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**INSTITUTIONAL ASPECTS OF WATER MANAGEMENT  
IN BANGLADESH**

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## Introduction

In this essay I will offer what I believe to be the major institutional issues involved in minor irrigation water management facing Bangladesh at the present time. My report should be read in conjunction with those prepared by the other members of the Cornell-S&T/MD/RRD Water Management Team over the summer of 1983.

First will be taken up a brief consideration of the basic goals of the Bangladesh Government as they relate to rural development in general and to institutions involved in rural development. The second section of the essay will deal with the issue presently of greatest concern to those in the water management field: privatization and its institutional consequences, particularly with respect to shallow tubewells. The third focus will be on rural development administration in Bangladesh and its relation to water management, especially the Upgraded Thana or Upazilia structure currently being put into place. Fourth will come a brief look at some of the more prominent nongovernmental organizations now in the field, with a view to drawing on their experience in developing water management capacity in Bangladesh. And, finally, the essay will conclude with some specific recommendations on water management.

### Government Goals in Development and Water Management

It is, of course, a truism that better water management is a sine qua non of agricultural development in Bangladesh, but like most truisms it is also worth repeating on occasion. In the Second Five-Year Plan, water management activities were planned to account for some 46 percent of agricultural sector outlays and almost 15 percent of total development expenditure (WB, 1981:60), and by the time the plan is finished in 1985, water will quite likely have accounted for even more than that.

What are the central goals of the Bangladesh Government (BDG) in which water management figures so strongly? This question is the place for institutional analysis to begin, for these central aims must necessarily be the guiding force behind whatever institutions are deployed in the national development effort.

As with any other developing country,<sup>1</sup> the first priority of the BDG is to maintain stability and continuity, for itself, the urban areas, and the countryside. This was true in Mughal times, during the British period, and the Pakistan era; it is scarcely surprising that it continued to be the case. What is especially important for us to note is that the imperative for stability brings with it a strong urge for central administration and control in order to ensure that stability. This desire to manage things from the center is reinforced by two subsidiary motivations: (a) implementing government policies for development, a task facilitated in the short term through a hierarchical administrative structure that can transmit orders downward and compel obedience upward; and (b) holding down on corruption through systems of auditing and accounting all possible details of government business, again a procedure best assured through downward demands for forms and reports and an upward flow of the required paperwork.

The second priority is to increase aggregate production in agriculture. We in the development community, both in the BDG and among the donor agencies,

scarcely need reminding of this imperative, for hardly a day goes by when we do not hear or read of Malthusian scenarios and prophecies of impending doom unless this or that is done to boost foodgrain production in Bangladesh.

A third imperative is to build political linkages between the central government and the citizenry. To the Western ear, this kind of goal sounds like the maneuvering that hopeful political leaders undertake to build up a support base for election campaigns: John Glenn or Walter Mondale cajoling support from Democratic ward captains and precinct chairmen, David Owen and Shirley Williams enticing Labour party functionaries into joining their new Social Democratic organization, etc. We tend to dismiss it all as "just" politics, promises and rhetorical bombast, not to be taken seriously. In fact, however, the building and nurturing of political linkages connecting government and people is absolutely vital if any long-term development is to take place. People must have channels for expressing their needs, wants, hopes, and irritations to government, and government must have channels for responding. Routine bureaucratic systems, no matter how effective, are simply not enough to do the job in this regard. Their calling is to carry out orders, to administer, to control, not to transmit needs, responses, compromises, exchanges. These latter functions are directly antithetical to the bureaucratic process, which is why political institutions are necessary for any national system.

Both administrative and political structures, in short, are needed for nation-building and, accordingly, developing political linkage structures should be seen to be just as serious an enterprise as improving administrative capability. The long effort in India to build the Panchayati Raj system must be appreciated in this light, so also the attempts of Ayub Khan to develop Basic Democracies, Sheikh Mujibur Rahman to construct his rural network of representative parishads, and Ziaur Rahman to build his Gram Sarkar. Not all of these undertakings have been

successful, to be sure. In fact, the ratio of successful to failed projects in building local representative institutions is undoubtedly considerably lower than with economic development projects. Of those mentioned just above, only a few of the Indian states (certainly not all of them) could be said to have genuinely successful systems. In the Pakistan and Bangladesh experience, stagnation, corruption, kinship-based cronyism, and elite domination have been the rule, followed by termination of the whole structure and replacement with a new one. The effort is an essential one to the whole development enterprise, though, and it is appropriate and fitting in this context that the BDG is now embarking on its thana upgrading or upazilla program.

A fourth objective is to ensure social welfare and an equitable distribution of the benefits of development. At times over the past decades, this goal has been more prominent as a central objective of government policy (e.g., Sheikh Mujib's "four pillars of Mujibbad"), and at other times less so (e.g., the "robber baron" strategy adopted by the Ayub Government in the 1960's; see Papanek, 1967). There have been similar fluctuations in the donor community's thinking over the same period (e.g., compare the widely accepted "take-off" model of W. W. Rostown in the 1960's, the "New Directions" and "Growth with Equity" strategies of the 1970's, and the return to a focus on aggregate production we see in the 1980's, for instance in the approaches being advocated by the International Food Policy Research Institute). But, whatever the weighting of the priorities, social welfare and equity have always been prominent among them.

A fifth and final imperative of government is haste. Whatever is the current strategy being pursued, the leadership at upper level invariably puts heavy pressure on the bureaucracy, from ministry secretary down to extension agent, to implement it as soon as possible. Donor-sponsored projects commonly run for four or five years, and economic planners like to think in terms of meeting needs for the

year 1990 or 2010, etc. But for national leadership in Bangladesh, as elsewhere, five years is a very long time indeed, and ten years might as well be forever. It is all too understandable, then, why government officials feel very strong urges to implement programs and achieve targets immediately, even when they know full well that success would be more likely if the pace were more deliberate and steady.

The reader will have noticed some time ago in this accounting of government goals that all of them are not mutually compatible. In fact, each of them is in one way or another inconsistent with most or even all of the others. The urge to maintain administrative control is in conflict along a number of dimensions with the need to motivate producers to increase foodgrain output; the concern to build a representative base linking central government to local level probably will militate against distributional equity in the short run, and it certainly is not something that can be done within a year or two, etc. This sort of incompatibility is not at all unusual, for it characterizes virtually all human activity. A parent wants his child to be obedient, yet wants the child to exhibit independence at the same time. The United State Government wishes to unleash the energies of the private sector in the economy, but also feels the need to protect industries against "unfair" (usually meaning foreign) competition, and so on.

