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Sustainability of a Government Targeted Credit Program

Evidence from Bangladesh

Shahidur R. Khandker
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FOREWORD

The achievements of the Grameen Bank, in Bangladesh, have made it well-known in the world as a successful group-based credit program which is being widely acclaimed and replicated elsewhere. However, the various aspects of its credit delivery and social development model have not yet been systematically examined to identify the reasons for its success, its costs and benefits, and its sustainability as well as the potential for its expansion and replication.

Providing credit to the rural poor and developing viable credit institutions within the broader objectives of poverty alleviation is a well established development policy, but there are few good studies of effects and sustainability. The research project RPO 676-59, "Credit Programs for the Poor: Household and Intra-household Impacts and Program Sustainability," was designed with appropriate research methods to examine these important issues. Bangladesh was selected as a suitable location to apply such methods because it has a number of targeted programs with varying designs, including the Grameen Bank, the BRAC and the BRDB's RD-12 operated by government and non-government organizations.

The objective of this research was to develop a methodology to estimate the costs and benefits of group-based credit programs. It included the identification of program effects on household and individual outcomes as well as the analysis of the participation of women in these credit programs and the ensuing effects on household and intra-household outcomes by gender.

Another objective was to analyze the financial and economic efficiency of the credit programs, which depend on resource-intensive group formation and monitoring. While peer monitoring reduces the transaction costs of lending to the poor, group formation and monitoring is costly and group members may not be able to bear the full costs of a program. The aim was to estimate the cost structures of the programs and examine how the programs operate and whether and under what conditions such group-based credit programs are sustainable.

This paper is one of several papers produced as a research output under this research project. It discusses how the BRDB RD-12 program provides credit and ancillary services to the rural poor and at what costs, its organization, and whether it is sustainable. It provides evidence concerning the replicability of group-based credit delivery models within the government administrative structure. The major findings of this paper are that the government has been able to draw upon NGO experiences and develop innovative income-generation activities, and that it is possible to develop a successful micro-credit program within the cooperative system.



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ABSTRACT

Alternative institutions, notably cooperative societies, were developed in many countries in order to deliver credit when it was found that financial institutions had failed to reach the target households. Unfortunately, the cooperative societies could not reach the target households either as they were dominated by the elite who got the lion's share of the funds earmarked for the target households. Bangladesh is not an exception. In the recent past, however, Bangladesh's cooperative structure has managed to reach the poor (both men and women) because it has adopted the small-group lending approach of the Grameen Bank and the BRAC in its cooperative structure, and the poor were asked to self-select into the program. This study presents the findings on the performance and sustainability of this project, called the Rural Development (RD-12) project. Unlike its predecessor, the project built savings mobilization, skill development training, and small group monitoring aspects into the cooperative structure. The RD-12 project started in 139 thanas in December 1988 with CIDA funding and by 1994, it mobilized 452,000 members of whom 70 percent were women. In 1994 alone, it disbursed \$17.2 million to the poor members of which women received 84 percent. In the same year, it mobilized from members \$5.3 million savings and deposits; women contributed 73 percent of this amount. The project financed mostly rural nonfarm activities. Trading, paddy husking, livestock, fisheries, and poultry account for more than 80 percent of its loan portfolio. The loan recovery rate of RD-12 project has been consistently above 90 percent. The results indicate that it is possible to develop a targeted credit program within the cooperative structure to reach the poor. However, the project enjoys a high rate of economic subsidy. But it has potential in reducing its subsidy dependence through loan and membership expansion. Given its potential, the government is considering expanding its scope and mandate of operation through developing a sustainable organization for the poor.

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EXECUTIVE SUMMARY

Given that poverty has many dimensions, unidimensional measures cannot adequately confront its various ills. In Bangladesh, poverty refers not only to a condition of barely sustaining physical needs, but also to a lack of investment in other aspects of human life such as education, healthcare, and shelter. As a result, interventions that have enhanced income and consumption on a temporary basis, failed to improve the human capital and productive means of the poor on a sustained basis. Similarly, programs that only addressed the social and human capital aspects of poverty, such as literacy, awareness raising, and social discipline, were proved ineffective. As such, an effective poverty alleviation program requires a resourceful design that can confront all dimensions of the poverty problem simultaneously in a specific socioeconomic context.

This report is based on a cooperative-based project administered by the Government of Bangladesh (GOB). Known as the Rural Development (RD-12) project, this program was launched by GOB for the rural poor (both men and women) through its main rural development agency, the Bangladesh Rural Development Board (BRDB), and drew upon the experiences of the Bangladesh Rural Advancement Committee (BRAC) and the Grameen Bank. It introduced a group-based credit delivery model within the cooperative structure. The RD-12 project, mainly funded by the Canadian International Development Agency, has been in operation since April 1988 and was due to end in June 1994 but has been extended to June 1996. It is, by far, the largest GOB program aimed at alleviating rural poverty by targeting the assetless poor.

With its innovative design, this project has drawn considerable resources from Canada (this being the largest project in the world for the Canadian International Development Agency, CIDA) as well as interest from other donors and policymakers. As such, the project has been periodically evaluated by CIDA and other agencies including the United Nations Development Programme; household-level impact analysis of the program has also been conducted. But there has been little systematic analysis of the RD-12 as a vehicle for poverty reduction within the government structure in comparison with other successful NGO programs, such as Grameen Bank and BRAC, which have attracted more attention. In order to examine how this program has performed, this report uses program- and village-level survey data to examine what the RD-12 is, what it does, how it functions, and at what cost, who it serves, and whether it is sustainable given its performance.

What is RD-12?

The RD-12 project provides credit, skill development training, organizational help, and other human development inputs to the rural poor. The program is based on the cooperative structure where participants are mobilized in groups of fifty to sixty, called "bittaheen societies"; separate societies are formed for men and women. Unlike other cooperatives under its parent organization BRDB, the RD-12 project forms "solidarity" groups, of four to five members to allow more effective monitoring of the group's performance. Like BRAC, the RD-12 project targets the poor who depend on manual labor and do not own more than half an acre of land. Like Grameen Bank, savings mobilization is an integral part of its activities. Once the poor are mobilized into groups and become members of the societies they are required to save at least Taka 2 each week and buy a society share worth Taka 10 every year. The members are trained in group mobilization and conduct, and to undertake various income-generating activities. Additionally, the RD-12 project provides training in basic education, family planning, and other social areas.

Membership in solidarity groups is limited to one male and one female member from the same household, and men and women form separate groups (primary societies). The groups are formed on the basis of the members' economic homogeneity, and the inclusion of ineligible individuals disqualifies members from receiving organization inputs and credit. RD-12 society members are required to recite twenty-one oaths (of conduct) at their group meetings. The primary societies hold weekly meetings where the loan applications of individual members are discussed with other members and a project field organizer. The eligible members borrow no more than Tk 10,000 (about US\$250.00) per year at and pay 16 percent interest on the declining balance. Repayments of the principal and interest due are required to be made weekly in fifty equal installments. The borrowers are also required to contribute 5 percent of the principal loan amount to a "group" fund, which is refundable with interest if the member(s) decide to leave the program. Interest on members' savings and group funds at a rate equal to the rate offered by commercial banks is also paid by the RD-12 societies.

RD-12 project coverage and expansion

The RD-12 project was launched in April 1988 with funding from GOB (5 percent) and CIDA (95 percent). It operates in 139 thanas, roughly covering one-third of the villages in Bangladesh. As of

December 1994, it had mobilized 452,000 members, of whom 70 percent were women. In 1994, the RD-12 project lent Tk 706.5 million (US\$ 17.2 million) to the assetless poor of which women received 84 percent. In that year, it had also mobilized Tk 212 million (US\$ 5.3 million) in savings and deposits; women contributed 73 percent of this amount.

Loans for livestock, small trading, paddy husking, poultry and fisheries accounted more than 83 percent of total annual disbursement in 1994. The highest growth in lending between 1989-94 occurred in poultry, followed by livestock and fisheries. This growth pattern is consistent with the increasing membership of women, who borrow mostly for non-market activities that are compatible with their household chores. In fact, these activities accounted for about 80 percent of the total loans disbursed to women in 1994.

The RD-12 program provides conscientization and leadership training to its members, like BRAC and Grameen Bank. It also provides extensive skill-specific training in project planning, livestock, fisheries, horticulture, agriculture, and other activities. Due to these elaborate training programs, total training expenditures increased by 716 percent over the 1988-91, from Tk 688,896 to Tk 5.6 million.

Program sustainability

The loan recovery rate for RD-12 loans is comparably as high as the rates recorded by Grameen Bank and BRAC. By 1994, this rate increased to 93 percent from 90 percent in 1991 and 77 percent in 1989. As such, the repayment performance for RD-12 loans has been satisfactory. However, the village-data analysis suggests that the program has not yet managed to improve the well-being of the rural poor significantly, given the non-significant impact on rural wages. Also, RD-12 placement was found to be sensitive to area characteristics implying the endogeneity of program placement.

The credit component of this program was not designed to cover the operating costs out of interest incomes. As such, it depends on CIDA grants and government funds to operate at the thana-level. (In fact, 93 percent of the thana-level central cooperative societies were profitable in 1993 only if the head office grant was included as part of their revenue). But RD-12 has continued to implement the project with an increasing share of its own earnings, as the GOB and CIDA contributions decline. The RD-12 funds for on-lending are CIDA grants and, as such, it receives economic subsidy in terms

of the opportunity cost of these funds. Our analysis suggests that the RD-12 program enjoys a high rate of economic subsidy. In 1991 the total subsidy (both economic and financial) was more than 90 percent of each taka lent to the poor. However, in recent years, this rate should have fallen because its lending and membership increased substantially. Also, the project has recently used the shares and savings deposits of its beneficiaries to access more funds from GOB for on-lending.

Apparently, RD-12 is a highly subsidized program but if the economic subsidy is calculated per member, it was found to be only Tk 268 (or US\$7.5) in 1991. Given that this program provides resources to generate income and employment as well as skill and other human development inputs to improve the living standard of the rural poor, especially women, this amount of economic subsidy may be worth spending. There is also an advantage, as economies of scale exists in its thana-level operations and RD-12 can eliminate the subsidies by expanding its membership and lending. The econometric results indicate that the program has not yet achieved its optimal membership and disbursement, meaning that it can benefit from vertical and horizontal expansion. Given the product mix of membership, savings mobilization and lending, our estimates show that only the marginal cost of lending is statistically significant. Specifically, if RD-12 makes a one year loan of Tk 4,000, it only incurs a cost of Tk 276 and earns Tk 640 at the single rate of interest of 16 percent. Therefore, it is possible to develop a sustainable program through loan and membership expansion.

Constraints for expansion

Profit-making, and hence, self-sustainability, was not a major concern when RD-12 was conceptualized and implemented. The objective of CIDA funding was to strengthen the capacity of the BRDB to plan, implement, and sustain development programs for the poor. But if the government intends to maintain its operation, program sustainability is an important issue as it cannot continually rely on donor funds. The issue will soon become pressing as CIDA funding ends in 1996.

If the government intends to continue running the RD-12 project, it must address a number of institutional constraints. Neither the BRDB nor the thana-level societies have the requisite ability to independently manage RD-12 because of its dependency on the government administrative structure. The institutional setup of any proposed organization must be reformulated and made independent from the BRDB's bureaucratic administrative structure. Although RD-12 was not designed to be self-sufficient

(such that its interest income would cover its operating costs), the new program has to be designed on the basis of self-sustainability. This will require careful examination of RD-12's cost-effectiveness.

In addition, the program should be made to rely less on subsidized donor funds for on-lending although these funds would be required for institutional development. The program cannot be self-sustainable by charging the break-even rate of interest because the poor cannot bear the full costs of program development and the delivery of credit and social development inputs. Because social and human capital development comprise a large part of its costs, the program needs grants or cheap sources of funds for institutional development. The Grameen Bank experience suggests that it takes about five years for a branch to breakeven, and thus a self-sustainable financial institution for the poor needs "seed" money for at least five years. The government must break-down the program costs between credit and non-credit expenditures and charge members only for credit services. Again, the Grameen Bank experience suggests about 7 percent of lending as institutional development cost.

Other potential constraints to expansion include limited market demand for the borrowers' products and the lack of the appropriate skill mix to diversify non-farm activities. Although the RD-12 project has an extensive training program, it needs to be upgraded and tailored to the needs of a diversifying economy. Moreover, it must develop a marketing network that taps both domestic and international markets. The program must attain production efficiency for borrowers and the cost efficiency for the lender so that the survival of both is ensured.

However, the more intriguing question is whether the government can operate its program as efficiently as other successful NGOs, given its administrative structure. Poverty alleviation through income and employment generation for individuals with low literacy rates and poor skills is a formidable task. In Bangladesh, more than 50 percent of the population lives in dire poverty, and the combined efforts of government and NGO programs have managed to reach only a quarter of the target population. Since the expansion of successful NGO programs is institutionally limited, the government should sustain RD-12 or similar activities, assuming it is on the basis of self-sustainability. This would create competition among similar programs and promote efficiency among the NGOs and the government.

CHAPTER ONE

Poverty alleviation strategies in Bangladesh

Pervasive poverty affects millions of people in Bangladesh on many levels, and thus its alleviation requires diverse measures. The most important interventions are those which expand the employment and income-generation opportunities of the rural poor, enabling them to enhance their living standards. The Government of Bangladesh has made poverty alleviation one of its primary concerns in various development plans and in its continued efforts to obtain foreign assistance in agriculture, forestry, fisheries, industry, education, health, and nutrition sectors. The Bangladesh Rural Development Board (BRDB) executes most of the government's rural development programs, including the RD-12 project, which is chiefly financed by Canada.

In Bangladesh, as in many other developing countries, the traditional approach to rural development was through untargeted interventions such as the green revolution in agriculture, which was once thought to be capable of eradicating poverty through trickle-down effects on income and employment for the poor. In the 1960s, industrialization policies to promote economic growth in the modern sector, such as import substitution, used the same trickle-down strategy. Industrialization was also thought to be able to absorb the surplus labor released from agriculture following capital-intensive technological innovation, but this strategy was not successful. Moreover, the subsidized inputs provided to further economic growth, self-sufficiency in food production, and industrialization mostly helped the urban and rural elites and excluded the majority of the poor.

One of the subsidized inputs was credit from formal financial institutions (including development finance institutions). Small farmers, for example, need credit for productive investment and to smooth consumption needs when farm production is unstable. Informal lenders have traditionally provided credit to rural people but, because of their excessive interest rates, are considered inefficient for improving productivity and growth. Improved financial intermediation was consequently considered necessary for economic growth and poverty alleviation. The governments of many developing countries, including Bangladesh, have stressed supplying credit to the rural poor in order to foster more productive activities.

Several development finance institutions, such as the Bangladesh Krishi (Agricultural) Bank and the Bangladesh Shilpa (Industrial) Bank, were founded with these goals in mind. With similar objectives,

the BRDB, a semi-autonomous government agency under the Ministry of Local Government, Rural Development and Cooperatives, was established in 1982. Its predecessor was the Integrated Rural Development Program (IRDP) which was based on the Comilla model of two-tier cooperatives. The BRDB's rural development projects were financed by the government and by various donor agencies and executed through cooperative societies. The main mission of the IRDB/BRDB was to promote agricultural production by providing modern inputs such as the high-yielding variety (HYV) of crops, fertilizer, irrigation, pesticides, and primarily subsidized credit through two-tier cooperatives. By contrast, the objective of the development finance institutions was to provide collateral-based credit to facilitate the green revolution in agriculture. Through the BRDB and its other agencies, the government successfully promoted the green revolution -- the country has now become self-sufficient in rice production.

However, agricultural modernization has not brought tangible benefits to a large segment of the rural population because self-sufficiency in rice has not significantly improved their incomes and living standards. Moreover, given the limited ability of the agricultural sector to absorb the rapidly growing population and labor force, the rural population cannot rely exclusively on agriculture for employment and subsistence. This makes the expansion of non-farm opportunities and, accordingly, subsidized credit a necessity for the resource-constrained poor.

As mentioned earlier, the poor, who do not have land or other assets, have been excluded from obtaining subsidized credit offered by formal financial institutions. The major beneficiaries of the development finance institutions, located in the small urban sector, were the urban elites, and the subsidized credit and other incentive policies offered to promote industrialization failed to generate employment opportunities for the rural masses. On the other hand, the benefits from the subsidized inputs and credit provided by the BRDB and other government agencies operating in rural areas mainly accrued to both urban and rural elite groups, and the BRDB cooperatives were mostly dominated by wealthy and large-landowning groups. Agricultural growth-based strategy has failed to make the landless productive and self-supporting, since the subsidized inputs encouraged capital-intensive methods of production and discouraged a demand-induced growth strategy. (Jones 1977; Khan 1971; Stepanek 1979).

The failure of this approach to ameliorate poverty gave rise to a targeted approach (not based on credit) in Bangladesh. Targeted non-credit programs, such as the Food for Work Program, the Rural Works Program, and the Vulnerable Group Development Program, were introduced by the government

with the assistance of the World Bank and other multilateral and bilateral agencies. These antipoverty programs provided basic necessities through transfers or employment for cash or in-kind income but because they were seasonal and temporary, they could not provide sustainable income and employment opportunities. These targeted measures did help to create rural infrastructure, but the benefits largely accrued to landed households who had the necessary productive means to utilize these facilities (Hossain and Asaduzzaman 1983).

At about the same time, various relief agencies and non-governmental organizations (NGOs), such as the Bangladesh Rural Advancement Committee (BRAC), along with donor assistance, directed their efforts toward improving adult literacy, skills, health, and nutrition with aim of poverty reduction. However, they soon realized that non-credit outreach measures could not sustain poverty reduction. In the late-1970s, efforts based on the idea of collateral-free formal finance, notably that of the Grameen Bank pioneered by Professor Muhammad Yunus, emerged as alternative poverty alleviation measures. These ventures were based on the idea that targeted credit disbursed to organized groups might improve the rural poor's productive means on a sustained basis (Yunus 1983).

The emergence of the Grameen Bank in the 1980s as a model targeted credit program strengthened the rationale and momentum for such an approach. The idea of lending to the poor without collateral, and its apparent success, also challenged the established view of collateral-based formal finance. The provision of credit through self-selected and self-monitored groups reduced the problems of incentives, enforcement and screening, which have been identified as the causes of failure for formal financial institutions in rural credit markets. Lending entails the risk of default and with imperfect information lenders cannot sufficiently screen potential defaulters. Moreover, lenders do not know how to monitor and enforce loan contracts. In such an environment, group-based lending, by linking access to credit with group responsibility and repayment behavior, can screen out bad borrowers and create pressure within a group to monitor and enforce contracts. With the success of the Grameen Bank and the evolution of the Bangladesh Rural Advancement Committee (BRAC) and other targeted programs that combined credit, organization, and skill development training, policymakers realized that sustained poverty reduction was feasible.

The BRDB is essentially a government agency that organizes development activities based on a two-tier cooperative system, where rural households are mobilized to form primary cooperative societies

which are then federated into thana-level central cooperative societies. With experiences gathered from different poverty reduction programs, the BRDB also undertook several projects based on the targeted credit approach. Over the past few years, the BRDB's rural development projects and its rural poor program have sought to reach the poor with affordable credit, skill development training, and other organizational help in its various areas of operation.

The BRDB's targeted credit approach is organized within the same cooperative structure that allows only the poor, defined as those who have less than one half of an acre of land, to form primary societies called "bittaheen samabay samities" (assetless cooperative societies). Its RD-12 project was based upon the experiences of many NGOs, including the BRAC, the Grameen Bank and Proshika. It is an offshoot of the BRDB's cooperative-based rural development programs, but is targeted to men and women who have no assets or land holdings over 0.5 acres. The project started in late 1988 and has been funded mainly by the Canadian International Development Agency (CIDA). Like other credit programs, such as the Grameen Bank and the BRAC, the RD-12 project targets the poor based on their land ownership but it provides credit, training and other inputs through the two-tier cooperative structure.

Although other BRDB programs have been evaluated by different authors and agencies, including the United Nations Development Programme (1988), the targeted credit program of RD-12 has not been systematically examined. The RD-12 project has, however, been evaluated by the Canadian International Development Agency (CIDA) in various midterm reviews and other studies. A number of household-level impact analyses of RD-2 have also been carried out (Alam 1988; Alam 1989; Kabir and others 1988; UNDP 1988), yet most of these cannot determine whether the impacts are causal since the studies suffer from sample selection bias. As such, there has been little systematic analysis of the performance and potential of RD-12 in effectively reaching the poor and in reducing rural poverty within the government administrative structure.

The purpose of this study is, therefore, to understand what the RD-12 project is, what it does, who it serves, how it functions and at what cost, and whether it is sustainable. The RD-12 program has been executed in 139 thanas in Bangladesh, where other BRDB programs are also in place. This analysis is based on RD-12 program-level data and the data collected from the Thana Bittaheen Central Cooperative Association of 138 thanas. The program-level aggregate data for RD-12, provided by its project office at the BRDB and by the Canadian Resource Team (the CIDA-sponsored external monitoring

agency for the RD-12 project), covers 1989-94. The panel data from 138 thana-level bittaheen societies for 1988-91 was complemented by yearly thana-level data on rainfall, roads, electrification and schools, and some time-invariant characteristics, such as agroclimate and locational factors. These branch- and program-level data were used to analyze whether the RD-12 project is a sustainable targeted credit program for the rural poor. Although the household-level impacts of RD-12 have been analyzed separately using household-survey data, this report examines some macro-level effects, such as the impact of RD-12 on rural wages. The data on wages and other relevant variables were collected over three rounds during 1991-92 from 87 villages covered by the household survey. These data were used to document the impacts of the RD-12 project, along with the Grameen Bank and the BRAC, on rural wages. The major finding of this study is that the government administrative structure has been able to draw upon NGO experiences and develop innovative income-generation activities, and that it is possible to develop a successful poverty alleviation program within the cooperative system.

