually done in the Rural Works Program of the early 1960s, when U.S. PL480 wheat was sold by the government and the cash generated was used to pay RWP laborers. No inflationary effects resulted. The selling of wheat to generate counterpart for the RWP was discontinued not because of concern with inflationary effects, but because of the cumbersomeness of the required USAID approval procedure for projects financed with wheat-generated counterpart.

A USAID/CARE evaluation suggests that misappropriation is less with wheat than with cash. Even if this is true, it must be balanced against the fact that payment in wheat has been found to increase the administrative costs of works programs by up to 20%. IBRD, Public Works Programs....

The Impact of Graft on the Facility

The effect of graft on the quality of an infrastructure facility and its service life depends on whether graft takes the form of cheating on specifications and whether some kinds of non-fulfillment of specifications will be more damaging to a facility than others. Cheating on specifications is a common form of graft in all countries, and the CARE experience with earthwork measurement in Bangladesh shows that this kind of cheating is routine on earthwork projects. Cheating also takes the form of overstating the payments made to laborers, as described in Section II. The specified amount of work gets done, but the laborers are paid less-than-specified wages. In this latter case, the laborers incur the cost of graft rather than the facility, its users, and those who must finance the cost of earlier reconstruction.

Any successful attempt to reduce the graft-induced under-fulfillment of specifications may result in a compensating increase in graft taken out of labor payments, and vice versa. Increased monitoring in one area, then, may require more watchfulness in the other. Cheating on labor payments, moreover, is less desirable than cheating on specifications, in that the former amounts to an intensely regressive mechanism for financing project

costs. The social costs of cheating on specifications rather than workers' wages, in short, are considerably more spread out across the income distribution and through time.

Cheating on earthworks

Cheating on the specifications of earthwork projects has a markedly different result than cheating on structures. This distinction is significant for rural works programs in Bangladesh in that the Food-for-Work program finances only earthwork projects and accounts for 83% of the value of rural works projects undertaken in the last three years.[1] Cheating on specifications on earthwork projects means that the road or flood-protection embankment is not quite as high as it should be, or that the canal is not dug as deeply as it should be. (The latter is often more difficult to verify, because one can claim that the excavation has silted up somewhat during the construction period.) A very small shortfall in height on a road of three or four miles could generate a significant amount of excess cash for someone interested in

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[1]There should be some decrease in this earthwork percentage in the near future, as CARE expands its experimental program of building appurtenant structures on past FFW earthwork projects, and as WFP embarks on similar programs, manely the US$5 million CIDA financing (mainly for bridges and culverts), and the US$25 million IDA project for appurtenant structures on past FFW projects, now being negotiated.

misappropriation. This kind of cheating, it is important to note, results in no damage to the facility and little cost to the user. The coming on stream of the facility is not delayed, nor does the cheating result in immediate repair costs.

Future costs of reconstruction and/or maintenance may be increased as a result of cheating on earthworks specifications, depending on the extent of the shortfall. This cost will be greater, for example, when cheating on an embankment project takes the form of narrower base widths rather than crown widths or lower heights. The narrower-than-specified base widths result in steeper slopes, that is, when the crown width is done to specification. At the same time, the narrower base widths are easier to get away with than cheating on the height or the crown width, because the base width is more difficult to verify than the other two measurements after a project is completed. To the extent that steeper slopes will lead to erosion and undermining of the embankment, they are a more costly form of cheating than lower heights and smaller crown widths. (USAID/FFW monitoring reports routinely noted poor quality of embankment slopes.)

Cheating on the height of an embankment can result in reduction of benefits for those whose lands are to be protected from flood. But even in this case, the cheating does not result

in total unusability of the structure. The lower embankment will still protect lands from some floods, though not from the severity of flood planned for. In that a slight shortfall in the height of a flood embankment can generate a reasonable amount of graft earnings for an embankment of some length, the costs of decreased flood protection resulting from a little cheating on height will not necessarily be that great.

The cost that results from cheating on earthwork specifications is easier to calculate than in the case of structures. It is also easier to identify and penalize the earthworks cheater. The cost of the cheating on embankment specifications can be calculated as a simple multiplication of the shortfall in the specified height of the road by its length; responsibility can be placed with the entity or person that reported the measurements. On the CARE/FFW projects, for example, the MRR is not reimbursed by CARE for the portion of the MRR's wheat advance to the project committee that amounts to the shortfall between specified and actual measurements. Thus the project committee or thana-level officer who reported the mistaken measurements are conspicuous, easily identifiable for prosecution (as the MRR has been doing) or for decisions to withhold or reduce funding for future

projects.[1] Thus the ease of identification of the cheating and the cheaters in earthwork projects explains to a considerable extent the progress that has been made in diminishing the over-reporting of measurements on the embankments built under CARE's program. CARE was successful at reducing the cheating in the FFW program, in other words, by choosing a type of project that was easier to monitor, and a payment mechanism that imposed a cost for cheating.

Cheating on structures

Cheating on the specifications of structures produces different results and gives rise to different monitoring problems. An improperly built bridge may fall down, an improperly laid pipe culvert may block rather than drain off excess water from agricultural land. Cheating on structures, in short, can result in the complete unusability of the structure, and significantly decreased efficiency of the system of which the structure is a part--the road, for example,

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[1] Though the MRR has tried to prosecute the cheaters, it has not placed their unions or thanas on a "blacklist" for future projects. Yet the failure of a union to receive funding for FFW projects in a particular year because of over-reported earthwork measurements in a previous year might be as powerful a preventive against cheating by project executors as the threat of prosecution. Indeed, temporary blacklisting of a union for future projects might have more of a disincentive effect with respect to cheating than the threat of prosecution. The rural elites and field officers responsible for project measurements are likely to believe that the judicial system will not work efficiently enough to reach them or, if it does, that they can eventually buy their way out. Blacklisting a union for a future project, in contrast, imposes an immediate political cost on union-council chairmen and members, threatening their re-election. The way such a penalty mechanism might function is discussed in Section IV.

that leads up to and away from the failed bridge.

Monitoring of the specifications of structures is more demanding than monitoring the dimensions of an embankment. Whereas monitoring of an earthwork project can suffice with only two visits to the site--measurement before construction and after--the underfulfillment of specifications in structures cannot necessarily be verified with a post-construction inspection; the cheating can be hidden under concrete. Thus if cheating on specifications is as common in structures as in earthworks, then the design and costs of a monitoring system will be considerably different for a program of structures than for one of simple earthworks--if only because visits to the structure site during construction will be indispensable. In view of this difference, it is interesting that CARE is choosing to focus less on monitoring precisely at the moment when it is moving into a structures program, with its greater monitoring demands. To a certain extent, the difference between monitoring demands for earthworks and structures is actually reflected in this CARE move; some CARE officers say that an investment of their limited monitoring resources in a structures program is pointless, whereas some gains have been made from devoting such limited monitoring to the simpler earthworks program.

The costs of cheating on structures are not so easily

calculated, nor the offenders so easily identified as in the case of earthworks. A large part of the cost of underfulfillment of earthworks specifications, that is, is simply the earth that was not moved. With structures, however, a large part of the costs imposed by cheating takes the form of economic costs borne by users and public-sector financiers of a facility that provides inadequate or no service, that requires future repairs and reconstructions, and that actually imposes damages on beneficiaries (in the case of culverts and sluice gates that do not drain off water or retain it properly.) These costs are not so obvious or easy to calculate. Even if cheating is verified, moreover, some of the costs will not be known at the time the verification is made; will the bridge, for example, actually fall down or will it require significantly earlier reconstruction?

In contrast to earthworks, the cheaters on structures specifications have more of an opportunity to blame forces outside their control. Proper-quality materials and/or equipment can be claimed to be unavailable in the area; laborers can be blamed for not having followed instructions. Though this latter failing can be said to be the supervisory responsibility of the contractor or project committee, earthworks contractors can less easily blame laborers or inadequate supervision for underfulfilled dimensions of

an earthwork structure, since those dimensions are measured and verified by the contractor or project committee itself. If there are shortfalls in earthwork measurements, then, there is no one to blame but the person who measured.

Avoiding the costs of cheating: concrete vs. brick bridges

The costs that result from cheating on earthwork specifications become apparent more gradually than in the case of structures and are less perceptible. An underbuilt embankment may simply deteriorate in a year's less time than it otherwise would have. This is difficult to perceive as a discrete cost, and the cause of the deterioration is ambiguous; or, at the least, the deterioration can be easily blamed on something like excessive rains or lack of maintenance--rather than on cheating on specifications. When a bridge falls or water does not drain off agricultural land, in contrast, the failure is identifiable and abrupt. The cost, or the onset of it, occurs at a distinct moment in time.

Project designers and implementing bodies sometimes act as if they perceive the greater potential cost of failure in structures as opposed to earthworks. They will sometimes prefer costlier materials, technologies, or project designs because they minimize the need for supervision and monitoring. Reinforced

concrete bridges, for example, have been favored over brick bridges in rural-works programs in Bangladesh for the past several years, even though the concrete alternative can cost up to twice as much as brick. Part of this bias, of course, results from the greater professional prestige and "modernity" of reinforced concrete. But another part results from the fact that brick bridges, according to CARE, "tend to fall down." Thus CARE itself, out of concern for expected failures rather than engineering prestige, is encouraging and even insisting on the more costly technology for the bridge structures financed out of its program.[1]

CARE's preferences would be justified, from an economic point of view, if the added costs of monitoring brick structures and of the larger number of expected failures are greater than the greater financial cost of concrete over brick. But this is a

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[1]For similar reasons, there has been pressure for some time from within the CARE administration to concentrate financing on larger and fewer projects, so as to minimize monitoring costs and the misappropriation resulting from a small monitoring staff spread thin over many projects. As in the case of concrete vs. brick in bridge construction, this choice is not without certain costs. The larger a project, that is, the less likely it is to fall within the reach of a local executing body, and the more likely it is that labor contractors and migrant labor will be used. The use of local project-executing bodies and of local rather than migrant labor, however, is one of the basic tenets of the FFW program.

question that does not necessarily fall within the range of concern of an implementing organization like CARE and, indeed, has not been evaluated as such. CARE is bound to prefer a technical design that minimizes its monitoring costs and the possibility of problematic projects--even if this means less bridges for the same amount of money. The economic desirability of certain types and numbers of projects, that is, often does not act as a constraint on an implementing entity's decisionmaking--in contrast to the very real constraint exercised by a limited operating budget. The economically cheaper alternative of brick bridges would strain this budget further, and could also impose costs on the agency's reputation resulting from bridge failures. There are no costs to the agency, in contrast, for opting for the safer, more expensive alternative.

The question of brick vs. concrete bridges and others like it <u>does</u> fall within the scope of the proposed program--because of its concern for asset-creation, for economic uses of scarce capital, and for doing many smaller projects, rather than fewer larger ones, in order to meet the government's priorities of decentralized execution and equitable distribution of projects. Further study of the bridge question may show that the unreliability of brick bridges results more from lack of knowledge about how to

build them than from cheating on specifications. In this case, a training component in the proposed program might be called for.

It may turn out that brick does require an unworkable degree of supervision and monitoring to achieve the reliability of a reinforced concrete bridge. If this is the case, the proposed project might look at possibilities for reducing the cost of concrete bridges, in terms of materials-supply arrangements and design. Studies of the relative costs and feasibilities of brick-vs.-concrete bridges in Bangladesh are now being carried out by the Canadian firm of Northwest Hydraulics, under contract to CIDA, as part of its appurtenant-structure project with the WFP. The results of these studies should help throw some light on how this matter could be handled in the proposed program.

Graft and tradition: compaction

The issue of brick-vs.-concrete bridges is another example where concern with graft has detracted attention from problem causes that have nothing to do with graft. Though the issues of brick-vs.-concrete bridges is looked at by CARE in terms of the greater vulnerability of brick to irresponsible contractors, the problem may also result from lack of experience with proper methods of brick construction. Similarly, faulty compaction or the complete lack of it in earth road construction is often

attributed to contractor irresponsibility and sloppiness. Yet there is little tradition of or belief in the necessity of compaction in the countries where it is not done adequately.

The compaction issue is a significant one for the point being made here. It is one of the few complaints by donor technicians about Third-World construction habits that has led to official and professional sanction of these habits by at least two of the countries themselves--India and Mexico. The lack of compaction on earth roads in these two countries, that is, has been pronounced as having a sound technical and economic justification.[1] (This official sanction, it should be pointed out, has not eliminated the controversy or the dismay of the majority of engineers from donor countries.) The stand of India and Mexico has served to move the debate of the compaction issue to a more constructive plane where, in contrast to problems explained in terms of graft and

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[1] To summarize briefly, those who justify the absence of compaction say that (1) compaction occurs naturally through vehicle traffic; (2) much of the investment in compaction can be lost by heavy rains; (3) compaction requires the introduction of machinery in a task that can otherwise be done exclusively with labor, thus complicating considerably the logistic and organizational requirements of that task; and (4) compaction by hand does not justify its costs. The pro-compaction argument is that lack of compaction results in premature deterioration of the facility, leading to higher maintenance and reconstruction costs. An economic analysis of the two sides of the argument is yet to be made.

irresponsibility, there is some stimulus for technical and economic evaluation of the two ways of doing things. This opens up possibilities for improvement through changes in design, materials, techniques, and training.

There are other complained-about techniques in developing countries which are thought to result from graft and irresponsibility. Like compaction, they also represent the way things are customarily done. This does not mean that the traditional way is necessarily the best way, or that it cannot be improved upon. But the mere existence of the technique, and its pervasiveness, suggests there will be some important underlying factors explaining its use. The tendency to attribute "faulty" work to graft, then, makes it difficult to discern where opportunities for technical adaptation and adjustment actually exist. In addition, graft is likely to occur together with genuine problems in fulfilling specifications, precisely because of the excuse that tradition provides for not doing things according to prescribed standards. This adds to the obscuring of the underlying technical issue. The importance of extracting such technical issues from the usual graft explanations is that it may be more economic to see how specifications can be altered in the direction of how things traditionally get done--than to require monitoring and other institutional arrangements that attempt,

unsuccessfully, to bridge the gap between specifications and what usually happens.

Conclusion

Because of the markedly different forms taken by graft in earthworks as opposed to structures, and the different aspect of graft on each type of project, it may be advisable to devise separate execution and monitoring mechanisms for each type of project. A post-audit and reimbursement system, for example, can be quite effective for earthworks. It minimizes on-site monitoring costs and, if accompanied by pre-surveys, creates considerable expected costs for cheaters--i.e., the cost of being refused reimbursement publicly. A post-audit and reimbursement system would be less effective for structures. Much of the cheating would go undetected, and it would be difficult to know what costs should go unreimbursed.[1] Conversely, the monitoring of construction technique that is required for structures would be excessive for earthworks, at least as they

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[1] On structures executed by contractors, the MLG is supposed to withhold 10% of the contractor's payment for one year after project completion--in case of possible failures. In a sense, this withheld payment represents a partial post-hoc reimbursement system. It would not, however, cover the cost of a major problem; problems resulting from faulty construction, moreover, might not show up in the first year.

are executed in Bangladesh. The organizational separation of earthworks from their structures may be desirable for other reasons, in addition to their different monitoring styles. These other reasons are presented in Section III.

Monitoring Rural Works Projects

Rural works projects give special problems of monitoring and supervision because there are so many of them under construction at any particular time, because the project sites are widely dispersed, and because many of the sites are of difficult access. These problems are compounded by the fact that (1) the field officers in charge of monitoring such projects are burdened with myriad tasks and tend to be desk-bound; (2) these officers are often inadequately trained for the task; and (3) the officers, through living and working in the field, become part of the social structure of the area and develop corresponding obligations, often making it difficult to take corrective measures concerning faulty work. Finally, some of the inadequacies in construction work cannot be corrected without a constant presence--particularly in the case of structures.[1]

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[1] On a field trip to visit 15 structures in construction on a CARE/FFW road, it was noted that someone typically rushed up to the construction site soon after the arrival of the jeep with a pail of water in hand--and would dash the water over the concrete that was already in place. Repeated wettings of the concrete are required after it is put in place--with a greater frequency than might be inspired by an occasional visit from an outside monitor. The frequency with which the wetting heralded the arrival of the outsiders, and the pomp and ceremony with which it was done, suggested that wetting might represent a special occasion rather than a routine one.

Projects and techniques that economize on monitoring

The problems of monitoring a large number of dispersed projects of difficult access can be dealt with somewhat by choosing certain techniques and certain types of projects. Labor-based earthwork, for example, is less vulnerable than structures to the absence of supervisory visits during construction. Much of what can go wrong relates to underfulfillment of the measurement specifications--and this can be verified after the project is completed.[1] Certain kinds of earthwork, moreover, are more suited to this post-audit measurement than others. Mainly, embankments are better than canal excavations, since underfulfillment of depth specifications in the latter case can be attributed to silting up; also, measurement of what existed before construction started is more subject to ambiguity with canals than embankments. For these reasons, as noted above, CARE has preferred to finance embankments over canals. Its ability to exact a penalty on inadequate work, through non-reimbursement for overstated embankment heights and widths, has made it feel that it can now safely transfer some of its scarce monitoring resources from the construction stage of

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[1] An exception is the breaking up of earth clods as the earth is thrown on the embankment. This task is typically inadequately done or not done at all.

earthwork projects to the project planning and implementation stage.[1]

The fact that earthwork in Bangladesh is done completely by hand, together with the way work is measured and labor is paid, are also well suited to the supervision difficulties of rural works projects. The simplicity of measurement and of the earthmoving task, when done with hoe and basket, minimizes supervision demands in relation to what they might be if laborers were paid per unit time, or if they worked in combination with equipment. (As discussed in Section II, this system of payment and measurement also creates opportunities for the exploitation of laborers.)

As rural works programs in Bangladesh receive more financing for appurtenant structures, the share of earthworks in these programs will decline and, with it, the greater ease of monitoring. Monitoring and supervision needs will increase, that is, simply because of the shift in project mix in the direction of structures--not to mention the improved quality of supervision on

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[1] CARE plans to make this transition on its new appurtenant-structures program, as well as on earthwork projects--as part of its attempt to shift gears from exclusively relief-oriented to "development" criteria. CARE's own experience suggests, however, that the post-audit approach is less successful with structures than with earthworks--given the fact that mistakes in the former type of construction are not as easily verified after the project is completed.

existing projects that is hoped to result from the proposed program.[1] As this shift takes place, attempts should be made to evaluate construction techniques, materials and organizational arrangements for their vulnerability to monitoring and supervisory inadequacy. Just as CARE preferred certain earthwork projects for their monitoring-proof features, the ways of doing structures should be evaluated in this same light.[2]

A first step in the direction of such an evaluation would

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[1]Concerns about a workable system of design and monitoring of appurtenant structures in the proposed USAID rural-roads project were one of the major points of contention between USAID and the MLG in discussions of that project, and contributed to its ultimate demise, after two years of project evaluation. The MLG wanted the structures executed through the local project committees of the Rural Works Program; if contractors were used, they were to be under the authority of these committees. USAID, in turn, could not devise a monitoring system within this constraint that it considered workable and not exceedingly costly. This was mainly because USAID was used to using one international contractor for such a project, in contrast to the many small contracts that characterize the decentralized system.