The point here is that the BDG, just like any other government, must be expected to pursue contradictory goals simultaneously. This is part of the institutional milieu within which policies are formulated and implemented. Thus privatization of tubewells is seen to be good, because it offers to increase foodgrain output, but at the same time bad, because their owners may charge too much for water, thereby exploiting poorer farmers. Similarly, the upazilla program promises to introduce a participatory component that will make tubewell allocation more responsive to public needs at local level, but this very achievement may well

compromise the ability of the engineering staff in the Bangladesh Agricultural Development Corporation to promote maximum water use efficiency. This, then, is the situation within which water management strategies must be attempted. The challenge is not to achieve consistency but rather to work within a context of inevitable inconsistency.

With this institutional background filled in, our focus now turns to specific issues currently salient in the water management field.

### Privatization of Tubewells and Pumps

The major issue of institutional concern at present is unquestionably that of the possible consequences of the privatization policy now in place to sell wells and pumps rather than rent them as formerly. The motives behind this policy were sound enough, and the sales approach is beginning to have a real impact in the desired direction. But, as with any new policy, it is also having side effects that are less apparently beneficial, and it is these that must now be dealt with.

The privatization initiative in irrigation has followed a similar effort in the fertilizer sector, in which distribution had become completely privatized by FY 1982, with the BADC delivering fertilizer to some 88 Primary Distribution Points throughout the country and private traders taking over from there to sell it to consumers. The government then decided that all new shallow tubewells (STW's) and low lift pumps (LLR's) were to be sold without subsidy, and that new deep tubewells (DTW's) would be sold at a subsidy only sufficient to make them equivalent to STW's in cost per unit volume of water delivered at the wellhead.<sup>2</sup>

The effort has grown very rapidly on the STW front, from less than 6 thousand sunk in FY 1980 to 17 thousand in FY 1981, then 25 thousand in FY 1982 and 37 thousand in FY 1983 (WB, 1983).<sup>3</sup> The target for FY 1984 is presently some 70 thousand, with possibly another 30 thousand to be added. Even if only half or

three-fifths of the overall target is met, say 50 or 60 thousand STW's, the achievement will be a striking one. For LLP's, the intent is to sell off existing equipment (the 35+ thousand pumps that have been rented out in recent years) plus enough new pumps to bring the total to around 50 thousand, which is thought to be about the maximum number that can be fruitfully put into service, given surface water availability in the winter. Finally, the more expensive and more heavily subsidized DTW's are moving at a slower pace, with some 4,500 slated to be sunk in each of the fiscal years, FY 1983, '84, and '85, only some of which will be in the private sector. Clearly, then, the major effort is in the STW realm, and it is here that most of the current concern has focused.

The motivations for privatizing wells and pumps were essentially (1) to cut down the subsidies that had made water so cheap that there was little incentive to users to increase command area to the maximum size, (2) to pass on the cost of irrigation to farmers on the thought that they could bear the full cost and still make a profit if the foodgrain price structure were right, and (3) to generate the additional foodgrain production and employment involved in that production which would come about through greater use of irrigation; an additional motivation was (4) to cut down on the corruption that had characterized the allocation of wells and pumps by removing the whole process to the private sector.

These objectives are presumably being met, if the demand for STW's is any guide, though it is too early at this stage to know the extent to which they are being realized. What is clear, however, is that a number of significant side effects have manifested themselves in the process. Chief among them are the following:

- (1) Spacing regulations set forth by BADC for minimum distances between tubewells are not being followed (DTW to DTW, 2,500 feet; DTW to STW, 1,700 feet; STW to STW, 800 feet). Wells are being sunk considerably closer to each other than permitted, with the result that there is overlap in

potential command areas, and thus less than maximum use of irrigation facilities. Of even greater concern to the BDG, an apparent drawdown of the static water table in some areas appears to have occurred.

- (2) The spacing problem is aggravated by the tendency of dealers to go for the most accessible markets first (that is, those adjacent to roads and larger towns), thereby overcrowding them while leaving the less accessible areas without any STW's.
- (3) Servicing and spare parts have become serious problems. Dealers are supposed to service the pumps they sell for a period of 18 months, and in fact a service agreement is built into the sale price of the STW. But dealers are showing a distressing tendency to sell their machinery and then renege on servicing, in many cases ceasing business altogether after selling off their stock (with the BADC or BKB taking care of the financing, the dealer collects his full price at the time of sale, so there is nothing to prevent him from leaving the scene). With spare parts, the problem is not only vanishing dealers, but the bewildering multiplicity of pumps on the market, with something over forty makes now being sold.
- (4) Despite some incentives for KSS cooperative groups to buy STW's and LLP's (i.e., a lower down payment than for individuals), the lion's share of new wells and pumps are going to individual farmers, either directly or to them through the KSS's with the cooperatives serving simply as a cover for the person actually getting and receiving the equipment, in much the same fashion as influential farmers would set up KSS groups back in earlier years in order to obtain loans which they would then steer to themselves. What is worse, the new STW and LLP owners are exhibiting some signs of setting themselves up as "waterlords" on the basis of their new-found ability to charge monopoly rents for their water.<sup>4</sup>

There appear to be a number of factors at work here, some of which should prove amenable to public control, some of which can probably be safely left to the market to handle, perhaps with a bit of a nudge from government, and some of which are simply going to cause social problems along with the benefits they bring, with the best hope being to attenuate those problems that cannot be eliminated. To begin with the spacing problem, it is in theory possible to enforce regulations requiring minimum distances between wells, for it is easy enough to ascertain when a violation has taken place: the evidence is highly visible, unmoveable (in the DTW case; with STW's, it is easy to sink new ones though evidence of old illegal ones would remain), and conclusively verifiable. Inspectors, then, should be able to apprehend violators and bring them to book. But, as ever with these matters, it is not so simple. Could such regulations really be enforced, or would any attempt to do so simply open yet another opportunity for corruption? The power to enforce, in this as in any other sphere, is the power to take bribes not to enforce. Given enough determination, spacing regulations could be enforced, but to do so will not be easy. To some extent, though, the problem should alleviate itself through the spread of knowledge among farmers themselves as to how closely together wells can be sited without affecting the static water table.