RD-12 is a government project, financed by the Canadian International Development Agency, which on-lends to the rural poor in a credit market characterized by incomplete information and imperfect enforcement. These market imperfections can undermine the financial viability of any development finance institution. Recent developments in the rural credit market literature have identified two stylized facts that are critical determinants of a development finance institution's viability. First, unless innovative policy interventions are introduced in a program's design to address market imperfections, rural financial institutions may not succeed because the process of development is itself unlikely to correct these imperfections (Stiglitz 1993). Second, unless the survival concerns of borrowers are integrated into the credit delivery design, the development finance institutions cannot be viable because the survival of both lenders and borrowers depend on the same material production risks characteristic of a rural setting (Binswanger and Rosenzweig 1986).

The second chapter discusses how RD-12 has followed some of the innovative procedures of the Grameen Bank and the BRAC in attempting to address these issues. Unlike its formal counterparts, such as commercial banks, development finance institutions, or other BRDB projects, the RD-12 project has explicitly targeted the poor who are generally excluded from formal credit sources. This has been accomplished by replacing the conventional collateral requirement with group responsibility. Also, like informal lenders, close monitoring of borrowers is a crucial part of group-based lending. Unlike informal lenders, however, the self-selected groups in the primary societies bear the burden of screening and

monitoring, since members are required to monitor each other's activities. Although the RD-12 project is based within the BRDB cooperative system, where members form primary cooperatives that become the vehicles for credit disbursement and other input supplies, its innovations differ from other BRDB cooperative programs. RD-12 has a self-monitoring cooperative structure based on the Grameen Bank design where smaller solidarity groups, within the primary societies, monitor and recover loans.

Unlike other development finance institutions, savings mobilization has been an integral part of RD-12 lending operations. Similarly, unlike many other government programs, the explicit objective of RD-12 is to alleviate poverty. But since the rural poor generally lack both financial discipline and access to social inputs, the RD-12 project has also practiced social intermediation to improve individual and social accountability, and to increase productivity and income-earning opportunities.

Providing credit and social and human development inputs to the rural poor is a high-cost activity, particularly when the beneficiaries are not capable of supporting the full program costs. Given this prospect, the Canadian International Development Agency provided grants for on-lending, and the government provided institutional support and funds for its implementation. Chapter Three describes this process. It also reviews how RD-12 has rapidly expanded during the short period of its operation. For example, in 1989, RD-12 mobilized more than 154,000 members, disbursed \$0.91 million had loans outstanding of \$0.53 million, and mobilized \$0.79 million as savings and deposits. By 1991 RD-12 had mobilized over 267,000 members, disbursed \$3.5 million, had loans outstanding of \$1.7 million, and had mobilized \$1.6 millions savings and deposits. By 1994, its membership had expanded to over 452,000 spread across 16,565 primary societies. In the same year, it lent Tk 706.5 million (\$17.6 million) to the assetless while savings mobilized was Tk 211.1 million (\$5.2 million). Chapter Three also discusses the evolution of the RD-12 portfolio and its provision of social and human development inputs.

Chapter Four presents a framework for analyzing the sustainability of the RD-12 project. The issue of sustainability is related to institutional viability, financial viability, and the viability of the program participants.¹ Since RD-12's credit program is based on the active participation of its societies,

¹ By *institutional viability*, we mean the institutional development of the credit program is such that it has the ability to deliver services on a sustained basis. In particular, a sustainable institution must have effective procedures for management succession. On the other hand, *financial viability* means that the program can equalize the cost per dollar lent with the price it charges for lending to its borrowers. *Borrower viability* means that the benefits from the program meet the cost of borrowing and borrowers have an incentive to repay their loans.

these three aspects of sustainability are interrelated and important. While institutional development and financial viability promote stability, they are not sufficient for overall sustainability. Since both lenders and borrowers face the same production risks, if benefits accruing to the borrowers are not sustainable, loan repayments will not remain regular, and the existence of the program will be jeopardized. This chapter discusses various measures of program sustainability and concludes with a discussion of how subsidy and a subsidy dependency index can be calculated.

Chapter Five focuses on the institutional development of the RD-12 project. It also estimates the financial viability of its programs as well as the viability of its borrowers. Although RD-12 is being executed by the BRDB, which operates under government rules and regulations, it has developed a decentralized system based on some aspects of the Grameen Bank and BRAC models. This chapter discusses incentives in the pay structure and their determinants and whether RD-12 program placement is determined by unchanging area and agroclimate characteristics, which control the nature and extent of production risk.

Due to the lack of adequate data, an aggregate-level financial analysis could not be performed. Chapter Five, however, discusses the profitability of the thana-level societies and presents the estimates of subsidy and subsidy dependence. A thana-level society is profitable if it can meet its expenses with its revenue and its profitability is substantially influenced by the grants received from the project head office. Thus, a thana-level society's profitability is determined by whether or not a grant is included in its revenue. If it is not profitable without this grant, it is not financially viable and thus requires financial subsidy.

Thana-level societies' operations also benefit from economic subsidy, since the grants utilized for on-lending bear no interest. The economic subsidy is defined as the difference between the actual cost and the opportunity cost evaluated at the market rate of interest rate of these funds. Chapter Five estimates the extent of economic subsidy enjoyed by the bittaheen societies and calculates whether they can eliminate all forms of subsidy using the financial instruments at their disposal. Our estimates suggest that the BRDB needs to increase the lending rate by at least thirteen times in order to eliminate the economic subsidy. Such an interest rate increase however, is socially unacceptable and possibly non-viable at the borrower level.

The other option for RD-12 is to improve its cost efficiency. A cost analysis is conducted to see if the thana-level societies are cost-effective and whether economies of scale exist in the thana-level operations. The results indicate that economies of scale do exist in thana-level societies' operations, suggesting that RD-12 has the potential to eliminate subsidy by expanding both loan disbursement and membership.

Chapter Five also discusses the viability of RD-12 borrowers, since the expansion of the program depends on whether the accrued benefits to borrowers are sustainable. Borrower viability also indicates the extent of potential market constraints on the expansion of the primary and bittaheen societies. There are different measures of borrower viability: dropout rates, repayment rates, and the impact on borrowers' income and other benefits. Although household-survey data are necessary to accurately measure the viability of borrowers, the thana-level data has been used to calculate loan repayment rates, while the village-level aggregate wage data is used to quantify the impact of RD-12 on rural wages. The loan recovery rate has consistently remained above 90 percent, suggesting a high degree of viability. At the same time, the village-level impact study suggests that the RD-12 project has had a sustainable impact on rural wages, indicating that this program may have made a dent in rural poverty.

Chapter Six presents the conclusions of the report and discusses policy options, including the possible expansion of the RD-12 project into other areas of Bangladesh. In particular, it discusses the constraints on the future replication of a RD-12-type project within the country. Expansion is feasible only if the existing thana-level societies can operate without relying on subsidized funds. Thus these societies must be made profitable and self-sustainable, before RD-12 can be expanded. Recent encouraging signs include the growing use of internally generated funds for RD-12 project implementation and the use of its members' savings and deposits to generate more funds for on-lending.

CHAPTER TWO

The Bangladesh Rural Development Board and RD-12

Bangladesh is one of the poorest countries in the world, and its poverty is characterized by both a weak national economy and the socioeconomic conditions of a large proportion of its population. Although Government policies have emphasized macroeconomic interventions, both the GOB and non-governmental organizations (NGOs) have made great efforts to combat poverty. The Bangladesh Rural Development Board (BRDB), under the Ministry of Local Government, Rural Development and Cooperatives, is the main agency for executing the GOB's poverty alleviation and development programs.

The BRDB was formed in 1982, and its programs are organized through two-tier cooperative societies for which credit is the key input. This model was derived from the integrated rural development approach, known as the Comilla model. Among various targeted poverty reduction programs that were being executed by the government, the Integrated Rural Development Program (IRDP), which preceded the BRDB, started organizing cooperatives for landless men ("Bittaheen Samabay Samity" or BSS) and women ("Mohila Bittaheen Samabay Samity" or MBSS) in 1974 as one of the main thrusts of its poverty alleviation program (Commonwealth Secretariat 1992). Most GOB rural credit programs are implemented through the BRDB cooperatives. By 1988, the BRDB had disbursed Tk 5,800 million in loans to men and Tk 91 million to women (World Bank 1990).

The RD-12 project, which was begun in 1988-89 for those without assets (the "bittaheen"), is a rural development program financed by the Canadian International Development Agency (CIDA). It is administered by the BRDB and costs Can\$ 55.6 million for the initial six-year project period. This project is a prominent part of the GOB development strategy and is regarded as a "flagship" by the Ministry of Local Government, Rural Development, and Cooperatives and by the BRDB. Working through the cooperative societies, the RD-12 project supplies credit and skill development training to the rural poor, with the goal of alleviating poverty through income and employment generation. The purpose of the project is also "to strengthen the capacity of the BRDB to plan, implement, and sustain development among the rural poor" (CIDA 1993).

The Bangladesh Rural Development Board

The development of the RD-12 project and similar government poverty alleviation programs in Bangladesh can be traced to the Comilla model of rural development. This model was pioneered in the 1960's by Akhtar Hamid Khan at the Academy for Rural Development in the Comilla area, with the objective of attaining self-sufficiency in foodgrain production using green revolution technology and by organizing cooperatives. In order to promote the use of new intensive farming techniques, the required inputs, such as high-yield variety (HYV) seeds, chemical fertilizers and pesticides, and modern irrigation, were subsidized. The organizational approach included primary farmers' cooperatives (Krishak Samabay Samity) which were federated into central cooperative societies at the thana level. This approach also included training and development centers to promote the use of the new HYV technology, the Rural Works Program, and a program to promote the efficient use of new irrigation methods. In addition, two-tier cooperatives for the landless were established to enable them to undertake non-agricultural activities.

Following Bangladesh's independence in 1971, the new government made rural development a major priority and adopted the Comilla model as the basis for its national rural development strategy. This strategy, which was financed by the World Bank as the Rural Development Project I (RD-I), led to the creation of the two-tier cooperative system for farmers. This country-wide replication of the Comilla model was known as the Integrated Rural Development Program (IRDP).

By 1980, the program covered 267 thanas, but it had not been very successful in raising production and increasing equity (Jones and Hossain 1984). The cooperatives were ultimately dominated by wealthier landowners who secured the newly available scarce resources. Although higher gains were recorded on larger farms, larger loans went to the wealthier members and the unequal access of the poor to and within cooperatives became more evident over time (Stepanek 1979). When RD-I was ended in the early 1980s, it was concluded that the government agency implementing the rural development strategy needed to be strengthened and that the strategy needed to be expanded to include special cooperatives for the rural poor (BRDB 1988).

The Bangladesh Rural Development Board was established in 1982 to replace the IRDP. It was also based on two-tier cooperatives, but employed credit as its main input and included a component addressed specifically to the rural poor in its design. Its objectives included the mobilization of savings,

the diffusion of new agricultural technology, and the diversification of the cooperatives into marketing and warehousing as well as education and health, the training of local leadership, and the expansion of equity (Sen 1990).

The BRDB is a semiautonomous government organization, with its own board of directors. The Board is under the administrative purview of the Ministry of Local Government, Rural Development and Cooperatives, and functions as if it were a department of that ministry. The director-general of BRDB, who is also its chief executive and the secretary of the board of directors, is appointed by the government.

Given its broad mandate, the BRDB has emphasized organizing farmers and mobilizing related primary cooperatives and the second tier association of cooperatives at the thana level. The organization of the Thana Central Cooperative Associations and the farmers' cooperatives (Krishi Samabay Samity) constitute the main scheme or regular program in BRDB activities. These account for over 60 percent of BRDB-sponsored cooperatives, cover all sixty-four districts of the country, and involve about one-third of the BRDB's more than 6000-person staff (CIDA 1993).

Other BRDB projects were also developed that were focused on various non-farm target groups in rural areas. These projects operate parallel to the regular program and currently comprise a dominant share of BRDB expenditures. They include the Rural Development Project II (RD-II), cofinanced by the World Bank, the United Nations Development Programme (UNDP), the Overseas Development Administration (ODA) of Great Britain, and the Canadian International Development Agency (CIDA). The CIDA financed the Rural Poor Program Phase I (RPP I) component of this project, at a cost of Can\$ 22.88 million.

The purpose of the RPP I under the RD-II project was to increase income and employment opportunities for the rural poor by setting up a separate system of primary cooperatives. The eligible poor were those men and women who owned less than half an acre of land and depended on manual labor as their major source of income. The cooperatives (Bittaheen Samabay Samity for men and Mohila Bittaheen Samabay Samity for women) provided members with skill development, training in group leadership and management, and access to credit. In order to accomplish this, the RPP cell of the BRDB

was established to increase the institutional capacity of the BRDB to organize the target groups and deliver the project inputs.

The RPP I covered 129 of the 139 thanas in five of the greater (old) districts of Bangladesh - Barisal, Khulna, Mymensingh, Jamalpur, and Dinajpur. The project mobilized about 5,600 societies, almost double its original target (BRDB 1988). Of these, 35 percent were women's societies, which was 21 percent more than the target number. According to a BRDB report, the RPP I had a positive overall impact: the demand for credit was very high, supervision and recovery rates for loans were satisfactory, and most loans were used for investment in different employment- and income-generating activities (BRDB 1988). The problems identified with this project included the delayed implementation of some aspects of the project and difficulties with its credit facility, which operated through a commercial bank whose inflexible procedures and inadequate administrative support did not equip it to deal with the target group's credit requirements.

The RD-12 project

In April 1988 the government approved a six-year program specifically for the rural poor and requested CIDA assistance. The program was called the Rural Development Project 12 (RD-12). The undisbursed funds from Rural Poor Program Phase I were used to finance its first-year and part of its second-year operations. This bridge period was designed to ensure a steady transition between the two projects. The RD-12 project was intended to increase production and create income-earning opportunities for the rural poor through productive economic activities. It has now become the largest BRDB project apart from the BRDB's regular program, and the project has been extended for two years ending June 1996.

Given the experiences of the RPP I and those of successful NGOs in Bangladesh, some modifications were made in the second phase of the project. Among them was a more effective group mobilization process and a simpler and more flexible credit procedure. The new organization included the creation of thana-level cooperative societies and the introduction of smaller "solidarity" groups in the primary societies for mobilizing target group members. The loans were channelled directly to the borrowers from the local revolving loan fund account located at each of the 139 thanas. In order to sustain the thana-level societies, the revolving loan funds (principal plus interest earned at 7 percent per

year) would be retained in the local revolving loan fund accounts for at least five years after project completion in order to provide further credit to its members.¹

The RD-12 project would also provide better training, both in the management of cooperative societies and in increasing the returns on income-generating activities. The modifications also included improved training for the field and other project staff.

The RD-12 project also aspired to advance institutional capacity-building in the BRDB and the government, corresponding to the GOB rural development strategy, its national Five Year Plans, and various sectoral targets. The RD-12 project sought to organize 14,500 cooperative societies in 139 thanas of seventeen districts (in the six greater districts) in the project area. It intended to mobilize about 362,500 members of the societies and indirectly benefit 2,175,000 household members (assuming that there would be one member from each six-person household), of whom half were expected to be women. These societies were to provide credit to enable the rural poor to participate in local markets, and they were to provide the organizational structure to foster local leadership and participation in community affairs.

The RD-12 project also followed the formal two-tiered cooperative system and is regulated by the relevant cooperative legislation, administered by the Registrar for Cooperative Societies. In addition, the project is subject to various government rules, procedures, and jurisdictional bounds, including staff deployment, budgetary provisions, and project decisionmaking.

The RD-12 credit delivery system employs over 2000 personnel who are in direct contact with the primary societies and their members. The largest number of staff members are located at the thana-level offices, and there are technical resource teams in the six greater districts to provide training and technical assistance to the society members.

¹ The original project completion for RD-12 was to be in June 1994, but the project has been extended until June 1996.

The credit delivery approach of the cooperative societies

The primary cooperative societies are the main organizations in which members of the project target group are mobilized. Before receiving credit and other services, eligible individuals must be a member of a primary society. Each primary society has fifteen to thirty-five members and is formally registered as a cooperative by the Registrar of Cooperative Societies.

A newly mobilized society is eligible for formal registration after a probationary period of ninety days, during which it is observed and evaluated. A mobilized society is required to meet at least once a week, keep an up-to-date minute and resolution book, draft regulations (by-laws) regarding the operation of the society, and elect a manager and a chairperson. Members are also required to save at least Tk 2 each week and in practice save and deposit Tk 5 each week. In addition, all members are required to buy a society share worth Tk 10 every year from their cooperative societies.

In order to be eligible for credit provided under RD-12, the repayments for any loan given to the society members have to be up to date. Eligible members can borrow up to Tk 10,000 (about US\$ 250) for one year at an interest rate of 16 percent. (Interest was initially charged on the declining balance until January 1994 when it was changed to interest on the principal. However, interest on declining balance will be reintroduced in January 1996). Repayments of the principal and interest must be made in fifty weekly installments. Borrowers are also required to contribute 5 percent of the principal amount borrowed to a group fund, which is refundable and earns interest at a rate equivalent to the rate offered by commercial banks on savings deposits. Unlike the Grameen Bank, the RD-12 project reimburses group fund contributions if members decide to leave the societies. Members view the group funds as an additional source of credit, which can be accessed as necessary with the approval of the other members of their society. In addition to these loans, primary society members are trained in undertaking income-generating activities, and in group mobilization and conduct. The RD-12 project, through the BRDB field staff and with other government agencies and NGOs, also provides training in areas such as basic education and family planning in order to promote social development.

Many primary societies are subdivided into "solidarity groups" or "pre-cooperatives" of four to five members who function as a mutual support group. Each solidarity group elects a group leader who assists the manager of the primary society and creates the group fund. These informal groups are formed

to encourage their members to make full use of their assets by undertaking income-generating activities and to become efficient consumers of local resources and services.

Solidarity group membership is limited to one man and one woman from the same household, and men and women form separate groups (as well as primary cooperative societies). Groups are also formed on the basis of economic homogeneity; the inclusion of those who are not target group members disqualifies the group from receiving credit, training, and other services. Before groups are formed, baseline surveys are undertaken to collect information on the socioeconomic conditions of the target group population and to identify potential productive opportunities and resources.

Group meetings make up the primary screening mechanism for loan applications. At the weekly meetings, the loan applications of individual members are discussed with the entire group and a project field organizer. If approved at this meeting, a loan application is sent to the loan committee of the thana-level society for approval and then to the district project director of RD-12. The higher-level review of the loan applications is to ensure eligibility and adherence to procedure. According to a recent evaluation report (CIDA 1993), "perhaps as many as 85 percent or more of loan requests that pass through screening at the primary society level are ultimately approved as submitted". A few are rejected while others have the credit amount modified.

The loan application and approval process and the responsibility for regular loan repayment lies primarily with the group. The manager and chairperson of the primary society, with the assistance of the solidarity group leaders, ensure that members attend weekly meetings and repay their loans. However, the loan administration is completed by thana-level field organizers, as it requires issuing receipts for loan repayments, shares and savings deposits and maintaining detailed loan records and minute books.

All the primary cooperative societies are federated into a secondary cooperative society at the thana level, the Thana Bittaheen Central Cooperative Association (TBCCA). This cooperative represents all primary societies and is the initial point of interaction between the members and government agencies. For the RD-12 project, there are thana-level societies in each of the 139 thanas covered.

A thana-level society consists of a management committee (and its subcommittees) which is elected by the primary societies, along with two government-appointed members. It also has a loan committee, comprised of two elected management committee members and the assistant rural development officer. Reviewing the credit application is the thana-level society's major task. The management committee also helps the BRDB field staff with member mobilization, credit administration, conflict resolution, and repayment problems. Further, the thana-level societies coordinate training courses for society members.

Training and other intermediation for human and social development

Training is a crucial element of the RD-12 project and is instrumental to the implementation and success of the other project components. The objectives of the training are "to animate and facilitate participatory social and economic development of the 'bittaheen' through a government bureaucracy and to equip that bureaucracy with the required knowledge and skills to maintain it" (CIDA 1992). The training component of RD-12 has required the creation of a broad system covering the assessment of need, and designing, planning, delivering, supervising, and evaluating a wide range of training programs for the field staff and society members.

The training is participatory and covers both the content and the process involved in implementing RD-12. The project staff at BRDB headquarters are trained to improve their capacity to plan, manage, and maintain all aspects of the RD-12 project and to effectively undertake their assigned responsibilities. The project field staff are trained to mobilize the bittaheen societies, to train, supervise, and support the society members, managers and the chairpersons, and to plan, implement, monitor, and evaluate their activities. These training programs are designed and delivered by the training unit of the RD-12 project and the Canadian Resource Team.

In earlier BRDB projects, the field staff was trained in collaboration with other national training institutes, such as the Bangladesh Academy for Rural Development. However, these institutions could not provide a participatory mode of training. As such, the RD-12 training unit developed its own in-house training capability by having its "field trainer" prepared to instruct other RD-12 field staff.