[2]CARE has expressed a preference for reinforced concrete over brick bridges on these grounds, even though the concrete is almost double the cost of brick. The brick bridges, CARE says, "tend to fall down." In that there is no reason for brick bridges to fall down any more than concrete, if properly constructed, one would assume that sloppy construction and inadequate supervision explain the problem--and that brick bridges are more vulnerable to these inadequacies than concrete.

be to classify the most common faulty construction techniques according to three causes--cheating, sloppiness, or a consistent discrepancy between the way local construction is traditionally done and what is required in the specifications.[1] The classification is important, because the approach to the problem should be determined by its cause. Problems caused by cheating, for example, may respond only to direct monitoring, whereas problems caused by traditional ways of doing things might better be dealt with by changing specifications to accommodate these techniques. The result of such a "lowering" of specifications is not necessarily a decrease in quality. The comparison to be made, after all, is not between the quality of the project as normally specified vs. the project with "lowered" specifications, but between the project with "lowered" specifications and the way the "properly" specified project actually gets done. The repeated inadequacies of the latter type of construction may make it of predictably lower quality than the project that gets done according to "lowered" specifications. It would be particularly useful to evaluate the problems of inadequate compaction, dressing and turfing of embankments

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[1]These problem causes, of course, are not completely independent. Cheating and sloppiness, for example, may reinforce each other.

in this light. The appearance of these problems in monitoring reports on rural works projects in Bangladesh is routine, and yet projects continue to include budgeted amounts for compaction, dressing and turfing.

Watchful villagers

Of all the sources of construction inadequacy, sloppiness would probably be most responsive to constant supervision at the site.[1] It may not be possible, however, to provide full-time surveillance at the myriad construction sites, in a way that would be more effective than the supervision already taking place. Another possible approach to the monitoring of sloppiness would take advantage of the considerable "watching" of project construction that is engaged in by curious villagers. In that the construction period coincides with the period of highest dry-season unemployment, this swells the number of onlookers that typically forms around most activities in the Bangladeshi countryside. When supervisors or project-committee members are not at a site to give information to outsiders about a project's progress, questioning of the watching villagers usually yields information on what is being

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[1]Cheating would be less responsive to such supervision, even if it were possible, because part of it takes place away from the site and part of it has to do with workers following, not disregarding, the instructions of their superiors.

done and, if consturction has stopped, what has happened. If construction has stopped on a bridge, villagers know that it is because the contractor, for example, has taken the laborers to work on another structure for awhile. Children are often an important part of the watching and informed contingent.

The village watchers will sometimes give their unsolicited opinions on construction techniques to the workers. Upon inspection of a CARE bridge-construction site, for example, a CARE engineer noted that the workers were not soaking the bricks, as they were supposed to. The engineer explained to the workers once again that they should have been soaking the bricks and showed them once again how to do it. In the meantime, the usual throng of village watchers had gathered. As the engineer returned to his jeep, he became aware of a loud ruckus at the site he had just left. The crowd of village watchers was angrily scolding the construction workers "for not having soaked the bricks." It was their bridge, they told the workers, and they wanted it to be done right.

Village watchers at construction sites could be used to diminish the intractable supervision problems of rural works programs. They could be instructed at public meetings on a few of the simpler-to-understand operations--operations that are supposed to be routinely done and about which laborers or foremen are likely to be lax.

Soaking the bricks and wetting down the concrete are obvious examples. Large picture illustrations could be used at such meetings and then posted at the construction site. Villagers who proved to be particularly watchful and corrective might even be rewarded in some way--perhaps with a position on the project committee, or with recognition at a public meeting.

Watchful villagers have a unique combination of qualifications for such a task, which would be difficult to devise in a system of formal supervision. For one, they have a strong self-interest in the project being done correctly, since it will benefit their village. Because they live near the construction site, moreover, they are "available" for supervision almost all the time. Since construction takes place when planting, harvesting and processing activities are at their ebb, there will be more villagers available for such watching than at any other time of the year. In addition, reprimands of the villagers might be more feared by laborers and foremen than those of outside monitoring personnel. The latter, though higher in social status, would certainly not reappear for several days. The village watchers, in contrast, are bound to be back again and again. Their sheer numbers would also help to inspire awe and respectfulness among workers and foremen.

To the extent that the watching villagers are from the

ranks of the rural poor, they are like "outsiders." This qualifies them as good project monitors, in the same sense that expatriate monitoring is considered desirable because of the expatriate's natural distrust of what local people do. The rural poor, that is, are distrustful--of government representatives, of businessmen, of local leaders. One survey of the rural poor in Bangladesh, for example, showed that a majority thought the union-council chairmen and project committees regularly stole large amounts of wheat and funds destined for rural works projects.[1] The villagers' distrust provides a healthy distance between them and those responsible for the project. The very "marginality" of the poor, then, qualifies them as good informal monitors.

To instruct villagers in an expanded role for their project-watching activities can be seen as an extension of a basic concept of the Rural Works Program from its start--extensive publicity about the projects in the communities living around them. The signboards at project sites, specifying wage rates as well as other project details, have always been considered an important aspect of this publicity. Each project, moreover, was to be explained to the community in public meetings, in local newspapers

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[1] SIDA, "The Public Works Programmes in Bangladesh and Swedish Aid Objectives," by Daniel Asplund, February 1979.

and on radio programs. The success of the RWP in the 1960s has been attributed in part to the effectiveness of this local publicity in maintaining some constraints on graft and mismanagement. Similarly, the decline of this publicity in the late 1960s and 1970s has been pointed to as one of the reasons for the decline in the quality of the program and an alleged increase in graft.[1] Current interest in expanding this type of publicity is illustrated by a recent proposal of some in the MLG that the first 25% of the payment for a project be advanced to the Circle Officer of the thana at a public meeting.

The idea of making constructive use of watchful villagers is reminiscent of proposals that were made in the 1960s to help combat the rising tide of urban crime in the United States. The city planner Jane Jacobs argued that urban housing projects should face the street and be combined with business establishments on their ground floors, so that there would always be "eyes watching the street." Urban housing projects, that is, were typically removed from business areas, with several apartment buildings facing each other rather than the street. This denied an important aspect of the culture of the urban poor--watching what was happening on the street

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[1] Stevens, Thomas.

from window sills and stoops. Taking the eyes of the watchers away from the street, Jacobs said, made it easier for thieves to operate in peace. Using village onlookers as informal monitors of small contruction projects, then, can be seen as a variation on the Jacobs theme of designing buildings so that onlookers will be at the same place where undesirable social behavior is likely to occur--and that their very presence will restrain that behavior.

For purposes of monitoring, in sum, construction projects have the advantage that sloppiness and some forms of cheating are out in the open for anyone passing by to see. At the same time, dispersed rural works projects have the disadvantage that those who are supposed to see and do something about it--the formal monitors or supervisors--do not have the time or the means to pass by frequently enough. Informed villager monitoring can overcome this problem by taking advantage of the fact that construction projects are exposed to public view and that some kinds of people are always passing them by.

Structures, it should be noted in closing, are more suited to villager monitoring than earthworks. The construction site for a structure is always in the same place, whereas an earthworks

project may progress a considerable distance across the countryside. With structures, then, the cast of onlookers will remain the same, fewer public sessions to inform the villagers will be necessary, and onlookers may carry more weight with the workers because they will always be the same. Since earthworks are less in need of this kind of daily supervision than structures, the attempt to increase the monitoring capacity of onlookers might well begin with structures.

II - WORKERS, WAGES, AND MISAPPROPRIATION

One of the troubling aspects of graft on works projects is that it is often taken out of the laborer's wage. Some graft is an unavoidable project cost and, indeed, is often necessary to get projects done. If graft comes out of the laborer's wage, however, the financing of this cost is highly regressive. If workers end up receiving lower wages than specified, moreover, their productivity will be correspondingly less--as the Bank's research on public-works programs has shown.

How Labor Fares

It is difficult to determine the extent to which graft on works projects takes the form of reduced wages to individual workers, and to what extent it is taken out of total allocations for wages before determining the number of workers to be hired. The latter form shows up in a reduction of anticipated employment levels and project specifications. The evidence on reduced worker wages is fragmentary. Though various donor and government agencies report that workers frequently receive less than the specified wage, the only written evidence of an actual case was a USAID field-monitoring report, which described a Food-for-Work project where

workers received 19% less in wages than the specified rate.[1] The thana-level Circle Officer, the report explained, said that the 19% shortfall was "necessary to cover the transit cost shortage."[2]

It is commonly said that muster rolls are falsified, and that half of the misappropriated wheat is taken off even before it gets to the project site. Wheat misappropriated before reaching the project site and faked muster rolls, of course, do not point definitively to reduced wages. They can also be a sign of less employment at stated wages. From the uniformity of the comments of various donor and government agencies regarding the works projects, however, one can safely assume that wheat and cash get taken off in both ways. The following section describes the opportunities of the present system to pay workers less than the stated wage rate, and suggests what might be done to diminish the problem.

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[1]They had been paid 35 seers of wheat for 1,000 cubic feet of earth moved, though the FFW rate stipulated 43 seers. A rate of 43 seers for 1,000 cubic feet is equivalent to the standard FFW rate of 3 seers for 70 cubic feet. (One seer = 2.057 lbs.)

[2]USAID/Sarker, 13-15 February 1979.

Measurement and payment

The method of organizing workers and calculating payments for earthwork in Bangladesh causes some ambiguity for the individual worker as to how much wage payment he is actually owed. The worker may therefore be ignorant of shortfalls in his wage payments, and monitors will find it difficult to verify whether wage payments were properly made. Workers are said to be afraid to even state their earnings to outside monitors, moreover, for fear of losing their job or employment on future works projects.

As in many projects using labor-intensive earthmoving techniques, workers are paid on a "task" basis--a variant of the piecework rate. A task rate is set for an amount of earth moved that is considered attainable within a day's work. The FFW program, for example, pays three seers of wheat for 70 cubic feet of earth moved--which amounts to, at prevailing wheat prices, between Tk. 6 and Tk. 7.[1] With earthmoving productivities in Bangladesh averaging 100-110 cubic feet a day, this amounts to a daily wage of about 4 or 5 seers of wheat a day or Tk. 8-11, depending on wheat prices.[2]

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[1]There are approximately 15 takas to the dollar. One seer is equivalent to 2.057 lbs.; there are 40 seers in a maund. Wheat prices vary between Tk. 80 and Tk. 95 per maund.

[2]This calculation does not include the additional payments for "allied factors", explained below. Allied-factor-payments average from between 20% and 35% of total wage payments.

Workers are typically organized by a gang leader into gangs of 20; the leader also works in the gang and earns an additional 3 seers of wheat per gang/day supervised. The labor supervisor, a member of the project committee, receives 3 seers of wheat, or one man-day's cash payment in non-FFW projects, per day of supervision of five gangs or 100 laborers. Completed earthwork is calculated by measuring the dimensions of the pit remaining after the earth is moved, one gang usually working on one pit. Because of the method of measurement and the gang system of working, the individual laborer's work cannot be separately measured and is calculated as 1/20th of the earth moved by the gang. Payment is made to the gang leader, moreover, rather than directly to the individual. This system is used both by labor contractors and in the direct execution of projects by project committees.

Labor contractors on FFW projects are said to sell off the gang's wheat and pay the workers in cash, again retaining a cut for themselves.[1] The gang leader, it is sometimes said, is also "on the take", and retains more than his three-seer/day share of the gang's payment. Other reports suggest, in contrast, that

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[1]MRR regulations on FFW projects prohibit the use of labor contractors. They are nevertheless reported to be used by project committees on a significant minority of FFW projects.

gang leaders put their fellow-laborers' interests over personal financial gain or collusion with project management, and are able to stop work on a project in cases of worker dissatisfaction. The ambiguity about the gang leader should be clarified during project appraisal, since the design of certain measures will be influenced by the role he is assumed to play. If the gang leader has leadership strength and acceptability among the workers, for example, than an increase in his payment and his monitoring responsibilities might be advisable.

The ration rate (allied factors)

One of the main reasons for the confusion of workers about how much they are owed is the "ration rate" or "allied factors." The ration rate is an extra payment added on to the basic task rate and takes account of more difficult earthmoving conditions than those assumed in calculating the basic rate. Typically, there are four principal reasons for this extra difficulty: a higher slope up which the earth has to be carried ("lift"), a longer distance ("lead"), and hard or wet earth. In calculating the basic rate, for example, the MLG assumes a lift of up to five feet and a lead of up to 200 feet; the FFW assumes a smaller lead of up to 100 feet. For each increment of lift and lead above and beyond these basic

measures, an extra amount is added to the basic rate.[1]

The ration rate can account for a significant share of wage payments. The cost estimates of the World Food Program for FFW projects in 1978 and 1979 show payment for allied factors as representing 36% of the projected wage costs for Water-Board projects, 27% for MRR projects, 44% for Ministry-of-Fisheries projects, and 19% for women's projects. At a meeting of USAID, CARE, WFP and Water-Board officers, a Water-Board engineer reported that the ration rate frequently represented 60% of wage payments in Water-Board earthwork projects.

Because calculation of the ration rate requires more complex measurement and calculation than that of the basic rate, it is more difficult for the worker to determine if he is being paid adequately for allied factors. Together with the system of measuring work, setting wage rates, and paying workers, this makes it difficult for the laborer to know exactly how much work he has done--and for him and others to monitor his wage payments. He thus becomes vulnerable to misappropriation of his wages by the gang leader, labor contractor, or project committee. Project committees and contractors, moreover, commonly withhold a portion of wage payments until the project is

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[1]For each increment of lead, for example, the FFW adds to the basic rate an amount corresponding to the total volume of earth moved divided by 1,000 and then multiplied by 1.5 man/days of payment. (The FFW manual does not specify the length of the additional lead segment.)

completed, as discussed below. This withheld payment is usually the amount owed the worker for the allied factors. Thus the ration rate also provides a convenient method of calculating and justifying the delaying of a significant amount of the worker's payment.

The ration rate has been looked at by CARE and USAID as an opportunity for graft, precisely because of the confusion surrounding its calculation. As a result of this suspicion, CARE has imposed ceilings on the share that allied factors can account for in the cost of the projects it reimburses--25% for roads, 30% for embankments, and 35% for canals. Regulations of the MRR and MLG calling for signboards at project sites, moreover, require that the ration rate, as well as the basic wage, be posted. The Bank mission noted on several occasions that ration rates were not listed on the signboards, even in cases where the basic wage rate was. Some CARE officers believe that the only way to reduce the opportunities of the ration rate for graft and misappropriation of workers' wages is to abolish it. The two-part rate, according to this view, should be substituted by a single rate that would be determined for each project. This type of single rate is used to a considerable extent by private contractors in India, and has also been used on occasion in Bangladesh.

It is important to note that the current system of measuring work and paying labor has distinct benefits for project management, in terms of the ease of calculation of wage payments and the verification of work done. Most important, the modified piece-rate

form of payment minimizes supervisory requirements. These advantages are particularly important for a program of this nature, involving numerous and dispersed projects, large numbers of laborers, and reliance on unsophisticated local bodies for project execution. Though the payment system protects project execution from worker slackness, it unfortunately does so at the cost of subjecting the worker to misappropriation by management. During appraisal of the proposed project, therefore, it should be determined whether the simplicity of the two-part wage rate is worth the increased project costs resulting from misappropriation of funds--and whether it is worth the undermining of the redistributive objective of the project, to the extent that workers receive less than the specified wage and incur costs for borrowing money as a result of delayed wage payment.

Delays, withholdings, irregularity

Wage payments on works projects are often made sporadically, and with less frequency than is required or than has been promised to workers. This adds to the confusion about what the wage payment should be. Because the absolute amount of the delayed payment is large, workers are more likely to ignore or not to perceive any given shortfall than in the case where payments are frequent and regular.

MRR regulations require that FFW workers be paid at least once a week, yet once a month is more typical. Much of the delay in payment on the FFW projects is caused by problems in the wheat-

distribution system, cumbersome paperwork requirements for the requisitioning of wheat by project committees, or laxness by the project chairman or secretary in travelling to the local storage depot and arranging to obtain and transport the wheat.[1] Workers also complain of delayed payment, and uncertainty about when they will be paid, on projects where they are being paid in cash and working for contractors. Contractors will frequently hold back wage payments in order to have funds for unanticipated outlays, and in expectation of delayed government reimbursement--especially in structures projects where a significant share of costs is for non-wage items.[2] One way to protect workers from this kind of delay and its costs might be to make separate allotments for wage costs,

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[1]Workers on a WFP/FFW women's construction project, for example, complained to the Bank mission that they had not been paid for two weeks, though they had been paid daily when the project started. Though the delay was attributed to wheat shortage, it turned out that the real cause was that the husband of the project chairwoman had fallen sick. The chairwoman felt she had to minister to her husband, and could not leave him to make the trip to the storage depot. She did not delegate the task to another project-committee member.

[2]Standard government payment procedures on structures involve the advancing of 20% of project costs at the start of the project, with reimbursement of an additional 30% after half of the budgeted cost is spent. Delay in the 30% reimbursement is common, causing contractors not only to delay payments to laborers, but to stop work temporarily and move to other jobs.

which could not be used to cover non-wage costs. Other suggestions for protecting allocations for wage payments are set forth further below.

Project committees and contractors also cause delays in wage payments by withholding part of a worker's payment until the project is completed. They allege that they are afraid that workers will leave a job before it is finished unless some payment is withheld until the end. With respect to FFW projects, this problem is partly caused by the fact that the FFW working season, starting in mid-January and ending in late June, encompasses a period of peak agricultural demand for labor--from mid-April to the end of May--caused by the interruption of the January-June dry period with spring rains. Hence many FFW workers who are without employment in January, February and April, are suddenly able to earn more in agricultural work in May, or need to work during that period of time at planting their own plots. (About 40% of FFW workers own some agricultural land.)

The concern over losing laborers can be a more important one for project executors relying on local labor--as is the custom on FFW and MLG earthworks projects--than for projects using migrant labor brought in by contractors. In the latter case, the contractor

is more likely to be a source of steady employment for the laborer on one project after another; the migrant laborer has no fields in the area demanding his attention; and the migrant is likely to be specialized in and more productive in construction work, and thus more likely to earn more in construction than in agriculture. Suggestions are made further below for ways of ensuring a sustained work force on a project without penalizing the worker through a withheld final payment.

The wages withheld from workers until project completion usually correspond to the amount owed for "allied factors." Since allied factors average between 20% and 35% of wage payments on rural works projects, this means that a significant share of workers' wages are being withheld for considerable periods--project construction periods usually varying from between three and five months. Faced with the withholding of final payment or with delays in recurrent payments, workers typically sell their wheat in advance or borrow from the local moneylenders. The discount reported on such advance sales of wheat was 13% to 15% of the value of the wheat. Delayed and withheld payment, then, imposes considerable costs on workers, and results in real wage payments that are lower than those specified.