An additional factor here with regard to spacing is that the command areas specified as appropriate for STW's (20 acres) and DTW's (100 acres), which were apparently used in calculating the BADC spacing requirements, may be unrealistic.<sup>5</sup> When command areas were first observed to be less than optimum, analysts (including this one; see Blair, 1974 and 1978) attributed the shortfall to ineffective farmer organization and the very high subsidies which offered water users no incentive not to waste their water. But does a pump rated at 2 cusecs (and hence capable of irrigating 100 acres) really deliver that much at the wellhead? Or is it more likely to be closer to 1.5 cusecs? If the latter, it may make sense to reduce the target command area.

Another depressant on expanding command area is the issue of "transactional costs" in expanding the organization of farmers to use the water. If we take the data on landholding and plot fragmentation size from the 1977 agricultural census (as in Table 1) then calculate the number of plots that would be found in an average 100 acres, the total comes to 272.<sup>6</sup> At a minimum, this should mean something more than 150 farmers involved.<sup>7</sup> With a 50 acre command area, then, there would be something on the order of 135 plots and perhaps upwards of 75 farmers involved. How much greater would the cost be to those managing the tubewell to recruit and organize and serve the additional 75 farmers and 135 plots to round out the command area to the maximum? By any standard, it must be admitted, the cost would have to be very large indeed, quite likely even prohibitive altogether. Small wonder, then, that command areas for deep tubewells rarely attain anything like 100 acres. This being the case, it may be that the present spacing rules are unrealistic and should be relaxed for DTW's. For STW's, the problems of transactional costs should be more manageable, for 20 acres would mean 54 plots and perhaps 30 farmers.

Last, and most difficult to deal with on the spacing issue, is the question of private versus public rights. Privatization of wells and pumps has meant establishing private access to what is generally considered to be a public resource, that is, water. Further, if spacing rules are imposed, that private access constitutes a grant of monopoly over the resource, and it is then up to the owner to decide how big a command area to organize and how much to charge for his services in providing water to that area. But, clearly, there is an overriding public interest in maximizing that area and holding down water charges to some reasonable level. What we have, in short, is a public utility which by its nature must be given a monopoly over its area of service, but must at the same time be regulated to ensure that service is in fact provided and that customers are not gouged.

Telephone companies or electric and gas concerns are examples in western countries, and a huge body of legislative and legal history has been built up on regulating these public utilities in the public interest. Such regulation, as is well known, has often been far from effective, and abuses have been common: toothless laws, laws unenforced, regulators in collusion with those supposedly being regulated, false bookkeeping, etc. For minor irrigation, the problem will be compounded by the small size of the "utilities" being regulated. An electric utility gouging its four million customers, say in California, is much more likely to attract attention and be brought under control than a waterlord in Dinajpur gouging fifty small farmers. But the task is not impossible. Regulatory bodies on district and thana level can be set up, roving inspectors can be dispatched, tribunals can be assembled, perhaps independent of the regular courts system, much as regulatory structures dispense administrative law on other countries. Upgraded upazillas can function as public fora for publicizing waterlords who are found to be charging excessive water rates.

The servicing and repair dimension is one that should be eminently suitable for the private sector to handle, though perhaps not in the present form. Dealers have little immediate incentive to live up to their servicing agreements with purchases, it is true, but it may be possible to channel them into more responsible behavior by cutting off their dealerships if they cannot produce evidence from the previous year that they have rendered adequate service, as the World Bank is endeavoring to do in its STW project. This approach, of course, assumes some outside presence like the World Bank that will step between agent (i.e., the wholesale distributor in Dhaka) and dealer to keep the latter on good behavior. More powerful stimuli may come from the market itself, which is now in chaotic condition with the huge expansion of STW's currently underway, but which should sort itself out over time. Agents will prefer to work with reliable dealers, who in

turn will develop reputations to defend, and customers will figure out which dealers they can trust. Further, dealers will begin to penetrate the hinterland once they have begun to saturate the market along the roadsides.

Spare parts may be a bit more of a problem, for here the difficulty is not just a matter of getting dealers to stock the spares but of too many makes on the market. With more than forty brands available, few if any of which have interchangeable parts, the logistical supply systems feeding spare parts into the countryside becomes quite a nightmare. Over time, this situation should sort itself out, too, as a few makes gain favor with farmers and market position, weaker firms get shaken out of the market and the remaining companies find themselves having enough critical mass in the countryside to justify maintaining supply systems for spare parts. But all this process is going to take some time, at the least a number of years. It might be worth thinking about speeding things up a bit by allotting different "zones" in the country (say, the four administrative divisions) to different groups of firms (e.g., allow six or seven makes to compete in Rajshahi Division, six or seven different makes in Khulna Division, etc.). Such a procedure could be tied to requirements that the chosen firms keep their spare parts supply lines functioning, a task they should be willing to undertake in a situation of relatively fewer places to be served and higher densities of customers needing spare parts in each of those places.

The equity situation in more general terms will probably not be amenable to market solutions, certainly not in the near future. Nor can public sector strategies be expected to fill in the gap right away. The fact is that irrigation is in all likelihood going to benefit the larger farmers who, having more resources in the form of land on which to apply the new input and having more cash reserves for buying fertilizer to complement their new water, are going to do better than small farmers and landless people. The situation, in short, will in many ways resemble

that created by the Green Revolution of the 1960's, in which the rural well-to-do were in better position to take advantage of the opportunities offered by the new high yielding varieties than the rural poor. Differential impact will simply be a fact of life and should be recognized as such.

This bias toward the rich should not be cause for despair, however. Increased production does provide increased jobs, for one thing, and though some of those jobs will be taken up by family labor within the landowning household, a good many will go to those outside it. For another thing, there are good possibilities for the landless to involve themselves in the process from an ownership position, as the experiences of BRAC and PROSHIKA (about which more later on) attest. And, finally, the problem of having the greater supply of foodgrains on hand that will come from increased water use, and then needing to worry about working on the demand side to get that supply into the hands of the poor, is a much more pleasant problem to deal with than having to face a situation in which there is neither supply nor demand. The message is, it would seem, clear: if it's easier to push up aggregate foodgrain supply at present than demand, then let's do so and in the process begin to devise strategies for steering the foodgrains into hungry mouths. This latter effort will not take care of itself, as become clear in India in the latter 1970's, when foodgrain surpluses existed alongside millions of malnourished people too poor to buy food, but such a possibility could have been no justification for refusing to encourage farmers to grow more food in the first place.