Members of the primary cooperative societies are trained to be effective group members and leaders, to undertake profitable and productive income-generating activities, and to utilize credit and other external resources available for socioeconomic development. The objective is to provide members with practical skill training directly related to their current or proposed income-generating activities. In addition to these interventions, RD-12 also focuses on human resource development. Society members recite "oaths" at the weekly meetings, enumerating a list of behavioral "dos and don'ts aimed at social development (see Appendix).

Training for the primary societies and the thana-level societies are supervised by the thana rural development officers or the assistant rural development officers, the district project directors, and the district supervisory teams. Society members are trained through various courses and activities.

Field organizers train target group members to form groups. This training is provided once a week for about three months and the groups are evaluated by field organizers and rural development officers prior to their registration as a cooperative society.

Field organizers train regular primary society members once a month at the weekly meetings. These sessions augment "the training of members in cooperative management as well as in individual and group human and social development" (CIDA 1992). Each registered society is required to hold a weekly meeting and each field organizer is required to visit two societies per day to attend these meetings. Since the weekly meetings primarily focus on credit transactions, only limited training, if any, is given in these sessions.

"Member education" training is provided in three-day workshops at the thana-level societies. These are conducted by the thana rural development officer and assistant rural development officers for groups of twenty to thirty members. This training covers cooperative management, credit operations, human development and leadership.

Furthermore, the technical resource team routinely provides training to improve income-generating skills. Each team includes six trained persons and the workshop is conducted at the thana level for about twenty society members.

The thana rural development officer, assistant rural development officers, and field officers hold monthly training sessions for primary society managers and chairpersons in one-day modules aimed at improving their management skills. The managers and chairpersons are then expected to disseminate this information to the society members. About forty topics are covered, relating to poverty and rural development, social and cultural issues, cooperative management, leadership, credit administration, and income-generating activities.

The Deputy Director of the BRDB, the district project directors, and the Production and Employment Program Cell of BRDB headquarters train the thana-level society chairpersons and management committee members in a six-day program. In order to develop the leadership qualities and skills for effective thana-level societies management, the training covers topics such as the role of two-tier cooperatives in addressing the problems of the rural poor, credit operations including the revolving loan fund, budget planning, economic self-reliance, capital formation, rules and regulations of the thana-level societies and the primary societies, decisionmaking processes in the thana-level societies' leadership, and overall competence.

CHAPTER THREE

Funding, organization, and beneficiaries

The RD-12 project is the Bangladeshi government's largest poverty alleviation effort. By 1994, it was operating in 139 thanas, having mobilized more than 452,000 members in 16,565 primary societies. The proportion of women members has gradually risen from 38 percent in 1989 to about 68 percent in 1993 and about 70 percent in 1994. Its cumulative disbursement has increased from Tk 36.3 million in 1989 to Tk 1895.6 million in 1994, and total savings have also grown from about Tk 32 million to more than Tk 212 million over the same period.

Sources of funds

The Government of Bangladesh (GOB) contributes Tk 861 million of the total project cost of about Tk 1,511.2 million. These figures include a Tk 457.1 million grant for a revolving loan fund to facilitate credit operations.

Funding for the RD-12 project has been provided mainly by the Canadian International Development Agency (CIDA), and it is the largest Canadian-funded rural development project. The CIDA has covered as much as 95 percent of the total cost (Can \$55.6 million), but its fund contribution for implementing the project will be reduced from 57 percent in 1993-94 to 34 percent in 1995-96.

Since the GOB contribution will also decrease, from 16 percent in 1993-94 to 8 percent in 1995-96, funds generated by the RD-12 project itself will increase from 28 percent to 58 percent over the same two-year period.

Administrative structure and organizational growth

The RD-12 project is dispersed over six greater districts, from Dinajpur, Bogra, Jamalpur, and Mymensingh in the northwestern and northern parts of the country to Khulna and Barisal in the south.¹

¹ The RD-12 project covers all thanas of the present 17 districts (in these six greater or old districts): Panchagarh, Thakurgaon, Dinajpur, Bogra, Joypurhat, Jamalpur, Sherpur, Khulna, Satkhira, Bagerhat, Barisal, Jhalakathi, Bhola, Perojpur, Mymensingh, Kishoreganj and Netrakona.

For better supervision, coordination, monitoring, and management of project activities, its headquarters are centrally located in Dhaka.

At the national level, an Additional Director-General of the BRDB acts as the project manager. The manager is supported by the Director of RD-12 and they are responsible for the overall supervision, monitoring, and implementation of the project.

The project staff at the BRDB headquarters includes four joint directors, four deputy directors, eight assistant directors, and their support staff. The RD-12 cell consists of four units - mobilization and administration/coordination unit, the credit and finance unit, the training unit, and the research, monitoring, and evaluation unit - which support all of the project's activities. Each of these units is headed by a joint director, who oversees a deputy director and two assistant directors.

The project field-level staff consists of the district-level functionaries, with a deputy project director and two assistants, who supervise the thana-level staff. In addition, there are six technical resource teams at the greater district headquarters. The majority of the field staff are located at the thana-level BRDB offices. These include the thana rural development officers, assistant rural development officers, field organizers, accountants, and other support staff.

By 1994, there were 16,565 mobilized societies with 452,016 members, reflecting a 163 percent growth in primary societies and a 193 percent growth in membership from 1989 (Table 3.1). In 1991, there were 267,504 members mobilized in 11,107 primary societies, which represented a 73.5 percent increase in membership and a 76.5 percent increase in the number of mobilized societies since the program's beginning in 1989.

The primary societies must be formally registered before members can borrow from the credit program. The number of registered societies increased by 213.6 percent over 1989-94, from 5,176 in 1989 to 16,234 in 1994. However, the expansion of credit operations can be better gauged by the increase in the number of net loanee societies, those primary societies in which the amount of credit disbursed is greater than member savings and other inflows. Over 1989-94, the number of such net loanee societies grew by 1,151.4 percent, from 1,110 to 13,890.

Employee expansion

Another indicator of RD-12's expansion is the gradual increase in the number of its employees (Table 3.2) The average number of RD-12 employees per thana-level society grew from 6.4 in 1988 to 18.4 in 1994. The average number of thana-level on average increased from 4.3 to 9.8 over 1988-91 and to 15.03 in 1994, while the average number of managers/officers increased from 1.8 in 1988 to 2.3 in 1994.

The total number of BRDB RD-12 employees increased steadily to 2,550 in 1994. Over 1988-91, the total number of employees grew by 103.2 percent, from 894 to 1,817. The annual growth rate was highest (42.1 percent) in 1991. This was primarily due to a 59.9 percent increase in the number of thana-level staff that year. Over 1988-91, there was a 128.1 percent growth in field-level staff (from 597 to 1,362), while the number of managers and officers increased by 25.9 percent (from 251 to 316). In 1992, the total number of RD-12 employees grew to 2,254, a 24.1 percent increase over the 1991 figure. By 1993, the total rose to 2,474, an increase of 9.8 percent, followed by an increase of 3.1 percent to 2,550 employees in 1994.

The number of BRDB field-level staff including both district- and thana-level employees, totalled 2,089 in 1994. Of these employees, over one-third were women. In 1992 there were 2,221 field-level staff, of whom 836 (37.8 percent) were women. At the project head office there were nine female employees among the staff of forty-seven in 1992 (BRDB Annual Report 1992). One more female employee was appointed in 1993; nearly 80 percent of the head office staff is still male.

Membership growth and gender coverage

Total membership in RD-12's mobilized societies was 452,016 in 1994. The number of mobilized members had increased by 73.5 percent between 1989-91, from 154,150 to 267,504 (Table 3.1). In the next two-year period, the growth rate slowed to 59.9 percent, with 427,703 members mobilized by 1993, followed by a 5.7 percent increase to 452,016 members in 1994. The number of societies in which these members were organized grew by 76.5 percent over the 1989-91 period from 6,294 to 11,107 societies. Over 1991-94 this number rose by 49.1 percent to 16,565 mobilized societies. The average membership per mobilized society changed over time: it was 27.3 in 1994 and 26.2 in 1993, compared to 24.1 in 1991 and 24.5 in 1989.

Registered societies also increased by 71.8 percent over the first two-year period, from 5,176 to 8,890, and then by 82.6 percent over the next three years to 16,234 in 1994. The number of members in these societies rose from 130,353 to 218,516, an increase of 67.6 percent, between 1989-91. Over 1991-94, the growth rate was 101.6 percent, resulting in 440,544 members in registered societies in 1994. The number of members per registered society increased gradually to 27.1 in 1994 from 25.2 in 1989, 24.6 in 1991 and 26.2 in 1993.

The number of net loanee societies grew by 301.1 percent in 1989-91 (from 1,110 to 4,452) and by 212 percent in 1991-94, with 13,890 loanee societies in 1994. The number of loanee members also increased rapidly from 16,765 to 104,810 in 1989-91, a growth rate of 525.2 percent. In the following three-year period the number of loanee members grew by 201.5 percent to 316,000 in 1994.

The number of female loanee members expanded over 21 times in 1989-94, growing by 618.3 percent in 1989-91 (from 6,705 to 48,159), followed by a 406.2 percent increase in 1991-94. The number of male loanee members grew at a slower rate (618.1 percent) over 1989-94. Such membership grew by 463.1 percent in 1989-91 (from 10,060 to 56,651), then by 28.5 percent in 1991-93 but declined by 0.7 percent in 1994. In 1994, 22.8 percent of total loanee members were men (72,239 out of 316,000). As such, the proportion of women in the loanee societies increased over the 1989-94 period from 40 percent to 77.2 percent. In 1994, of the 13,890 loanee societies, 10,472 were for women (75.4 percent of the total), compared with 2,148 (48.3 percent) in 1991 and 487 (43.9 percent) in 1989.

The number of mobilized primary societies for women (MBSS) expanded to 11,551, or 69.7 percent of all mobilized societies in 1994, compared with just less than half of the total mobilized societies (5,453 or 49.1 percent) in 1991 and 37.9 percent (or 2,388) societies in 1989. The proportion of mobilized women members also increased steadily from 35.5 percent in 1989 to 46.1 percent in 1991, 67.7 percent in 1993 and then to 69.7 percent in 1994.

Similarly, in registered societies, the proportion of women had increased over 1989-94 from 34.1 percent (or 44,504) to 69.2 percent in 1994 (304,794). In the same period, the number of registered societies for women grew from 1,871 (36.1 percent) in 1989 to 11,267 (69.4 percent) in 1994.

Disbursement and portfolio mix

RD-12 disbursement to women members also increased over 1989-94 (Table 3.3). By 1994, total disbursements to women amounted to 73.4 percent of cumulative lending, having gradually risen from 36.1 percent in 1989. During this period total cumulative disbursement more than doubled each year, growing from Tk 36.3 million to Tk 1,895.6 million. While lending for all activities grew by nearly than 5,125 percent between 1989-94, lending to women expanded by over 106 times over the same six-year period.

This growth in lending to women is also demonstrated in the average cumulative disbursement per loanee member (Table 3.4). For women, this average rose by 192.3 percent from Tk 1,951.3 in 1989 to Tk 5,704.16 in 1994. On the other hand, the average cumulative disbursement for male loanee members declined from Tk 2,305.9 in 1989 to Tk 2,217.8 in 1991, before rising to Tk 6,992.09 in 1994. Similarly, the average cumulative disbursement for all members declined slightly from Tk 2,164.10 in 1989 to Tk 2,133.54 in 1991 before increasing to Tk 3,507.17 in 1992 and Tk 5,998.59 in 1994.

Annual disbursement for all activities accelerated between 1989-92, followed by a slight slowdown in 1993 and even slower growth in 1994 (Table 3.5). In 1989, annual disbursement was Tk 36.3 million; it almost doubled each successive year, to Tk 65.6 million in 1990, Tk 124.3 million in 1991 and then to Tk 307.8 million in 1992. In 1993 total annual disbursement was Tk 659.8 million, an increase of 114.3 percent over the previous year, but in 1994 the growth had slowed down to only 7.1 percent. Overall, annual lending expanded by 748 percent over the 1989-92 period, while the increase over 1992-94 was 129.5 percent.

The growth in annual lending to women was only 15.8 percent between 1993-94, compared to 170.2 percent in 1992-93, 223.5 percent in 1991-92, 121.7 percent in 1990-91, and 101.7 percent in 1989-90. On the other hand, the growth rate of annual lending to men was 69.2 percent in 1989-90. It declined to 67.7 percent in 1990-91, increased to 80.2 percent in 1991-92, then slowed to 25.3 percent in 1992-93, but fell to -2.3 percent as annual disbursement to men declined in 1994.

Overall, RD-12 lending for all income-generating activities was Tk 706.5 million in 1994 compared to Tk 36.3 million in 1989. Over 1989-93, total annual disbursements to men and women

increased rapidly for almost all activities, followed by only 7.1 percent growth in 1994 (Table 3.5). Between 1989-93, annual disbursement declined only for oil milling but increased significantly for livestock, poultry, industry, small trading, paddy husking, fisheries, tailoring and "others" between 1989-93. However, in 1994, negative growth in disbursement was reported for small trading, paddy husking and industry.

Loans for poultry grew most extensively, expanding by almost 800 times over 1989-94 from Tk 0.1 million to Tk 79.9 million. Over the 1989-93 period, loans for industry grew by 6,023.6 percent, followed by those for fisheries (4,917.2 percent), paddy husking (2,628.4 percent), and livestock (1,200 percent). But in 1994 loan disbursement for industry declined by 3.8 percent, as was the case for paddy husking (-9.1 percent) and small trading (-12.75 percent). However, annual increases were recorded in 1994 for poultry (22.3 percent), livestock (20.3 percent), fisheries (17.2 percent) and "others" (23.7 percent). At the other end, annual lending for oil milling recorded the smallest growth, about 12.5 percent between 1989-92. It then declined by 41 percent in 1992-93 before increasing by 58.9 percent in 1994. These trends may reflect the increased rate of disbursements to women for all activities compared to lower growth rates of loans to men; in 1994, annual growth was much lower than the previous years, dropping to 15.8 percent for women and -23.9 percent for men.

In 1994 livestock loan disbursements comprised the largest proportion of all loans for both men and women. Of all loans made to women that year, livestock loans accounted for 30.5 percent, followed by paddy husking at 21.9 percent, "others" at 15.5 percent, poultry at 13.4 percent, small trading at 12.1 percent and fisheries at 5.2 percent. Five years earlier the leading activities were livestock (40.7 percent), paddy husking (29.5 percent), and small trading (23 percent). There were enormous increases in annual loan disbursements between 1989 and 1994 to women for all income-generating activities (except for oil milling where there was a net decrease of 28.9 percent in 1989-92 with no lending in 1993, followed in 1994 by almost double the 1992 disbursement). The growth in lending to women was significant for fisheries (disbursements grew from Tk 15,000 in 1989 to Tk 30.7 million in 1994), poultry (Tk 115,200 in 1989 to Tk 79.9 million in 1994), paddy husking (Tk 3.9 million in 1989 to Tk 129.7 million in 1994), and livestock (from Tk 5.3 million in 1989 to Tk 180.4 million in 1994).

On the other hand, in 1994, loans for livestock (36 percent) and small trading (31.4 percent) were most often sought by men, followed by fisheries (9.4 percent), industry (8.1 percent), paddy husking (7.9

percent) and "others" (6.2 percent). By comparison, disbursements for small trading had accounted for more than 50 percent of all lending to men in 1992, followed by livestock (27.3 percent) and paddy husking (9.3 percent). In 1989, the most loans to men were given for livestock (38.4 percent), small trading (29.8 percent) and paddy husking (7.5 percent). Over the 1989-93 period, loans for industry registered the highest growth in annual disbursements to men, from Tk 124,000 in 1989 to Tk 13.4 million in 1993 but declined to Tk 9.2 million in 1994. In fisheries, annual lending increased from Tk 689,800 in 1989 to Tk 14.9 million in 1993 but decreased to Tk 10.7 million in 1994. Loans for small trading grew from Tk 6.9 million in 1989 to Tk 52.3 million in 1993 followed by a decline to Tk 35.9 million in 1994. Similarly, disbursements to men for livestock loans rose from Tk 8.9 million in 1989 to Tk 48.2 million in 1993 but decreased to Tk 41.2 million in 1994. Disbursements for paddy husking loans also grew from Tk 1.7 million in 1989 to Tk 12.8 million in 1993, but there was a 29 percent decline to Tk 9.1 million in 1994. Annual disbursements in tailoring increased from Tk 175,000 in 1989 to Tk 278,000 in 1990 but then declined consistently to arrive at Tk 124,000 in 1994. However, lending for oil milling returned to its 1989 level (Tk 245,000) in 1994 after consecutive growth and decline in annual lending during 1989-93.

Loans outstanding

The amount of loans outstanding for all activities is another indicator of the growth of RD-12's credit program. The total amount outstanding in 1994 was Tk 275.5 million compared to Tk 31.2 million in 1989, a growth of 782 percent in five years (Table 3.6A). The proportion of loans outstanding to women borrowers increased over this period to 55 percent in 1994 from 34.4 percent in 1989. Overall, annual growth rates of the amount outstanding decreased each year, from 38.3 percent in 1989-90 to -23.7 percent in 1993-94.

Of total loans outstanding in 1994, loans for small trading amounted to 41 percent, followed by loans for livestock (17 percent), industry (14 percent), paddy husking (11 percent), fisheries (8 percent), poultry (4 percent), and 5 percent for the remaining activities. By comparison, in 1989, most loans outstanding were for livestock (42 percent), small trading (24 percent), paddy husking (13 percent), industry (9 percent), and others (6 percent). The increase in loans outstanding as RD-12 expanded is also evident in the cumulative figures for loans disbursed, recovery and outstanding in Table 3.6B.

However, there were variations by gender in the portfolio. In 1994, among the amount outstanding to women borrowers, loans for small trading comprised 59 percent, followed by industry (16 percent), livestock (12 percent) and poultry (5 percent). Out of the loans outstanding to men, nearly one-fourth were loans for paddy husking (24 percent) and livestock (23 percent), which were followed by small trading (19 percent), industry (12 percent) and fisheries (12 percent).

Savings mobilization

Concurrent with the credit delivery and repayment process of the RD-12 project, the cooperative societies are also committed to savings mobilization. All members of these societies are required to save at least Tk 2 weekly with their primary societies (BSSs and MBSSs). In addition, each member must buy a society share worth Tk 10 each year, which is retained as share deposits. The societies also collect insurance and miscellaneous deposits. The thana-level societies deposit all these funds with a local bank and the interest earned on the deposits is paid to the members.

With the increase in membership and the number of societies, the amount of savings mobilized doubled over 1989-91 and then increased by 572.5 percent between 1989-94. In 1989, total savings were Tk 31.5 million which, by 1994, had increased to Tk 212 million (Table 3.7). Women's savings grew by 149.7 percent over 1989-91 and by 434 percent between 1991-94. However, total men's savings increased by 82.7 percent in 1989-91 and then only by 55.6 percent over 1991-94, reflecting the slower growth of male membership and societies.

Along with the growth in total savings, the average deposit per mobilized member rose from Tk 200 in 1989 to Tk 250 in 1991 and then to Tk 460 in 1994. The increase in per capita savings for mobilized men was from Tk 210 in 1989 to Tk 420 in 1994; over the same period, average savings per woman grew from Tk 220 to Tk 490. The higher proportion of newer members with smaller savings among women than among men may explain the initial differential in average deposits by gender. By 1994, as female membership had expanded to 70 percent, average deposit per woman was higher than the corresponding figure for men.

These members' deposits were comprised of four types: share deposits, savings deposits, insurance deposits, and miscellaneous deposits. Over 1989-91, the proportion of total deposits held as

savings increased from 70.9 percent to 74.2 percent as a result of a 116.6 percent growth in savings. By 1994, savings deposits constituted 80.9 percent of total savings, compared with 78.2 percent in 1992 and 80.3 percent in 1993.

On the other hand, the amount of share deposits increased by 349 percent over 1989-94, but gradually declined as a proportion of total deposits from 26.5 percent in 1989 to 17.7 percent in 1994 (it was 19.7 percent in 1993). However, the amount of share deposits increased each year, by 17.1 percent in 1994 compared to 51.1 percent in 1993 and by 44.9 percent in 1992.

Total savings also includes insurance deposits (which had declined to 0.53 percent of total savings in 1994, compared to 1.9 percent in 1993 and 1.3 percent in 1991) and miscellaneous deposits (2.4 percent in 1991 and 3.8 percent in 1993, but only 0.92 percent in 1994). However, while insurance deposits grew by only 3.7 percent in 1989-91, miscellaneous deposits recorded a 660.3 percent increase. In 1993, miscellaneous deposits had expanded by 46.9 percent, compared with a 51.1 percent growth in share deposits and 65.2 percent increase in savings deposits. But by the next year, the growth rate for miscellaneous deposits was negative (-68.1 percent), as also for insurance deposits (-64.5 percent), compared to increases of 17.1 percent for share deposits and 31.8 percent for savings deposits.

Training

Under the RD-12 program, BRDB societies are required to provide various types of training to its members. In addition to consciousness raising (or conscientization) and leadership, skill-specific training is also given in project planning, livestock, fisheries, horticulture, and agriculture.

By 1994, a total of 907,285 participants had been provided with diverse training under the RD-12 project (Table 3.8). The number of participants in all training modules grew by nearly 22 times, from 12,857 in 1988 to 281,678 in 1994. The number of women trainees rose by 1594 percent whereas the number of male participants expanded by 3494 percent over the 1988-94 period.