When payment to workers is withheld by contractors until

project completion, the withheld payment represents an interest-free loan from the worker to the contractor. That delayed payments to FFW workers are caused by difficulties in the wheat-distribution system means that the cost of the inadequacies of paying with wheat rather than cash is being borne by the workers, rather than by the government and donor entities responsible for managing wheat distribution. This may explain, in part, why the costs of delayed wheat distribution have not received as much attention by donors as has graft. The costs imposed on workers by delays in payment, that is, are a less conspicuous event than the discovery of some misappropriated wheat. While workers pay the costs of delays in wheat delivery, moreover, donor agencies pay the cost of discoveries of graft, in terms of damage to reputations and careers. The workers who incur the cost of delayed payment are less able to voice and defend their interests than are the donor agencies that are held responsible for misappropriation. For all these reasons, the costs imposed on workers by delayed payment are likely to receive less concern and remedial attention than the costs resulting from graft. As long as workers, rather than the implementing entities, continue to pay the cost of delayed wheat shipments and cash payments, there will be little incentive for these entities to do things differently.

One way to draw more attention to, and to

lessen, the costs imposed on workers by delayed payment and other irregularities is to try to attach some costs to implementing agencies for delays in wage payment. Such costs might provoke these entities to try to improve their performance in this area, just as they try to avoid the costs of discoveries of graft. Since it is difficult to administer cost penalties, bonuses might be paid to implementing entities for making improvements in the area of wage payments. With this approach, there would be a cost incurred for not working on the problem--i.e., the bonus foregone.

At the central-government level, such a bonus scheme could be easily integrated into CARE's reimbursement system for FFW projects. CARE, as noted above, reimburses with wheat for FFW projects on the basis of earthwork actually measured by CARE after project completion. Since USAID field monitoring reports contain detailed information on delays in wheat deliveries and wage payments, it would not be difficult for CARE to calculate an added indicator of timely delivery and payment, and link it to a "timely-payment bonus" for the Ministry of Relief and Rehabilitation. An additional attraction of such a bonus for the MRR is that it could lessen the onus of the unreimbursed wheat resulting from over-reported earthwork measurements. Just as the unreimbursed percentage goaded the MRR into doing something about graft, so a bonus for timely wheat deliveries and payment--or the

prospect of not getting it--might have the same effect.

The bonus concept could be extended to the level of the project committees--since this is where much of the problem of delayed and withheld wage payments occurs--and to projects paying cash instead of wheat. CARE's timely-payment record, for example, would be presented to the MRR on a project-by-project basis, as with the data on over-reported measurements. The problem project committees would thereby be called to the attention of the Ministry; the project committees that behaved well, in turn, could be rewarded. The paying of such bonuses, of course, would have to come out of an increase in project costs. Such an increase would represent a transfer of costs from the workers to the financing entities--a transfer that is in accordance with the redistributive objectives of the program.

If the availability of a bonus for timely and just payment of workers were well-advertised at the local level, this would not only create project-committee pressure to obtain the bonus, but it would represent a disincentive to misappropriation. To the extent that timely and just wage payments would not be made because of misappropriation, that is, the bonus would be foregone. Not only the cash value of the bonus would be lost if misappropriation were preferred. There would also be the political cost to elected officials of not gaining the bonus in comparison to other union

councils that did.[1] A bonus system, in sum, would make delayed payments and graft more costly to implementing bodies.

The construction season

Project committees and labor contractors justify the withholding of part of a worker's payment until project completion, as noted above, on the grounds that workers will leave the job before a project is completed. To what extent is this concern a legitimate one, and how might it be dealt with? The fact that the FFW season encompasses the May period of peak demand for agricultural labor creates part of the problem. Workers will leave the project because they are likely to be able to receive better wages during this period or because the opportunity cost of not working on their own plot of land becomes high.

From the project committee's point of view, it makes sense to have some way of keeping workers from leaving after the

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[1]The project committee always has two members from the union council. The latter body, including its chairman, is elected. Hence the union council has considerable power over what the project committee does and can point to the project committee's achievements as its own. In that rural works projects are the only significant source of project funding for unions, these projects represent one of the few things that a union council can actually build for its constituents. How the union council handles these funds, then, is one of the few objective standards by which local voters can judge the council chairman and members at election time.

spring rains commence. But this restraining action directly contravenes the employment-maximizing objectives of the rural works projects (1) by offering work during a period of peak labor demand, even if the period is sandwiched between two longer dry periods, and (2) by preventing workers from earning better incomes elsewhere when the opportunity arises. (To the extent that withheld payments correspond to allied factors, as explained above, they average between 20% and 35% of total wages earned during a project's construction.)

Although project committees may succeed in keeping workers from moving temporarily to other jobs when the rains come, by withholding a part of their wages, this means that the net impact of the works program on employment will be less than it would be if workers were free to leave. When workers cannot leave, the works project simply substitutes its employment opportunity for another one that already exists. In that even the most successful employment-generating works programs have been said to alleviate no more than 20% of dry-season unemployment, there is little justification for a program with employment-creation as an important objective to lure or force labor away from other jobs. Thus the effect of running the works season through the spring-rains period, and allowing project committees to retain workers by withholding part of their wages, is

to diminish the net employment-creation impact of the program, to reduce the real income earned by workers on FFW projects and, perhaps, to exert upward pressure on the agricultural wage during the peak season. Under the proposed program, then, a more careful calibration of the works-program season with the peaks in unemployment will be necessary.

For the FFW program, such an adjustment would mean advancing the start of the program a few weeks, when it is dry enough to start construction, and selecting projects that can be terminated before the April rains.[1] Such an adjustment would require the selection of smaller projects which, in turn, are less likely to result in the use of labor contractors. The project committee, that is, will feel itself more able to handle labor recruitment and supervision on a project that is smaller and does not run through the May rains; labor contractors will be less interested in the small projects.

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[1] A USAID/CARE evaluation suggests, for similar reasons, that 50% of the CARE/FFW earthworks projects be selected and designed so that completion can occur before the end of April. Actually, the greatest period of unemployment in Bangladesh is the months following the monsoon rains, September through October, which are not covered by the FFW program because of the difficulty of construction during that time. On the average, agricultural employment is higher in June, as well as May, than it is in any of the months from September through March. (USAID/Brundin, Table III.) The FFW program has a number of rainy-season projects, but little was learned about them.

Labor contractors and migrant labor. Though labor contractors and migrant labor are not necessarily an inherently less desirable alternative than local recruitment, their use for earthwork projects is expressly prohibited in the programs of the Ministry of Local Government and Food-for-Work. Because the FFW is a relief program, its projects are supposed to be distributed geographically according to unemployment criteria. The Ministry of Relief and Rehabilitation uses the prevailing wage in agriculture to determine the areas where unemployment is greatest. This should preclude, by definition, the need to bring in laborers from the outside. In actuality, however, this project-allocation rule gets set aside somewhat because of pressures by members of parliament and other political figures to get the highly-desired works projects for their districts, regardless of the level of unemployment. This has been said to have occurred particularly in the low-employment districts of Sylhet and Chittagong.[1] The diversion of FFW projects to low unemployment

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[1]This kind of undermining of the unemployment criterion for allocation of works projects also occurred in the U.S. government's public works program during the Great Depression. An econometric study of the allocation of these funds by state found that per-capita levels of income and unemployment were not a good predictor of which states got funds, though this was a stated objective of the program. The best predictor was found to be the variance in voting patterns of the states in presidential elections. That some states showed a higher variance, whether Republican or Democrat, meant that their voting in any future presidential election was the least predictable. It was these states that turned out to receive the greatest number of public-works allocations. It was more worthwhile for the executive to curry the favor of these states, in other words, than to give works projects to the certain Democrats or the certain Republicans. Gavin Wright, "The Political Economy of New Deal Spending: An Econometric Analysis," The Review of Economics and Statistics 56 (February 1974), 30-38.

districts has forced some project committees to offer added inducements to attract laborers (such as advance payment) or to resort to the use of labor contractors and migrant labor.

The use of migrant labor deprives the local works project of an important motivating force to get it organized and keep it moving: the political cost to elected local officials of high unemployment, local fears of unrest caused by large numbers of unemployed in the area, and the political benefits to be reaped from solving the unemployment problem with a local construction project.[1] Larger landowners who need to hire in labor during peak periods, moreover, are typically in favor of off-season employment-creating projects because they help keep low-cost labor in the area during the off-season and thus available for work during the peak periods. The interest of these larger farmers is essential to the execution of works projects, since union councils and project committees are drawn to a great extent from their ranks. By the same token, these farmers will be more likely to favor migrant labor if the project's execution is to extend through the May planting season, thus threatening their supply of local labor.

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[1]The literacy requirement for voting in union-council elections was abolished after independence in 1971, thus broadening the electoral base to include the potentially unemployed, as well as those who fear the disruptions caused by unemployment.

The importance for project execution of having the keen interest of the rural elites is illustrated by the frequently reported cases of delayed project execution resulting from greater interest of project chairmen in other matters. These other interests can range from illness, as reported above, to the campaign for local elections in January.[1] That there are political costs of unemployment to local elected officials leads to a different argument than the employment-generating one for using an unemployment criterion in selecting works projects. When local unemployment is serious enough to be an important political concern to the local bodies in charge of works-project execution, that is, problems of half-heartedness in project management and the concomitant delays in project execution and in payment of workers will diminish considerably.

If the construction period does not extend into the planting season, in sum, concern for local unemployment can play an important role in (1) getting the project started and finished, (2) increasing workers' real wages by removing one of the important reasons to withhold a part of them, and (3) reducing the incentive for project committees to use labor contractors and migrant labor.

The unemployment criterion for project selection, it

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[1]USAID field-trip reports on CARE/FFW projects.

should be noted, also has some undesirable effects. In that more laborers are anxious to work in the areas of highest unemployment, the incentive to "charge" laborers for giving them work will be greater. Thus the graft taken out of the individual worker's wage is likely to be greater in the high-unemployment areas than in the low-unemployment ones. The willingness of workers in high-unemployment areas to take less than what is owed them is illustrated by cases where workers pressured the project committee to commence construction on an FFW project, even though there was no wheat in the local storage depot and further delays in wheat delivery were expected. Project committees are forbidden by MRR regulations to commence projects under these circumstances, or to continue construction already in progress. When workers were informed of the postponement or cancellation of work because of the lack of wheat, they pressured the committees to commence construction anyway. "We would rather work with only a chance of getting paid," they said, "than to have no work at all."

The above story illustrates not only the desperation of unemployed workers and their willingness to be paid less than specified wages--but also the political pressures of unemployment as experienced by union-level bodies, and how they are willing to respond. The faraway bureaucrat in Dacca, needless to say, would

find it much easier than the local leader to stand firm on the FFW regulation prohibiting project execution without wheat.

Worker turnover. If the construction season were limited to the three- or four-month dry-season from late December through April, this would leave unattended the unemployment during the shorter off-season from mid-late May until the end of June, as well as the projects strongly desired by unions that would take more than three or four months to complete. One alternative to shortening the construction season would be to require that construction be halted as soon as the rains came and recommenced only after the demand for labor declined. This might result in turnover of laborers between the first and second phase. The turnover would have to be expected by project committees, so that they would not try to induce the same workers to return by continuing to withhold part of their wages from the first phase. Since the labor required on the earthwork projects is unskilled, such turnover should not be too burdensome for project committees.

Where the employment opportunities created by a program fall far short of the amount of unemployment, as in the rural works programs of Bangladesh, it is often considered desirable to distribute the opportunities as equally as possible among the unemployed--by devices such as shorter work weeks, shorter average

working life, etc. From this point of view, turnover of workers between the first and second phase of project construction is actually desirable. In fact, some works programs seek to achieve this end by allowing the individual worker to work no more than a stipulated maximum number of days, thereby guaranteeing turnover and distributing scarce employment opportunities more evenly.[1]

A "forced" turnover system will not only spread employment opportunities more evenly among the unemployed. It will also diminish the opportunities for graft. In Bangladesh, as in most employment-creating programs where the employment opportunities are scarcer than the seekers of work, the scarce jobs go to those who can pay for them. This accounts for part of the graft payment taken out of workers' wages by gang leaders, project-committee members, or labor contractors--in their intermediary role as allocators of scarce jobs. A higher turnover in works jobs would decrease their scarcity value. The turnover that would result from a two-phased construction season, then, could diminish the scarcity prices chargeable by intermediaries and thereby increase the real wages received by workers.

Although labor turnover may be desirable for the reasons stated above, such turnover is probably considered undesirable by project committees. During the appraisal of the proposed project,

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[1]A case in point is a USAID-sponsored pilot project in labor-intensive feeder-road construction in Haiti.

then, these interrelated issues of construction-season length and withholding of final payment should be evaluated--with a view toward a solution that is desirable both in terms of labor income and in terms of not encumbering the work of the project committee.

Recommendations

For various reasons, graft and other project costs are commonly taken out of workers' wages, reducing considerably the income they earn on works projects. A number of suggestions have been made thus far for dealing with this problem. These suggestions, along with others to be made here, fall into three general categories: (1) measures that increase the ability of the laborer to monitor his own wage payments; (2) measures that increase the incentives for project committees and others to pay the specified wage; and (3) measures that make it less easy for graft to be taken out of workers' wages.

Lying behind all the recommendations made here is the assumption that many conventional monitoring and control measures can be easily bypassed in Bangladesh, and thus may turn out to be more costly than the benefits they produce in terms of decreased graft and misappropriation of worker incomes. In Bangladesh, where labor is in almost infinitely elastic supply during the dry season, market forces pushing wages toward zero will always be a powerful undermining force for any monitoring system. In addition, the extent to which the wage falls below its specified level in works projects will be, in part, a function of the inequality in bargaining power between wage-receivers and wage-payers. Some of

the proposals presented below, then, can be seen as contributing to a lessening of this inequality.

The suggestions made here can be looked at as purely illustrative of the type of approach that should be taken to the problem. If there are better ways of following the same approach, they should be explored during the appraisal period. Most of the following suggestions were inspired by observations of practices already existing in Bangladesh. Strong departures from the way things now work were avoided.

Incentives to pay the full wage

On FFW projects, project committees are required to pay a wage of three seers of wheat per 70 cubic feet of earthwork moved, regardless of the prevailing wage in the surrounding area. In the works projects financed through the MLG, wage rates are set by district engineers, according to district-level guides of prevailing wage rates prepared by headquarters. Despite the fixed FFW rate, project committees have been adept at varying the real wage paid--not only in a downward direction, as in the practices cited above, but upwards as well, when labor was scarce and recruitment expected to be difficult. In labor-scarce areas like Sylhet, for example, project committees have sometimes advanced wheat payments to FFW

workers, in order to get them to work on a project.[1] Similarly, some project committees in labor-scarce areas promise to pay the workers daily, and do so for a time, in order to attract labor. (FFW regulations require only once-weekly payment, though wage payments are typically made only once- or twice-monthly.) That this type of variation in the frequency and timing of payments can make a difference in attracting labor is testimony to the high cost to workers of delays in payment.

The above examples suggest that when project committees have the incentive, they will bend over backward to treat their labor well. The incentive, however, is not necessarily limited to a scarcity of labor in combination with a pre-set wage rate that is lower than prevailing wages. It can also take the form of political interest in getting a project done, as seen above, or in getting a project approved for financing in the first place. Local bodies at the union and thana level, that is, submit many more works projects for financing than are approved--both in the case of the FFW program and the smaller works program of the MLG. Only about 20% of FFW

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[1] FFW regulations prohibit this practice. Whether an FFW project should be located in labor-scarce areas is another issue. Though FFW projects are said to be allocated to areas of highest unemployment, as noted above, political interventions result in the diversion of some of them to low-unemployment areas.

project proposals are approved by the time the proposals have gone through the selection process of the MRR and the donor agencies; the percentage of approvals of MLG projects proposals is not much higher. Thus an approved works project is a scarce item for unions and thanas, and is highly prized.

Local bodies, as well as government field officers, can be quite responsive to signals from the central government that certain types of projects have more of a chance than others. When the MRR announced that each thana should submit a women-only works project, for example, there was no shortage of proposed projects. One might have expected a paucity of responses, given the novelty of such a program and the social constraints against women working, especially among the rural elites who are members of the project committees. The rush to do women's projects, however, can be understood in terms of the perception by local bodies and field officers that this kind of project was a sure way of getting a works project financed.[1]

The clear signals conveyed by the MRR on women-only

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[1]More cynical observers interpreted the "enthusiasm" for women-only projects by sub-divisional officers and local bodies as a result of the increased opportunity for graft that one more works project would provide.

projects contrasts with the lack of such unambiguous signals for other FFW projects, as well as works projects in general. Local bodies frequently reported that projects they sent forward were not approved, and that they did not know why; no lessons could be learned for next year's projects from this year's rejected ones. Because of the scarcity of approved projects at the local level, there would seem to exist considerable potential for responsiveness to the setting forth of unambiguous criteria for project approval--as occurred with the call for women's projects. A suggested list of such criteria is presented elsewhere; suffice it to say here that one such criterion might be the level of performance on last year's works project with respect to payment of wages to laborers.

Two straightforward measures could be used to measure "wage performance": the variation in the frequency of wage payments from the once-weekly standard set by the MRR, and the variation of wages actually paid from their specified rates. The former measure is already documented in many of the USAID monitoring reports of FFW projects, so the collecting of such information would not constitute a novel task. The wage-discrepancy measure may be somewhat more difficult to obtain, in that workers are said to be afraid to admit any wage-payment shortfall. At the same time, however, workers have frequently swarmed around outside visitors to construction sites

with vociferous complaints.[1] It is not clear, then, to what extent it would be difficult to gather accurate information on the wage discrepancy. Some form of monitoring by laborers themselves, as suggested in the following section, might overcome the problem of reticence. Whatever the measure, the setting forth of a clear criterion with respect to previous wage performance might have considerable impact, given the keen desire of local leaders to get outside financing for works projects.

The cash bonus for "wage performance", suggested above, falls into the same category as the project-approval criterion related to previous wage performance. It could play the same role as labor scarcity in inducing local bodies to pay the specified wage and pay it regularly. Both measures also raise the cost of taking graft through workers' wages: the wage-performance criterion for judging next year's project proposal introduces the threatened cost of project rejection, while the cash bonus introduces the cost of a forgone cash benefit. The latter benefit may have a more significant impact than the former, since it is more immediate, tangible and certain.[2]

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[1]The complaints had to do more with delayed payment and the withholding of allied-factors payments until project completion, than with wage levels.

[2]The CARE/FFW program, as noted above, is attempting to move project planning and selection to the pre-monsoon period. This means that approval of next year's projects would immediately follow completion of this year's projects, giving considerable immediacy to the costs imposed by selection criteria based on this year's performance.