#### **Administration: The Upazilla Initiative and Popular Participation**

It is now clear that the upgraded thana (or "upazilla," meaning "next in precedence to a district")<sup>8</sup> program is to be the centerpiece of the BDG's rural development effort. The program has two major thrusts—administrative decentralization and popular control—and it is this combination of these two

dimensions that gives the enterprise a character unique in the entire history of Bangladesh.

As noted in the introduction, some kind of political structure is essential in any society to link the central government with the citizenry. Hierarchical, top-down administrations sufficed in pre-modern times, when rural life was for all practical purposes autonomous and self-sufficient, and government's only interest in the countryside was to collect revenue, prevent insurrection, and hold rural banditry down to an acceptable minimum. Such was the situation in the Mughal era and throughout most of the British period.

To a limited extent during the closing stages of British rule and in an infinitely more serious way after the partition in 1947, this older approach was not enough. As the economy grew and become more interlinked, as new production technologies came along and consumption patterns changed, as education advanced and new elites emerged, traditional administration could no longer do the job of linking government and people. Structures and channels had to be developed so that citizens with their new wants, needs, and frustrations could make them known to government and so that government could respond by altering policy as required. Governance, in short, had to become an iterative process, with continual feedback and continual adjustments in policy. People had to have ways to get involved in decisions affecting their own futures, if any sustained development were to take place.

British authorities began to respond to the need for these changes, with the introduction of elected members of district and union boards in the 1880's, then the gradual reforms of the 20th century such as the Government of India Acts of 1919 and 1935. There was thus some experience of representative institutions at the time of the partition, but it was a very restricted one. British officialdom retained a veto power throughout, and the suffrage was limited to property owners and degree holders.

Independent Pakistan experimented with provincial assemblies and national elections, though it was not until 1970 that a genuine national election with universal suffrage was held. At the local level in the 1960's, Ayub Khan's Basic Democracies Program set up directly elected Union Councils (just over 4,000 of them altogether in the then East Pakistan), with indirect representation at thana, district, and division level.<sup>9</sup> Authority was kept in official hands, however, with government servants acting as chairmen and constituting half the membership at thana level and above. The constructing character of this "guided democracy" approach was a major factor in Ayub's downfall in 1969, and the lesson was not lost on subsequent leaders.

A national parliamentary election in 1973 and elections to union parishads later on that year initiated efforts to put a representative structure in place under Skeikh Mujibur Rahman, but things never progressed beyond that in setting up a genuinely participatory system linking capital and countryside. Thana Development Councils were installed, but bureaucratic control (through the Circle Officer and then the Subdivisional Officer) remained in place. Sheikh Mujib's BAKSAL and district governorship schemes represented an even more narrow, top-down approach, but were cut short with his demise in August 1975.

Ziaur Rahman turned the thrust of governance back toward the representative model, with presidential and parliamentary elections at the national level, and union parishad elections at the local level. The keystone of his rural development effort, however, was the Swanirvar Gram Sarkar Program, a combination of mass mobilization of the rural citizenry into public works types of programs and the installation of a new unit of self-governance below union level in the villages. The likelihood of success or failure of the program became a matter of great debate, but the issue became moot with Zia's death in 1981, after which the whole scheme fell into abeyance.

The purpose of this brief recapitulation has been to make two points: (1) to show that since the end of the previous century, every successive government has felt constrained to build some kind of structure with a participatory component linking center and rural citizenry; and (2) to show that in each of these efforts the central government maintained administrative control of the linkage except at the very lowest union and village levels.

The thana upgrading scheme follows the first point, but makes a sharp departure with the second, for it aims to establish for the first time in Bangladesh popular control over administration at thana level and below.<sup>10</sup> In very brief terms, the concept is to formally upgrade all thanas in the country to upazillas by December 1983. Technical staff is to be upgraded (e.g., whereas previously most of the technical people at thana level were certificate holders, typically from one of the regional Agricultural Extension Training Institutes, having altogether twelve years of education, now they will be technical officers with B.S. degrees, which for the irrigation sector means a degree from Bangladesh Agricultural University in Mymensingh). This staff, which when fully upgraded will number over 250, will work under the direction of the Thana Nirbahi Officer (TNO), who will be in effect the new decentralized version of the now-to-be-abolished Subdivisional Officers.

In December 1983, elections will be held for Union Councils; then in March 1984, Thana Parishad Chairmen will be directly elected. The latter will assume office as head of the Thana Parishads with the other voting members being the chairmen of the eight to ten Union Councils contained within each thana's boundaries (plus the chairmen of whatever municipal bodies be within the thana; election for these bodies will be held in February 1984).<sup>11</sup> In addition, there will be three appointed women members and one other appointed member (this last apparently to be a freedom fighter from the 1971 war), all with voting rights. The TNO and other thana level officers will also belong to the Upgraded Thana Parishad

(it is not clear as of this writing specifically which officers will be so designated, but they will not have voting rights. The chairman will, according to the government's instructions (GPRB, 1983:29), "Coordinate all the development activities . . . initiate formulation of policies in development matters, identify projects and schemes," and in general will be "responsible for ensuring implementation of government policies and programmes within the Thana."

This elected official will be somewhat like the Deputy Commissioner has been at district level but, in fact, he will have even more authority to supervise thana officialdom, for the real key to the administrative side of the upazilla enterprise is that the TNO and technical officers will be under the control and supervision not of the line ministries in Dhaka but of the Thana Parishad Chairman. How will this revolutionary change be brought about? The actuating device is both simple and eloquent: the Thana Parishad Chairman will write the personnel evaluation report (called the Annual Confidential Report, or ACR) of the TNO, and the TNO will do the same for the thana technical officers (see Figure 1).<sup>12</sup>

Will the program succeed in establishing the desired linkage between government and citizenry? It is not hard to think of many reasons why it will face severe difficulties, but one can also make a strong case that, if the BDG is determined to see it through and is prepared to support it for a number of years, it will be successful.

Problems there will surely be in abundance. First, there are already indications of resistance from the bureaucracy. Officers who are to be posted to the thana level see their fate in much the same terms as Chinese officials did during the Cultural Revolution in the late 1960's when they were "sent down" to the countryside. When one's career, status, and self-esteem hinge on advancing from the mofussil to a comfortable and well-appointed berth in the central secretariat, then rustication to a thana town, even an upgraded one, must seem a rude shock to

long-nurtured hopes and dreams. Just as bad, the officer finds that his supervisors will no longer be from his own technical service but instead will be the TNO. And, perhaps worst of all, the whole officer cadre at thana level will have to answer to an elected official.