The largest segment of participants clustered in leadership training throughout the 1988-94 period. In 1988, about 80 percent (10,329 out of the 12,857 participants) acquired this training. In 1994, the number of participants in this type of training had increased about 17 times to 171,719. That year 51.5

percent of these participants were women, compared to 1988 when 81.8 percent of participants in leadership training had been women.

Next to leadership training, the number of participants was highest in "consciousness raising" training, averaging more than 12 percent over the 1988-94 period. In 1994, there were 38,023 participants in such training, of whom 58.2 percent were women.

About 10.8 percent of the participants received livestock training in 1994, and 60 percent of these trainees were women. Over 1988-94, however, the number of participants in this training grew from 403 in 1988 to 30,542 in 1994, averaging 6.7 percent of the total number of trainees. The average was 3.1 percent for training on agricultural work, although the proportion increased to 4 percent in 1994 from 1.4 percent in 1988. On average, 2.1 percent of total participants received training in fisheries during 1988-94, although the number increased to 4.7 percent in 1994 from 0.5 percent in 1990 and 3.3 percent in 1992. Training in project planning and "others" accounted for about 5-6 percent of total participation and total expenses for each year over the 1988-94 period.

The total expenditure on training climbed from Tk 688,896 in 1988 to Tk 5.6 million in 1991, an expansion of 716.4 percent (Table 3.9).² Expenses for women's training, as a percentage of total training expenditures, rose from 43.3 percent to 53 percent during the same time frame.

Throughout this period, the largest expenditures were made on leadership training, ranging from 85 percent to 59 percent of total expenditures, followed by consciousness raising. Both are general training courses given to all society members with the aim of educating the members to identify and gain access to resources available for productive activities. In 1991, livestock training expenses jumped from 4.8 to 15 percent of total expenditures. In the same year, expenditures on skill-related training also rose for agricultural work from 2.1 percent to 5.5 percent, and fisheries from 1.1 percent to 3.6 percent.

The importance of training activities in the RD-12 project is also revealed by the increase in training expenditures per participant (Table 3.10). The average expenditure per participants for all types

² Information on training-related expenditures were available for the 1988-91 period only.

of training increased by about 40 percent in 1988-91, from Tk 30.14 to Tk 42.14. The expenditure per woman was higher (Tk 43.07 in 1991) than that per man (Tk 41.14).

This pattern was seen in consciousness raising, livestock, agricultural work, and fisheries training. In 1991, the training expenses per participant for consciousness raising was about 31 percent higher for women than for men (Tk 49.24 compared with Tk 37.64). Similarly, in the case of fisheries, the expenditure per woman was Tk 107.78, over 48 percent more than the expenditure per man. The expenses per woman were 11 percent higher for livestock training and 19 percent higher for agricultural training.

CHAPTER FOUR

Analysis of sustainability and subsidy elements

Mobilizing cooperative societies, operating a cooperative-based credit delivery system, and providing ancillary developmental inputs entails high administrative costs. Although group-based lending generally promotes proper loan use and high loan recovery, it is unlikely that the BRDB RD-12 and its thana-level societies (TBCCAs) could have generated sufficient revenue, at least in the early years of its operation, to support these costs. On the other hand, it is also implausible that poor members of the primary societies (BSS and MBSS) would have been able to support the full cost of thana-level activities.

The cost of RD-12 operations, therefore, depends to a large extent on the availability and cost of subsidized funds for on-lending and other cooperative society activities. As mentioned in Chapter Three, the CIDA is financing about 95 percent of the operational and institutional development costs of the RD-12 project, while the Government of Bangladesh provides the remainder. Since this source of inexpensive funds has helped the BRDB support its high-cost RD-12 operations, the crucial question is whether the thana-level societies can be viable without these subsidized funds. The relevant issues are whether the BRDB can operate a cooperative-based credit program without any subsidy, and what implications a non-subsidized operation would have for the rural poor and for the BRDB. If subsidies are unavoidable, then the amount of subsidy required to sustain this program must be determined, as well as whether, and for how long, it is worth continuing such a subsidized project.

In such an operation, there are two sources of subsidy: financial and economic. Given its sources and costs of funding, if RD-12 or each bittaheen society is not cost-effective, the program as well as the societies will require financial subsidy to operate. In addition, if the costs of funding for on-lending are less than their opportunity costs, the program enjoys economic (or social) subsidy. RD-12 may benefit from both types of subsidy. They are, therefore, a legitimate source of concern for program officials and government policymakers and must be measured in order to ascertain long-run program sustainability.

The financial and economic viability of RD-12 depends on the extent of financial and economic subsidy required for its operations. This can be measured with cost and revenue data as well as alternative market interest rates. The program's long-term sustainability also hinges on whether RD-12

is institutionally sustainable and whether the benefits its members receive are sustainable. Therefore, the program's performance must be evaluated in terms of both demand and supply.

A benefit-cost analysis of RD-12 will indicate the extent to which it is sustainable. Four interrelated concepts of sustainability are used to evaluate RD-12: financial viability, economic viability, institutional viability, and borrowers' viability. In this chapter, these concepts are developed further and their measurement and estimation are discussed.

A concept of program sustainability

Sustainability relates to the ability of a program to continuously maintain its activities and services in order to meet its objectives. With respect to RD-12, sustainability means its capability to operate as a development institution for the poor. Since the program uses subsidized funds, it can only remain a viable credit program if it can support itself through its own activities. On the other hand, since RD-12's objective is to alleviate poverty, it cannot successfully sustain its operations unless it enables participants to permanently reduce their poverty.

To be sustainable, therefore, RD-12 has to (a) foster its own organizational development, given government policies and costs, to remain institutionally viable; (b) operate efficiently, given its program design and institutional framework, to attain financial and economic viability; and (c) generate sustainable benefits for the poor to attain borrower viability.

Institutional development

To ensure its own financial and economic viability and that of its borrowers, RD-12 and its constituent cooperative societies must develop a sustainable organization and management structure. The institution must efficiently deliver credit and other inputs and services to borrowers and, in turn, help them to achieve high returns.

As such, a sustainable credit program should influence its employees and its borrowers to perform efficiently. A proper incentive structure will motivate the employees to improve the organization's delivery and recovery mechanisms. Understanding the institutional development of the BRDB and its

RD-12 program requires an examination of the agency's structure, the incentives for its staff to improve productivity, the structure of the staff incentive system, and the employee turnover or dropout rate.

Program placement, decided by the management, is an important aspect of institutional development. In order to remain financially viable, RD-12 must avoid or at least consider material (agroclimate and locational) risks in selecting program placement. It is often more difficult to create a viable financial intermediation system in an area that is largely flood-prone, where seasonality is pronounced, and where urban centers are distant and the local infrastructure does not support transport to these centers (Binswanger and Rosenzweig 1986). However, the RD-12 program may need to offer services in areas prone to material risk when such risk is itself a source of poverty. Therefore, by examining its program placement in the context of invariant area and agroclimate characteristics, we may infer whether favorable agroclimate conditions factor into RD-12 program placement decisions, and thus, whether the project's overriding objective is poverty alleviation.

Financial and economic viability

A direct way to evaluate financial viability is to quantify an institution's cost structure and examine whether the cost per unit of principal lent is equal to the rate of interest that borrowers are charged. This method is called the financial criterion of efficiency.

Program-level information on operational costs, lending costs, default cost, and costs of funds are required to calculate the financial efficiency. This will help determine whether the program requires any financial subsidy, given its cost of borrowing and, if so, how much. The lack of adequate program-level data for RD-12 prevents us from making this calculation. However, available thana-level cost information can be used to estimate a cost function to determine if the thana-level societies are profitable. The combined successes (or failures) of individual thana-level societies determine whether RD-12 is a success or failure. To analyze the dynamics of sustainability, the thana-level performance of the program in terms of cost structures, loan recovery, and profits or losses are examined.

In order to examine how a program's cost components and innovative schemes influence its cost structures or profitability over time, the derivation of the cost (or recovery) functions must include all relevant (control and other) variables. Estimating a cost function at the thana level, after controlling for

area characteristics, provides additional information: it may help identify whether the thana-level operations can break even over the long-run and test whether these societies can be profit-maximizing units. Also, such thana-level analysis can highlight whether the RD-12 program is economically viable.

Given the mandate to reach the targeted rural poor as well as possible within a designated area, a typical thana-level society aims to expand credit disbursement by expanding membership in primary societies and/or by increasing the volume of lending per member. Also, as individuals' loan absorptive capacity may be influenced by their entrepreneurial ability, RD-12 can increase this capacity by imparting training and related skill development inputs. Expansion along these courses involves additional labor and capital costs; mobilizing and training new members involves large administrative costs as do disbursement and savings. Yet, in order to maximize profits, a thana-level society must at least minimize its costs of attaining the targeted membership and credit disbursement. Moreover, like most cooperative societies, RD-12 societies mobilize deposits from their members, and thus may seek to minimize the cost of attaining a targeted level of deposits.

There is an extensive literature on the estimation of cost functions to measure both the operational efficiency and economic viability of a financial program. (For example, see Kolari and Zardkoohi 1987; Clark 1984; Benston and Smith 1976, and Srinivasan 1988). A cost function relates the cost of the program to the predetermined quantity of output, the exogenous prices of labor and capital, and a number of control variables that influence cost.

The translog specification is a flexible form for estimating a cost function that does not have the restrictive properties of the widely used Cobb-Douglas function. Moreover, it can help measure a thana-level society's scale and scope economies. Economies of scale exist if the unit production costs decrease as output expands. Economies of scope exist if a credit program produces joint outputs, such as lending and deposit mobilization, at a lower cost than producing only one output, such as lending. The conditional cost function (conditional on the level of outputs) takes the following form:

$$(4.1) \quad \ln TC_{jt} = a_0 + a_1 \ln S_{jt} + 1/2[a_2 \ln S_{jt}^2] + a_3 \ln W_{jt} + 1/2[a_4 \ln W_{jt}^2] + a_5 \ln N_{jt} + 1/2[a_6 \ln N_{jt}^2] + 1/2[a_7 \ln S_{jt} \ln W_{jt}] + 1/2[a_8 \ln S_{jt} \ln N_{jt}] + 1/2[a_9 \ln W_{jt} \ln N_{jt}] + \mathbf{IF}_{jt} + d_j + e_{jt}$$

where TC_{jt} is the j th society's costs in period t , S is a vector of membership, lending, and savings; N is the fixed unit cost of lending (measured by the sum of rents paid and depreciation of equipment divided by the value of all loans); W is the price of labor (defined as the annual average salary plus benefits paid to program workers, divided by the total number of workers); IF is a vector of control variables including infrastructure (such as roads, schools, commercial banks, and health facilities); and d_j is a vector of area-specific fixed endowments (such as flood potential and soil moisture availability).

Estimation of equation 4.1 enables us to test whether a thana-level society exhibits economies of scale. If economies of scale exist, the society can expand its membership and increase lending and savings per member to reduce its overhead costs and attain its target. An important objective of this study is to find out where existing branches are located along the cost function, and whether economies of scale exist and can be captured by intensifying operations.

The economic viability of a credit program may also be evaluated by estimating a set of reduced-form equations for loan recovery, membership, total lending, input uses, and other indicators of program performance. This helps to identify the role of various factors, both program- and area-level, in a program's performance over time. More formally,

$$(4.2) \quad \mathbf{PF}_{jt} = b_0 + b_1 \mathbf{PR}_{jt} + b_2 \mathbf{IF}_{jt} + b_3 \mathbf{S}_{jt} + d_j + e_{jt}$$

where \mathbf{PF} is a vector of performance indicators; \mathbf{PR}_j is a vector of input prices, including wages; \mathbf{IF} is a vector of control variables; and d_j and \mathbf{S}_{jt} are defined as before.

Both the cost equation and the performance equation use thana-level panel data, and may consequently suffer from bias due to the unobserved heterogeneity of different societies. A fixed-effects technique will be used to control for the unobserved area-specific heterogeneity.¹

¹ The problem of area-specific heterogeneity makes ordinary least squares (OLS) estimates inconsistent (for econometric issues, see Maddala 1987). The problem arises because branches may not be randomly distributed across space. BRDB's RD-12 project may decide to operate based on unobserved (to econometricians) area characteristics. If these unobserved area characteristics are time-invariant, specific to each branch location, and enter additively into the equation, then a fixed-effects estimation technique is appropriate.

Borrower viability

An alternative way to view the sustainability of a program is to estimate whether its borrowers have achieved higher income flows over time. This implies that the program's beneficiaries increased their incomes so that they were able to repay their loans and possibly accumulated capital so that they no longer required continuing assistance. It may also mean that the borrowers switched to more remunerative sources of income as a result of program participation. Income and occupational mobility are therefore important indicators of borrower viability. Also, by examining the profile of dropouts from a targeted credit program, or from primary-level societies in this case, the factors that influence participants to leave a program can be identified. Panel data is required to examine the income and occupational mobility of participants, but this is costly to collect. It may be possible to collate dropout and/or income information from the program's records in order to analyze its sustainability.

Another way to examine the viability of borrowers is to assess how effectively capital is used at the household level. This is done by calculating the rates of return on their investments. The estimates of the rates of return indicate whether the cost per unit of principal lent is covered by the investment. Cross-sectional household survey data on the net income generated from credit-supported projects would be sufficient to estimate these rates of return across activities and across programs. The average borrower's net increase in income can be compared in absolute terms with a quantitative measure of the expected gain from targeted credit program. These estimates would provide a uniform assessment of credit use.

A final method to estimate borrower viability is to examine the program's effect on rural wages. BRDB RD-12 operations may benefit rural wage workers if their induced benefits make a dent in rural poverty. Activities sponsored through RD-12 are likely to have a negative supply effect (because the society members are enabled to employ themselves and withdraw their labor from the market) and a positive demand effect (through an induced income effect) on rural wages. One would, therefore, expect an increase in rural wages following the placement of RD-12 operations in any area.

Economic viability of RD-12: subsidy dependence

The thana-level cost function estimates indicate whether the societies are economically viable. But the cost function estimates do not provide any information about the influence of subsidy on cost efficiency. The extent of economic subsidy in terms of the opportunity cost of the subsidized funds RD-12 has received must be identified. This will help to determine whether RD-12 can withstand the withdrawal of economic subsidy and, if not, what needs to be done to ensure the sustainability of the program.

As defined earlier, the two sources of subsidy for RD-12 are financial subsidy (required if the program cannot breakeven), and economic subsidy (given if lending is supported by grants or funds obtained at interest rates lower than the market rate). The economic subsidy, according to Yaron (1992), is defined as benefits derived from obtaining inexpensive funds and grants, measured as the difference between the actual interest rate and the opportunity cost of such funds. This difference determines the economic cost of maintaining the BRDB's RD-12 project operations.

The economic subsidy can be divided into interest subsidy (or financial cost subsidy), equity subsidy, and income subsidy. The interest subsidy from a particular source is defined as the difference between the market interest rate and concessional interest rate times the fund amount. Mathematically, the total interest subsidy is represented as

$$(4.3) \quad FCS = A(m-c)$$

where FCS is the financial cost subsidy, A is the total annual concessional borrowed funds (outstanding), m is the market interest rate and c is the concessional interest rate. For grants, $c=0$ and the financial cost subsidy is equal to Am .

The subsidy on the amount of equity held by RD-12 primary society members is given by:

$$(4.4) \quad ES = Em$$

where ES is the equity subsidy and E is the amount of equity held by the equity holder.

Although RD-12 receives grants for its training expenditures from the CIDA, the thana-level societies do not receive such grants. Hence, no income subsidy is reported in the calculation of the thana-level societies' economic subsidy.

Thus, the economic subsidy is equal to:

$$(4.5) \quad SS = FCS + ES$$

Net subsidy (*NS*) then is the economic subsidy less profit (*P*) and is represented as:

$$(4.6) \quad NS = A(m-c) + Em - P$$

Note that the net subsidy can be positive, negative or zero. If profit is greater than the economic subsidy, then the BRDB RD-12 receives no net subsidy, and the net economic cost for continuing operations is zero. By contrast, if the BRDB RD-12 needs financial subsidy (a negative profit), it increases its economic subsidy. In this case, the program requires not only subsidized funds but also financial subsidy for its survival. Calculation of the subsidy depends on how one defines the opportunity cost of the subsidized funds received by a development finance institution.

Yaron (1992) suggested the fixed-deposit interest rate as the reference rate for calculating the subsidy. Since equation (4.6) does not provide any information about how dependent a program is on subsidy for its sustainability, Yaron (1992) evaluated the subsidy dependence of a program against the interest earned on its loan portfolio, the major activity of a DFI:

$$(4.7) \quad SDI = \frac{NS}{LP * i}$$

where *SDI* is the subsidy dependence index (*SDI*), *NS* is the annual (net) subsidy received by the BRDB RD-12, *LP* is the average annual outstanding loan portfolio, and *i* is the average weighted on-lending interest rate paid on that portfolio.

The above financial ratio helps measure the percentage increase in the average on-lending interest rate required to eliminate subsidy in a given year while keeping its return on equity equal to the approximate non-concessionary borrowing cost. A zero *SDI* implies that profit equals the social cost of operation, meaning the BRDB RD-12 has achieved full self-sustainability. By contrast, a positive *SDI* indicates that the economic cost exceeds the profit, in which case the on-lending interest rate must increase by the amount of *SDI* to eliminate the amount of net subsidy. For example, an *SDI* of 100 percent indicates a need to double the on-lending interest rate of the loan outstanding to eliminate subsidy.

The subsidy and subsidy dependence index (*SDI*) are sensitive to the accounting profit (*P*) used to calculate them on the basis of the annual report of a program. Profit (*P*) can be generated not only from on-lending, but also through investment in government securities and other financial instruments. Although *SDI* is evaluated in terms of lending only (to the poor), the *SDI* calculation does not require information on how profit is generated, or how the financial resources are allocated. This is justified to the extent that the donor funds are given only for on-lending to the poor.

However, the BRDB RD-12 may keep deposits in banks to earn interest income as part of its prudent risk-reducing policy. This needs to be taken into account while calculating the *SDI*. Otherwise, even if everything remains the same, a portfolio mix can yield a higher profit for a thana-level society in a given year when financial resources are diversified compared to a year when it only lends, and consequently, *SDI* differs by year.

Assume that the BRDB RD-12 invests a part of its financial resources (*F*) into investment with an average return (*m*) so that its profit *P* is defined as:

$$(4.8) \quad P = [\rho(i-c) + (1-\rho)(m-c) - \mu]F$$

- where ρ = proportion of total resources (*A*) that is lent out;
- $(1-\rho)$ = proportion of resources that is invested; and
- μ = operating cost of the program per unit of financial resource.

We define the subsidy dependence ratio (*SDR*) that evaluates the subsidy dependence of a program in terms of income earned against both lending and investment as:

(4.9)

$$SDR = \frac{A(m-c) + Em - [\rho(i-c) + (1-\rho)(m-c) - \mu] F}{[i\rho + m(1-\rho)] F}$$

If the BRDB RD-12 allocates its entire financial resources to on-lending such that F is equal to loan outstanding (LP) and $\rho=1$, we get:

(4.10)

$$SDR = \frac{A(m-c) + Em - [(i-c) - \mu] LP}{i * LP} = \frac{A(m-c) + Em - P}{i * LP} = SDI$$

where

$$P = [(i-c) - \mu] LP$$

Therefore, while the SDI evaluates subsidy dependence against interest income only, the SDR evaluates subsidy dependence in terms of income earned from both lending and investment. To the extent that a program always minimizes its income risk through portfolio diversification, the SDR appears more consistent than the SDI with such a practice, and consequently is subject to less variation over time and across programs.

Although the SDI takes care of portfolio diversification through profit, SDIs across financial institutions appear incomparable if they do not behave in the same manner in terms of financial resource allocation. That is, if one program has a lower SDI than another, it is not clear whether the lower SDI is due to better program management and less reliance on subsidized resources or simply to portfolio diversification between lending and investment. The SDI is also not comparable for a program over time if its portfolio allocation varies by year and, hence, affects profit (P) and net subsidy (NS). For these reasons, we will present both the SDI and SDR measures for comparison.

CHAPTER FIVE

Sustainability issues

The performance and potential of the RD-12 project must be analyzed in terms of its financial and institutional viability as well as the viability of its borrowers. These three aspects are interrelated: the institutional and financial viabilities of a program depends on how successfully its members can initiate and sustain income-generating activities.

Institutional viability

The institutional sustainability of the RD-12 project involves an overlapping of different policy objectives. The specific objective of the project has been to support the RD-12 Production and Employment Program cell activities for the rural poor. But the overall rationale for RD-12 has been to strengthen the BRDB and its institutional capacity to foster sustained development among the rural poor. As pointed out in a mid-term evaluation report, "there appears to be a lack of clarity regarding the organizational objectives in relation to the BRDB" (CIDA, 1993). Given these broad objectives and the large size of the RD-12 project, substantial administrative and management support is required to effectively reach the target population. As such, one aspect of institutional development has been the recruitment, training, and placement of project staff.

Management training, incentives, and performance

The Production and Employment Program cell at BRDB headquarters includes the credit, mobilization, training and research, and evaluation and monitoring units. The field-level staff is comprised of the district-level functionaries and the staff stationed at the thana-level societies. An elaborate system has been developed to train the project employees at all levels.

The Canadian Resource Team has also trained many Production and Employment Program cell staff in participatory development processes. In addition, these BRDB staff members join in training courses and workshops designed for field-level staff, and have taken study tours of some successful national NGOs and training visits abroad. All such training has enhanced the management capacity of senior RD-12 staff.