Whereas the wage-performance bonus or project-selection criterion offers an incentive to project committees to pay specified wages, other measures proposed above could diminish the existing disincentives to pay these wages--mainly, the interrelated suggestions of limiting the construction period to the January-April peak in dry-season unemployment, or having a two-phase construction period, and approving smaller projects that can be completed within this shorter construction period. Both measures act together to (1) diminish the felt need of project committees to bind their laborers to the project until completion by withholding a part of their wages, and (2) diminish the need and incentive to use labor contractors and migrant labor.

Making it harder to misappropriate

Changes could be made in the way funds are channeled for wage payments to workers so that the opportunities for misappropriation would be decreased. Wage payments, for example, might better be made directly to individual laborers, instead of through the gang leader. The extra time involved in such a system of payment could probably be elicited and compensated for with a small cash payment. Another possibility is to take the payment of wages out of the hands of the project committee, an approach that has more

possibilities when payment is made in cash rather than wheat. The state of Kerala in India has taken one such approach to this problem: wage payments of laborers on works projects are deposited in an individual account in their name in the local bank or post office.[1]

On the works projects involving local contributions or "self-help", there is another possibility for protecting labor payments. Typically, the central-government contribution in such local-participation projects takes the form of materials, equipment or cash, while the community makes an in-kind contribution of labor. The labor, as can be seen in the local-participation proejcts of the Ministry of Local Government, is either paid nothing or is paid out of meager union-level tax receipts and hence is subject to low wage payments.[2] Though the MLG prohibits the use of unremunerated labor

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[1] An additional feature of this program, perhaps unrealistic for Bangladesh because of the lower income levels of its workers, is that the government requires that a small percentage of the wage payment be left in the account--as a forced saving. The government matches that amount with an equal deposit to the worker's account, both of which accrue interest.

[2] For example, a union-level project with MLG matching funds, visited by the mission in Mymensingh district, was paying its laborers at Tk. 60 per 1,000 cubic feet of earth moved. This is 30% lower than the FFW rate of 3 seers per 70 cubic feet, assuming a wheat price of Tk. 80 per maund. (Since the wheat price tends to be higher than this official price, the discrepancy between the two wages is actually greater than 30%.) The FFW wage is usually considered to be somewhat lower than prevailing wages.

as part of the local "contribution" on the projects to which it provides matching funds, the use of such labor is not unusual. The MLG itself, though strongly supporting the prohibition against unremunerated labor, admits that unions often resort to such labor because of scarce funds and the difficulty of monitoring so many small projects.

The central government might put up its share on matching projects to be used only for wage payments, reversing its traditional role, and leave materials and equipment costs to be covered by the local contribution. This would decrease the opportunity for wages to be skimped on or ignored completely. Indeed, this kind of functional division of funding sources has already taken place in some self-help projects, though the form in which it occurred was not necessarily proper. As part of the "local contribution" to the Ulashi-Jadunathpur canal-digging project, a self-help scheme in the Jessore district, an FFW wheat shipment that happened to be in the local storage depot was commandeered for the payment of laborers on the scheme. Though the use of the wheat may not have been legal, it demonstrates that communities were willing to pay their labor properly, as long as someone else was footing the bill.

This functional division of funding, of course, is not realistic for earthwork projects, which have almost no costs other

than labor. In structures projects, where non-labor costs are a significant component, the central government could conceivably put up the labor costs and leave it to the community to mobilize the non-labor costs. The proposal for such a matching fund, and other features of it, are discussed at length in Section IV.

Monitoring the wage

One way to diminish the problem of wage underpayment would be to enable the laborers to, on their own, do more about it. This would take advantage of their self-interest, as the aggrieved parties, in bringing about some outside "monitoring" of project-committee practices. The possibilities for increasing the market power of laborers, of course, are limited where unemployment is so high and where project execution and hiring are controlled by local elites. These elites are involved in patron-client relations with village labor that extend far beyond the job provided by any particular project. The following recommendations to increase the power of laborers to monitor their wage payments were devised with this constraint in mind.

Labor-intensive vs. capital-intensive projects. Rural works projects represent something of a paradox in terms of graft. The costs inflicted by graft in locally-executed and labor-intensive earthwork projects fall to a great extent on the laborers--an identifiable group with common economic interests and a distinct sense of class differentiation from those who are running the project. This is strikingly different from the graft that occurs in the execution of large capital projects by contractors under the supervision of central-government entities. The nature of these latter projects, and the way they are executed, allows the graft to be taken out of non-labor costs, through overinvoicing of equipment and materials. These graft costs are passed along until they become obscured in total project costs, and are inflicted ultimately on those who finance the project. The capital-intensive project is also different from the labor-intensive project in that there is little class distinction between the misappropriators and those on whom the graft is inflicted--the financiers or supervisors of the project.

Clearly, the impact of graft costs in the centralized projects is much more diffuse than their impact in the decentralized earthwork projects under examination here. The graft of the labor-intensive projects inflicts discernible costs on an identifiable, physically concentrated, and homogeneous interest

group. In this sense, these projects have greater potential for a "natural" check on graft than do large, centrally-supervised and capital-intensive projects. Interestingly, the labor-intensive locally-executed projects are thought by some to be more graft-prone than the centralized capital-intensive ones. This is attributed to the numerousness of the former projects, their geographical dispersion, and the various levels through which payments and authorizations must pass. Whether or not the decentralized projects are more vulnerable to graft,[1] it still remains that they present more of an opportunity for monitoring than the capital-intensive ones--to the extent that the graft of the former creates an aggrieved class. The measures suggested here are meant to exploit that opportunity.

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[1]The decentralized labor-intensive projects may result in no larger a total graft takeoff than the centralized capital-intensive ones. The difference that people are seeing may be, in actuality, a greater number of points at which graft is taken, in smaller doses, and a greater number of people taking. This would result in more conspicuousness of graft than in the centralized projects, as well as some social and geographical distance between the capital-city misappropriators and their smaller-fry rural counterparts. In that the graft on decentralized projects cannot be taken as "neatly" as in the centralized projects, it may also cause more problems for project execution. It may be this characteristic, rather than the amount of graft itself, that is attracting people's attention.

Laborers as monitors. During appraisal of the proposed project, an attempt should be made to come up with a wage-payment formula that diminishes the confusion about what workers should be receiving. The separate calculation for the ration rate, as suggested above, might be replaced with a single rate that is fixed and made public at the beginning of each project. Alternative methods of calculating the wage could also be considered, as long as they make the laborer better able to know what he should be receiving. Measures should also be devised that would allow worker complaints about wage payments to reach the proper ears. The need for such measures has been acknowledged by the Bangladeshi government and donor agencies alike. Proposals exist within the government, for example, to name two landless persons to each project committee. The Ford Foundation, under contract to the MLG, has been asked to study the "access problem" of the rural poor--how their representation in and access to local institutions could be improved. A USAID evaluation report on the FFW program suggests that if laborers could be organized and represented in project committees, supervisors could spend less time checking attendance sheets, muster rolls, etc.

During project appraisal, attempts should be made to elaborate on these ideas in a way that would result in more than token representation of laborers. The literacy requirement for

membership on the project committee, for example, should be waived for the new landless members. The definition of "landless" should be narrowed to those who typically work on such projects or in casual agricultural labor. The experience with the "landless" cooperatives, created by the Integrated Rural Development Program, should be helpful in avoiding the pitfalls of too relaxed a definition of landless.[1] Aside from excluding landed persons from the landless position on the project committee, the definition should also exclude landless persons with income-earning activities outside the realm of casual construction and agricultural work--for example, the rickshaw drivers. The possibility of naming gang leaders to the landless positions on the project committee should also be explored. A gang leader would, by definition, possess a certain capacity for informal leadership among the workers, as well as the ability to interact with some boldness with other members of the project committee.

Project committees are quite large, sometimes having thirteen or fourteen members. Though the committees are supposed to play a watchdog role in project execution, most of the membership seems superfluous, outside of the project chairman and secretary. Committees are supposed to convene once a week, for example, but meetings appear to be considerably less frequent and sporadically attended. Committee members cite their residential dispersion and other "more pressing" activities as reasons for non-attendance. The reasons for the large membership of committees are not clear, and perhaps are related to prestige in the

[1]One landless cooperative in charge of an FFW pond-excavation project was presided over by a large landowner of the area, according to a USAID evaluation report.

community or opportunities for graft. If workers were represented on the project committee, then, they would not be plunged into a large, cohesive, and alien group with competing interests in project monitoring. Indeed, the worker representatives would in some ways be better qualified than committee members drawn from the rural elites to carry out the committee's as yet unfulfilled watchdog role. To the extent that graft is taken out of workers' wages, that is, representatives of the workers would have a strong self interest in seeing that misappropriation does not occur. The committee members drawn from the rural elites, in contrast, have nothing to lose from misappropriation at the least, and perhaps a considerable amount to gain. Thus the appointment of worker representatives to the project committee might result in that institution acquiring the badly-needed auditing presence that it was meant to have and never achieved.

The landless committee-member should be paid a certain amount for his grievance responsibilities, just as the labor supervisor is paid one man/day's wage per day of five gangs supervised. This member might be placed in charge of the reporting on differentials between specified and actual wage payments, which would be used as a basis for the bonus system suggested above. The approach could be self-defeating, of course, if it evoked bribery offers from members of the project committee with misappropriating intentions. Also, if the conflict of class interest between laborers and rural elites were brought out sharply within the project-committee mechanism, this might hamper its functioning for project execution. If the results of grievance reporting by laborers within the project committee were too fractious, the

grievance mechanism might be formed alternatively outside the project committee and the government field offices responsible for project execution. An informal grouping of workers might be consulted by central-government officers in their monitoring of the program; complaints could be made anonymously, so as to diminish fears of and possibilities for reprisal.

In order to elaborate these proposals into realistic forms, it will be necessary during project appraisal to consult with those who are familiar with the constraints and possibilities of social organization at the local level. The allegiances of the gang leader, as noted above, need to be better understood. Some say that he is, indeed, an informal leader among the laborers and has the ability to exert some power on their behalf vis-a-vis contractors and project committees. Others say that he is also "on the take", and in collusion with the misappropriators of the project committee. It may be that he is capable of going in either direction. A well-devised incentive system could place him firmly on the side of the laborers.

Any such grievance mechanism might not be able to withstand the realities of social and power relations at the local level in Bangladesh. Landless representatives on the project committee might be coopted by the local elites into the system of taking graft out

of workers' wages. Or, workers would be fearful of voicing complaints, and local leaders responsible for project execution would retaliate if they did so. At the same time, however, local leaders are forced by political realities to be at least somewhat responsive to the demands of the poorest in their constituency, especially when the dissatisfaction of that group becomes a threat to local stability. The proposed grievance mechanism should be designed so as to strike this same responsive chord, rather than the retaliative side of local leadership.

The experience with the "token" woman representative on union councils and project committees provides some indications of what might happen to a token representative of labor. Whereas many of the women appointees have behaved and been treated like tokens, the appointments have sometimes fallen on the more assertive and dynamic women of the community. These women became very active and achieved a considerable amount with respect to women's projects, achievements that would not have been possible without the opportunity for action provided by "tokenism." Hopefully, the same dynamic would apply to the token landless on the project committee, though the evolution of the token women was certainly facilitated by their being members of the rural elite.

The Impact of Paying the Full Wage

Many of the above recommendations will make it more difficult for graft to be taken out of wages. If successful, these measures will result in a decrease of graft, or a resurfacing of it elsewhere. Given the inevitability of graft payments in all types of construction projects, the latter result is probably the more likely, though one might end up with a combination of the two. What chance will the graft have to resurface elsewhere, however, if the major cost component of the project is wages, as in the earthworks projects of Bangladesh? If the graft has no place to go but wages, then a successful campaign against taking graft out of workers' wages may also result in projects no longer getting done.

There is only one way out of the dilemma of retaining the project-building effect of graft without financing it so regressively. Misappropriators will take their share out of wage funds or wheat before it is decided how many workers to hire. This means that each worker gets his just wage, but that less workers are employed and less work done than was anticipated. There is some sacrifice in employment generation and in earth moved, in other words, in exchange for less regressivity in the financing of the project and an improvement in the real pay of laborers. To the extent that this type of graft cost results in less earthwork completed

for the same amount of funds, project costs are somewhat higher than they would be if graft payments were taken out of each worker's wage payment.

Graft payments in the rural works programs of Bangladesh are financed in both ways--out of total allocations for wage funds and out of each worker's wage. As noted above, for example, graft costs relating to unreimbursed expenditures of the project chairman or secretary are routinely taken out of wheat shipments before they reach the project site. At the same time, incidents of laborers being paid at below the specified wage rates on rural-works projects are commonly reported.

The underfulfillment of specifications on construction projects, a common complaint of donor agencies, is one manifestation of the phenomenon of taking graft costs out of allocations for wages. In embankment projects in Bangladesh, for example, certain called-for operations are routinely not done, even though project budgets just as routinely include funds for these operations--namely, the breaking up of lumps, compaction, and trimming and dressing of slopes. No one is penalized for these inadequacies of project execution, though they are noted routinely in monitoring reports.[1]

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[1]There are reasons, in addition to graft, why these operations do not get done. In the case of compaction, these reasons are discussed in Section III.

This contrasts with the penalty imposed by CARE on over-reported measurement of earthwork--i.e., non-reimbursement for the difference between reported and actual measurements. One can assume, then, that at least part of the funds allocated for these routinely unfulfilled operations is taken as graft--in addition to the graft payments represented by overmeasurements of earth moved.

Financing graft elsewhere

Donor agencies have been somewhat successful in monitoring the kind of graft that appears as overstatements of project costs. Over-invoicing on purchases of equipment and materials for construction projects is a typical form of such overstatement, and the monitoring concern for it is well-founded.[1] It may be more difficult, however, to monitor and control the opposite way of taking graft--through underfulfillment of specifications. Thus when graft through cost overstatement is successfully monitored, it may simply resurface as graft through underfillment of specifications.

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[1]A study of overinvoicing of imports in Pakistan finds an 15% overstatement in East Pakistan in 1970. This particular type of overinvoicing was in response to undervalued official rates for foreign exchange. Importers would convert the exchange acquired at the official rate through overinvoicing back into local currency at the black-market rate. Gordon Winston, op. cit.

Ideally, one would like to decrease the financing of graft through workers' wages without having to sacrifice employment generation, one of the important objectives of the rural works programs in Bangladesh. The decreased employment-generation that may result from closing off this way of taking graft, however, can be seen as one of a series of proposed changes that will decrease employment-generation somewhat in the rural works program in order to transform a basically "relief" program into an "asset-creating" or "developmentally-oriented" one. Since unreasonably low wages in earthmoving result in lower productivities, that is, the paying of specified wages to laborers should contribute to increased labor productivity.

The only other way to decrease the financing of graft out of workers' wages without decreasing employment generation would be to increase the total wage allocations by an estimated "graft percentage", so that the post-graft distribution of specified wages would generate the same amount of employment as a project in which the graft comes out of each worker's wage payment. This would require an increase in project cost, in contrast to the situation where graft is taken out of total wage allocations, causing employment and earth moved to decrease somewhat and project capital to buy less than anticipated.

How would such a graft-required increase in project cost be financed, as opposed to the current method of underfulfilled specifications or funds taken out of workers' wages? The increase in costs would have to come out of increased donor or government allocations for projects. This would result in a distributional burden of graft costs that would be less regressive than taking the cost out of workers' wages. To the extent that these "graft costs" would be financed out of government tax receipts rather than by donor agencies, their burden might also be regressive, but not nearly so regressive as a financing mechanism that concentrates the "tax" burden on the small number of the poor who work on the project being financed.

The concept of an add-on for "graft costs" by donor agencies highlights the fact that certain predictable costs in donor-funded projects are now being financed forcibly out of the incomes of the poor--and precisely those poor who are supposed to be the beneficiaries of the project. An alternative and more palatable way of financing these costs is to let them come out of total wage allocations, as already occurs to some extent, rather than the individual worker's wage payment--accepting as a lesser evil the decreased total employment and the underfulfilled specifications that go along with this form of graft. In practice,

this means devoting at least as much monitoring effort to the payments to individual workers that is now devoted by CARE, for example, to verifying the earthwork measurements claimed. It also means devising as effective a penalty for non-payment of specified wages as the USAID/CARE penalty of non-reimbursement for unfulfilled earthwork.

Full wages vs. employment generation

Doubts may exist about focusing so much attention on methods to prevent misappropriation of wage payments, given that such misappropriation can be interpreted as representing the "natural" downward pressure of market forces on wages. The wage net of misappropriations, that is, could be said to be closer to the equilibrium market-clearing wage than the specified, higher one. If the proposed changes actually cause wage payments to increase to their specified levels and graft to be taken instead out of total wage allocations, then employment may simply decrease and project costs increase as a result of underfulfilled specifications. Furthermore, in that the proposed program will be introducing asset-creating criteria into programs that have concentrated mainly on relief, the time may not be appropriate for measures that will increase labor costs.

All the proposed measures for dealing with underpayment of labor, as noted in the discussion of them, can have equally significant impact on three important non-labor problems of works programs--graft, underfulfillment of specifications, and delays in or stoppage of project execution. Indeed, these measures could have been proposed in the other sections of this report, unrelated to the labor question. While these measures seek to protect labor incomes, then, they also help increase the ability of local bodies to execute works projects. Although the wage payment net of graft may be closer to the dry-season "equilibrium wage", moreover, it is also a wage that will hardly cover the workers' subsistence needs. Studies of the FFW wage of three seers of wheat per 70 cubic feet of earth moved, for example, have shown that this wage barely serves to meet the minimum daily nutritional needs of a family of five.

To accept a lower "equilibrium wage" in the interest of greater employment generation is to assume that paying less than subsistence wages is the only way to generate employment and at the same time meet people's basic nutritional needs. Given the Bank's strategy of serving basic human needs, the inevitability of such less-than-specified wages in a proposed Bank project suggests that it is perhaps not appropriate for Bank financing. Similarly, if such below-subsistence wages are to be accepted as inevitable, this

suggests that approaches to poverty other than works projects may be advisable.

III - Earthworks Without Structures

A certain separation between earthworks and structures has existed for some time in the execution of rural works projects in Bangladesh. The Food-for-Work programs of CARE and WFP finance earthworks only. An FFW flood-embankment project will not include culverts for drainage, a road will not include bridges or culverts, a canal excavation will not include sluice gates.[1] One of the principal reasons for this seeming anomaly is that it was not considered feasible to pay in wheat for materials, equipment, or contractors. Though this is the only consistently-stated reason, other considerations played a role in this evolution of the program. In that the principal objective of the FFW program was relief through employment-creation, it was significant that a unit of money spent on earthworks would generate at least twice as much employment as an equivalent amount spent on structures.[2] In that CARE and WFP were relief organizations with little technical and supervision capacity, moreover, the greater technical and monitoring demands of structures

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[1]CARE has started a small pilot program to provide appurtenant structures for its past FFW projects, to be paid for in cash. In 1977, 17 structures were financed, 34 in 1978 and 55 in 1979. Similarly, WFP has started a small appurtenant-structure program with a US$5 million grant from the Canadian CIDA. A US$25 million IDA loan to install such structures in WFP projects is now being negotiated.