It is not surprising, then, that officers being posted to upgraded thanas see themselves as being downgraded. Further, they see their integrity as professionals being undermined with the breaking of their connections to their own technical ministries.<sup>13</sup> The effects of this distress will surely make themselves felt on the new program. Officials will be uncertain and will be tempted on the one hand to drag their feet in hopes that the whole scheme will collapse and the status quo ante be restored, and on the other hand to be servile and sycophantic toward their new bosses so as to get favorable ACR's.

The political dimensions of the new program can also be expected to cause problems. Just as KSS groups or Union Councils were frequently taken over by dominant rural elites who then managed things for their own benefit, often to the detriment of the rural poor, so the same tendencies must be expected to manifest themselves at the thana level. The union parishad chairmen who will be voting members of the thana parishad are most probably going to belong to the richer strata within their respective unions, and the thana parishad chairman will also be more than likely of a similar background. And, even if he is not, he will be subjected to heavy pressure from that group to act in their interests. Such was the record in India after the formation of the Panchayati Raj system, and there is no reason at the outset to think that the experience in Bangladesh will be different.

These, then, are the problems facing the upazilla initiative: bureaucratic resistance and political perversion. But there are also solutions. Administratively, the new program offers the chance to redirect the energies of thana officers from narrow and essentially unproductive "professional" concerns toward genuine

extension and real community development. On the political side, short-term captures by local elites, if it should occur, need not mean permanent control; other groups can get involved and even take control in the interest of a wider public, as has happened in India in recent years.

One of the abiding problems with the technological bureaucracies, and particularly with water management administration, has been a compulsion to focus on narrowly defined, professionally determined areas of interest. For irrigation engineers this has meant a concentration on design and construction of large systems, with far less value given to operations and maintenance of those systems and virtually none to extension work or dealing with water users in any way. "The concern of the professional stops at the turnout" has been the watchword, or at best (worst, that is, from the professional point of view as it means furthest from the administrative center) the wellhead of a DTW.

A major challenge in rural development has been how to redirect this very substantial expertise away from the professional track and toward involvement with water users. A number of efforts in this direction has been attempted in recent years, and out of their endeavors has developed the beginnings of a literature in "bureaucratic reorientation," much of it in fact focusing on water management (see, e.g., Korten and Uphoff, 1981). The task of reorienting, though, is far from easy. Administrators are not going to turn themselves into evangelists, promoters, salesmen, and friends of village rustics just because directives come down from the ministry urging them to do so. The obstacles to their doing so are many, but perhaps the biggest one among them is the pattern of rewards that characterize most development bureaucracies. If the rewards are for "professional" accomplishments, then that is what people are going to put their energies into, notwithstanding what they perceive as empty rhetoric and exhortations to do otherwise. What is at hand in the upgraded thana enterprise,

however, is not just empty rhetoric but a chance to change the basic reward system for technical officers. If their evaluations and promotions depend on their ACR's, and TNO's and Thana Parishad Chairmen who write those ACR's put heavy stress on extension work, field visits, and interacting with villagers, then the officials will begin to behave along those lines.

Another opportunity offered by the upazilla effort is to get more return on the training programs which are from time to time set up for thana level officers (e.g., the current diagnostic analysis at the Bogra ARD), but which tend to have little effect in improving performance. A major reason for this lack of effect is that there is no incentive for the thana officer to utilize his training, because to do so would not fit into the bureaucratic reward structure. His superiors expect him to continue carrying out all the duties he has customarily performed and give no credit for adding to his work by doing new and additional tasks. Now the prospect is at hand for revising the standards of evaluation so that such matters as making use of newly acquired expertise like water management diagnostic analysis is a real part of what is to be evaluated in the ACR. All this reorientation is sure to present difficulties, but the opportunity is here and should be seized. Perhaps this process could be assisted by USAID. In the political realm there is less scope or call for donor involvement, but there is substantial reason to think that domination by local elites in the short term need not mean control by such groups over the long term or even the middle term. Once the structures are put into place for popular participation, other groups have the opportunity to involve themselves, and in time are more than likely to do so. India is an excellent case in point here. The Panchayati Raj system, set up in the early 1960's, immediately came under the sway of local elites, mainly high caste, upper class, landowners. By the later 1970's, however, these structures in many areas had been taken over by middle caste, middle class, farmers who had displaced formerly dominant gentry. Not only

had this constituency taken over at local level, moreover, but it had expanded onto the state level as well, sweeping into control of several states in the 1977 Janta Party wave, and it continues to be a major factor in many of the Indian states. Equally important, this success has provided an example that has been instructive to hitherto depressed groups like Harijans and poor rural Muslims, who have also begun to enter the political arena in an organized way, with their own demands for minimum wages in agriculture, an end to bonded servitude, and the like. Positive social change, in a word, is now in process in the Indian countryside, and the Panchayati Raj structure can take a large share of the credit.<sup>14</sup>

The best example in the subcontinent of how administrative and political structures can work together is probably the system now operating in India's Maharashtra State.<sup>15</sup> There, developmental activities in the rural areas are handled by a District Planning and Development Committee, chaired by the chairman of the Zilla Parishad and with an IAS (The Indian Administrative Service, analogous to the erstwhile Civil Service of Pakistan in Bangladesh) officer as his executive, in rather the same relationship as that contemplated for the Thana Parishad Chairman and TNO.<sup>16</sup> The membership is a mix of elected and official members, and it has operational control over the technical services in its district. The system appears to function, admirably in providing the kind of popular involvement in administration that is so needed in development, and would be worth examining in more detail as an example. West Bengal offers another example of popular control over the bureaucracy that would be worthwhile studying.

Irrigation should provide to be a most fruitful area for popular participation to have a positive impact on development. Take, for instance, the tubewell spacing problem that is currently giving so much trouble to the STW privatization enterprise. One real problem here is the question of how much command area

should any particular tubewell be reasonably expected to have. The BADC regulations on spacing DTW's and STW's is based on the idea of a standard command area that would be uniform throughout Bangladesh. But it is widely known that DTW's virtually never achieve their notional command areas of 100 acres, and a similar shortfall is always there for STW's and LLP's as well. If the actual is invariably short of the ideal, it would make sense to reduce the ideal to something achievable.<sup>17</sup> But how much reduction? A uniform requirement that a DTW irrigate 70 acres would be little better than the present rule, for each site is different, as regards soil type, drainage, slope, etc. These things have to be determined on the ground in each individual case; there is no way they can be centrally decreed from Dhaka.