The training unit of the Production and Employment Program cell organizes the training of field functionaries. Thus training consists of orientation for senior management, foundation training for middle-management thana rural development officers and assistant rural development officers, and foundation and apprentice training for field officers. They also provide upgrading training, refresher courses, and specialized training in accounting and financial management, leadership development, and gender and social analysis. In 1988-89, training was given to 1,834 staff members at a cost of about Tk 1.9 million. The number of participants increased successively, reaching 2,554 trainees in 1991-92 at a cost of Tk 4.3 million; in 1994, there were 1,172 trainees and the cost was reported to be Tk 4.1 million (Table 5.1).

In order to build and sustain training capacity within the RD-12 project, about seventy field-level staff have been trained to serve as "field trainers". The thana rural development officers and the assistant rural development officers conduct the Field Officer Apprentice Training Program and also provide peer training for other thana rural development officers and assistant rural development officers. In addition to reducing training costs, such a training module helps to build a network among the middle-level managers.

Determinants of officers' pay

The performance of all project employees is influenced to a large extent by their pay and incentives structures. The BRDB RD-12 staff salaries are based on the government's pay scales. Most field-level staff, however, were recruited under the RD-12 project budget, so different incentive schemes and performance requirements apply in their case. In January 1993, the project established an incentive program under which the field officers are rewarded with bonuses if they achieve loan disbursement and recovery targets. This scheme aims to increase their efficiency and make the staff more accountable.

Given certain age and education requirements, the salaries of most mid-level staff depend on their experience and training. This is evident from the earnings function estimated from the data on salaries and personal attributes (Table 5.2). On average, the rural development officers were 36.1 years old, had eight years of experience and almost fifteen years of education, and had received 85.9 days of training. Eighty-five percent of the officers were men. Age, education, training, experience, and gender together explained about 23 percent of the variation in salary.

Education and experience were found to be positively correlated with the pay structure and statistically significant. This suggests that the more educated and experienced officers are offered higher salaries. On the other hand, the negative sign of the experience squared coefficient indicates that the salary increases at a decreasing rate with experience. Neither training nor age variables were significant in determining salaries. This result is not inconsistent with expectations since the government salary structure is clearly defined. As such, there is also no salary differential by gender.

Program placement

The RD-12 programs were originally placed in selected districts where the rural poor were more vulnerable. However, a cost-minimizing financial institution must also consider the risks associated with local agroclimate and locational characteristics.

The influence of agroclimatic factors (such as the proportion of flood-prone areas and soil-moisture content) and the availability and distances of various facilities (such as roads, electrification, and schools) on BRDB program placement was tested. The distance of the thana headquarters, where the thana-level societies are situated, from the six greater district headquarters was used to measure locational characteristics. Time-invariant agroclimate characteristics were represented by flood-prone potential and soil moisture content. Each thana area was classified as one of five flood-prone area types, given the altitude above sealevel (the larger the proportion of high-altitude areas, the less vulnerable a thana is to floods). Similarly, moisture content of the soil (in millimeters per meter) was divided into five categories where a lower ranking indicates a higher moisture content and better agricultural production potential.

The agroclimate and locational factors explain 9 percent of the variation in commercial bank placement and 22 percent in RD-12 program placement (Table 5.3). RD-12 placement is considerably influenced by agroclimatic variables, with very flood-prone areas and areas with high moisture content being highly significant. The distance to district headquarters did not influence RD-12 placement, but did influence commercial and development bank branch placement. Since the thana-level societies were more often placed in areas where climatic conditions were less risky, RD-12 program placement was less influenced by the objective of poverty alleviation than by favorable locational factors.

The finding that RD-12 program placement depends upon unchanging agroclimate characteristics is consistent with the hypothesis of non-random program placement. Since RD-12 program placement cannot be treated as random, the cross-sectional thana-level data cannot adequately measure the causal impact of program inputs on efficiency because the allocation of inputs may be correlated with the error terms. We need to determine whether time-variant regressors are correlated with the error terms that include the unobserved time-invariant agroclimate factors. A fixed effects method is used in this chapter.

Financial viability

The financial viability of the RD-12 is evaluated at the thana level since aggregate financial statements were not available. Three parameters - profitability, subsidy dependency, and cost efficiency - were used to evaluate the thana-level societies' financial viability. The level of profitability reflects the level of financial subsidy. A thana-level society is profitable if it can meet all of its expenses with its revenue. However, the profitability of thana-level societies does not necessarily guarantee the economic viability of RD-12, since profits may be insufficient to cover its social costs. In other words, the social cost per taka of loans disbursed must be equal to its price (that is, the interest rate). If this is not the case, a society must operate with a subsidy. A thana-level society may be profitable, but not cost-efficient.

Profitability analysis

Profitability is a necessary condition for ensuring long-run sustainability. A thana-level society can become profitable by minimizing its operational costs or maximizing revenue by increasing its loan volume and lending interest rate. Currently, the societies charge an interest rate of 16 percent on loans, while paying eight percent on savings and deposits.

Major operating expenses (such as salaries, stationery, rent, and utilities) are paid by the head office, and thana-level societies only pay miscellaneous and irregular operating expenses with their revenues. Consequently, the reported thana-level profit is overestimated. However, both measures of profit -- reported profit and reestimated profit -- were used in the evaluation, as these provide information on the impact of grants from the head office on profitability.

The percentage of profitable thana-level societies grew during 1989-91 from 86 percent to 93 percent, but this growth was due to grants provided to meet operating expenses (Table 5.4). When profit is reestimated excluding these grants, the profitability of the thana-level societies changes drastically. The revised profit shows that the number of money-losing societies increased over time (Table 5.5). In 1991, about 98 percent of the thana-level societies were suffering losses compared with 94 percent in 1989. This implies that these societies are generally unprofitable when they have to pay all operating expenses. The older thana-level societies were more likely to be profitable. In 1991, the average annual disbursement of profitable thana-level societies was estimated at Tk 1.4 million compared with Tk 0.9 million for the societies recording losses.

Unprofitable thana-level societies do not imply that RD-12 cannot be profitable and sustainable. The program was only introduced in 1989, and the data collected covered only three years until 1991. Later, starting in January 1994, the BRDB modified the lending interest rate it charged its RD-12 borrowers, from 16 percent on declining balances to a 16 percent flat rate on the principal amount of the loans. However, this will be reversed beginning January 1996, when the same interest rate of 16 percent will be charged on declining balances. These changes in the interest rate structure, along with an increase in the volume of loans, were conceived to strengthen the program's financial health, which can be examined through other indicators.

Subsidy dependence index

The thana-level societies incurred losses during 1989-91 and therefore required financial subsidies. The average subsidy given to a thana-level society increased from Tk 0.3 million in 1989 to Tk 0.5 million in 1991 (Table 5.4). This does not, however, reflect inefficiency or declining viability. At the same time, subsidy as a percentage of loans disbursed decreased from 145.3 percent in 1990 to 93.3 percent in 1991. A similar pattern is observed when subsidy is estimated per member and borrower. Subsidy per member declined gradually from Tk 288.9 in 1989 to Tk 268.4 in 1991. Likewise, subsidy per borrower declined from Tk 1,954.3 in 1990 to Tk 980 in 1991. Thus the increase in subsidy was primarily due to an increase in membership and borrowers. The estimates of the subsidy dependency index should reveal whether the thana-level societies have been able to minimize subsidy per borrower (and per member) by increasing disbursement to a larger number of borrowers.

Two separate estimates were made, one with respect to loans only (SDI) and another with total financial resources used both in lending and investment (SDR). The SDR of the thana-level societies declined from 1989-91 (Table 5.8). It decreased by more than 30 percent over 1989-91, from 19.3 to 13.3. A similar trend is also observed for SDI, which decreased from 44 in 1989 to 18.6 in 1991. This is consistent with the earlier findings on subsidy per borrower and member. Subsidy dependence also varies with thana-level society profitability. The SDR for profitable thana-level societies (0.8 in 1991) was much lower than that for money-losing thana-level societies (13.5). However, SDR for the latter societies decreased from 20.5 in 1989 to 13.5 in 1991. A similar trend is also observed when SDI is calculated.

The distribution of thana-level societies by their subsidy dependence estimates changed during 1989-91 (Table 5.9). The number of thana-level societies with an SDR of less than three increased from ten in 1989 to twenty in 1991. On the other hand, the percentage of thana-level societies with an SDR of five and above remained more or less constant during 1989-90, but decreased in 1990-91. A similar pattern is also observed when SDI is calculated.

An attempt was made to identify the characteristics of thana-level societies with different subsidy dependence figures, but no significant pattern was observed (Table 5.10). The only parameter that contributed to differences among the subsidy dependence figures was the average annual disbursement. The average annual disbursement of thana-level societies with a subsidy dependence figure of less than one was higher than that of the others, indicating that as lending increases, subsidy dependence declines.

The RD-12 credit program can eliminate the economic subsidy by increasing its lending interest rates and the rate of return on investment and loans. The required percentage increase in the lending interest rate is given by the SDI for the existing loan portfolio and volume of investment. The average SDI for all thana-level societies was estimated to be 18.6 in 1991, suggesting that RD-12 needs to increase its lending interest rates by about 19 times to eliminate all forms of subsidy (Table 5.5). However, the policy conclusions are not as clear-cut if the SDR is considered. Based on the SDR estimates for 1991, the RD-12 programs can eliminate the economic subsidy if the rate of return on loans and investment can be raised by about 13 times. However, such increases could be socially unacceptable and would adversely affect the demand for loans and membership. Given that RD-12 is a new program

and has not yet reached its optimal loan volume, the subsidy dependence estimates are better utilized as an indicator of performance trends rather than as a basis for policy decisions.

An important development is the recent use of the members' shares and savings deposits as collateral to obtain funds from the Government of Bangladesh. The BRDB RD-12 project will borrow Tk 150 million from the Bangladesh Bank to augment the revolving loans funds in order to meet the increased credit needs of RD-12 borrowers. Such use of the members' deposits will also influence the SDI and SDR figures as the credit program utilizes internally generated funds to borrow additional resources.

Are thana-level societies cost-effective?

RD-12's cost-effectiveness was determined using thana-level data for 1989-91. A thana-level society cost function and marginal costs (which provide a better indicator of the dynamic aspects of sustainability) were estimated to test for economies of scale.

The thana-level cost information for 1989-91 was collected from societies as well as from the RD-12 management information system, while the thana-level area characteristics were collected from various secondary sources. A translog cost function (similar to Khandker and others 1993) was estimated, with membership, loan disbursement and savings treated as joint outputs. This is justified in that the thana-level societies initially mobilize primary society membership, which entails mandatory savings prior to any credit disbursement.

The fixed-effects (translog) cost function estimates reveal that membership and salary growth had a significant positive effect on costs (Table 5.11). But the interaction of these two variables had a significant negative impact, while the interaction variable for savings and wages had a significant positive effect. The importance of the incentives given to RD-12 officers is indicated by the significance of the variable for the growth of managers' predicted pay.

Among area characteristics, electrification had a significant negative impact on costs, as did secondary school density, but primary school density and the presence of other commercial banks or a Krishi Bank branch did not affect costs. Of the marginal cost estimates for membership, disbursement,

and savings, only the marginal costs of disbursement were found to be significant. The marginal cost of mobilizing an additional member and providing a loan of Tk 4,000, for instance, was Tk 276. If this amount was loaned for one year at an interest rate of 16 percent, it would generate an additional Tk 640. As such, it is clear that the thana-level societies are not operating at their optimal level, where the marginal cost of lending is equal to the marginal revenue it generates. In other words, economies of scale exist in thana-level society operations, and RD-12 can increase its profits by lending more, assuming that loan default costs do not increase.

Borrower viability

Ensuring the long-term viability of its borrowers must be a major goal of any credit program. Sustainable employment and income generation for the rural poor are indicators of the success and potential of a credit program. Such positive effects indicate the ability of the borrowers to repay their loans on time, and a higher recovery rate bolsters the financial and institutional viabilities of the credit delivery system.

In the case of RD-12, this would imply that the primary societies can increase the income and productive skills of their members through credit and other services, including training. For individual borrowers, the question of viability involves undertaking income-generating activities and ensuring the regular repayment of loans.

RD-12's loan recovery performance improved gradually over 1989-94 (Table 5.12). The recovery rate of loans for all activities was 76.8 percent in 1989 but, by 1994, it had risen to 93.1 percent. This rising trend held for both women and men. However, the recovery rate for women borrowers has been consistently higher than that for men. In 1989, these rates were 72.2 percent for men and 83.2 percent for women, and in 1994 had climbed to 90.6 percent for men, 95.7 percent for women.

The recovery rates also varied for different income-generating activities. In 1994, the recovery rate for loans given to women ranged from 74.7 percent for oil milling to 97.8 percent for fisheries. For men, the recovery rates ranged from 70.7 percent for oil milling to 93.7 percent for fisheries. In 1994, the overall rate was highest for fisheries (95.5 percent), followed by paddy husking and small trading (93.2 percent each), poultry and tailoring (93.1 percent each), while oil milling had the lowest reported

rate (72.2 percent). These recovery rates are noticeably higher than those of the previous years. In 1989, industry (54.2 percent) and oil milling (57.5 percent) had low recovery rates, although they were higher for poultry (75.7 percent), small trading (77.2 percent), paddy husking (77.5 percent), tailoring (80.4 percent), and livestock (83.2 percent).

Typically these recovery rates are lower for men than for women, a trend similar to that noted for Grameen Bank borrowers. In 1994, recovery rates for loans taken by women were above 90 percent for all income-generating activities except oil milling (75.3 percent). Men also had the lowest recovery rate in oil milling (70.7 percent in 1994). On the other hand, men's highest recovery rate was 93.7 percent in fisheries, compared with 97.8 percent for women borrowing for fisheries. However, in 1989, the recovery rates for men were higher than that for women in oil milling and poultry.

The determinants of these recovery rates were estimated using a fixed-effects regression model. The age of the society was positively related to loan recovery for both men and women, although recovery rates increased nonlinearity with age. Similarly, average rainfall, the dispersion of rainfall, and density of primary schools were significant, implying that local weather conditions had an impact on the returns on income-generating activities and, in turn, the recovery rates.

However, other area variables, namely village electrification, secondary school density, and road density were found to be significant for men but not for women. Similarly, among the BRDB program-related variables, the predicted pay of managers and the percentage of attendance in consciousness training were found to be highly significant for men but not for women. The overall fit of the fixed-effects model is good; it explains 79 percent of the variation in the men's loan recovery rate and 72 percent of the variation in the women's recovery rate.

The benefits of the RD-12 project on the local economy can be gauged from an analysis of the program's impact on village wages. The data on rural wages were collected in a household survey conducted in three rounds from eighty-seven different villages in twenty-nine randomly drawn thanas. Out of the eighty-seven villages, seventy-two had one of the three programs (the Bangladesh Rural Development Board RD-12, the Bangladesh Rural Advancement Committee, and the Grameen Bank) while fifteen (control villages) had none of these programs.

Ordinary least squares regressions suggest that RD-12 had no significant effect on men's and women's (rural) wages. Rather, there was a significant negative effect on children's wages. This would imply that the RD-12 society members' income-generating activities had not brought about significant changes in the local labor market. It was expected that members' withdrawal from the wage-labor market because of self-employment opportunities would lead to increased village wages. Furthermore, expanded self-employment activities were also expected to have increased demand for goods and services and thus for labor in other activities.

CHAPTER SIX

Policy implications and conclusions

Compared with the results of cooperative-based rural development schemes of the last two decades, the RD-12 project of BRDB has performed outstandingly. It has effectively delivered credit and ancillary inputs to the rural poor, while achieving high recovery rates. In addition, the institutional structure of RD-12 has evolved to include an administration and incentive system that is less rigid than other Government agencies in Bangladesh. Its design drew upon the organizational practices of some successful NGO programs for the rural poor, including BRAC and Grameen Bank.

Given their recent record, these two-tier cooperatives may be a suitable vehicle for the Government's poverty reduction policies and for financial support and technical assistance from donor agencies. Although the RD-12 project has operated in only 139 thanas (less than one-third of Bangladesh), it can furnish the core design for a national poverty alleviation program, combining credit, training, and marketing support for the rural poor organized through cooperative societies.

Major achievements

The BRDB was launched in 1982 and initially continued the Government's earlier integrated rural development programs to promote agricultural production, income, and employment. However, the BRDB soon realized that untargeted interventions were ineffective in improving the productive means of the poor. Based on its own experience and the models of other successful NGOs, the BRDB began the rural poor program under the RD-2 project. The RD-12 project is currently the largest government rural development project, which began in 1988 and is due to end June 1996.

This program provides credit, organizational help, and skill development programs to a target group. The purpose is to improve the human capital and productive means of the assetless poor, defined as those who own less than one half an acre of land and who have at least one family member working for wages. After only five years, the program had already made substantial progress in reaching its target group. By December 1994, it had mobilized 452,016 members, an increase of over 193 percent from the 1989 level of 154,150. Women's membership increased from 35 percent of all members in 1989 to

70 percent in 1994. Consequently, the number of primary cooperative societies increased from 6,294 in 1989 to 16,565 in 1994, of which 11,181 societies (69 percent) were for women.

Like its counterpart non-governmental programs, RD-12's success lies in reaching the rural poor with credit and social and human development inputs. As of December 1994, it had lent Tk 1,895.6 million to the poor with an average loan size of Tk 4,194. In contrast, the cumulative loan amount was only Tk 36.3 million in 1989, with an average loan size of Tk 2,164. It also mobilized Tk 211.9 million in 1994 in total deposits, including shares and savings, from its members, compared to Tk 31.5 million in 1989. In 1994, cumulative savings accounted for about 11 percent of the loans disbursed to the poor. However, as the contribution of the CIDA and the Government of Bangladesh for RD-12 project implementation is reduced, funds from the project's own earning will increase from 28 percent in 1993-94 to 58 percent in 1995-96.

The performance of the BRDB RD-12 project has been very satisfactory. Its loan recovery rate has been high compared to the Grameen Bank's and the BRAC programs recovery rates, and much higher than the rates of other government and development finance institution loan programs. Its loan recovery rate was 77 percent in 1989, which increased to 93 percent by 1994, indicating that the benefits from program participation must be high. But whether the rural poor as a whole benefit from RD-12 is uncertain, as the village-survey data analysis shows that the rural wages were not significantly higher in RD-12 program villages than in non-program villages. It was also found that the RD-12 program was placed in areas close to rural urban centers and with better agroclimate endowments. Despite these results for three initial years, the more recent achievements of RD-12 suggest that a well-designed targeted government credit program can become sustainable and also ameliorate poverty.

As this program has been financed by a CIDA revolving fund, program sustainability was not an issue when the project was conceptualized and implemented. However, given its success, it became apparent that the government could launch a sustainable targeted credit program to deal with the needs of the rural poor that are not being addressed otherwise. This concern is becoming more pressing as the expiration date (June 1996) of the CIDA funding approaches, at which time the government must determine the fate of this project.

A major drawback is that the RD-12 credit component was not designed to cover the operating costs out of interest incomes. Although the primary societies (BSS and MBSS) may become sustainable given continued access to credit, the thana-level societies (TBCCAs) would have problems in effective management of the revolving loan funds (RLFs). With the added objective of financial sustainability of RD-12, a vital shift in its credit operations will be necessary.

In this new phase of development, with the longer-term view of a possible evolution into an independent financial institution for the poor, RD-12 has to commit to a more independent, self-financing, institutional approach in its lending to the rural poor. Given these objectives, the emphasis has to be on efficient delivery of credit, its recovery and maintaining the quality of its loan portfolio.

Our results suggest that RD-12 enjoys a large economic subsidy, although over 1989-91 the subsidy fell substantially. The economic subsidy was 98.5 percent of each taka disbursed in 1989 and 93.3 percent in 1991. However, when the extent of subsidy is evaluated in terms of its reaching the poor, the reduction was more pronounced. The subsidy per member was Tk 288.9 in 1989 and Tk 268.4 in 1991, a reduction of 7.1 percent. The reduction in subsidy per borrower fell by 99.4 percent, from Tk 1,954.3 in 1989 to Tk 980.0 in 1991. The reduction in subsidy is perhaps even larger in more recent years due to the program's phenomenal growth after 1991.

Although the program has been in operation for the last six years, the data analysis suggests that the RD-12 project has considerable potential. Its success is partly due to the competition it faces from other NGOs and to its flexible system. Moreover, RD-12 has successfully institutionalized a monitoring and evaluation system, engineered by Canadian Resource Team, which helps it monitor its lending and other operations. A well-managed monitoring system is necessary for a sustainable institution. However, financial viability at the thana-level societies level has not yet been attained. Our analysis shows that if the head office grant was used to cover the expenses at the thana-level, more than 92 percent of the thana-level societies were profitable in 1991. But, if the thana-level societies had to cover their own costs, only 2 percent earned profits in 1991. However, although the branches are losing, there are economies of scale in the thana-level societies operations, implying that it is possible to reduce subsidy dependency.

Our calculations further show that the RD-12 project could have broken even in 1991 if it had charged 13 times its present interest rate. This is, however, unlikely as borrowers could not afford this

high rate, given production technology and market demand. However, the required increase in the lending rate may fall as the RD-12 has expanded its lending and membership in recent years. Our analysis shows that economies of scale exist in thana-level societies operations and that the marginal revenue is much lower than the marginal cost of lending.