[2]The labor component of earthworks in Bangladesh represents almost 90%-95% of their costs, while that of bridges and culverts is only 30%-40%.

would make desirable their exclusion from a program of this nature.

Whatever the reason for the severing of earthworks from their structures in the FFW program, it is interesting that this experience in organizational specialization of the construction task was a result of considerations quite unrelated to those discussed in the preceding section on graft. The evolution of CARE's preferences since the inception of the program in 1975, however, has to a certain extent reflected some of these considerations. CARE has come to prefer embankments as opposed to excavation projects, as noted above, because the embankment work is easier to measure.

Most of the rural works projects executed under the system of local project committees at the union or thana level have been earthworks--if only because of the sheer weight of FFW projects (83%) in the total value of works executed in this decentralized fashion. These "local-participation" projects of the various rural works programs are executed and supervised, in theory, with the technical assistance of the field officers of the MLG and MRR. Many of these officers, however, have been inadequately trained or are so over-burdened with other responsibilities that their involvement in project design and execution has been considerably less than envisioned. In effect, then, the execution of many rural works projects has been in the hands of local bodies with little technical expertise or management experience. Almost all were familiar with

earthwork projects, however, because of the long tradition in Bangladesh of labor-intensive earthwork organized at local levels.

The fact that local bodies were limited by circumstances to doing mostly earthworks without structures turned out to be helpful in facilitating their handling of the task--even though this obviously resulted in incomplete facilities, as discussed below. This situation limited their action to a task that was considerably simpler than structures, both technically and managerially. Thus the organizational separation of earthworks from structures allowed the placing of responsibility for earthworks with bodies that were less sophisticated, more numerous and dispersed, less amenable to monitoring, and themselves very lean on monitoring resources. That CARE was limited to earthworks, similarly, enabled it to maintain a better hold on its program than it could have had if structures had been included.

Most commentary on the building of earthworks without structures in Bangladesh has focused on the obvious problem of such an arrangement--i.e., that the complementary structures never get built. Roads are put in place without their bridges and culverts, flood embankments are built without drainage structures, and irrigation canals are dug without water-control mechanisms. Earthworks deteriorate without their structures, resulting in greater maintenance and earlier reconstruction costs, and in losses of

agricultural production caused by the blocking off of water sources by embankments without culverts and by the inability to drain off excess water. The benefits of roads are reduced by the absence of bridges, and of irrigation canals by the absence of sluice gates.[1]

For the above reasons, the earthworks-only approach of the FFW programs is being criticized by donors for pursuing employment-creating objectives to the complete disregard of "development" or asset-creation criteria--thereby sacrificing the utility and durability of the works being built. Partly out of concern for this problem, CARE started its pilot structures program, placing the missing structures in earthworks already built under the FFW program. The CARE structures program is financed out of a separate grant fund, relies on contractors rather than project committees, and makes payment in cash--in contrast to the local-implementation mechanism and the proscription against contractors for earthworks projects in existing programs. On a larger scale, an IDA loan for US$25 million, now being negotiated, will finance appurtenant

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[1]These problems are noted in various documents of USAID and IBRD, most comprehensively in the IDA appraisal report for the US$25 million appurtenant-structures project noted above--"The Rural Works (Water Development) Project."

structures in earthworks previously completed by the Water Board under the WFP/FFW program, to be administered by the Canadian CIDA.

Earthworks only: lessons of the Food-for-Work program

The economic losses resulting from doing earthworks without their structures are so obvious that one runs the risk of neglecting the lessons learned from the Bangladesh experience with an earthworks-only program. Interestingly, it was only because the Food-for-Work program was an employment-generating and emergency program--rather than an infrastructure-building one--that USAID, CARE and WFP could get away with the otherwise heretical approach of building earthworks without their structures. Since the inception of the FFW program, moreover, the executing agencies have in some ways tried to shrink their range even more, rather than expand it. WFP limited its FFW projects more and more to the Water Board, because that relieved it of a technical and monitoring burden it could not handle. CARE tried to limit its earthworks projects to roads, as noted above, even though USAID had specified a priority for irrigation and drainage facilities. Similarly, CARE has tried to stay away from sluice gates in its new structures program because they are considered problematical. They are often installed improperly and do not work, it is said, and rust and require early

replacement. The taking on of structures by the FFW program, then, represents an expansion in contrast to these self-imposed contractions.

As CARE embarks on its structures program, some ambivalence has arisen as to its ability to monitor such work. This is one reason for its thinking about retrenching somewhat from monitoring, putting more of its operating budget into pre-project planning, and handing over the monitoring task to the implementing agency--in most cases, the MLG. Thus CARE may abandon the simple monitoring that was reasonably adequate for earthworks because it does not work adequately with structures--in order to invest its limited staff resources in planning, where it may be able to achieve something, but perhaps at a considerable loss of the experience and the gains made with its monitoring of earthworks.[1]

As noted above, the WFP has adapted differently to the constraint of an even more limited monitoring and technical staff than CARE. Whereas CARE shifted and narrowed its focus to a type of project with the least monitoring demands--roads as opposed to

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[1]Also threatening to the quality of CARE's program, as noted above, is that the increased technical and monitoring tasks required of the expanding structures program have caused pressures on CARE--from both within and without--to select larger structures and earthworks projects as a way of economizing on scarce staff time. CARE has considerable opportunity for such selectivity, since it accepts only 50% of the projects proposed to it by the MRR.

canals--WFP shifted its focus from one implementing agency, the MLG, to another, the Water Board. WFP saw the MLG as short on technical and planning skills, execution capacity and funding, in comparison to the Water Board. Thus whereas WFP started out executing 50% of its projects through the MLG, that percentage had declined to 10% by 1979, by which time the Water Board accounted for 80% of WFP's projects. Thus WFP's response to its lack of monitoring and technical skills was to place its projects in an agency considered to be relatively well-endowed with these resources. CARE, in contrast, stayed with the less well-endowed agency--not necessarily out of choice--and responded to its technical and monitoring limitations by selecting certain types of projects. To a considerable extent, the different adaptations of the two donor agencies to these constraints were determined by the fact that CARE had more of its own monitoring and technical staff than did WFP.

As the proposed works program is elaborated, it would be useful to compare the differing impacts of these two responses to organizational constraints on the quality of project execution. One such impact, for example, is that the CARE schemes executed by the MLG tend to yield returns faster than those executed by the Water Board, as pointed out by WFP management itself. This happens because the MLG schemes are designed to be executed by local bodies--the union or thana-level project committees--and are therefore

considerably smaller than the Water-Board schemes. The latter do not require local participation, and are usually selected and executed at the subdivision, district, or division level.

The tendency of some organizational arrangements to gravitate toward larger projects, together with the combining of earthworks and structures in one project, may place many projects out of the reach and capability of local executing bodies. With larger projects, correspondingly, there will be greater reason for using contractors rather than project committees, as discussed elsewhere. The move away from local bodies and toward contractors in the execution of works programs has been found to be associated in various countries with decreases in the labor-intensity of construction expenditures, increases in cost and graft, increased use of labor contractors and migrant labor, and a decline in the use of economic criteria for selecting projects.[1] Thus CARE's otherwise commendable attempt to move in the direction of "asset-creation" may occur not only at the cost of employment generation, but at the cost of the very asset-creation objective itself--to the extent that larger projects and contractors result in higher project costs and less

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[1]This set of changes has been referred to by John Thomas as the "Law of Mutation" in the evolution of public works programs, which results from the increasing control of the programs by rural elites. Thomas demonstrates that gradually increased use of contractors occurred in the works programs of several countries, one of which was the Rural Works Program of the 1960s in Bangladesh.

reliance on economic selection criteria.

Although making good economic sense, then, the adding on of structures to earthworks can also undermine the institutional capability of both CARE and local committees to execute the rural works program. When one remembers that the current CARE/FFW program started out only three years ago with a massive arrival of wheat and projects and almost no monitoring or implementing structure at the MRR level, the progress of the program in dealing with its problems is impressive--the reduction of the overstatement of earthwork measurement by almost one half in three years, the commitment by the MRR to employing and training 400 field officers for the FFW program only, the learning of CARE and USAID about what kinds of projects to stay away from, the willingness of the MRR to prosecute misappropriators and to modify procedures in order to reduce graft. Just as these entities and the local project committees start to learn the ropes, however, they are taking on a new and more complicated task.

One of the lessons to be learned from the CARE experience is that rural works programs often end up being as limited in providing technical and monitoring support as was CARE--which started out in an admittedly limited way and with no compunctions about it. Though CARE was designed as a relief program, in other words, its lessons are more applicable to the design of infrastructure-building

programs than one might, at first blush, think. There may be good reason, then, to de-couple the task of building structures from the earthworks of which they are a part--in an environment where technical and monitoring capabilities are scarce, where graft can be a problem, and where local execution and employment-generation are an express commitment of rural-works policy. The gains to be made from this organizational de-coupling of earthworks from their structures, in other words, could be considerably greater than the economic losses resulting from lapses of time between the completion of the earthworks and the emplacement of the structures.

One of the contributions of the proposed rural works project could be to design a mechanism for organizational specialization of the earthwork-structures tasks in a way that would maximize the probability that the earthwork, constructed by one entity, would get the speediest possible emplacement of its structure by another. The rest of the section raises the kinds of considerations that might be taken into account in designing such an organizational mechanism.

Missing culverts

The delayed placement or complete absence of certain kinds of structures result in greater economic costs than in the case of others. The most marked difference in such costs is that resulting from the absence of bridges as compared to the absence of culverts.

The absence of culverts in a road or flood embankment imposes various costs. The embankment will deteriorate more rapidly than usual because of the lack of drainage, causing higher maintenance and reconstruction costs. A new embankment without culverts, moreover, will disrupt existing patterns of water supply and drainage. Farmers will suddenly be unable to drain excess water off their land during the rainy season or maintain access to traditional sources of water during the dry season. Costs may be incurred in the form of decreased agricultural production.

The problem of embankments being built without concern for existing patterns of drainage and water supply is not peculiar to the Food-for-Work program and its lack of funding for structures. Criticism has recently been leveled at the Bangladesh Water Board, one of the most liberally funded entities in the public sector, for building flood embankments with no concern for existing patterns of irrigation and drainage.[1] The result is large flood-control embankments, some financed with Bank funds, which block existing drainage and water supply patterns without providing an alternative system for inflows and outflows of water. Problems created by these projects have been so serious for certain groups of farmers that

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[1] Robert H. Patten & Akter Hameed Khan, "An Irrigation Program for Bangladesh: Parameters for Design Derived from Physical, Organisational and Economic Realities," n.d. In recent years, the Water Board has absorbed 40% of the development budget for the agricultural sector.

violence, or threats of it, has occurred between the affected farmers and Water-Board personnel or their contractors. In one such case, farmer resistance was broken only when the Water Board agreed to add drainage structures in the embankment under construction.

The building of embankments without their structures, then, turns out to have been done by two types of public-sector organizations that are at opposite ends of the spectrum in terms of funding, staffing, professional prestige, purpose (employment vs. water works) and political strength--the Water Board vs. MRR, MLG, CARE, and WFP. Thus the failure to build culverts in embankments cannot be attributed solely to the sparse funding and lean staffing of the Food-for-Work program, or to its sacrifice of "asset-creating" concerns for employment-creating ones. The Water-Board experience also illustrates the fact that the planning of structures together with their earthworks represents a difficult form of integrated planning and execution. Public-sector organizations, including powerful ones like the Water Board, often tend to limit themselves to one or a few tasks that they know they can do well--at least in the earlier stages of their growth, when they are trying to build bureaucratic power.

The cost to farmers of having their water flows blocked by an embankment without structures is so high that they will often dig out their own flow tunnels under the embankment, as reported in

various field-trip reports of USAID/FFW monitors. These tunnelings under the embankment cause damage to it, since the earth eventually caves in over the tunnel. Were the farmers' tunneling activities not so damaging to the structure, they might be seen as a "forced" contribution of the farmer to the completion of the embankment--by which he pays for some of the benefits of having a road pass along his property or of having his crops protected from floods.

In that there are so many difficulties involved in getting structures to be installed together with their embankments, the demonstrated willingness of affected farmers to "invest" in drainage structures might be harnessed for doing the task right. Such a mechanism for providing and partially financing drainage structures could be less costly both to the structure and to the farmers who now tunnel under embankments. Appropriate drainage structures would protect the embankment, that is, and save the farmers from having to invest frequently in short-lived tunnelings under it. Because of the self-interest of the beneficiary, this method of financing and organizing the structure-building task would also increase the probability that drainage structures would be put into place as rapidly as possible after completion of the earthworks--in contrast to getting one entity to integrate the funding, planning and execution of the two earthworks with its structures.

The proposed rural works project could make an important

contribution to such an approach by devising a standardized technology that would be appropriate to a piecemeal and local form of design and execution, and in suggesting an organizational form suitable to these activities and contributions. The already considerable experience with participation of local bodies in project selection and execution provides some precedent for such a mechanism.

The involvement of affected farmers in providing a less damaging form of drainage for embankments would also be desirable because of its implications for domestic resource mobilization, as discussed further in the next section. Bangladesh has limited domestic taxing capacity, and the shortage of public receipts is a serious constraint on its development budget, 60% of which is financed by foreign donors.[1] In addition, the taxing or charging of beneficiaries for the benefits received from public investments in rural infrastructure projects has proven to be particularly difficult, as in many other countries. Assisting farmers to provide the proper drainage for embankments, then, would represent a shifting of some of the

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[1]The FFW program, representing 83% of rural works projects executed through local bodies in the last three years, is not included in the development budget, which means that the real percentage of projects financed by outside assistance is higher.

burden of the development budget to the beneficiaries of public investment. Assisting the farmers to provide the drainage in this way also amounts to the exaction of a "tax" that is politically easier to impose and "collect" than explicit taxes and charges.

Missing bridges

Missing bridges have markedly different repercussions than missing culverts. Unlike culverts, missing bridges do not result in damage to the facility and to surrounding agriculture. The principal cost said to result from missing bridges is a decrease in the user savings to be realized from the new or reconstructed road--savings that result from decreases in travel time, fuel costs and vehicle wear. But the rural roads built by rural-works programs in Bangladesh are earth roads on which travel time is, by definition, slow and which carry almost no motorized traffic. Since much of the value of user savings resulting from bridges takes the form of reduced user time and reduced costs of motorized vehicles, then, such savings are much less important on roads with few such vehicles and where traffic is already slow.

The costs savings to be realized from bridges on earth roads are also reduced considerably by the monsoon climate of Bangladesh. Flooding during the monsoon season is so widespread that travel by earth road often switches completely to fluvial

transport. Some parts of all such roads, and some of their bridges, are likely to be washed out. During the dry season, in turn, water courses under the bridges or spans usually dry up completely. Where there is no bridge, traffic soon beats out a path down the embankment, across the gap, and up the other side. Even if there are cost savings to the users of a bridge on an earth road, then, they are realized only during a part of the year. They would be highest during the transitional periods between wet and dry seasons--when there is enough water under the bridges to increase the cost of crossing the riverbed without a bridge, but before there is so much water that all traffic has switched to fluvial transport.

The benefits to be reaped from putting bridges in earth roads in Bangladesh, in sum, are much less than those of putting culverts in embankments. The absence of bridges does not inflict costs on the facility or on agricultural production, and user savings resulting from bridges on earth roads in Bangladesh are not that significant.

Another marked contrast between bridges and culverts is the response of the beneficiaries to the absence of the structure. When bridges over a watercourse or a depression are sorely missed by the local community, they typically unite efforts to put together a makeshift bridge of bamboo or timber--in contrast to the reinforced-concrete bridge that would be provided by a project financed outside

the community. Just as in the case of tunneling under embankments, the parties with something to gain from the investment bring it about themselves, in a form that fits their technical and financial capabilities. Yet the locally-provided bridge inflicts none of the costs on the facility that locally-provided drainage does. It actually increases the capacity of the facility to deliver a larger proportion of its intended benefits. The locally-provided bamboo or timber bridge, finally, is considerably less costly than the reinforced-concrete bridge that would normally be provided through a central-government agency. There are, of course, some costs to using this cheaper alternative in the form of reduced user savings and the need for more frequent maintenance and replacement. They are commented upon further below.

In the community-provided timber or bamboo bridge, the missing part of the structure gets financed and put into place precisely because the rest of the work--the embankment--is already there. The existence of the embankment without its bridge, that is, serves as an incentive for the community to mobilize its resources and get the job done, because of the perceived benefits to be gained from supplying this last missing piece of work. As noted above in the case of tunneling under embankments, this is a desirable shifting of the burden of infrastructure development from public-sector savings to private ones--a way of taxing the beneficiaries in an

environment where taxing and charging for the cost of public services are quite difficult. The self-interest of the community ensures that the bridge gets put into place, in comparison to the disinterest or difficulties involved in integrated works planning and execution by one agency. The existence of the unfinished and only partly utilizable road facility, in sum, calls forth financing and organizational efforts to supply the remaining pieces in a way that may not have occurred if the facility were built and conceived as an integrated whole.

It is not only local communities that respond so constructively to incomplete infrastructure facilities. The donor agencies themselves have responded in the same way. CARE has added a structures-only program to its earthworks-only program, and CIDA and IDA are financing projects to place structures in earthwork facilities--also in response, like the communities, to the existence of earthworks without their structures. In all these cases, the presence of the incomplete facilities makes it easier for the interested parties to identify the project and its benefits. Although the donor agencies are against the piecemeal approach to building infrastructure on technical and economic grounds, their constructive participation in the approach with structures-only projects is an indication in itself that this kind of piecemeal investment sequence is how infrastructure development, in many instances, actually takes

place. The responsiveness of the donors, in turn, shows government planners that if only part of a facility gets built, there's a good chance that somebody else will come in to complete it--somebody who might not have contributed to the venture at all if it were to have been financed and executed in one lump sum from the start.

Bridges and appropriate technology. The rusticity and relative cheapness of the community-built bridge helps to avoid some of the costs and complexities associated with the use of contractors, almost always required for more sophisticated bridges.[1] This is desirable because bridges are particularly vulnerable to overdesign and cost inflation. As noted above, reinforced-concrete bridges are favored over brick in Bangladesh, even though brick bridges are considerably less costly and the use of brick in road construction is widespread. One of the reasons that reinforced concrete is favored is that technology choices are made in central-government entities by engineering professionals for whom reinforced concrete is a more familiar, more professionally prestigious method of construction than brick. Thus the tendency for design and cost inflation to occur with bridges on rural roads is partly a result

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[1] The MLG requires the use of contractors on all bridges longer than 40 feet, and on all structures costing more than Tk. 20,000.

of the location of the design decision at a place where costly techniques are more familiar and appealing, and where those who make the choices do not have to pay for the increased cost of the better structure. Conversely, the community chooses the less costly technology not because they like it but because they are paying for it.