What better solution, then, than to have an upazilla water management planning committee? It could have the SMO irrigation specialist, the BADC section officers, and the Thana Rural Development Officer (i.e., the BRDB officer at thana level) all sitting on the committee as nonvoting members (see Figure 1) and several (perhaps all, depending on the importance of irrigation in a particular thana) of the thana parishad representative officials as the voting members. The committee could then collect evidence, hear petitions and grant variances to the 100-acre (or maybe a more realistic 70-acre) standard for DTW's, and do the same for LLP's and STW's. Would the committee be influenced by factors other than the objective conditions of soil, slope, etc? Probably yes, in some thanas, in some cases. But which is better: to have DTW and STW owners flouting the rules, perhaps with a sub rosa bribe to the thana officer concerned, or to have a public body that is publicly accountable for its decisions? The latter had good promise of being responsible to the citizenry while the former can never be.

In sum, the upazilla initiative, like the privatization approach, embodies conflicting goals of the BDG, and is bound to run into problems. It seeks to

promote popular control at local level, which will run counter to the desire for orderly and smoother administration: this same popular control may well in the short run give local elites an even more dominant position than they now have and thereby exacerbate the present unevenness in the distribution of wealth; and it is bound to be a slow process in which the kinks and lumps will take some time to get smoothed out. But, if development is to take hold as an ongoing and regular aspect of social life in Bangladesh, the program is vitally necessary. It should be encouraged and supported by donors wherever and however possible; if it is carried through over a period of years, it should prove to be a bulwark of the developmental process.

Some Nongovernmental Organizations  
and Their Relevance for Water Management

There are several nongovernmental organizations (NGO's) involved in water management that offer valuable lessons for Bangladesh in its endeavors to promote irrigation. These NGO's are by their nature relatively small experiments and, even when they are all taken together, they do not contribute much to national development in quantitative terms. But in qualitative terms they are invaluable as laboratories and exemplars, testing out ideas that, when successful over time on a small scale, can then be replicated on a larger scale by governmental agencies.

The single most telling criticism leveled against the NGO's, and the one that has to be taken most seriously, is that they are management-intensive projects that may well flourish under artificial, "hothouse" conditions, which tend to include: (1) inspired leadership, (2) heavy infusion of funds, (3) an enthusiastic cadre of field managers, (4) direct communication between project headquarters and field units, (5) a willingness to learn from mistakes to revise approaches (in many cases, an insistence on this), (6) a genuinely participatory management style which

encourages bottom-up suggestions from both project staff and "target group" villagers taking part in the enterprise, and (7) a rigorous monitoring of all project activities. This kind of approach can work on a small pilot project, it is argued, but when expanded to a national level, control breaks down, inefficiency and corruption increase, vested interests at local level take over and the original purpose gets lost altogether. And all these unfortunate tendencies are exacerbated by government's insistence on expanding the program far too rapidly. The syndrome is a familiar one, and the historical landscape of the subcontinent is littered with the remains of rural development programs that looked good in the pilot phase but collapsed when expanded at too fast a pace. Community Development in India, and the Comilla TCCA-KSS model and the Rural Works Programme in Bangladesh are three well-known examples (see Blair, 1982, for an elaboration of this pathology, which is found in the United States as well, it should be noted).

But does all this mean that NGO efforts should be abandoned? Emphatically not, it must be asserted. On the contrary, they should be vigorously supported, for it is here that new ideas can be tested out, modified, perfected, and readied for larger-scale replication. The problems that have been experienced in replication lie not in the approach itself but rather in headlong attempts to expand successful pilot experiments onto the national level at too fast a tempo.

A number of NGO's in particular have a good deal to offer Bangladesh's water management strategy along these lines (there may well be others besides those mentioned below, but my short stay in Bangladesh precluded acquaintance with more than a few NGO's).

(a) Improving existing water management systems

CARE's Deep Tubewell Irrigation and Credit Project (DTICP) has been in place since the 1977-78 season, and by 1981-82 had expanded to some 215 DTW groups. The thrust of the project has been to deliver an integrated package of technical assistance and supervised credit to DTW groups that were already in existence but which (like most DTW groups) could benefit from better use of their water. More recently, CARE has introduced an emphasis on discipline into its approach, refusing to carry on with groups that do not repay their loans in timely fashion and charging a Tk.100 per acre (Tk.1 per decimal) management fee for its package of assistance. The immediate result was that, in the 1982-83 season, only 100 DTW groups of the 215 from 1981-82 stayed with the project (while 70 more groups joined up). The number of farmers involved dropped from 17,000 to 14,000. Will this firm disciplinary approach work? It is too early to tell at present, but the experiment is certainly worth watching and supporting. After all, agricultural innovation will in the end have to be self-supporting in a country where three-quarters of the work force and almost half the GDP are in agriculture. The DTICP offers an excellent laboratory for testing methods for getting agricultural innovation to pay its own way. It also presents a good comparison with the approach taken by the World Bank-sponsored Irrigation Management Pilot Programme (IMPP) under the BDRB, which is relying more on counseling and persuasion in its approach to the 400 DTW groups it has taken up in an effort parallel to CARE's (IRDP, 1980).

(b) Equity-oriented approaches: Landless pump groups

In recent years, the Bangladesh Rural Advancement Committee (BRAC) and PROSHIKA have begun to set up pump groups of landless people to operate minor irrigation facilities and distribute the water to farmers in return for either a share