Potential and problems

The successful performance of RD-12 is revealed by the fact that the project has exceeded its targets before its completion date. By 1994, RD-12 had mobilized 16,565 societies, of which 16,234 were registered, surpassing its target of 14,500. Similarly, it had mobilized 452,016 members, of whom 440,544 belonged to registered societies and 316,000 were loanees, far in excess of its target, 362,500. Further, the original CIDA goal of strengthening the capacity of the BRDB to plan, implement, and sustain development was clearly attained.

However, several limitations of the BRDB and its RD-12 operations have been pointed out in evaluations of the project (for example, Postgate and others 1992). One major weakness is that RD-12 was not designed such that its interest income would cover its operating costs. Although the primary societies may be sustainable as long as they have access to credit, the thana-level societies are not. Also, neither the BRDB nor the thana-level society management have the experience to manage a business enterprise if the societies are made independent. In addition, there were inherent weaknesses in the operational structure of the project vis-a-vis its position within the BRDB and the GOB. As such, RD-12 has been subject to most government rules and procedures covering staff employment, budgetary provisions and project decision-making.

With the possibility of receiving less grants or cheaper funds from external sources in the future, the feasibility of replicating such a program nation-wide requires careful examination of its cost-effectiveness. An encouraging experience is RD-12's growing use of its own internally generated earnings for project implementation, as the contributions of the CIDA and the GOB decline. Yet, the relevance of the RD-12 approach also requires evaluation with respect to the government's macroeconomic goals and planning strategy, given the relative successes of other NGOs in reaching the same target group.

The possible expansion of poverty alleviation programs, such as RD-12, depends on the availability of donors funds for institutional development. However, to be sustainable, a targeted credit program needs to generate its own resources to serve the poor. In 1991, RD-12 accumulated more savings and deposits from its members than it disbursed. However, because of government restrictions, it could not utilize these savings for on-lending. In 1992 this restriction was lifted - an encouraging step toward self-sustainability. Utilizing the shares and savings deposits of the project beneficiaries as collateral, the BRDB has borrowed Tk 150 million from the Bangladesh Bank to increase its revolving loan fund.

Another issue to be decided in the evolution towards a sustainable follow-on institution to RD-12 is the ownership of the revolving loan funds (RLF). These funds have been with the thana-level societies in the existing design but a more efficient mechanism would be for the umbrella organization (BRDB or a new financial institution) to channel funds directly to the primary societies and its groups according to the demand for these funds.

The government is currently considering a proposal for creating an autonomous financial institution for the poor based on RD-12, which would be a positive step. Given the enormous task of poverty reduction in Bangladesh, the various NGOs programs are inadequate. In 1993 the combined government and NGO efforts only reached 25 percent of the target population in the country. The government could play an influential role by fostering competition among various organizations serving the assetless poor. Competition from NGOs would make them and the government system more responsive to the needs of the poor as well as efficient. Our study of RD-12 suggests that its success is in fact partially due to this competition and learning from the NGO programs.

The RD-12 project has developed an integrated skill development program for the poor based on the activities they select to pursue when self-employed. But its current training program does not address the economy's need to diversify production. Thus, its training program must be tailored more to the needs of the market, rather than the needs of individual borrowers, who may be unaware of market needs or project profitability. In other words, skill training must be modernized to facilitate dynamics in the rural off-farm sector.

At the same time, the RD-12 program should provide marketing assistance to its borrowers for their products. This is not being done currently. If the returns are not high enough to cover the cost of borrowing, members will not be willing to borrow from RD-12 or similar programs. Attaining production (including marketing) and cost efficiency in the delivery of targeted inputs to the poor is the only way the survival of both borrowers and lenders can be ensured.

Given its performances, the evolution of the RD-12 towards the creation of a new financial institution for the assetless poor may seem to be a viable option. The focus on financial sustainability and the creation of a lending base for this new entity may be the feasible alternative towards achieving the development objectives of RD-12 and the GOB. But, judging from the experiences of other micro-credit programs in Bangladesh and elsewhere, the rationale for doing so within the government needs careful re-examination.

In this context, the issue of the relationship between the BRDB/GOB and the new financial institution that could evolve from RD-12 is crucial. While it may be possible for the BRDB and GOB to have administrative control over the new body, it will have to be decided on the basis of what will be the most efficient way to manage the new institution. If the new entity is designed to deal directly with the primary societies, the role of the thana-level societies would be reduced to administering the various project components. Another moot point is the role of the cooperative system in an organizational design where the locus of activities has devolved to the smaller "solidarity groups". The role and scope of other government regulatory agencies, including the Registrar of Cooperatives and the Bangladesh Bank, in terms of accountability will have to be delineated. Evaluations of such issues are important in institutionalizing the successes so far achieved by the BRDB's RD-12 program.

Table 3.1
BRDB RD-12 societies and membership by type, 1988-94

Year	Mobilized					Registered					Net loanee				
	Women		Men		Total	Women		Men		Total	Women		Men		Total
	Number	%	Number	%		Number	%	Number	%		Number	%	Number	%	
Number of societies															
1989	2,388	37.94	3,906	62.06	6,294	1,871	36.14	3,305	63.85	5,176	487	43.87	623	56.13	1,110
1990	3,254 (36.26)	40.05	4,870 (24.68)	59.95	8,124 (29.08)	2,287 (22.23)	37.85	3,756 (13.65)	62.15	6,043 (16.75)	1,108 (127.52)	44.89	1,360 (118.30)	55.11	2,468 (122.34)
1991	5,453 (67.58)	49.10	5,654 (16.10)	50.90	11,107 (36.72)	3,958 (73.07)	44.52	4,932 (31.31)	55.48	8,890 (47.11)	2,148 (93.86)	48.25	2,304 (69.41)	52.75	4,452 (80.39)
1992	9,010 (65.23)	62.77	5,345 (-5.47)	37.23	14,355 (29.24)	7,021 (77.39)	57.62	5,164 (4.70)	42.38	12,185 (37.06)	5,365 (149.77)	60.38	3,521 (52.82)	39.62	8,886 (99.60)
1993	11,181 (24.09)	68.57	5,124 (-4.13)	31.43	16,305 (13.58)	10,600 (50.98)	67.61	5,078 (-1.67)	32.39	15,678 (28.67)	9,463 (76.38)	76.62	3,567 (1.31)	27.38	13,030 (46.64)
1994	11,551 (3.31)	69.73	5,014 (-2.15)	30.27	16,565 (1.59)	11,267 (6.27)	69.40	4,967 (-2.19)	30.60	16,234 (3.55)	10,472 (10.66)	72.62	3,418 (-4.18)	24.60	13,890 (6.60)
Number of members															
1989	54,690	35.48	99,460	64.52	154,150	44,504	34.14	85,849	65.86	130,353	6,705	39.99	10,060	60.01	16,765
1990	74,614 (36.43)	37.67	123,476 (24.15)	62.33	198,090 (28.50)	55,233 (24.11)	35.88	98,707 (14.98)	64.12	153,940 (18.09)	19,942 (197.42)	42.01	27,529 (173.65)	57.99	47,471 (183.16)
1991	123,211 (65.13)	46.06	144,293 (16.86)	53.94	267,504 (35.04)	92,366 (67.23)	42.27	126,150 (27.80)	57.73	218,516 (41.95)	48,159 (141.50)	45.95	56,651 (105.79)	54.05	104,810 (120.79)
1992	204,775 (66.20)	59.13	141,547 (-1.90)	40.87	346,322 (29.46)	162,171 (75.57)	54.50	135,409 (7.34)	45.50	297,580 (36.18)	89,462 (85.76)	59.28	61,454 (8.47)	40.72	150,916 (43.99)
1993	289,334 (41.29)	67.65	138,369 (-2.25)	32.35	427,703 (23.50)	273,403 (68.59)	66.66	136,742 (0.98)	33.34	410,145 (37.83)	199,557 (123.06)	73.28	72,778 (18.43)	26.72	272,335 (80.46)
1994	314,886 (8.83)	69.66	137,130 (-0.90)	30.33	452,016 (5.68)	304,794 (11.48)	69.19	135,750 (-0.73)	30.81	440,544 (7.41)	243,761 (22.15)	77.14	72,239 (-0.74)	22.86	316,000 (16.03)

Note: Figures in parentheses represent growth rates from previous year.

Source: BRDB RD-12.

Table 3.2
BRDB employees by type, 1988-94

Year	Total employees for all societies			Total
	Manager/officers	Others	Field level	
1988	251	46	597	894
1989	281 (11.95)	134 (191.30)	761 (27.47)	1176 (31.25)
1990	293 (4.27)	134 (0)	852 (11.96)	1279 (8.76)
1991	316 (7.85)	139 (3.73)	1362 (59.86)	1817 (42.06)
1992	319 (0.95)	139 (0)	1796 (31.86)	2254 (24.05)
1993	320 (0.31)	139 (0)	2615 (12.19)	2474 (9.76)
1994	322 (0.63)	139 (0)	2089 (3.67)	2550 (3.07)
Average employees per thana-level society				
1988	1.81	0.33	4.29	6.43
1989	2.02 (11.60)	0.96 (190.91)	5.47 (27.51)	8.46 (31.57)
1990	2.11 (4.46)	0.96 (0)	6.13 (12.07)	9.20 (8.75)
1991	2.27 (7.58)	1.00 (4.17)	9.80 (59.87)	13.07 (42.06)
1992	2.29 (0.88)	-	12.92 (31.84)	16.22 (24.10)
1993	2.30 (0.44)	-	14.50 (12.23)	17.80 (9.74)
1994	2.32 (0.87)	-	15.03 (3.66)	18.35 (3.09)

Note: Figures in parentheses represent growth rate from preceding year.

Source: BRDB RD-12.

Table 3.3
RD-12: Cumulative disbursement (thousand Taka) by activity and gender, 1989-94

Year	Men	%	Women	%	All	%	Men	%	Women	%	All	%
Livestock							Poultry					
1989	8,907.96	38.40	5,323.87	40.69	14,231.83	39.23	21.5	0.09	115.2	0.88	136.7	0.38
1990	24,466.76 (174.66)	39.18	16,720.17 (214.06)	42.36	41,186.93 (189.40)	40.41	67.5 (213.95)	0.11	402.4 (249.31)	1.02	469.9 (243.75)	0.46
1991	42,515.46 (73.77)	33.15	34,730.52 (107.72)	35.45	77,245.98 (87.55)	34.14	172.5 (155.56)	0.13	1,770.3 (339.94)	1.81	1,942.8 (313.45)	0.87
1992	74,892.66 (76.15)	30.34	75,147.37 (116.37)	26.16	150,040 (94.24)	28.09	872.7 (405.91)	0.35	16,026.5 (769.84)	5.58	16,899.2 (769.84)	3.16
1993	123,087.36 (64.35)	31.51	211,185.90 (181.03)	26.45	334,273.26 (122.79)	28.11	1,948.2 (123.24)	0.50	80,355.0 (401.39)	10.06	82,303.2 (387.31)	6.92
1994	164,278.06 (33.46)	32.52	391,589.91 (85.42)	28.16	555,867.97 (66.29)	29.32	2,772.20 (42.30)	0.55	159,492.0 (98.48)	11.47	162,264.2 (97.15)	8.56
Small trading							Fisheries					
1989	6,907.15	29.78	3,014.8	23.04	9,921.95	27.35	689.8	2.97	15	.11	704.8	1.94
1990	19,301.85 (179.45)	30.91	9,362.3 (210.55)	23.72	28,664.15 (188.90)	28.32	2,626.7 (280.79)	4.21	699 (4560.00)	1.77	3,325.7 (371.86)	3.26
1991	54,064.85 (180.10)	42.15	28,286.9 (202.14)	28.87	82,351.75 (187.30)	36.83	4,790.3 (82.37)	3.73	1,919 (174.54)	1.96	6,709.3 (101.74)	2.97
1992	113,729.7 (110.36)	46.07	72,716.6 (157.07)	25.32	186,446.3 (126.40)	35.23	9,219.5 (92.46)	3.73	7,379 (284.52)	2.57	16,598.5 (147.40)	3.11
1993	166,012.7 (45.97)	42.40	143,868.9 (97.85)	18.02	309,881.6 (66.20)	26.06	19,352.7 (109.91)	4.95	27,816.5 (276.97)	3.48	47,169.2 (184.18)	3.97
1994	201,950.2 (21.65)	39.98	215,626.11 (49.88)	15.51	417,576.31 (34.75)	22.03	30,081.7 (55.44)	5.96	58,528.0 (110.41)	4.21	88,609.7 (87.85)	4.67
Paddy husking							Industry					
1989	1,736.1	7.48	3,859.8	29.50	5,595.9	15.42	124	0.53	161	1.23	285	0.79
1990	3,340.1 (92.39)	5.35	9,850.85 (155.22)	24.95	13,190.95 (135.73)	12.94	629 (407.26)	1.01	522.4 (224.47)	1.321	1,151.4 (304)	1.13
1991	6,239.5 (86.81)	4.86	25,963.65 (163.57)	26.50	32,203.15 (144.14)	14.23	1,164 (85.06)	0.91	1,644.2 (214.74)	1.68	2,808.2 (143.89)	1.24
1992	17,234.4 (176.21)	6.98	91,553.13 (252.62)	31.88	108,787.5 (237.82)	20.37	2,694 (131.44)	1.09	8,251.4 (401.85)	2.87	10,945.4 (289.77)	2.05

Table 3.3 (continued)
RD-12: Cumulative disbursement (thousand Taka) by activity and gender, 1989-94

Year	Men	%	Women	%	All	%	Men	%	Women	%	All	%
1993	30,072.6 (74.49)	7.70	231,392.6 (152.74)	28.98	261,465.2 (140.34)	21.99	16,123.5 (498.50)	4.13	12,274.2 (48.75)	1.54	28,397.7 (159.45)	2.39
1994	39,140.9 (29.16)	7.75	361,094.87 (56.05)	25.97	400,235.77 (53.07)	21.11	25,370.50 (57.35)	5.02	19,822.6 (61.50)	1.43	45,193.13 (59.14)	2.38
Tailoring						Oil milling						
1989	175	0.75	340	2.50	515	1.42	245.5	1.06	42	0.32	287.5	0.79
1990	453 (158.86)	0.73	1,181.9 (247.62)	2.99	1,634.9 (217.46)	1.60	781.8 (218.45)	1.25	179 (326.19)	0.45	960.8 (234.19)	0.94
1991	696.8 (53.82)	0.54	1,828.3 (54.69)	1.87	2,525.1 (54.45)	1.12	873.7 (11.75)	0.68	220.5 (23.18)	0.23	1,094.2 (13.88)	0.48
1992	844.8 (21.24)	0.34	3,017.3 (65.03)	1.05	3,862.1 (52.95)	0.72	1,167.7 (33.65)	0.47	250 (13.38)	0.09	1,417.7 (29.56)	0.27
1993	980.3 (16.04)	0.25	4,107.8 (36.14)	0.51	5,088.1 (31.74)	0.43	1,358.7 (16.36)	0.35	250 (0)	0.03	1,608.7 (13.47)	0.14
1994	1,104.3 (12.65)	0.22	5,306.3 (29.18)	0.38	6,410.6 (25.99)	0.34	1,603.7 (18.03)	0.32	308.5 (23.40)	0.02	1,912.2 (18.87)	0.10
Others						All activities						
1989	4,390.4	18.93	212	1.62	4,602.4	12.69	23,197.41	63.94	13,083.67	36.06	36,281.08	
1990	10,778.9 (145.51)	17.26	557.8 (163.11)	1.41	11,336.7 (146.32)	11.12	62,445.61 (169.11)	61.00	39,475.82 (201.72)	38.73	101,921.4 (180.92)	
1991	17,748.4 (64.66)	13.84	1,614.4 (189.42)	1.65	19,362.8 (70.80)	8.56	128,265.5 (105.40)	156.69 .18	97,977.77 (148.20)	43.31	226,243.3 (121.98)	
1992	26,209.6 (47.67)	10.62	12,865.1 (696.90)	4.48	39,074.7 (101.80)	7.32	246,865.1 (92.48)	45.74	287,206.4 (193.13)	53.78	534,071.5 (136.06)	
1993	31,695.3 (20.93)	8.11	87,149.2 (577.41)	10.92	118,844.5 (204.15)	9.99	390,631.3 (58.24)	32.85	798,400.1 (177.99)	67.15	1,189,031.4 (122.64)	
1994	38,800.50 (22.42)	7.68	178,683.93 (105.03)	12.85	217,484.43 (83.00)	11.47	505,102.1 (29.30)	26.65	1,390,452.3 (74.15)	73.35	1,895,554.31 (59.42)	

Note: Figures in parentheses represent growth rates from previous year.
% represents percentage of respective activity in all activities, and for "All activities", % represents proportion for men and women.

Source: BRDB RD-12.

Table 3.4
Average cumulative disbursement per member
(taka)

Year	Men	Women	Total
1989	2305.91	1951.33	2164.10
1990	2243.30 (-2.72)	1979.53 (1.45)	2132.49 (-1.46)
1991	2217.77 (-1.14)	2034.46 (2.77)	2133.54 (0.05)
1992	3939.25 (77.62)	3210.37 (57.80)	3507.17 (64.38)
1993	5367.58 (36.26)	4000.86 (24.62)	4366.09 (24.49)
1994	6992.09 (30.27)	5704.16 (42.57)	5998.59 (37.39)

Note: Figures in parentheses represent growth rates from previous year.

Source: BRDB RD-12.

Table 3.5
RD-12: Annual disbursement by activity (thousand Taka) and gender, 1989-94

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Livestock						Poultry						
1989	8,907.96	38.40	5,323.87	40.69	14,231.82	39.23	21.5	0.09	115.2	0.88	136.7	0.38
1990	15,558.8 (74.66)	39.64	11,396.3 (114.06)	43.18	26,955.1 (89.40)	41.06	46 (113.95)	0.12	287.2 (149.31)	1.09	333.2 (143.75)	0.51
1991	18,048.7 (16.00)	27.42	18,010.35 (58.04)	30.79	36,059.05 (33.77)	29.00	105 (128.26)	0.16	1,367.9 (376.29)	2.34	1,472.9 (342.05)	1.18
1992	32,377.2 (79.39)	27.30	40,416.85 (124.41)	21.36	72,794.05 (101.87)	23.65	700.2 (566.86)	0.59	14,256.2 (942.20)	7.53	14,956.4 (915.44)	4.86
1993	48,194.7 (48.85)	32.44	136,038.5 (236.59)	26.61	184,233.2 (153.09)	27.92	1,075.5 (53.60)	0.72	64,328.5 (351.23)	12.58	65,404.0 (337.30)	9.91
1994	41,190.70 (-14.53)	35.98	180,404.01 (32.61)	30.47	221,594.71 (20.28)	31.36	824.0 (-23.38)	0.72	79,137.0 (23.02)	13.37	79,961.0 (22.26)	11.32
Small trading						Fisheries						
1989	6,907.15	29.78	3,014.8	23.04	9,921.95	27.35	689.8	2.97	15	0.11	704.8	1.94
1990	12,394.7 (79.45)	31.58	6,347.5 (110.54)	24.05	18,742.2 (88.90)	28.55	1,247.1 (80.79)	3.18	684 (4,460)	2.59	1,931.1 (173.99)	3.99
1991	34,763 (180.47)	52.82	18,924.6 (198.14)	32.35	53,687.6 (186.45)	43.18	916.5 (-26.51)	1.39	1,220 (78.36)	2.09	2,136.5 (10.64)	2.72
1992	59,664.85 (71.63)	50.31	44,429.7 (134.77)	23.48	104,094.5 (93.89)	33.82	2,265.7 (147.21)	1.91	5,460 (347.54)	2.89	7,725.7 (261.61)	3.21
1993	52,283.0 (-12.37)	34.19	71,152.3 (60.15)	13.92	123,425.3 (18.58)	18.71	14,923.4 (558.67)	10.05	20,437.5 (274.31)	4.00	35,360.9 (357.70)	5.36
1994	35,937.50 (-31.26)	31.39	71,757.21 (0.83)	12.12	107,694.71 (-12.75)	15.24	10,729.0 (-28.11)	9.37	30,711.50 (50.27)	5.19	41,440.5 (17.19)	5.87

Table 3.5 (continued)
RD-12: Annual disbursement by activity (thousand Taka) and gender, 1989-94

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Paddy husking						Industry						
1989	1,736.1	7.48	3,859.80	29.50	5,595.90	15.42	124	.53	161	1.23	285	.79
1990	1,604 (-7.61)	4.09	5,991.05 (55.22)	22.70	7,595.05 (35.73)	11.57	505 (307.26)	1.29	361.4 (124.47)	1.37	866.4 (204)	1.32
1991	2,899.40 (80.76)	4.41	16,112.80 (168.95)	27.54	19,012.20 (150.32)	15.29	535 (5.94)	.81	1,121.8 (210.40)	1.92	1,656.8 (91.23)	1.33
1992	10,994.90 (279.21)	9.27	6,5589.48 (307.06)	34.66	76,584.38 (302.82)	24.88	1,530 (185.98)	1.29	6,607.2 (488.98)	3.49	8,137.2 (391.14)	2.64
1993	12,838.2 (16.77)	8.64	129,839.5 (113.20)	25.40	152,677.7 (99.36)	23.14	13,429.5 (777.75)	9.04	4,022.8 (-39.11)	.79	17,452.3 (114.48)	2.65
1994	9,068.3 (-29.36)	7.92	129,702.27 (-0.11)	21.91	138,770.57 (-9.11)	19.64	9,247.00 (-31.14)	8.08	7,548.43 (87.64)	1.27	16,795.43 (-3.76)	2.38
Tailoring						Oil milling						
1989	175	0.75	340	2.60	515	1.42	245.4	1.06	42	0.32	287.5	0.79
1990	278 (58.86)	0.71	841.9 (147.62)	3.19	1,119.9 (117.46)	1.71	536.3 (118.45)	1.37	137 (226.19)	0.52	673.3 (134.19)	1.03
1991	243.8 (-12.30)	0.37	646.4 (-23.22)	1.10	890.2 (-20.51)	0.72	91.90 (-82.86)	0.14	41.5 (-69.71)	0.07	133.4 (-80.19)	0.11
1992	148 (-39.29)	0.12	1,189 (83.94)	0.63	1,337 (50.19)	0.43	294 (219.91)	0.25	29.5 (-28.92)	0.02	323.50 (142.50)	0.11
1993	135.5 (-8.45)	0.09	1,090.5 (-8.32)	0.21	1,226 (-8.30)	0.19	191 (-35.03)	0.13	0 (-100.0)	0	191 (-40.96)	0.03
1994	124.0 (-8.49)	0.11	1,198.50 (9.90)	0.20	1,322.5 (0.09)	0.19	245.0 (28.27)	0.21	58.50 (-)	0.01	303.5 (58.90)	0.43

Table 3.5 (continued)
RD-12: Annual disbursement by activity (thousand Taka) and gender, 1989-94

Table 3.5 (continued)
RD-12: Annual disbursement by activity (thousand Taka) and gender, 1989-94

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	
	Others						All activities					
1989	4,390.4	18.93	212	1.62	4,602.4	12.69	23,197.41	63.94	13,083.67	36.06	36,281.08	
1990	6,388.5 (45.51)	16.28	345.8 (63.11)	1.31	6,734.3 (46.32)	10.26	39,248.2 (69.19)	59.79	26,392.15 (101.72)	40.21	65,640.35 (80.92)	
1991	6,969.5 (9.09)	10.59	1,056.6 (205.55)	1.81	8,026.1 (19.18)	6.46	65,819.91 (67.70)	52.94	58,501.95 (121.66)	47.06	124,321.9 (89.40)	
1992	8,461.20 (21.40)	7.13	11,250.7 (964.80)	5.95	19,711.9 (145.60)	6.40	118,599.5 (80.19)	38.53	189,228.6 (223.46)	61.47	307,828.2 (147.61)	
1993	5,485.7 (-35.17)	3.69	74,284.1 (560.26)	14.53	79,769.8 (304.68)	12.09	148,556.5 (25.26)	22.52	511,193.7 (170.15)	77.48	659,750.2 (114.32)	
1994	7,105.2 (29.52)	6.21	91,534.73 (23.22)	15.46	98,639.93 (23.66)	13.96	114,470.76 (-22.94)	16.20	592,052.15 (15.82)	83.80	706,522.91 (7.09)	

Notes: Figures in parentheses are percentage growth rates over the preceding year.