The experience with missing bridges, and the community's response, suggests that leaving the bridges to local communities--with the incentive of a central-government matching fund as discussed in the next section--would result in more missing bridges getting built and in the mobilization of private capital for infrastructure investment, in a way that may be simpler than mobilizing public-sector agencies to do the job and do it adequately. Such an approach could lessen considerably the capital costs of providing complete rural roads by placing the choice-of-technology decision at the community level, where capital will be calculated as scarce. The approach would reduce the need to use contractors, simplifying the organizational task of getting the bridges built and reducing their costs.

The proposed rural works program could contribute to such an approach by, for example, helping to create capacity in local communities to build their own bridges of brick--if, indeed, they preferred brick over bamboo, and reinforced concrete was beyond their financial reach. Brick-construction skills and materials are

scattered widely throughout Bangladesh, in comparison to the inputs and skills required for the construction of reinforced-concrete bridges.

Bridges and infrastructure growth. Makeshift bridges differ from makeshift drainage in that they can be seen as an intermediate stage in the evolution of the facility. When the timber bridge needs replacement, it may be decided that its benefits have proven to be important enough that investment in a brick or concrete bridge is warranted. Of a series of unbridged spans on any particular road, the makeshift community-built bridge would reveal which spans are the most profitable ones to bridge with more permanent structures. Similarly, the traffic facilitated by the makeshift bridge, and the intensity of local dissatisfactions with its inadequacy, are good proxies for cost-benefit analysis in determining on which spans the returns to upgrading from timber to brick or concrete would be highest.

In a country like Bangladesh, the number of bridgeless spans is considerably greater than the public-sector investment funds available for such projects. The quality of project selection might be improved considerably if these easily-verifiable indicators of profitability--the makeshift bridges--were followed. Using this criterion of project selection could mean that the bridges selected

for financing by centrally-administered programs would be only those whose social profitability had already been revealed--i.e., where bamboo or timber bridges had already been built and were in need of replacement.

The results of using the "revealed profitability" approach to bridge-project selection would be quite different than the way appurtenant structures are now chosen for financing. In the CARE structures program, for example, two roads account for all of the 34 structures in the 1978 program. (These structures include culverts as well as bridges.) In terms of economizing on CARE's monitoring and supervisory costs, it is clearly more efficient to concentrate the structures as physically close as possible, and to minimize access problems from one structure site to the next. This result is far from economically efficient, however, because a set of the most economically profitable bridges would most likely be dispersed across several roads and several areas. For this type of project and this type of centralized agency, in other words, there is a considerable divergence between what's good for the economy and what's good for the agency. When the initiative and the financing mechanism for such structures are placed in the communities, in contrast, the self-interest of the agency (the individual communities) results in a set of bridges that also make better economic sense.

Priority for culverts

That the absence of culverts involves greater economic costs than that of bridges suggests that priority might be given to culverts over bridges in any appurtenant-structures program, like those of CARE, CIDA and IDA. In that the benefits to be gained from appurtenant-culvert construction are higher than for bridges--namely, the prevention of damage to the facility and to agriculture--this shift of investment priorities would result in greater net economic benefits from works investments.

The proper integration of culverts into road and flood-embankment projects is a more complex planning task than the integration of bridges into road-construction projects. Culverts and their placement have an impact in three distinct areas--road structures, flood-control structures, and irrigation and drainage systems. Bridge placement, in contrast, will be dictated simply by the location of gaps that need to be spanned. Unlike culverts, bridges do not open up paths for water to pass; the lack of them does not block its passage.

Typically, different government agencies or different sections of such agencies deal with the three different aspects of infrastructure development. Therein lies one important reason for the frequent cases of neglect by an agency of the impact of such a structure on one of these areas. The Bangladesh Water Board's

neglect of existing drainage and irrigation systems in planning its flood embankments, as noted above, is an example of this organizational separation of the three areas and the difficulty of integrating them. To take on culverts in preference to bridges, then, will require more integrated thinking about drainage, irrigation, flood control and road embankments than now exists in Bangladesh.

Since integrated investment planning is difficult to achieve in even the most advanced countries, it might be wiser to follow local-community preferences about culvert placements at this stage of Bangladesh's development. This approach may result in more culverts than would result from optimal system-wide planning.[1] But it will also be free of the costs that result from the typical inadequacy or neglect of such planning. This second-best result of too many culverts, then, may represent the most realistic choice in a situation where the first-best approach depends on the unlikely prior achievement of system-wide planning.

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[1]Each village or farmer, that is, wants to see the water draining directly off or onto his land or nearby, so that the flow of waters and maintenance of the culvert will be in familiar and trusted hands.

IV - Financing Local Works Initiatives

There is considerable interest in Bangladesh and among donor agencies in strengthening the role of "development" or "asset-creating" criteria in the selection, design and execution of works projects. Until now, employment generation and relief have been the principal guiding forces of these programs. Though employment generation is not necessarily incompatible with "development" criteria, lack of concern for quality and durability has caused the structures built under these programs to give considerably less service, and be more costly, than otherwise might be the case. The two principal manifestations of the sacrifice of asset-creation to employment generation are the building of earthworks without their attendant structures, and the lack of maintenance of the newly-built structures.[1] Hence the attention

[1]The lack of maintenance, of course, cannot be attributed only to an overriding concern for employment generation. It is a more general problem, afflicting asset-creating programs as much as employment-generating ones. Maintenance of rural works projects can be quite labor-intensive, so that it may not seem accurate to attribute the maintenance problem to exclusive concern with employment-generation. In terms of the immediate employment generated by a given amount of funds for works projects, however, a group of earthwork construction projects might be seen as easier to bring about than a mix of discrete construction projects and an ongoing program to maintain them. In this latter sense, the concern with employment-generation could be seen as making it difficult to attend to the question of maintenance.

devoted in this report to the questions of maintenance and of building new earthworks together with their structures.

Serious attempts are already being made to deal with the "appurtenant-structures" problem, as discussed in the previous section. Regardless of these efforts, however, Bangladesh will for many years continue to have a large number of earthworks without structures. In addition to those already in existence and not scheduled for structures under the CARE, CIDA or IDA program, the WFP and CARE will continue to execute the major part of their earthworks without structures. WFP projects alone, accounting for half the FFW program, will generate 1,000 unbuilt structures per annum, mainly culverts and bridges. Thus though a certain amount of improvement along asset-creating lines will result from building some new earthworks together with their structures, considerable attention will still have to be paid to supplying structures to earthworks that were planned, financed and executed separately. It was noted above, moreover, that there are certain advantages to the separation that now occurs between the planning and execution of earthworks and their structures. The following suggestions for the financing and execution of local works are made with these advantages, as well as asset-creating concerns, in mind.

It is proposed that the Ministry of Local Government modify and expand its "local-participation" program so as to assist local bodies (unions) in financing the installation of missing structures in earthwork projects. Such a "matching fund" would offer to match the contributions of unions to the funding of appurtenant-structure projects of their choice. For reasons explained below, this fund would be set up so that:

(1) funds could be used only for appurtenant-structure projects;

(2) funds would be available only to the unions, the smallest administrative units in Bangladesh, and not to thanas;[1]

(3) unions would be credited with a flat allocation of government matching funds, which they would then use as they wished for the projects of their choice; this would be in contrast to the current system, where project selection is subject to approval by the MLG and its field officers, and unions do not know in advance how much financing will be available to them;

(4) the central-government contribution would cover labor costs only, both skilled and unskilled, while equipment and materials

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[1]Each union has approximately 15 villages, or 10,000-15,000 persons. Each thana, in turn, is composed of about ten unions. There are 450 thanas in Bangladesh.

costs would be financed out of the local contribution; this is in contrast to current "local-participation" schemes where the local contribution usually takes the form of labor, often unremunerated;

(5) unions could earn higher percentage contributions from the government in subsequent years if they performed well on previous projects; one of the standards of performance would be the extent to which labor payments were made according to specified wage rates; this would help control the practice of subjecting wage payments to a "graft" charge;

(6) projects would be subject to a size and cost limitation;

(7) projects would be executed by the existing system of union-level project committees;

(8) the use of private contractors would not be allowed, as was the case in the Rural Works Program during the 1960s;

(9) union-council chairmen and the council members on the project committee would receive a percentage commission on projects satisfactorily executed; this commission might replace to some extent the future increases in current central-government grants to unions for union-council salaries.

The proposed matching fund would not only help bring about structures for earthworks without them. It could also help

overcome several other important problems, some already touched upon elsewhere, that are inherent in existing works programs. The proposed fund, moreover, is quite different from the existing rural works program and the proposed modifications of it described elsewhere in this report, and would operate complementarily to it.

Appurtenant structures only

There are several reasons for limiting the proposed matching fund to the financing of appurtenant structures, aside from the fact that the building of such structures would be a large step in the direction of asset creation. The projects selected by unions for matching-fund financing would not be subject to approval by the MLG, or to a set of selection criteria outside those listed above. The limitation of selections to appurtenant structures, however, serves as a powerful proxy for economic selection criteria. Providing the missing structure in an existing earthwork is, by definition, an act of asset-preservation or asset-enhancement.

The final mix of structures that results from this kind of selection process may not be optimal from the point of view of system planning. But the existing system of filtering up project proposals through various bureaucratic levels is so subject to changes resulting from political intervention, graft, and the preferences of field and headquarters' technicians, that the

resulting project mix is also far from optimal. Indeed, an uninhibited local selection of which missing structures to provide could actually improve the economic profitability of the resulting mix of projects over that produced by the current selection process. Local bodies, that is, will know which missing structures are causing the most damage to the economic life of the community, and will pressure to get these built first. Limiting the matching fund to appurtenant structures, then, guarantees that certain important development criteria will prevail in project selection, without having to impose formal criteria on the selection process.

Restricting the proposed fund to appurtenant structures makes it possible to conceive of the government contribution as covering all labor costs and still leaving a significant portion of costs for materials and equipment to be financed by the local contribution. Earthworks projects are almost all labor costs, whereas the labor component of structures costs ranges between 30% and 40% in Bangladesh. Keeping the local contribution away from labor costs is one of the few methods available for curbing exploitation of workers--which takes the form of taking graft payments out of their wages, or of conscripting unremunerated labor to make up the local contribution. The limitation of the proposed fund to structures, then, makes feasible the limitation of the

local contribution to equipment and materials. Limiting the local contribution to materials and equipment, in turn, is basic to the curbing of the regressive pattern of works financing resulting from the forced contribution of laborers, or the taking of graft costs out of their wages.

Experience in Bangladesh and other countries shows that earthworks without their bridges and culverts are likely to draw forth local efforts and resources to put them in place--at least in makeshift form. The construction of bamboo and timber bridges, and the tunneling under embankments, are examples discussed at length above. Focusing a matching fund on appurtenant structures, then, is one of the most powerful ways of eliciting local resource mobilization, of which there already is considerable tradition. In the case of culverts, moreover, the availability of a matching fund would represent a more constructive alternative to the damaging tunneling under embankments that occurs when farmers cannot drain their land.

The present system of financing appurtenant structures suffers from some tendencies toward overdesign and larger projects, and thus a lower rate of return on works programs than is possible. The use of reinforced concrete over brick in bridges, as discussed above, is an example. The tendency to favor larger projects over

smaller ones, another example, is in part a result of the attempts of implementing organizations like CARE to minimize the costs of the process of project selection, design, and monitoring. Local bodies will also tend to go along with the larger and overdesigned projects, if that is the best way to get outside financing. Engineering preferences, finally, will also play a role in the drift toward larger, more sophisticated projects.

The larger and more sophisticated that projects are, the less likely it is that local bodies can execute them. Private contractors will be called in, and costs will be correspondingly higher. The use of contractors, along with overdesign and larger projects, are associated with a tendency for the labor-intensity of construction techniques to decline. This goes against the employment concerns of the rural works program and of national economic policy in general. In being limited to appurtenant structures, then, the matching-fund proposal has the potential for countering the tendencies toward higher costs, larger projects, the use of private contractors and decreased labor-intensity.[1]

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[1]These problems are not so characteristic of the earthworks side of rural works programs in Bangladesh. The use of completely labor-based methods in earthwork construction has a long tradition in Bangladesh, which allows little possibility for different types of materials and equipment, or combinations of them with labor. Thus the limitation of the matching-fund to appurtenant structures focuses on the area where these problems are greatest.

The limitation on the cost and size of projects eligible for matching-fund financing would also help counteract the tendency to favor larger or more sophisticated projects. With the matching fund, local bodies will have to pare down their projects to get financing, instead of making them larger. The financing of labor costs by the central government will also counteract the tendency toward increasing capital intensity--and overdesign, to the extent that it is a result of capital intensity. Local bodies, that is, will see labor as the "free good" and will attempt to economize on the costs they must finance--i.e., equipment and materials.

Some flexibility should be built into the formula for calculating the government's share, so as to facilitate the working of this incentive to maximize labor use. Local bodies, that is, should not be penalized when they come up with more labor-intensive designs, and correspondingly lower equipment-materials contributions, by matching reductions in the government contribution for labor costs. The design of the matching fund, then, would serve to elicit more appropriate choices of technology and less costly projects. The scale and technology of these projects, in turn, would put them more within the reach of the executing capacities of local bodies.

Reducing equipment and materials delays

Facilitating the building of less sophisticated and less costly structures by local bodies rather than contractors should help solve one of the principal problems of appurtenant-structure construction today--delays associated with the delivery of construction materials and of equipment and its associated inputs, particularly fuel. USAID monitoring reports chronicle these delays as the principal problem of the CARE appurtenant-structures projects. Some of the delay in structure construction arises because contractors juggle equipment and materials between their various projects. The distribution of equipment by the contractor between projects at any particular moment--or the intensity of the contractor's concern for any one of his projects--will depend upon the project for which a lack of equipment will, at that particular moment, cause him the highest financial loss. Thus it is common to find that work on an appurtenant structure has stopped in midstream because the contractor has moved his equipment and his labor force to another project. Though this pattern of working on a set of projects may maximize the contractor's financial return, it increases considerably the economic cost of any particular set of rural works projects--because of the costs of moving equipment and personnel back and forth between projects, because of the delays involved in individual

project execution, and because any failure to complete construction before the monsoons will result in damage to the half-completed facility.

If project execution is under the charge of local bodies, there will be less likelihood that works efforts will be juggled between various projects. Any given local body will have no more than a few projects under execution at any one time, the projects will be close together, and any juggling that does occur will favor the project whose construction the community feels is more urgent. The criterion for choosing the project to be favored, that is, will approximate an economic one, in contrast to the contractor's criterion of private financial gain.

The less sophisticated technical choices encouraged by the matching-fund mechanism will also help to lessen delay, to the extent that these choices are less capital-intensive. That the government contribution will finance skilled as well as unskilled labor, moreover, will represent an incentive to use the techniques familiar to local artisans, techniques that are more likely to be based on locally-available materials than those of a contractor. Because of the varying availability of construction materials from one locality to another, the functioning of this incentive may result in a certain lack of standardization in the design of structures.

The desirability of this particular type of variation should be noted, since works programs usually standardize project designs so as to streamline the process of design, execution and monitoring.

The proposed project could contribute to an increased use of local skills and materials by offering training to local artisans in the improvement of skills required for structure construction. These artisans, or a representative of them, might also be consulted during project design--perhaps by providing them with a formal position on the project committee. In discussing project design, of course, they would be biased toward choices that favored their own private interests. Following their interests, however, is precisely what is considered to give better economic choices than those resulting from using private contractors in these particular circumstances--to the extent that this will decrease the delays and other costs associated with the unavailability of materials, equipment, spare parts and fuel. The presence of a skilled laborer on the committee would be helpful not only for making design choices and supervising project execution. It could also broaden the socio-economic base of the project committee in a way less threatening to the elites than the introduction of representation of the unskilled laborers.

It has been proposed elsewhere in this report that each

thana-level field office of the MLG employ a "senior laborer", a skilled laborer who would assist in the supervision of project execution--somewhat similar to the "pioneer labor" concept used in Indian works projects. The matching-fund scheme would simply extend this concept of the senior laborer to the union level and to the design stage of the project.

Local bodies suffer the costs of equipment and materials delays more acutely than contractors. Contractors can avoid some of the financial costs of these delays by blaming them on forces outside their control; or, the contractors themselves are the cause of the delays when they shift their work efforts from one project to another. Local bodies, in contrast, pay more highly for delays. They have invested their capital in a facility whose benefits they will be able to reap only later, rather than sooner; and, in the case of culverts not completed before the monsoon season, delay can threaten them with potentially high damages. (This contrasts with the case of embankment construction, where delay and partial completion do not always preclude use of the facility.)

The limitation of financeable structures to those executable within one dry season is an incentive to overcome delays in obtaining equipment and materials. The benefits to be reaped from having bridges and culverts during and after a particular rainy

season are high; hence the possibility of finishing a structure before any particular rainy season is a strong incentive for making sure it gets done. For this reason, local bodies are likely to be more vociferous than contractors about delays in materials and equipment, and will expend more of their own resources and efforts in trying to resolve them. Local bodies will be more available for such efforts because the dry season is a slow time for them, in contrast to the contractor, for whom the dry season is the busiest.

At first glance, the idea of limiting matching-fund projects to structures may seem counter to common sense. Earthworks, as noted above, are technically and managerially simpler. The limitation of the proposed matching-fund to structures has been elaborated with full awareness of this distinction. It is for this reason, among others, that so much importance is attributed to the use of locally-known construction techniques and locally-available materials.

Unhindered project selection

The proposed matching fund represents a significant departure from current rural-works financing mechanisms in that local units, the unions, would receive a fixed amount of government contribution, which they could allocate among projects as they desired--so long as they met the above-stated criteria. Though the

MLG would make technical assistance available to unions through its field officers, project choice would not be subject to approval by these technicians, in contrast to current practice.

Providing fixed matching allocations for projects not subject to government approval would diminish considerably some of the problems inherent in the design of existing works programs. At present, unions present proposals for project financing to thana councils, composed of union-council chairmen and chaired by field officers of the MLG. The thana council makes a selection from these projects, sends them on for approval to the subdivision level, from whence they go to the central government for approval, perhaps passing through yet another approval at the district or division level. Partly as a result of this filtering-up procedure, each union receives a very low approval rate on the projects proposed. This happens not only because funds for financing are scarce, but because some union-level projects are transformed into larger thana-level projects; because the project-selection process is subject to political pressures and bribery; and because the preferences of technicians often prevail over those of the local bodies. The latter results from the pressures on overworked field officers to produce appropriate project proposals on time, and because project choices are based partly on considerations of professional and

bureaucratic prestige.

Ideally, the present system is meant to result in an economically and technically sound mix of projects. The weaker projects are supposed to be modified or excluded as a result of technician involvement and control throughout the filtering-up process. But the factors noted above alter this ideal working of the selection process, so that choices are made on other grounds, or for reasons of organizational efficiency for the central-government agency and its field offices.