of the crop or a per-acre fee. The groups have all emerged within village organizations of the poor that the two groups have been directing for a number of years (since the early 1970's for BRAC and mid-1970's for PROSHIKA). For the 1982-83 season, BRAC had more than 50 irrigation groups and PROSHIKA had just over 100. Most of the groups are STW's, though PROSHIKA has a good number of LLP's and BRAC has a handful of DTW's. Both NGO's see their irrigation efforts as part of their overall enterprise of working with the rural poor to create self-managed, viable (i.e., income producing) village-level organizations of the rural poor. Neither NGO is looking for short-term success or "quick fixes" in rural development; both see themselves as working for long-term achievement (Wood, 1982, is a good analysis of the PROSHIKA experience; much of his study applies to BRAC as well). Several aspects of the BRAC/PROSHIKA experience are of interest to the national water management enterprise. First, they offer a remedy to the equity problem that exists with minor irrigation: the tendency for the stream of benefits to flow disproportionately into the hands of the rural rich, and thereby increase the distance between rich and poor in the countryside. They do so by bringing a new resource into play which can benefit a wide spectrum of rural classes without the benefits necessarily being distributed along the same lines that characterize the allocation of already extant resources. Secondly, they show evidence of appealing to rural landowners by spreading some of the risks associated with irrigated agriculture. If landowners are also pump owners, they must assume the risks as well as the benefits of irrigation. If the electricity goes out, the diesel fuel doesn't arrive, the pump operator leaves, needed spare parts are never available, etc., the crop suffers; why not spread this risk burden to others? And third, there is also some indication that farmers are happy to have someone else shoulder the task of organizing them for receiving water in their fields (planning and constructing channels, setting up delivery cycles, arbitrating disputes between

water recipients, etc.). These "transactional costs" are a very large part of running a minor irrigation system and, as explained earlier, may well constitute a significant constraint on expanding command area. If landless groups find they can take on these transactional costs and still make a profit, the BRAC/PROSHIKA experiment will have some very valuable lessons indeed.

(c) Credit for the rural poor

Another NGO that shows considerable promise as an exemplar is the Grameen Bank Project (GBP). Since its inception in 1976, the GBP has expanded to the point where it now issues loans through seven banks (six nationalized banks plus the Bangladesh Krishi Bank) to some 8,800 supervised groups in more than 1,000 villages, with almost 43,000 members (of whom about 35,000 had taken loans up through mid-1983). The basic idea is that bank workers in the GBP circulate out to villages, organize groups of the rural poor (definition: owning 40 decimals of land or less) with five members in each group, establish a discipline for savings and emergency funds, then issue loans for whatever remunerative activity the loanee wishes to undertake.

The success of the project (a very high repayment rate) has come from two factors. First, the groups of loanees are homogeneous in that all are landless or near-landless; elite takeover of the group is thus precluded. Second, almost all of the management effort is devoted to maintaining credit discipline. The bankworker extension agents do not give technical assistance on how to use the loan money. Rather they concentrate on forming groups and collecting payments. Indeed, with some 50 groups and 250 members per bankworker (150 in the case of female bankworkers, who face more social constraints in dealing with their female clients than do males working with male clients), there is not much else that could be done if repayment discipline is to be maintained. The Group Fund and

Emergency Fund, for instance, into which members are required to contribute small amounts each week, still await decisions on how they shall be invested.

Only a small fraction of GBP loans relate to water management. In 1982, for example, of some 26,000 loans made, only 856 went to members for STW purchase (in 30 groups; apparently an exception was made to the group-of-five rule in the case of STW's). But the lessons learned can be applied to water management activities: loans can be made to the poor and will be repaid, if the lending agency keeps the clientele homogeneous and concentrates on disbursing and collecting loans. This experience refutes the traditional banking wisdom that loans cannot be undertaken without collateral to be pledge. It is certainly an experience worth thinking about in the water sector: perhaps agencies like BRDB would have greater success in loan repayment if they divided their programs into two wings, one of which would handle the extension work while the other concentrated solely on loan discipline.

### Recommendations

The following recommendations are all either explicit or are strongly implicit in the text, but are repeated here in summary form. Some are reasonably concrete, and could become the basis for USAID-assisted projects (or, more accurately, parts of projects, for they are relatively modest in scope). Some are more in the nature of suggestions to the BDG that may be of some utility. And some are really cautionary exhortations and animadversions that I hope will be given some serious considerations.

- (1) The upazilla initiative represents a significant opportunity to reorient rural administration along dimensions that can represent a marked improvement for development. It should be supported and could be materially aided by assistance to the training that should be given to thana level officers of the

DEM, BADC, and BRDB, perhaps as a follow-on to the present AID-assisted training in tubewell command area development at the Bogra ARD. The new structure for supervision and personnel evaluation offers the prospect that trainees in such a program could be motivated to put their training to use.

- (2) The BDG should be urged, implored, exhorted, begged, and nagged to follow through on its intent to institute popular control of the TNO and supervision of the thana technical officers by the TNO. The whole program is proceeding too rapidly and there will be much disgruntlement and discouragement, but there is no better way to bring popular participation into rural development, and there can be no real and lasting rural development in the absence of popular participation.
- (3) Send a group (possibly several groups) of Bangladeshis to see how India has dealt with popular participation at local level. A few officials from the Agriculture, LGRD&C, and Cabinet ministries, along with faculty members from the academies for rural development at Bogra and Comilla, could be sent for a month-long tour to, say, Maharashtra and West Bengal to observe how things work there. The cost would be quite reasonable and the returns would be very large.
- (4) Thana water management committees could be most valuable in planning, supervising, and coordinating irrigation activities, within a structure of public accountability and popular control. Some assistance in public administration, drawing on the vast experience of local public management within the United States, might be appropriate here (technical assistance, possibly some training).

- (5) Whatever command area is decided upon for the owner of a DTW, STW, or LLP, and whether that owner be individual or a KSS, the enterprise should be seen as a mini-public utility. The owner is in the private sector, but the fact that he (or it, if a KSS) has been given a monopoly over a given command area means that, as with any monopoly, abuse and exploitation are eminently possible. The answer to such "waterlordism" has to be some kind of regulation. Here, too, the long and varied experience of the United States with public utilities might be drawn upon to provide some useful technical assistance.
- (6) NGO projects are inherently only pilot schemes and cannot meet the needs of the nation as a whole. But they can be invaluable as experiments and models that can then guide larger national programs. It is in this spirit that such activities as those being undertaken by CARE, BRAC, PROSHIKA, and the Grameen Bank deserve support. CARE is experimenting with a combination of technical assistance and strong discipline for DTW groups that are already in existence but in need of improvement. BRAC and PROSHIKA, in working with landless pump groups, are providing an opening for the equity component that is significantly missing from other water management activities, most notably the privatization initiative. They also show evidence of developing an approach that will find approval from landowners by spreading the risks that attend irrigated agriculture and by assuming much of the "transaction cost" burden of organizing farmers to receive water. And the Grameen Bank Project has shown that, contrary to conventional wisdom, it is possible to give loans to the rural poor and get them repaid, if the lending organization really concentrates on that task. All these NGO's deserve support.