% represents percentage of respective activity of total disbursement in all activities and by gender, and for "All activities", % represents proportion for men and women.

Source: BRDB RD-12.

Table 3.6A
RD-12: Loan outstanding by activity and gender, 1989-94

(thousand taka)

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Livestock						Poultry						
1989	8298.87	40.97	4895.66	44.53	13194.53	42.22	9.00	0.04	105.80	0.96	114.80	0.37
1990	8812.70 (6.19)	40.58	4963.44 (1.38)	23.07	13776.14 (4.41)	31.87	40.86 (354.00)	0.19	301.00 (184.50)	1.40	341.86 (197.79)	0.79
1991	11432.59 (29.73)	31.38	9759.81 (96.63)	14.15	21192.40 (53.83)	20.11	665.52 (1528.78)	1.83	1370.77 (355.41)	1.99	2036.29 (495.65)	1.93
1992	24990.56 (118.59)	31.90	14046.54 (43.92)	11.95	39037.10 (84.20)	19.92	2120.04 (218.55)	2.71	4452.00 (224.78)	3.79	6572.04 (222.75)	3.35
1993	28874.70 (15.54)	20.09	17692.23 (25.95)	8.14	46566.93 (19.29)	12.89	2854.16 (34.63)	1.99	6905.19 (55.10)	3.18	9759.38 (48.50)	2.70
1994	28933.36 (0.20)	23.40	17700.43 (0.05)	11.67	46633.79 (0.14)	16.93	2900.36 (1.62)	2.34	6945.48 (0.58)	4.58	9845.84 (0.89)	3.57
Small Trading						Fisheries						
1989	5316.27	26.24	2156.92	19.62	7473.19	23.91	624.00	3.08	14.60	0.13	638.60	2.04
1990	5679.14 (6.83)	26.15	7220.72 (234.77)	33.56	12899.86 (72.62)	29.84	737.72 (18.22)	3.40	665.99 (4461.58)	3.10	1403.71 (119.81)	3.25
1991	9264.47 (63.13)	25.43	28060.33 (288.61)	40.69	37324.80 (189.34)	35.41	5004.05 (578.31)	6.39	4820.84 (623.86)	6.99	9824.69 (599.92)	9.32
1992	12821.44 (38.39)	16.37	31399.60 (11.90)	26.70	44221.04 (18.48)	22.57	8637.25 (72.61)	11.03	5638.28 (16.96)	4.79	14275.53 (45.30)	7.29
1993	24040.78 (87.50)	16.73	88948.72 (183.28)	40.90	112989.50 (155.51)	31.29	15042.78 (74.16)	10.47	6642.67 (17.81)	3.05	21685.45 (51.91)	6.00
1994	24133.15 (0.38)	19.49	89010.81 (0.07)	58.70	113143.96 (0.14)	41.07	15058.95 (0.11)	12.16	6707.10 (0.97)	4.42	21766.05 (0.37)	7.90

Table 3.6A (continued)
RD-12: Loan outstanding by activity and gender, 1989-94

(thousand taka)

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Paddy Husking							Industry					
1989	1363.60	6.73	2785.10	25.33	4148.70	13.28	2900.79	14.32	204.03	1.86	3104.82	9.94
1990	1490.11 (9.28)	6.86	6982.25 (150.70)	32.45	8472.36 (104.22)	19.60	3100.39 (6.86)	14.28	233.66 (14.52)	1.09	3334.05 (7.38)	7.71
1991	2705.84 (81.59)	7.43	9814.25 (40.56)	14.23	12520.09 (47.78)	11.88	4227.49 (36.35)	11.60	2599.73 (1012.61)	3.77	6827.22 (104.77)	6.48
1992	15527.04 (473.83)	19.82	10410.00 (6.07)	8.85	25937.04 (107.16)	13.24	8050.86 (90.44)	10.28	7376.51 (183.74)	6.27	15427.34 (125.97)	7.87
1993	29161.22 (87.81)	20.29	19114.45 (83.62)	8.79	48275.67 (86.13)	13.37	14570.93 (80.99)	10.14	23841.10 (223.20)	10.96	36412.03 (148.99)	10.64
1994	29162.34 (0.00)	23.55	1135.18 (-94.06)	0.75	30297.52 (-37.24)	11.00	14661.20 (0.62)	11.84	23964.13 (0.52)	15.80	38625.33 (0.56)	14.02
Tailoring							Oil Milling					
1989	161.45	0.79	315.57	2.87	477.02	1.53	227.60	1.12	39.13	0.36	266.73	0.85
1990	179.52 (11.19)	0.83	396.04 (26.13)	1.85	577.56 (21.08)	1.34	238.49 (4.78)	1.10	176.34 (350.65)	0.82	414.83 (55.52)	0.96
1991	268.80 (49.73)	0.74	447.05 (12.31)	0.65	715.85 (23.94)	0.68	1126.62 (372.40)	3.09	518.95 (194.29)	0.75	1645.57 (296.69)	1.56
1992	590.91 (119.83)	0.75	739.35 (65.38)	4.20	1330.26 (85.83)	0.68	1778.86 (57.89)	2.27	1614.55 (211.12)	1.37	3393.41 (106.21)	1.73
1993	1166.41 (97.39)	0.81	3402.93 (360.26)	1.56	4569.34 (243.49)	1.27	2148.00 (20.75)	1.49	1735.41 (7.49)	0.80	3883.41 (14.44)	1.08
1994	1175.11 (0.75)	0.95	3412.58 (0.28)	2.25	4567.69 (0.40)	1.67	2155.75 (0.36)	1.74	1744.18 (0.51)	1.15	3899.93 (0.43)	1.42

Table 3.6A (continued)
RD-12: Loan outstanding by activity and gender, 1989-94

(thousand taka)

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Others							All Activities					
1989	1353.76	6.68	477.03	4.34	1830.79	5.86	20255.34	65.64	10993.84	34.36	31249.18	
1990	1435.50 (6.04)	6.61	572.26 (19.96)	2.66	2007.76 (9.67)	4.64	21714.43 (7.20)	50.23	21513.70 (95.69)	49.77	43228.13 (38.33)	
1991	1742.16 (21.36)	4.78	11573.43 (1922.41)	16.78	13315.59 (563.21)	12.63	36437.54 (67.80)	34.57	68965.16 (220.56)	65.43	105402.70 (143.83)	
1992	3820.34 (119.29)	10.48	41914.44 (262.16)	35.64	45734.78 (243.47)	23.34	78337.27 (114.99)	39.98	17591.27 (70.51)	60.02	195928.54 (85.89)	
1993	25833.38 (576.21)	17.98	49182.07 (17.34)	22.62	75015.45 (64.02)	20.77	143692.39 (63.43)	39.79	217464.77 (84.93)	60.21	361157.16 (34.33)	
1994	5654.52 (-78.11)	4.57	1042.95 (-97.88)	0.69	6697.47 (-91.07)	2.43	123634.74 (-13.82)	44.95	151662.84 (-30.26)	55.05	275497.58 (-23.72)	

Source: BRDB RD-12.

Table 3.6B
Cumulative outstanding, 1989-94

Year	Amount disbursed	Amount recovered	Amount outstanding	Cumulative outstanding (last and current years)
1989	36,281.10	5,031.92	31,249.18	31,249.18
1990	101,921.40	58,693.27	43,228.13	74,477.31
1991	226,243.30	120,840.60	105,402.70	179,880.01
1992	534,071.50	338,142.96	195,928.54	375,808.55
1993	1,189,031.40	827,874.24	361,157.16	736,965.71
1994	1,895,554.30	1,620,056.73	275,497.58	1,012,463.29

Notes: Figures in parentheses are percentage growth rates over the preceding year.
% represents percentage of respective activity of total outstanding in all activities and by gender.

Source: BRDB RD-12.

Table 3.7
Savings and deposits by type, 1989-94
(thousand taka)

Year	Men	Women	Total	Men	Women	Total
Share deposits			Savings deposits			
1989	5,599.8	2,738.0	8,337.8	13,784.2	8,592.5	22,376.7
1990	6,823.3 (21.9)	3,645.2 (33.1)	10,468.5 (25.6)	18,798.2 (36.4)	12,611.2 (46.8)	31,409.4 (40.4)
1991	8,640.9 (26.6)	5,956.9 (63.4)	14,597.8 (39.4)	26,628.1 (41.7)	22,005.8 (74.5)	48,634.0 (54.8)
1992	10,253.3 (18.66)	10,891.4 (82.84)	21,144.7 (44.85)	34,429.2 (29.30)	44,348.5 (101.53)	78,777.7 (61.98)
1993	11,655.5 (13.68)	20,300.8 (86.39)	31,956.3 (51.13)	40,902.7 (18.80)	89,217.3 (101.17)	130,120.0 (65.17)
1994	12,114.73 (3.94)	25,318.90 (24.72)	37,433.63 (17.14)	43,379.52 (6.06)	128,116.08 (43.60)	171,495.60 (31.80)
Insurance deposits			Miscellaneous deposits			
1989	397.3	206.3	603.7	120.9	82.6	203.5
1990	412.5 (3.8)	254.2 (23.2)	666.7 (10.4)	160.2 (32.5)	129.9 (57.2)	290.1 (42.5)
1991	501.6 (21.6)	326.8 (28.6)	828.4 (24.3)	817.7 (410.3)	751.8 (479.0)	1,569.5 (441.0)
1992	1,157.5 (130.76)	884.5 (170.65)	2,042.0 (146.50)	1,998.5 (144.41)	2,172.4 (188.96)	4,170.9 (165.75)
1993	1,766.5 (52.61)	1,368.9 (54.77)	3,135.4 (53.55)	2,814.9 (40.85)	3,310.2 (52.38)	6,125.1 (46.85)
1994	611.13 (-65.40)	502.29 (-63.31)	1,113.42 (-64.49)	816.40 (-71.00)	1,137.81 (-65.63)	1,954.21 (-68.10)

Table 3.7 (continued)
Savings and deposits by type, 1989-94
(thousand taka)

Year	Men	Women	Total	Total outstanding	Total deposits/outstanding (%)
Total deposits					
1989	19,902.2	11,619.5	31,521.7	41,313.0	76.30
1990	26,194.3 (31.6)	16,640.4 (43.2)	42,834.7 (35.9)	67,053.4	63.88
1991	36,588.3 (39.7)	29,041.3 (74.5)	65,629.6 (53.2)	172,456.1	38.06
1992	46,519.1 (27.14)	54,218.2 (86.69)	100,737.3 (53.49)	368,384.64	27.35
1993	53,983.6 (16.05)	108,140.3 (99.45)	162,123.9 (60.94)	729,541.8	22.22
1994	56,921.78 (5.44)	155,075.08 (43.40)	211,996.86 (30.76)	1,005,039.38	21.09
Year	Men		Women		Total
Average deposits per mobilized member					
1989	0.21		0.22		0.20
1990	0.22		0.23		0.22
1991	0.26		0.24		0.25
1992	0.33		0.26		0.29
1993	0.39		0.37		0.38
1994	0.42		0.49		0.46

Note: Figures in parentheses represent growth rate from preceding year.

Source: BRDB RD-12.

Table 3.8
RD-12 members: training participation, 1988-94

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Consciousness raising (member education)						Leadership						
1988	608	4.55	523	5.51	1,131	4.95	11,876	88.89	8,453	89.02	20,329	88.94
1989	4,108 (575.66)	14.35	3,289 (528.87)	12.93	7,397 (554.02)	13.68	21,656 (82.35)	75.65	19,906 (135.49)	78.23	41,562 (104.45)	76.86
1990	6,856 (66.89)	15.08	5,430 (65.10)	13.28	12,286 (66.09)	14.23	33,682 (55.53)	74.07	31,228 (56.88)	76.39	64,910 (56.18)	75.17
1991	7,948 (15.93)	12.37	7,247 (33.46)	10.47	15,195 (23.68)	11.39	44,999 (33.60)	70.03	48,775 (59.39)	71.93	94,774 (46.01)	71.02
1992	10,931 (37.53)	15.06	11,829 (63.23)	13.59	22,760 (49.79)	14.26	48,204 (7.12)	66.42	53,132 (8.93)	61.04	101,336 (7.98)	63.49
1993	12,739 (16.54)	15.70	18,103 (34.66)	16.03	30,842 (35.51)	15.89	50,982 (5.76)	62.82	60,244 (11.81)	53.35	111,226 (9.76)	57.31
1994	15,887 (24.71)	13.18	22,136 (22.28)	13.74	38,025 (23.28)	13.50	75,872 (48.82)	62.95	95,847 (59.10)	59.48	171,719 (54.39)	60.96
Project planning						Livestock						
1988	66	.49	43	.45	109	.48	258	1.93	145	1.53	403	1.76
1989	574 (769.70)	2.01	532 (1,137.21)	2.09	1,106 (914.68)	2.05	545 (111.24)	1.90	465 (220.69)	1.83	1,010 (150.62)	1.87
1990	1,033 (79.97)	2.27	717 (34.77)	1.75	1,750 (58.23)	2.03	1,246 (128.62)	2.74	1,365 (193.55)	3.34	2,611 (158.51)	3.02
1991	1,486 (43.85)	2.31	1,390 (93.86)	2.01	2,876 (64.34)	2.16	4,013 (222.07)	6.25	5,473 (300.95)	7.91	9,486 (263.31)	7.11
1992	1,497 (0.74)	2.02	1,496 (7.63)	1.69	2,993 (4.07)	1.84	5,486 (36.71)	7.56	10,684 (94.48)	12.23	16,130 (70.04)	10.11
1993	1,565 (4.54)	2.15	1,579 (5.55)	1.38	3,144 (5.05)	1.68	7,146 (30.26)	8.81	16,161 (51.83)	14.31	23,307 (44.49)	12.01
1994	1,582 (1.09)	1.31	1,697 (7.47)	1.05	3,279 (4.29)	1.16	12,217 (70.96)	10.14	18,325 (13.39)	11.37	30,542 (31.04)	10.84

Table 3.8 (continued)
RD-12 members: training participation, 1988-94

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Agricultural work (including horticulture)						Fisheries						
1988	225	1.69	100	1.05	325	1.42	35	0.26	15	0.16	50	0.22
1989	657 (192.0)	2.29	425 (325.0)	1.67	1082 (232.92)	2.00	68 (94.29)	0.24	55 (266.67)	0.22	123 (146.00)	0.23
1990	818 (19.68)	1.80	604 (42.12)	1.48	1,422 (31.42)	1.65	336 (394.12)	0.74	89 (61.82)	0.22	425 (245.53)	0.49
1991	1,850 (127.38)	2.89	2,113 (249.83)	3.05	3,973 (179.40)	2.98	1,850 (450.60)	2.88	613 (588.76)	0.89	2,463 (479.53)	1.85
1992	2,810 (51.08)	3.87	4,208 (99.15)	4.83	7,018 (76.64)	4.39	2,740 (48.11)	3.78	2,488 (305.87)	2.86	5,228 (112.26)	3.28
1993	3,684 (31.10)	4.54	6,357 (51.07)	5.63	10,041 (43.07)	5.17	3,727 (36.02)	4.59	4,539 (82.44)	4.02	8,266 (58.11)	4.26
1994	4,509 (22.39)	4.49	6,764 (6.40)	5.61	11,273 (12.27)	4.00	5,235 (40.46)	4.34	7,852 (72.99)	4.87	13,087 (58.32)	4.65
Others						All activities						
1988	293	2.19	217	2.29	510	2.23	13,361	58.45	9,496	41.55	22,857	
1989	1,020 (248.13)	3.56	772 (255.76)	3.03	1,792 (251.37)	3.31	28,628 (114.27)	64.96	15,444 (62.64)	35.04	44,072 (92.82)	
1990	1,501 (47.16)	3.30	1,445 (87.18)	3.53	2,946 (64.40)	3.41	45,472 (58.84)	52.66	40,878 (164.69)	47.34	86,350 (95.93)	
1991	2,097 (39.71)	3.26	2,591 (79.31)	3.74	4,688 (59.13)	3.51	64,243 (41.28)	48.51	68,202 (66.84)	51.49	132,445 (53.38)	
1992	2,407 (14.78)	3.32	4,740 (82.94)	5.45	7,147 (52.45)	4.48	74,075 (15.30)	45.54	88,577 (29.87)	54.46	162,652 (22.81)	
1993	2,878 (19.57)	3.55	7,527 (58.80)	6.67	10,405 (45.59)	5.36	72,721 (-1.83)	38.84	114,510 (29.28)	61.16	187,231 (15.11)	
1994	5,502 (91.17)	4.56	8,253 (9.65)	5.12	13,755 (32.20)	4.88	120,804 (65.75)	42.79	160,874 (40.72)	57.21	281,678 (50.44)	

Notes: Figures in parentheses represent growth rates from previous years.
% represents percentage of respective category out of total participation in all categories, except for "All activities" columns where it is the proportion of male and female participation.

Source: BRIDB RD-12.