The current system, and the way it tends to operate in the field, contains some perverse economic incentives. Though much importance is bestowed on building up the capacity of unions to plan and design projects, the working of the system represents a strong disincentive to union-level planning. Since few projects get approved and the criteria for approval are ambiguous--or are observed only in the breach--planning does not really seem to pay off, at least in union eyes. Given the results of this selection process, it makes more sense for unions to pursue approaches other than planning in order to get projects approved. They might do better at getting projects approved, that is, by simply requesting funds for as many projects as possible--and as diverse a set as possible--in the hopes of having one or two of them strike someone's

fancy somewhere along the way.

The filtering-up process creates a vicious circle. Unions present many more projects than they expect financing for, in the hopes that one or two will make it through. The low approval rate, instead of spurring them on to submit better projects, confirms their belief that approvals are the chance result of submitting a large number of projects, rather than of good planning. Similarly, the seeming randomness of the approval process--resulting from the lack of an unambiguous set of selection criteria, or the setting aside of such criteria through political influence and bribery--encourages unions to get projects approved through bribery, rather than through good planning. The project approval system thus offers more of an incentive to bribe, as a way of getting projects approved, than to plan.

If financing for a project is valuable enough to a union to mobilize local resources for bribery, then those resources are potentially available for investment in the project itself. The proposed matching fund, in contrast to the existing system, presents each union with a known amount of funds with guaranteed approval if proposed projects meet the criteria specified. Uncertainty, under this system, would relate to whether the community can come up with its own contribution in order to activate the government contribution--

rather than to whether the project gets approved. Results, in terms of financed projects, would be obtained with local resources invested in the project rather than in bribery. The bribes of the existing system, in sum, are evidence that unions are willing to mobilize local capital in order to have works projects. The matching-fund proposal, in turn, seeks to divert the bribe capital toward investment in project execution itself.

Facing unions with a known government contribution amounts to a budget constraint that can serve as a stimulus to economic choicemaking. Unions will know exactly how much is available, if they mobilize their part, and what projects can receive guaranteed financing. They will choose the project considered most important by them, a choice that may more closely approximate that intended by "rational planning" than the choice resulting from the filtering-up system, and its incentive to maximize the number and the variety of projects presented. The choice will be a better one not only because the amount of guaranteed financing is a known and a constraint, but because those making the choices will be investing their own money in the project. Technical assistance by field officers of the government can, at this point, be very powerful in facilitating good technical choices.

The matching-fund scheme and the authority it gives to

unions over use of their funds is consistent with the MLG's current interest in taking some of the control of project selection away from the field technicians and giving it to local bodies. The focus of the MLG's interest in this matter has been at the thana rather than union level. According to MLG thinking, field technicians would serve as technical advisors to thana-level bodies and lose the control they currently hold over project selection through the thana-council chairmanship. The proposed matching fund would accomplish a similar type of control by local bodies, but would place the decisionmaking at the union level--for reasons explained later--and would substitute technical control with the arbitrary set of selection criteria outlined above.

Increasing the opportunity costs of graft

The discussion of the matching fund has so far centered on the kind of impact it would have on project selection and design, as opposed to execution. Some of the suggested selection criteria are also meant to serve as incentives for good and rapid project execution--and to remove some of the opportunities for graft to disrupt project execution and quality. In that the money of the better-off members of the community would be involved in the project, as elaborated below, any graft costs that compromised project quality or timing would be inflicted on a class that has much more

power and voice than the laborers on whom graft costs are, in many cases, inflicted now. Thus the limited radius of the project's financing--drawing contributors from the same locality and class as the project executors--means that a union-council chairman who takes some project funds for himself is risking censure by members of his peer and kinship groups. With the aggrieved parties and the graft-taker all of the same social network, discovery of wrongdoing will be easier and informal sanctions will be used.[1] This way of creating costs for potential misappropriators can be quite important in a society where formal sanctions for graft often do not function. Under the proposed scheme, then, graft works itself out quite differently than in the present system, where the costs of graft come out of the wages of powerless laborers or the budgets of faraway ministries of government.

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[1] Of course, the would-be misappropriator might still get together with the potentially aggrieved parties--the other members of the rural elite who contributed to the project--and offer them all a part of the take. This type of graft cost would be somewhat self-limiting, in that it would only pay off if it did not delay the execution of the project or limit its benefits. At worst, this collusion would result in a graft cost that would not interfere with the project and would not be regressively distributed.

Payment for performance. Another feature of the proposed matching fund would also impose costs on misappropriators or, more positively, would represent incentives to project committees and union chairmen to execute their projects well. Two types of rewards could be offered for good project execution. The absolute amount of each union's matching-fund allocation could be determined each year by that union's performance on the previous year's projects. There could be a "basic" allocation to each union, which would be received regardless of performance and to which additions could be made on the verification of good performance. Or, the well-performing unions would have their government percentage increased the following year. (The latter incentive is used in the model-village program in Korea.)

Similarly, those responsible for project execution could be paid a "basic" commission, to which an additional percentage amount would be added upon verification of good performance. Payment of the add-ons for good performance would be withheld until project completion. The commissions would represnet an improvement on graft payments since, unlike the latter, they would be partially related to good performance. Payment of a commission to project executors would not be a novelty for the Rural Works Program of the MLG. Currently, the project secretary receives 2% of the cost of the

project, a payment that is not delayed, however, until project execution is verified.[1]

Given the decentralized nature of works-project execution and the large number of projects, the proposed system may be politically and administratively simpler than channeling complaints of graft up to central-government levels and, from that level, prosecuting the offenders--as was done by the MRR in 720 such cases in 1977. In this latter type of case, the sanction is punishment and even if the cases are brought to the courts and tried, the process can take a long period of time and punishment may never ensue. (Punishment was alleged not to have occurred in the case of those prosecuted by the MRR.) The advantage of the commission and add-on system, in contrast, is that it takes the form, in public, of a granting of extra rewards for "extra" performance, rather than a taking away or a punishment. Just as important, the "punishment" takes place immediately after project execution--thus driving home costs of poor performance more forcefully. To enhance this effect, the verification process and the handing out of the good-performance commissions should be a public event; the withholding of rewards,

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[1]There is no such commission for project committees in the FFW schemes, except for payment to the labor supervisor, who receives one man/day's payment of wheat (three seers) per man/day of five gangs or 100 laborers supervised.

in contrast, would not be an event.

Under the proposed incentive scheme, the basic commission would constitute the irrevocable part of the project executor's return. It could be set at a low enough level, in relation to the value of the possible add-ons, that the incentive to earn the add-ons would be significant. There could be three separate add-ons or one, which would be determined by an average score of three measures: rapidity of project execution, closeness of project measurements to specifications, and a measure for performance in paying wages. (The latter measure is discussed in the section on labor.)

Crucial to the working of such a system would be the way in which the three measures were verified. The verifiers should be a central government team, resident in Dacca, and not part of the field staff of a ministry.[1] Much of the bribery of government field staff that takes place in works projects results from the fact that these officers cannot avoid becoming part of the social network of

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[1]The attempts of the Ministry of Relief and Rehabilitation to deal with inadequate performance on Food-for-Work projects were somewhat of a mix of the field-based vs. the capital-city-based inspector. Inspection teams set up in early 1977 were to be manned by two persons--a section officer of the ministry assigned to each district solely for inspection, and a magistrate of the district. (MRR, No. WFP/Sec - XVIII/15-77/1000 of 2 February 1977, para. 2g.)

the area where they work, along with its system of mutual social obligations. This sense of obligation is commonly felt by field officers who have to rely on local support to get their work done, or to have a project accepted. In order to do their work, then, these field officers often cannot afford not to go along with bribes proposed by the local elites who execute the projects. Or, at the least, they feel obligated to look the other way when they see wrongdoing.

The danger of an add-on commission for good performance is that it could easily come to be treated by the field officer as a costless way of fulfilling an obligation toward a particular rural leader who had cooperated in mobilizing local support for a project. Thus the add-on commission would no doubt attract bribery proposals, or pleas for clemency, by those project executors who do not measure up. The incentive payments will therefore have to be protected as much as possible from the net of mutual obligations between field officers and rural leaders.

As outsiders, central-government verifiers would be less subject to problems in their work life if they refuse to accept bribes or pleas for paying unwarranted add-ons. In that they would be responsible for many projects, moreover, the lack of variation in their performance ratings which would result from rewarding the

poor performers as well as the good--would immediately call attention to their case. Verifiers might also be instructed to grade each project "on a curve"--i.e., relative to the other projects rather than to an absolute criterion--so as to force the variation to appear. This curve might then be used to devise a standard expected distribution of performance on projects, to be used in monitoring the performance ratings of the verifiers.

The only remaining opportunity for bribery in this situation would be requests by verifiers for side payments from those project executors who actually deserve the add-ons--in order to receive them. This kind of bribery is less likely than that attempted by the non-deserving because it puts the government officer and the local leader at cross purposes, rather than in collusion. If the local person has to make a side payment to the verifier in order to get his just due, then he will be indignant and, because he is a member of the elite, can be vocal and can try to do something about it. Contrast this to the laborer who has to hand over part of his wages to the labor contractor or the project committee as a "forced bribe" for getting and keeping his job. The laborer may be indignant, but he certainly will be afraid to be vocal. Even if he does complain, he will be unable to get much attention, or will be easily silenced. Or, because of the confusing

system of payment, he may not even realize the fact that, or the extent to which, he is giving a "forced bribe." Not so the local leader. Thus an incentive system that limits bribery opportunities to areas where the two parties are in conflict rather than in collusion--and where the aggrieved party has the power to do something about it--can serve as a greater constraint on bribery than the system that allows the colluding case, or where there is no obviously aggrieved party paying the cost, or where the latter does not have the power to do anything about it.

Union-official salaries. Works projects yield important non-monetary benefits to union officials because they represent one of the few opportunities for these elected officials to demonstrate that they are doing something concrete for their constituents. Thus if the salaries of union officials were partially linked to performance on these projects, this might have a stronger impact on performance than other attempts, financial and otherwise, to improve project planning and execution, and administration in general, at the union level. The proposed basic commission and its add-ons might therefore be partly substituted for future increases in existing central-government grants for salaries of union officers. In many unions, these grants turned out to be greater than the amount of funds spent on works projects. Since the works projects can consume the

largest share of the official time of union officers, it seems out of keeping with standards of efficiency that these salaries would be greater than project costs. The central government's contributions to union salaries are bound to maintain their level, if not increase, because of the desire to build up union-level administration and to create a political base with the rural elites. Since the increase is inevitable, it might be more productive with respect to the quality of administration if it were partially linked to the value of and performance on works projects.

Finally, the add-on for performance in project execution is likely to create a vigorous demand by local project executors for the technical assistance services offered by government field offices. This kind of incentive to local bodies to avail themselves of the services of field officers might be a more compelling one than the current system of giving technical officers discretionary power over project selection and design.

Making the most of inter-union rivalry

One frequently mentioned problem of the present system of decentralized planning and selection of works projects is "competitiveness" between unions. Unions will frequently insist on their own approach to a project that encompasses or affects other unions and for which integrated planning with other unions would be

more economically and technically sound. The thana-level council, made up of union-council chairmen and MLG field officers, is supposed to serve as the focus of this more integrated planning. Frequently, however, unions will still insist on their own union-centered variation of the project; or the result of agreement on a project will look less similar to integrated planning than to porkbarreling. A union will allow another union to have its way on one project, that is, in return for being allowed to do things its way on another project. Though the decisionmaking process brings all the unions together, then, the projects that result from that encounter are not necessarily "integrated."

The proposed matching-fund mechanism treats inter-union rivalry and cantankerousness as something to take advantage of, rather than as a constraint. Since inter-union rivalries are bound to complicate any attempts to build projects that span more than one union, it will be difficult to do away with these rivalries by setting up more integrated planning mechanisms and exhorting the unions to subdue their differences. Rather than structure the system of project selection and design so that this inter-union rivalry is disruptive to it, the proposed scheme attempts to take advantage of it as a motive force for raising financing for projects and for getting them done well.

The offer of matching funds to unions--and the tying of future increased allocations of funds to project performance--encourages unions to outdo other unions in raising local contributions and in performing well so as to get more matching funds for the next season's projects. Neighboring unions that are doing well will serve as embarrassing examples to elected officials in unions that are not doing so well. If one union is able to build an appurtenant structure on an embankment that also traverses a neighboring union, for example, this places the elected leaders of the neighboring union in a bad political light if they cannot do the same thing.

Inter-community rivalry has been found to have been healthy in promoting other kinds of institutional success, the case of agricultural cooperatives being an example.[1] Individual cooperatives at village or town levels, which did well in isolation, often did poorly when the "next step" was attempted--i.e., putting them together in an association with cooperatives from other localities. It turned out that the same inter-village rivalries that helped to spur the growth of each group in the beginning were inimical to their growth as an associated group. Thus if the matching fund were made

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[1]UNRISD.

available to the larger thana--an agglomeration of unions--this might involve a sacrifice of the beneficial effect of local rivalries on fund-raising and project execution and would create greater problems for project selection and design. Thana- and higher-level projects could continue to be financed through the rural works program as it now functions.

Letting unions do what they want might result in less-than-optimal system design. Local-level decisionmaking, as noted above, may sometimes result in an excessive number of culverts and bridges. But given the difficulty of achieving integrated planning under current conditions, these variations from the ideal may not be that costly--especially in view of the extra local funds and the performance in project execution that they are likely to elicit.

Appurtenant structures, it should be noted, are particularly suited to this union-centered "unintegrated" approach to works projects. Whereas a road or flood embankment might not yield a good part of its benefits if it suddenly terminated at the edge of one union because it could not resolve its differences with the next union, a structure is concentrated in a small space and thus is unlikely to straddle more than one union, though its impact may. With structures, then, unions would be able to pursue their self-centered interests and still reap most of the benefits to be had

from their project. Indeed, this union-centered system might be a more powerful way of getting structures installed in a thana-level embankment project than by trying to plan the embankment and the structures together as one at the thana level.

Unpaid laborers

Community projects in many countries are often financed by the use of conscripted labor, which receives no payment, or partly-paid labor. "Voluntary" labor is also offered by localities as their contribution to "self-help" or "matching-fund" programs in which local contributions are rewarded with matching central-government contributions. This pattern of financing is regressive, and involves a subsidy from the poor to the rich--in that the rich benefit proportionally more from rural works projects than the poor.[1]

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[1]The benefit distribution from rural infrastructure projects is said to be roughly proportional to the distribution of land and assets. Not much can be said about the distributional character of the financing of the central-government contribution to rural-works projects in Bangladesh, since this contribution has come mainly from foreign donors ever since the inception of the rural works program in the 1960s. In that most LDC tax systems are regressive, the domestically-financed part of the central-government contribution to works programs is also regressively financed, though not in so focused a way as the local "contribution" of unpaid labor. India's Maharashtra Employment Guarantee Scheme is a notable exception, where central-government financing comes from fees on the licenses of urban professionals. This financing method is not only non-regressive, but it also represents an unusual case of subsidization of the rural unemployed by the urban upper-middle class.

The proposed matching-fund mechanism is meant to build on this tradition of community project execution, but to turn it on its ear. The government is paying for the labor instead of the community, that is, and the community must come up with the other costs.

Small projects, of the type proposed for the matching fund, are particularly vulnerable to the forced use of voluntary labor. Conversations with various union leaders revealed that there seemed to be a distinct upper limit on the number of days that laborers could be expected to make "voluntary" contributions. Some said three or four days, some said ten. Beyond such limits, it was felt, laborers simply would not work voluntarily, regardless of their patron-client relations with village leaders. Planning to exceed these limits in the execution of a project, then, was considered "bad form"--closer to "exploitation" than to community contributions. Since a few days of voluntary labor is more likely to suffice for a smaller project than a larger project, the small ones are particularly vulnerable to such labor exploitation.

Maintenance is like a small project and thus is also vulnerable to the use of unremunerated labor. Labor needs are less for maintenance than for construction or, at the least, are more spread out through time. Union leaders in the Comilla district

told how the shortage of union funds forced them to do only priority maintenance with "voluntary" labor. Some union leaders, moreover, said they spent the 25% of union tax receipts earmarked for maintenance on small "priority" structures like culverts, instead of on maintenance.[1] These stories help to illustrate the importance of limiting a matching fund's local contribution to materials and equipment costs, while covering labor costs with the central-government contribution. Otherwise, unions have every reason to spend their scarce cash on materials and equipment and provide the labor inputs for free.

The Bangladesh government has already made some attempts to prevent the use of unremunerated labor in its local-participation program. The MLG expressly forbids the use of unremunerated labor in the two-thirds contribution required of the locality to match the MLG's one third.[2] Despite the prohibition, however, the use of

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[1]That this practice is not unusual is indicated by a survey of union expenditures, which found that 40% of the unions spent the tax monies earmarked for maintenance on other projects. (SIDA) Though the RWP is supposed to withhold subsequent construction funds in such cases, the mission did not hear of any cases of such funds being withheld.

[2]Of these two thirds, half is supposed to be a paid-labor contribution of the community at large, and the other half a hired-labor contribution of the direct beneficiaries of the project--i.e., those whose lands are benefited by a canal or flood embankment project.

unremunerated labor in these projects is common. Even the MLG admits that this occurs in its projects, explaining that union councils have little funding at their disposal and that monitoring of the labor practices on so many small and dispersed projects is difficult.

It should not be surprising that the traditional system of eliciting local contributions should result in unremunerated labor, even when there are express prohibitions of it. The locality has every incentive to diminish its contribution while maximizing that of the government. This can be done, without causing corresponding decreases in the government contribution, by making in-kind contributions and valuing them at market prices. That the in-kind contribution takes the form of labor rather than something else results from the fact that (1) most of the projects financed in this way are earthworks, which have no significant cost component other than labor; (2) in the case of structures, the government of Bangladesh is often the sole supplier of cement or steel, as well as construction equipment, and thus covers its contribution with these items, leaving only labor for the locality; and (3) using unremunerated labor takes the burden of the local contribution off the shoulders of the rural elites in charge of project execution, in a way that is not so obvious as it would be if the elites

charged the poor for a contribution in cash or materials.

Because of the tendency of all matching-fund schemes to gravitate toward the use of unremunerated labor, the proposed mechanism was designed to make it almost impossible for communities to make their contribution in this form. Namely, (1) the central government finances the labor costs and communities the equipment and materials; (2) the scheme is limited to structures, which makes this division of contributions viable since labor costs are roughly 30% or 40% of structures costs in Bangladesh; and (3) local bodies will be rewarded for adhering to certain labor-performance measures, through the add-on commissions and the increased government contribution in subsequent projects resulting from good performance on previous ones. The government contribution of funds for labor costs, moreover, might be made in a way that makes it difficult to use these funds to cover other costs or for graft. Some ways of protecting these labor payments are suggested above in Section II.