- (7) Don't get discouraged. The Community Development and Panchayati Raj programs in India looked like failures after their first five years, even longer. But, over the longer term, they have in many areas done creditably well in promoting rural development and creating a broadly based popular control over local government. Bangladesh can surely do as well.
- (8) Keep in mind that the BDG, like all other governments including the USG, is pursuing a number of goals at the same time, some of them inevitably contradictory. Accordingly, all of them cannot be completely realized. But a determined government can move a long way toward attaining a good part of those goals. It is appropriate to close by illustrating this point with a newspaper account of a recent speech by the CMLA (New Nation, 15 August 1983:1):

(The CMLA said) . . . the process of democracy which has been started from the grass root level must be allowed to go on uninterrupted. It will help build suitable institutions as well as the system. Any attempt to thwart this process will be detrimental to the nation, he said . . .

General Ershad said the nation has numerous problems which cannot be solved overnight. We are working day and night and trying to bring about necessary changes and reforms in different sectors to ensure socioeconomic development. The task ahead is not easy but if we work unitedly, honestly, and relentlessly, we will, Inshallah, reach our cherished goal, he added.

**Table 1**  
**Plots and Plot Size in an Average 100-Acre Command Area**

Size Class of Farm (acres)		Avg. Farm Size in Class (acres)	Avg. No. Plots Per Farm	Avg. Size Per Plot (acres)	Aggregate Area of all Holdings in Size Class (acres)	Total Number of Plots
0	0.5	.32	2.9	.11	0.5	4.6
0.5	1.0	.73	4.4	.17	2.1	12.6
1.0	1.5	1.20	5.7	.21	4.4	21.1
1.5	2.5	1.95	7.5	.26	11.7	45.0
2.5	5.0	3.50	10.5	.33	29.2	87.4
5.0	7.5	5.97	14.2	.42	19.7	46.9
7.5	10.0	8.47	17.4	.49	10.4	21.3
10.0	12.5	10.94	20.1	.55	7.0	12.8
12.5	15.0	13.50	21.8	.62	3.9	6.3
15.0	25.0	18.12	25.9	.70	7.7	11.0
25.0		32.08	32.8	.98	3.4	3.5
Total					100.0	272.5

Source: Bangladesh Agriculture Census of 1977. The data in this table are derived from World Bank (1983b:129).

**Figure 1**

**Upazilla Structure Relating to Water Management, 1983**

## NOTES

- <sup>1</sup> Developed countries have the same central goals, though the priorities among them tends to be somewhat different than for developing nations.
- <sup>2</sup> This equivalence approach means a substantial subsidy to the DTW's, for they are considerably more costly permit of water delivered than STW's and a great deal more costly than LLP's (see WB, 1982).
- <sup>3</sup> Figures include distribution funded by both BADC and BKB.
- <sup>4</sup> The Integrated Rural Development Programme foresaw the possibility of privatization leading to waterlordism back in 1980 (see IRDP, 1980:11-12; also Ali, 1983:70-71).
- <sup>5</sup> That is, assuming a circular command area with the wellhead as the center, a command area of 100 acres would have a radius of 1,178 feet. Thus, two DTW's should be at least  $2 \times 1,178$  or 2,356 feet apart if their command areas are not to overlap. For the 20 acres to be commanded by a STW, the radius is 527 feet, which if added to 1,178 would make 1,705 feet the proper distance between a DTW and a STW. Less easy to understand is the 800 foot requirement for distance between two STW's, for a 400 foot radius would mean a command area of only 11.5 acres.
- <sup>6</sup> Plot size (fourth column of Table 1) varies directly with holding size (second column), so that the bigger the holding the bigger the plots. Accordingly, where average holding size is bigger (e.g., Rangpur), there will be fewer than 272 plots per 100 acres on the average, and conversely where holdings tend to be smaller (e.g., Comilla) there will tend to be more than 272.
- <sup>7</sup> There is actually no way to calculate how many farmers this would comprise, for some would own all of their land within the command area, while a much larger number would have some land inside it and some land outside. Using Hanratty's approach (1983:n20), which is as good as any, we could say that 10 percent of the farmers within the command area have three plots, 20 percent have two, and the remaining 70 percent have one; this procedure would give as just under 200 farmers holding land on our 100 acres.
- <sup>8</sup> The subdivisional level, which since the 19th century has existed between district and thana levels, is to be abolished under the new program; thus the upazilla will, true to its name, become the next unit under the district. The term "upazilla" is presently replacing "upgraded thana." In this paper, the two are used interchangeably, as is the case in Bangladesh at this moment.
- <sup>9</sup> That is, the chairmen of the union councils served as the "nonofficial" members of the thana council, with the process being repeated up to divisional level. There are a number of good accounts of local government in Bangladesh. Ali's (1982) study is a good one, carrying things through Ziaur Rahman's presidency.

- <sup>10</sup>The relevant orders and circulars pertaining to the Upgraded Thana Program are collected together in GPRB (1983), from which much of the present analysis is derived. The rationale for the program is recapitulated in large part in GPRB (1982). For a succinct analysis of it, see Schroeder (1983).
- <sup>11</sup>The election timetable is taken from a story in Bangladesh Today 1, 9 (16-31 July 1983):4.
- <sup>12</sup>In the official words of the new Manual on Thana Administration (GPBR, 1983:29-30), the Thana Parishad Chairman "will initiate" the ACR of the TNO, and the latter will "initiate the ACR of all thana level officers except the Munsiff-Magistrate." The elected chairman will then "countersign" these latter ACR's after the TNO has written (i.e., "initiated") them; this means he will approve, add to or dissent from the ACR, acting in effect as a higher level reviewing officer.
- <sup>13</sup>A third source of grievance, at least for a certain (no doubt, small) number of officers, will be that the whole structure of corruption will change. The new setup will mean that their old system will no longer work, and that new ones will have to be devised.
- <sup>14</sup>These ideas of sociopolitical change are explored at greater length in Blair (1982).
- <sup>15</sup>Local governance is constitutionally a state subject in India, and so each state has its own setup. A number of them do not function very well while others are arguably at least as effective as Maharashtra's.
- <sup>16</sup>For that matter, both these relationships are similar to the one that exists between a minister and his secretary in the BDG.
- <sup>17</sup>Pace Robert Browning, who tells us that "A man's reach should exceed his grasp, or what's a heaven for?" True, a goal should be something to strive for, not a target easily achieved, but 100 acres for a DTW may be a heaven too far beyond the grasp of even the most devout practitioner of the water management faith.

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