The above measures do not represent a radical change from existing approaches to works projects in Bangladesh nor are they far from current thinking on the subject. The FFW projects, representing the bulk of rural-works financing, already pay their labor out of centrally-allocated and distributed wheat. The MLG, as noted above, has officially come out against the use of

unremunerated labor in its local-participation projects. Finally, recent experience with the Ulashi-type self-help projects resulted in intense public discussion of the issue of unremunerated labor in two seminars, sponsored by the Bangladesh Institute of Development Studies.[1] The Ulashi-project promoters switched from "voluntary" to paid labor in midstream because voluntary labor, it was felt, went along with considerable disorganization of construction work, lack of continuity, and low productivities.[2] The importance of the labor issue in the Ulashi discussions and the strong criticisms of the use of unremunerated labor--together with the fact that the proceedings were published afterward--suggests that there is now a receptive climate in Bangladesh for taking a more forceful approach to the problem of unremunerated labor.

Collecting from the rural elites

The idea of requiring local contributions in the form of equipment and materials, or cash for them, is not completely alien to how things work at the local level in Bangladesh. In mobilizing resources for makeshift bridges, for example, union

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[1]BIDS, Development through Self-help: Lessons from Ulashi, edited by Ahmad and Hossain, Dacca 1978.

[2]Similar findings have been reported for the Mexican labor-intensive rural roads program. (Carnemark.)

leaders have frequently used their informal leadership powers to exact contributions from their peers--local merchants, landowners and other people of means in the community. The contribution can often be made in kind--a merchant, for example, would be asked to contribute a sack of cement. It was not difficult for the local leader to determine how much each person should be asked to contribute, as one union-council chairman said, because he knew "exactly how much each person was worth." In these totally locally-funded projects, of course, the poor were also made to contribute with their labor, so the distribution of the total financing burden was not necessarily proportional, let alone progressive. The proposed matching fund builds on what unions and villages already do--and adds an attempt to make the financing burden more proportional or even progressive, by having the government take over the "contribution" traditionally made by the poor.

Local leaders have also been accustomed to prying contributions in land from landowners holding property on the site of a proposed works project. Both the FFW and the RWP programs will not pay compensation for land, and will not proceed with a project unless the union-council chairman gives an assurance that arrangements

for donated land, if necessary, have been made.[1] The accepted role of the union chairman in pressuring landowners to make these contributions represents another precedent for his playing that role in deciding upon and exacting other types of local contributions for works projects.

The concept of requiring contributions from direct and indirect beneficiaries of works projects, in proportion to their incomes as well as to the benefits they derive, has been aired at the national level in Bangladesh. The Second Five-Year Plan, as noted above, says that beneficiaries of rural works projects financed partly by the government should have to pay a certain share. In the case of projects with identifiable direct beneficiaries--principally irrigation works--the local-participation scheme of the MLG requires that these beneficiaries supply one-third of the cost of the project, which usually takes the form of hired labor. The MLG also instructs its field officers to give priority,

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[1]These land donations will not always represent a non-regressive "tax", since they are sometimes cajoled out of the smallest farmers as well, who have no other land to work. Or, the landowner may happily donate his land for a project in return for getting the location of the facility changed so that it will border his property. In this case, the local contribution may be proportionally "financed", but perhaps at the cost of decreasing the social benefits of the project.

in the selection of local-participation projects, to those projects started by villages or unions on their own, with no outside assistance. The mission ran across one such project, where a union had started construction on a reinforced-concrete bridge after failing to receive MLG financing. They got stuck halfway through the project, both technically and financially, and at that point sought and received assistance and additional funding through the thana field officer.

The critics of the Ulashi self-help schemes in the seminars cited above repeatedly voiced the desire to require direct contributions from the rural elites for such projects. The idea was considered unassailable even by the defenders of the schemes, as well as their critics. In responding to the criticisms of unremunerated labor and regressive benefit distributions, the promoters of the Ulashi projects actually bent over backwards to explain that they were now trying to use only paid labor and to exact charges from merchants and landowners in the benefited communities. The defense represented more than good intentions in that union-council chairmen have been reported to be already collecting "donations" for Ulashi-type self-help projects from large farmers and businessmen under their jurisdiction.[1] The

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[1]USAID/Sarker FFW field-trip report, 13-15 February 1979. This particular report covers the Sylhet district.

collection efforts have been in response to an instruction from district commissioners that each union-council chairman should collect contributions of Tk. 12,500 for this year's Ulashi-type projects. Various reports that local businessmen are "furious" also suggest that efforts to collect from rural elites are actually taking place.

Finally, the incentive approach to local bodies is not new to donors in Bangladesh. The matching-fund incentive for raising local funds has also been used outside the works program. USAID has a school-construction project under which those villages that are most able to mobilize resources for a matching local contribution are selected to receive financing for school construction under the project.

There is a certain consistency, then, between the matching fund proposed here and opinions already held on the subject in Bangladesh, the attempts to do something about it, and existing traditions at the local level. Existing approaches are not as effective as they might be because (1) it is too easy for the rural elites to get around making their own contribution and to let the burden of the contribution fall on "voluntary" labor; and (2) the schemes to be financed with local contributions are not decided upon by the locality itself, but rather by the field offices of the

central government. The proposed matching fund, in contrast, offers a strong incentive to localities to make contributions, rather than requiring them, and places the decision to do a project in the hands of those who will have to contribute to it.

An important aspect of the proposed scheme is that it succeeds in mobilizing private capital to finance works programs less regressively without having to introduce and administer a new tax and tax-collection system. It builds instead on informal methods of "taxation" that already exist at the local level. This is another reason why the program should not include local jurisdictions any larger than the union: the role of the local leader, and his power to exact contributions for community projects, will not be as important in the larger political units. In a country like Bangladesh, where it is politically difficult to introduce proportional taxes or charges to direct beneficiaries of infrastructure facilities, this opportunity to exact proportional financing and to mobilize private capital for infrastructure projects should be exploited. The proposed matching fund, then, succeeds in getting additional infrastructure work financed, and in a non-regressive way, by making it possible and appealing for localities to do considerably more of what they are already doing.

"participatory" way they are carried out, one would think that its contribution to the programs would increase if the donor contribution were to decline. The low government investment in these programs thus far, that is, may represent more a skillful juggling of the total amount of resources available to it for all programs--both domestic and donor--than a sign of lack of commitment to rural works. There will be no way to judge the case in the near future, since donor contributions for rural works are programmed to increase rather than decrease.

Though the MLG's Rural Works Program is the most decentralized and at the same time least relief-oriented works program in Bangladesh, the bulk of donor contributions for rural works will continue to go to other ministries--mainly, the Ministry of Relief and Rehabilitation and the Water Board. The MRR is responsible for all FFW projects, accounting for 83% of rural-works funding, and the Water Board executes about 40% of the FFW projects. This distribution of donor funds has contributed to the building-up of considerable bureaucratic power by these entities. The Water Board, for example, takes 40% of the development budget of the agricultural sector, exclusive of its FFW projects. The MLG, in contrast, is considerably weaker and has not been able to wrest a larger share of the development budget. Thus though the MLG may be

The bureaucratic politics of funding rural works projects

From the initiation of the East Pakistan Rural Works Program in the early 1960s, funds for such projects in Bangladesh have come mainly from foreign donors--in the 1960s, from the counterpart funds generated by sales of U.S. PL480 wheat, and in the 1970s, from wheat provided by the World Food Program and the U.S. Agency for International Development. The exception is the current MLG Rural Works Program, which accounts for about 17% of total rural works projects and is financed out of domestic funds.

Changes in the source and kinds of resources available for rural works programs in the last 15 years suggest that donor funding is viewed by the government as substituting for government funding in this area. Mainly, increases in Food-for-Work wheat allocations have been accompanied by changes in the opposite direction in allocations for the Rural Works Program of the MLG. Though funding for the Rural Works Program has fallen steadily since the early 1960s, therefore, the total value of RWP funding plus wheat allocations for FFW programs has run at approximately the same level as that of the RWP program in the 1960s, before FFW allocations were significant.

Given the fact that the Bangladesh government accords political importance to the rural works programs and to the

the entity most indicated to administer the kind of rural works program discussed here, it seems least likely to be able to capture larger shares of the development budget for works funding than it has in the past.

Adding to this inherent weakness of the fundraising position of the MLG is the fact that three other more powerful government entities see the MLG works program as an invasion of their territory--the Roads and Highways Directorate of the Ministry of Railroads, Highways and Road Transport, the Public Works Directorate of the Ministry of Public Works and Urban Development, and the Water Board itself. These departments see works projects as the provenance of engineers, not local bodies. They are considered to be the most prestigious place for engineers to work in the public sector. Their engineers, in turn, look down on the design standards and quality of the works built under the MLG's Rural Works Program and consider the MLG engineers as inferior to them.

Engineers are of less significance in the MLG than in the other works ministries because of the array of non-works activities of the former ministry. The Public Works Directorate, moreover, has a field staff at the district level that parallels exactly that of the MLG for rural works. The PWD program is funded

out of taxes collected by the district, in addition to central-government allocations, whereas the Rural Works Program has no such regional or local funding base. The type of projects financed under the two programs is almost exactly the same, and the PWD allocations by district are often greater than those of the MLG works program.[1]

The Ministry of Finance is also not very sympathetic to the idea of central-government funding for rural-works programs executed by local bodies through the MLG. This is not surprising, given the greater power of the other ministries in the struggle for budget allocations. Some in the Ministry of Finance think the proper place for a rural-works program is the highway or public works directorates; since such projects are chosen by and benefit the rural elites, it is felt, they can be financed locally. The relative weakness of the MLG, then, does not bode well for its ability to capture increased financing for the Rural Works Program from the central-government budget.

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[1]In 1979, for example, the MLG budget for Comilla District was Tk. 3.5 million in comparison to a PWD budget that was more than double--Tk. 7.7 million. Of the MLG budget, 64% was from the ministry's regular budget and the rest represented CARE/FFW projects. Of the PWD's budget, 68% was from District-Council income accruing from deed registration fees, ferry licenses and land leases; the rest was from the Chittagong Division Development Board. In addition to roads, bridges and culverts, the PWD also constructs public buildings such as schools. (USAID/Sarker, 16-17 February 1979, and 19 March 1979.)

The proposed matching fund would help relieve the MLG's funding problem by approximately doubling any central-government allocations with the matched local contributions. If the matching fund proved viable, moreover, its informal "taxing" mechanism might pave the way for acceptance of a more formal system of raising taxes locally for works projects. Actually, evolution in this latter direction may be one of the few areas where the MLG can hope for strong support from other sectors of the central government. Considerable discussion and study is now taking place within the Planning Commission with respect to increasing the administrative and taxing powers of the thanas, unions and villages. As part of this discussion, the idea of offering matching funds or block grants has been raised. Though these ideas are still at a preliminary stage, they are explicitly endorsed in the Second Five-Year Plan. The matching fund proposed here would be consistent with this interest, and might therefore be received with more sympathy and support by the holders of central-government power than would other types of proposed increases in the MLG's works-program budget.

Rural elites and the distribution of works-project benefits

Decentralization of public-sector expenditures for rural works to local bodies has been frequently criticized on two grounds--that it results in more corruption than centralized execution, and that it serves to strengthen the power of the rural elites, thereby perpetuating the regressivity of the financing burden and the benefit distribution of such projects. Is not the matching-fund proposal subject to this same criticism, in that it gives rural elites even greater discretion over a part of the program?

The graft problem has been discussed at length above. As yet, there is no evidence that the share of graft in total project costs is any different for centrally-executed projects than for decentralized projects. To the extent that graft may be more disruptive of project execution for decentralized projects, measures have been proposed in this section and elsewhere that will lessen the opportunities for graft, or direct it to more constructive uses.

With respect to the criticism that decentralized works programs strengthen the hand of the rural elites, the proposed matching-fund mechanism has been devised with this concern in mind. Though it may be true that decentralized execution strengthens the rural elites, it is not clear that more centralized programs produce financing- and benefit-distribution patterns that are any less

regressive. Observations of the project selection process in the more centralized programs, for example, suggests that when rural elites do not have formal control at the local level over selection and location, they can often achieve this control through political pressure or bribery of central-government decisionmakers. To the extent that the richer and more politically powerful members of the rural elites will win out over the "poorer" ones in this process, centralized control can produce even more regressive results than an equal distribution of funds to the rural elites of various places, large and small.

The Food-for-Work program provides an example of the working of the mechanism of elite pressure on centralized project-allocation decisions. Politicians from richer districts with lesser unemployment problems and higher wages--namely, Sylhet and Chittagong--have succeeded in getting a share of these project funds, which are supposed to be allocated to high unemployment areas. Because these better-off districts have less unemployment and higher wages, in turn, there is a greater tendency for their FFW project committees to use labor contractors and migrant labor--even though this is expressly prohibited by FFW regulations. This expressly income-distributing program, then, turns out to be considerably subject to diversion by the rural elites, even though it is centrally executed.

The centrally-executed infrastructure programs in Bangladesh today, as in many other countries, can in some ways be more regressive than the matching-fund scheme proposed above. The professional culture of engineers gathered together in a capital-city ministry, for example, results in a tendency to overdesign, a bias toward larger projects and, concomitantly, a decrease in labor-intensity. Likewise, local materials and skills found in the countryside tend to be neglected for those found in the city or abroad.

Some of the activities of the Bangladesh Water Board illustrate the disregard for local populations that can be perpetrated by a centralized works-executing agency. Flood embankments have been designed and built by the Water Board, as recounted above, without regard for the existing local drainage and irrigation systems.[1] Resulting local protests, from small and large farmers alike, have sometimes led to violence between the local population and the construction team. This kind of project design would not have been sanctioned by a local planning body.

The distribution of benefits from rural infrastructure projects has been found to be typically proportional to the distribution of land and assetholding in the countryside--no matter

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[1]Patten and Khan, op. cit.

who selects the projects, designs them, and decides where they will go. Thus it is difficult to eke out a significantly better distribution of benefits to the rural poor from a group of infrastructure investments by planning and executing them differently. This is especially true when the works entity, as in most countries, does not have the power or the ability to bring about the employment-generating increases in agricultural production that the infrastructure facility is supposed to facilitate. Such employment increases are usually said to represent the most significant benefits for the rural poor that can result from infrastructure projects. Thus flood embankments and irrigation canals are said to be better on income-distribution grounds than roads, because of the increased employment in agriculture that the former works facilitate.

The tendency of the Rural Works Program to invest more in roads than in water works, contrary to initial intent, has been criticized on the same grounds. The shift of emphasis was considered a perversion of the income-distributing emphasis of the program by the rural elites for whom, it was said, rural roads were said to be of greater interest.[1] The Maharashtra Employment Guarantee Scheme in India has been criticized on similar grounds, for undergoing

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[1]Thomas, SIDA.

the same drift toward roads, contrary to an original emphasis on minor irrigation.[1] Interestingly, various local bodies with whom the mission spoke expressed a preference for water works over roads, rather than vice-versa. Some even complained that the higher road priority was imposed on them by central-government programs. This gives reason to believe that the drift toward roads may have causes distinct from the preferences of rural elites, as discussed momentarily.

Of the water works built in Bangladesh, much of the expected employment generation has not occurred. Agricultural production did not increase to the extent anticipated because of the absence of complementary inputs and services necessary to bring about such increases--a problem that would be beyond the control of a rural-works entity. Closer to the responsibility of the works entity was the additional fact that agricultural production did not increase because complementary structures were often not installed in the water works--sluice gates, pumps, drains. Indeed, a survey of the rural poor in Bangladesh found that the rural works projects they considered least beneficial were flood embankments and irrigation canals, the latter being precisely those works that are usually

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[1] IBRD/Grawe, 5 January 1978.

commended for their less regressive benefit distribution.[1] These projects were considered to have "bad effects" because of their deleterious impact on irrigation and drainage patterns, as discussed above.

As noted above, CARE shifted from water works to roads partly because of the same problems cited by the villagers in the survey. In contrast to water works, roads did not require complex technical or organizational components in order to function. The parallel shift in the Maharashtra program, mentioned above, was also caused in part by the greater technical and administrative problems of water projects, even minor ones. These reasons for the shift to roads have to do with the preferences of central-government executing entities regarding organizational efficiency--rather than with the preferences and pressures of local rural elites. The alleged superiority of water works over roads on income-distribution grounds, then, does not necessarily hold--unless the complementary inputs, services and structures are forthcoming, along with the institutional

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[1]University of Dacca, Institute of Nutrition and Food Science, Economic and Nutritional Effects of Food-for-Relief Work Projects, Dacca 1978.

arrangements necessary to keep the structures functioning.[1] The Bangladesh experience of disappointing results in this area is not an atypical one.

If it is indeed difficult to bend the benefit distribution of infrastructure projects in a less regressive direction, then the concern about benefit distribution might better be directed to the employment-generating effects of the projects themselves--i.e., employment that arises out of their maintenance as well as their construction. From this point of view, decentralized design and execution of rural works projects as proposed here has a better-potential for positive income-distribution effects than centralized project execution. Various features of the proposed matching fund, that is, will elicit project designs and procurement methods that are intensive in the use of local labor, skills and materials. As

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[1]The discussion of the water-works structures to be financed under the proposed US$25 million IDA loan illustrates this problem. A sample of six typical water-structure subprojects is said to result in a projected increase in food production of from 34% to 53%, thus giving high rates of return of 25% to 35% to the proposed project. At the same time, however, it is noted that agricultural support services will not be available because of "lack of staff, national fertilizer shortage and inability of local banks to supply credit." Given the past experience with the failure of agricultural production increases to materialize from water-works projects without these support services, it would seem that the high projected rates of return to the project would not, under these circumstances, materialize. (IBRD, Bangladesh Rural Works Project--Issues Paper, 14 March 1979.)

experience with appropriate-technology efforts has shown, there has been little success at persuading or forcing decisionmaking entities to choose these techniques when they are different from the preferred way of doing things. Giving rural elites the incentive to use local labor, skills and materials, then, is one way of improving the income-distribution effects of rural works investment.

The mechanism for taxing the rural elites, implicit in the proposed matching fund, is another way that decentralized execution in the hands of the rural elites can be made less regressive. This will be the case insofar as the proposed mechanism substitutes for previous methods of financing local-participation schemes through unremunerated labor or tax revenues that are regressively distributed. The financing of labor costs by the central-government constibution, then, is of crucial importance to decreasing the regressivity of existing decentralized and centralized methods of financing rural works projects. The limitation of the matching-fund program to appurtenant structures, moreover, will constrain the elites somewhat from choosing projects that are of benefit to only a small number of them.

Finally, it has been the strategy of various Bangladeshi governments to garner support from the rural elites by allowing them a hand in the selection and execution of rural works projects.

As the present government seeks to transform its power base from a military to a civilian one, it too has renewed the emphasis on "local participation" in rural works programs.[1] A works program that builds on this strategy of wooing the rural elites, and at the same time goes against the grain of its natural regressivity, takes advantage of the current political support for decentralized programs while exploiting the opportunity to turn them in a less regressive direction--an opportunity that is not necessarily available in centralized programs.

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[1]That this phrase refers to the local elites, and not to a broad-based democratic participation, is illustrated by the MLG's sensitivity about the use of the phrase "local bodies" rather than "local participation" in the words used to describe the institutional design of the proposed rural works program. "Local bodies" are the elected union councils--or the thana councils, which are made up of union-council chairmen.