Table 3.9
RD-12 members: training expenses by activity and gender, 1988-91
 (taka)

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Consciousness raising						Leadership						
1988	17,830	4.57	16,270	5.45	34,100	4.95	341,026	87.32	244,716	82.02	585,742	85.03
1989	154,583 (766.98)	14.36	153,424 (842.99)	15.92	308,007 (803.25)	15.10	812,465 (138.24)	75.46	740,900 (202.76)	76.89	1,553,365 (165.20)	76.14
1990	267,948 (73.34)	16.08	239,825 (56.32)	15.34	507,773 (64.86)	15.72	1,160,233 (42.80)	69.62	1,100,719 (48.57)	70.39	2,260,952 (45.55)	69.99
1991	299,162 (11.64)	11.32	356,860 (48.80)	11.97	656,022 (29.20)	11.66	1,590,041 (37.04)	60.16	1,726,382 (56.84)	57.92	3,316,423 (46.68)	58.97
Project planning						Livestock						
1988	8,120	2.08	23,230	7.79	31,350	4.55	7,990	2.05	4,500	1.51	12,490	1.81
1989	32,130 (295.69)	2.98	18,860 (-18.81)	1.96	50,990 (62.65)	2.50	16,660 (108.51)	1.55	14,260 (216.89)	1.48	30,920 (147.56)	1.52
1990	48,945 (52.33)	2.94	31,125 (65.03)	1.99	80,070 (57.03)	2.48	64,355 (286.28)	3.86	89,907 (530.48)	5.75	154,262 (398.91)	4.78
1991	60,480 (23.57)	2.29	47,270 (51.87)	1.59	107,750 (34.57)	1.92	335,809 (421.81)	12.70	507,880 (464.89)	17.04	843,689 (446.92)	15.00
Agricultural work						Fisheries						
1988	6,850	1.75	3,150	1.06	10,000	1.45	1,050	.27	450	.15	1,500	.22
1989	16,510 (141.02)	1.53	9,600 (204.76)	1.00	26,110 (161.1)	1.28	4,600 (338.10)	.43	3,900 (766.67)	.40	8,500 (466.67)	.42
1990	35,405 (114.45)	2.12	31,345 (226.51)	2.00	66,750 (155.65)	2.07	26,119 (467.80)	1.57	8,630 (121.28)	.55	34,749 (308.81)	1.08
1991	131,008 (270.03)	4.96	178,342 (468.96)	5.98	309,350 (363.45)	5.50	134,545 (415.12)	5.09	66,069 (665.57)	2.22	200,614 (477.32)	3.57

Table 3.9 (continued)
RD-12 members: training expenses by activity and gender, 1988-91
(taka)

Year	Men	%	Women	%	Total	%	Men	%	Women	%	Total	%
Horticulture						Others						
1988	150	0.04	0	0	150	0.02	7,528	1.93	6,036	2.02	13,564	1.97
1989	210 (40)	0.02	150 -	0.02	360 (140)	0.02	39,573 (425.68)	13.68	22,441 (271.79)	2.33	62,014 (357.20)	3.04
1990	360 (71.43)	0.02	450 (200)	0.03	810 (125)	0.03	63,095 (59.44)	3.79	61,791 (175.35)	3.95	124,886 (101.38)	3.87
1991	810 (125.00)	0.03	660 (46.67)	0.02	1,470 (81.48)	0.03	91,363 (44.80)	3.46	97,368 (57.58)	3.27	188,731 (51.12)	3.36

Notes: Figures in parentheses are percentage growth rates for respective figures over the preceding year.
% represents percentage of respective category out of total expenses in all categories.

Source: BRDB RD-12 TBCCA survey data.

Table 3.10
RD-12 members: training expenses per participants by activity, 1988-91
(taka)

Year	Men	Women	Total
Consciousness raising			
1988	29.33	31.11	30.15
1989	37.63	46.65	41.64
1990	39.08	44.17	41.33
1991	37.64	49.24	43.17
Leadership			
1988	28.72	28.95	28.81
1989	37.52	37.22	37.37
1990	34.45	35.25	34.83
1991	35.34	34.68	34.99
Project planning			
1988	123.03	540.23	287.61
1989	55.96	35.45	46.10
1990	47.38	43.41	45.75
1991	40.70	34.01	37.47
Livestock			
1988	30.97	31.03	30.99
1989	30.57	30.67	30.61
1990	51.65	65.87	59.08
1991	83.68	92.80	88.94
Agricultural work			
1988	31.14	31.5	31.25
1989	25.4	22.86	24.40
1990	43.93	53.22	47.85
1991	71.47	85.29	78.84

Table 3.10 (continued)
RD-12 members: training expenses per participants by activity, 1988-91
(taka)

Year	Men	Women	Total
Fisheries			
1988	30	30	30
1989	67.65	70.91	69.11
1990	77.74	96.97	81.77
1991	72.73	107.78	81.45
Horticulture			
1988	30	-	30
1989	30	30	30
1990	30	30	30
1991	30	30	30
Others			
1988	25.69	27.82	26.60
1989	38.80	29.07	34.61
1990	42.04	42.76	42.39
1991	43.57	37.58	40.26
Total			
1988	29.23	31.42	30.14
1989	37.61	37.87	37.73
1990	36.65	38.26	37.41
1991	41.14	43.07	42.14

Source: BRDB RD-12 TBCCA survey data.

Table 5.1
Training of field-level staff

Type of training	July 1988 - June 1989			July 1989 - June 1990			July 1990 - June 1991			July 1991 - June 1992			July 1992 - June 1993			July 1993 - June 1994		
	No. of participants	Duration	Cost (million taka)	No. of participants	Duration	Cost (million taka)	No. of participants	Duration	Cost (million taka)	No. of participants	Duration	Cost (million taka)	No. of participants	Duration	Cost (million taka)	No. of participants	Duration	Cost (million taka)
FIELD-LEVEL STAFF:																		
1. Basic training for DPD, RDO, ARDO, accountant, accounts assistant & field organizers (FOs)	930	45 days 10 days 15 days	1.490	652	45 days 15 days	1.126	475	45 days	2.600	164	45 days	612	100	20 days	.306	92	20	0.21
2. Apprentice training for field organizers (FOs)	-	-	-	-	-	-	150	6 months	.600	610	6 months	1.276	103	6 months	.598	778	250	1.03
3. Training of trainers for field organizers (FOs)	-	-	-	-	-	-	-	-	-	100	7 days	.176	150	7 days	.291	20	10	0.17
4. Training of trainers for RDO, ARDO	20	25 days	.164	20	25 days	.184	20	25 days	.185	20	25 days	.179	20	25 days	.180	48	42	0.85
5. Orientation, review and refresher program	875	3 days	.219	635	3 days	.478	1248	3 - 6 days	1.115	1465	3 days	1.357	2116	1-3 days	1.459	50	2	0.11
6. DPD management dev. training	-	-	-	-	-	-	-	-	-	20	10 days	.114	-	-	-	-	-	-
7. RDO management dev. training	-	-	-	-	-	-	-	-	-	-	-	-	20	10 days	.107	40	8	0.25
8. Gender social analyses & leadership training for female field functionaries	-	-	-	-	-	-	-	-	-	104 70	3 days 7 days	.357	-	-	-	144	6	0.14
B. HEAD OFFICE STAFF:	-	-	-	-	-	-	3	30 days	.681	1	30 days	.260	7	25-30	1.559	6	25-30	1.32
TOTAL	1,834		1.873	1,307		1.788	1,896		5.181	2,554		4.331	2,516		4.50	1,172	368	4.08

Source: BRDB RD-12.

Table 5.2
Determinants of rural development officer's (RDO) pay structure

Explanatory variable	Coefficients (t-statistics)	Mean (standard deviation)
Age (years)	-0.021 (-0.390)	36.11 (4.78)
Age squared	0.000 (0.244)	1327.04 (367.61)
Gender (1 = male, 0 = female)	-0.009 (-0.135)	0.85 (0.36)
Education (years)	0.061 (2.480)	14.97 (1.01)
Experience (years)	0.068 (2.978)	8.00 (4.55)
Experience squared	-0.002 (-1.978)	84.47 (94.05)
Training time (days)	0.000 (0.770)	85.94 (68.10)
Intercept	7.199 (6.687)	
R ²	0.225	
F-statistics (7,77)	3.19	
No. of observations	85	85

Source: BRDB RD-12 TBCCA survey data.

Table 5.3
Impact of agroclimate endowments and location on BRDB program placement

Variables	BRDB ^a	Elecden ^a	Pryden ^a	Secden ^a	Rdhden ^a	Rcomkra ^a	Rcbka ^a	Rkbka ^a	Mean ^b
Distance to old dist HQ	0.001 (1.36)	-.001 (-2.394)	-.007 (-2.367)	-.000 (-5.129)	-.000 (-.619)	-.000 (-3.632)	-.000 (-3.532)	-.000 (-1.634)	60.87 (41.88)
Flood prone area 1	0.68 (3.82)	.075 (1.226)	.173 (3.002)	.014 (.864)	-.023 (-.688)	.004 (.311)	.001 (.089)	.003 (1.145)	.491 (.278)
Flood prone area 2	-.013 (-0.41)	.271 (2.453)	.270 (2.589)	.028 (.978)	.022 (.347)	.010 (.477)	.003 (.173)	.006 (1.591)	.161 (.137)
Flood prone area 3	-.013 (-0.39)	-.208 (-1.885)	.098 (.940)	.049 (-1.726)	-.017 (-.287)	-.004 (-.206)	.003 (.135)	-.007 (-1.681)	.093 (.149)
Flood prone area 4	1.40 (1.80)	.311 (1.169)	-.146 (-.581)	-.035 (-.510)	-.136 (-.928)	.021 (.672)	.004 (.096)	.017 (1.689)	.012 (.052)
Moisture content type 0	4.82 (3.15)	.039 (.075)	.414 (.838)	.072 (.533)	.458 (1.592)	-.069 (-.714)	-.086 (-.950)	.018 (.888)	.008 (.036)
Moisture content type 1	1.73 (1.35)	-.026 (-.059)	.143 (.349)	.025 (.225)	.337 (1.408)	-.005 (-.066)	-.018 (-.243)	.014 (.817)	.139 (.186)
Moisture content type 2	2.49 (1.99)	.028 (.065)	.163 (.404)	.029 (.260)	.357 (1.518)	-.020 (-.250)	-.031 (-.416)	.011 (.702)	.430 (.205)
Moisture content type 3	1.98 (1.55)	-.038 (-.086)	.009 (.023)	.008 (.076)	.313 (1.310)	-.022 (-.272)	-.032 (-.422)	.010 (.627)	.416 (.258)
Constant	-2.05 (1.63)	.103 (.242)	.187 (.462)	.088 (.798)	-.205 (-.869)	.068 (.855)	.070 (.940)	-.002 (-.130)	
Mean		.118 (.159)	.379 (.156)	.090 (.045)	.112 (.085)	.040 (.029)	.030 (.027)	.010 (.006)	
R ²	0.22	.147	.173	.243	.048	.092	.085	.079	
No. of observations	185	185	185	185	185	185	185	185	185

Notes: ^aFigures in parentheses represent t-statistics.

^bFigures in parentheses represent standard deviations.

Source: Thana level secondary statistics.

Table 5.4
Frequency distribution of profit by year

Profit interval (thousand taka)	1989		1990		1991	
	No. of TBCCAs	Percent- age	No. of TBCCAs	Percent- age	No. of TBCCAs	Percent- age
profit < -200	0	0	1	0.94	2	1.67
-200 ≤ profit < -100	1	2.04	1	0.94	0	0
-100 ≤ profit < 0	7	14.29	13	12.26	9	7.50
profit = 0	0	0	0	0	0	0
0 < profit ≤ 100	29	59.18	63	59.43	60	50.00
100 profit ≤ 200	10	20.41	20	18.87	38	31.67
200 profit ≤ 300	1	2.04	6	6.66	8	6.67
profit > 300	1	2.04	2	1.89	3	2.50
Total	49	100.0	106	100.00	120	100.00

Source: BRDB RD-12 TBCCA survey data.

Table 5.5
Frequency distribution of net profit by year

Net profit interval (thousand taka)	1989		1990		1991	
	No. of TBCCAs	Percent-age	No. of TBCCAs	Percent-age	No. of TBCCAs	Percent-age
net profit < -400	1	2.04	8	7.55	14	11.67
-400 ≤ net profit < -300	1	2.04	12	11.32	35	29.17
-300 ≤ net profit < -200	13	26.53	47	44.34	40	33.33
-200 ≤ net profit < -100	24	48.98	30	28.30	21	17.50
-100 ≤ net profit < 0	7	14.29	8	7.55	8	6.67
net profit = 0	0	0	0	0	0	0
net profit > 0	3	6.12	1	0.94	2	1.67
Total	49	100.00	106	100.00	120	100.00

Note: Net Profit = Profit - Grant from Head Office.

Source: BRDB RD-12 TBCCA survey data.

Table 5.6
Major characteristics of TBCCAs by net profit

Variables	Net Profit > 0			Net Profit < 0		
	1989	1990	1991	1989	1990	1991
Age (years)	1.00	2.00	3.00	0.89	1.90	2.87
Members:						
male	516.00	759.00	1040.00	600.50	805.67	1026.67
female	414.00	486.00	594.50	388.74	556.65	901.47
Total	930.00	1245.00	1634.50	989.24	1407.31	1928.14
Borrowers:						
male	54.67	141.00	510.00	96.78	217.70	408.91
female	68.67	217.00	393.50	70.22	157.07	342.48
Total	123.33	368.00	903.50	167.00	374.76	751.38
Annual disbursement ('000 Taka)	240.97	379.00	1420.85	370.75	575.02	906.87
Fixed deposit ('000 Taka)	169.89	0.00	538.99	124.33	194.25	509.6
Subsidy ('000 Taka)	225.77	328.89	105.43	262.78	379.30	508.65

Note: There is no TBCCAs with net profit equal to zero.

Source: BRDB RD-12 TBCCA survey data.

Table 5.7
Average subsidy

Year	Number of TBCCAs	Subsidy ('000 Tk.) per TBCCAs	Subsidy as percentage of loan disbursed	Subsidy per member (Taka)	Subsidy per borrowers (Taka)
1989	41	260.51	98.49	288.90	1,987.59
1990	106	378.83	145.30	283.01	1,954.26
1991	120	501.93	93.34	268.43	980.43
Average	275	411.46	114.28	277.70	1,533.60

Source: BRDB RD-12 TBCCA survey data.

Table 5.8
Subsidy dependence by net profit, 1989-91

Year	SDI			SDR		
	All	Net profit > 0	Net profit < 0	All	Net profit > 0	Net profit < 0
1989	43.95	1.02	46.75	19.26	1.02	20.45
1990	31.18	.27	31.47	16.72	.27	16.88
1991	18.61	1.04	18.90	13.27	.83	13.48

Note: There is no TBCCAs with net profit equal to zero.

Source: BRDB RD-12 TBCCA survey data.

Table 5.9
Frequency distribution of subsidy dependence, 1989-91

Interval	1989		1990		1991	
	SDI	SDR	SDI	SDR	SDI	SDR
$0 \leq \text{SDI/R} < 1$	1 (2.04)	1 (2.04)	1 (.94)	1 (.94)	1 (.83)	1 (.83)
$1 \leq \text{SDI/R} < 2$	4 (8.16)	5 (10.20)	3 (2.83)	5 (4.72)	3 (2.50)	6 (5.00)
$2 \leq \text{SDI/R} < 3$	2 (4.08)	4 (8.16)	4 (3.77)	9 (8.49)	9 (7.50)	13 (10.83)
$3 \leq \text{SDI/R} < 4$	5 (10.20)	6 (12.24)	7 (6.60)	10 (9.43)	8 (6.67)	14 (11.67)
$4 \leq \text{SDI/R} < 5$	4 (8.16)	5 (8.16)	10 (9.43)	8 (7.55)	11 (9.17)	15 (12.50)
$\text{SDI/R} \geq 5$	33 (67.35)	29 (59.18)	81 (76.42)	73 (68.87)	88 (73.33)	71 (59.17)
Total	49	49	106	106	120	120

Note: Figures in parentheses indicate percentage of total.

Source: BRDB RD-12 TBCCA survey data.

Table 5.10
Characteristics of thana-level societies by size of subsidy dependence ratio

Variables	SDR					
	SDR < 1	1 ≤ SDR < 2	2 ≤ SDR < 3	3 ≤ SDR < 4	4 ≤ SDR < 5	SDR ≥ 5
Age (years)	2.00	1.50	2.40	2.00	2.20	2.17
Members:						
total	1182.33	1370.70	1750.53	1455.25	1626.52	1558.50
men	751.33	752.40	957.87	801.65	911.36	888.68
women	431.00	618.30	792.67	653.60	715.16	669.82
Borrowers:						
total	505.00	250.70	596.93	365.30	652.92	503.09
men	252.33	140.80	335.60	175.60	370.96	281.69
women	252.67	109.90	261.33	189.70	281.96	221.41
Annual disbursement ('000 Taka)	937.20	273.10	675.46	453.48	880.72	669.92
Fixed deposit ('000 Taka)	133.52	287.44	467.62	295.99	343.35	312.11
Subsidy ('000 Taka)	204.53	263.00	426.36	366.98	430.03	422.76
Head office grant ('000 Taka)	114.03	218.26	324.55	281.71	365.87	324.08
Net profit ('000 Taka)	163.64	-35.82	-110.86	-144.88	-170.87	-277.29

Source: BRDB RD-12 TBCCA survey data.

Table 5.11
Fixed effect estimates of translog cost function

Variables	Coefficients (t-statistic)	Mean (standard deviation)
Log disbursements	0.48 (0.62)	6.21 (0.78)
Log savings	-1.68 (-1.0)	5.78 (0.55)
Log membership	4.50 (1.63)	7.26 (0.42)
Log fixed cost	0.08 (0.47)	-2.71 (3.05)
Log wage	4.85 (3.28)	3.06 (0.28)
Log disbursement squared	0.04 (0.50)	
Log savings squared	0.64 (1.36)	
Log membership squared	-0.04 (-0.06)	
Log fixed cost squared	0.01 (1.09)	
Log wage squared	-0.50 (-1.28)	
Log savings*log disbursement	-0.07 (-0.60)	
Log disbursement*log fixed cost	-0.00 (-0.07)	
Log disbursement*log wage	-0.23 (-1.70)	
Log savings*log fixed cost	0.00 (0.04)	
Log savings*log wage	0.57 (2.31)	
Log wage*log fixed cost	-0.01 (-0.41)	
Log membership*log savings	-0.45 (-0.82)	
Log membership*log disbursement	0.07 (0.46)	
Log membership*log fixed cost	-0.00 (-0.04)	
Log membership*log wage	-0.66 (-2.04)	

Table 5.11 (continued)
Fixed effect estimates of translog cost function

Variables	Coefficients (t-statistic)	Mean (standard deviation)
Age	-0.03 (-0.29)	1.99 (0.86)
Age squared	0.06 (2.26)	4.69 (3.29)
Predicted log of rural development officer's pay	0.65 (2.21)	1.09 (0.09)
Average yearly rainfall	0.00 (0.83)	197.78 (88.68)
Standard deviation of yearly rainfall	0.00 (0.82)	112.12 (131.23)
Electrification density	-2.35 (-2.38)	0.10 (0.12)
Primary school density	-1.66 (-1.35)	0.39 (0.16)
Secondary school density	-13.40 (-2.72)	0.09 (0.05)
Road density	-0.52 (-0.98)	0.11 (0.10)
Commercial and Krishi bank density	6.19 (0.30)	0.04 (0.03)
Constant	-16.93 (-2.55)	
R-squared	0.80	
F-statistics	8.37	
Number of observations	206	
Marginal cost of:	Membership	0.005 (0.14)
	Disbursement	0.069 (2.30)
	Savings	0.025 (0.15)
Economies of scale	0.17 (1.18)	

Source: Thana level secondary statistics and BRDB RD-12 TBCCA survey data.

Table 5.12
RD-12 societies: recovery rate by activity, 1989-94

Year	Men	Women	All	Men	Women	All
Livestock			Poultry			
1989	81.41	86.24	83.17	96.92	62.77	75.70
1990	82.70	88.33	84.80	87.32	93.07	92.16
1991	84.78	90.71	87.37	93.69	94.57	94.44
1992	84.97	91.68	88.12	91.77	97.48	97.14
1993	85.78	91.87	88.62	85.77	96.58	91.00
1994	86.53	92.46	89.19	89.85	96.77	93.11
Small trading			Fisheries			
1989	74.53	82.95	77.20	-	-	-
1990	86.34	91.76	87.95	100.1	100.1	100.1
1991	91.08	94.47	92.18	97.10	99.57	97.50
1992	90.19	95.42	92.17	95.48	98.86	96.74
1993	90.81	95.80	93.10	92.57	95.65	94.01
1994	90.87	95.83	93.15	93.68	97.77	95.52
Paddy husking			Industry			
1989	61.62	84.85	77.53	43.23	57.01	54.24
1990	88.80	93.20	92.04	86.78	89.90	88.57
1991	92.20	96.47	95.54	83.58	89.30	86.51
1992	90.96	96.06	95.18	86.77	91.61	90.22
1993	90.66	96.70	93.38	87.65	92.71	90.02
1994	91.69	95.61	93.17	88.83	92.97	90.50
Tailoring			Oil milling			
1989	66.75	86.61	80.42	63.56	31.73	57.46
1990	82.78	86.31	85.18	71.58	71.66	71.59
1991	85.56	87.77	87.13	79.43	82.03	80.09
1992	79.94	93.40	90.08	63.84	75.25	65.97
1993	82.67	93.72	88.13	66.61	73.88	70.14
1994	90.58	95.63	93.05	70.73	74.71	72.22

Table 5.12 (continued)
RD-12 societies: recovery rate by activity, 1989-94

	Others			All activities		
1989	69.41	71.00	69.59	72.18	83.16	76.77
1990	82.74	82.67	82.73	85.06	91.18	87.47
1991	84.14	88.57	84.43	88.04	93.42	90.29
1992	85.39	93.22	87.04	88.01	94.51	91.21
1993	86.49	93.29	89.19	91.71	94.88	93.01
1994	87.37	94.33	90.08	90.55	95.71	93.05

Source: BRDB RD-12.

Table 5.13
Fixed-effect estimates of loan recovery rate by gender

Variable	Men		Women	
	Coefficient	t-statistics	Coefficient	t-statistics
Age	0.210	8.671	0.106	4.475
Age squared	-0.030	-5.208	-0.078	-1.399
Average yearly rainfall	-0.001	-7.882	-0.001	-3.603
Standard deviation of yearly rainfall	0.001	3.243	0.000	2.258
Electrification density	0.696	2.783	-0.121	-0.480
Primary school density	-1.807	-5.089	-0.853	-2.978
Secondary school density	11.479	8.320	2.094	1.698
Road density	0.726	3.966	0.237	1.659
Commercial and Krishi bank density	-7.954	-1.244	-2.475	-0.529
Predicted pay of manager	0.356	4.287	0.099	-1.370
Percentage in consciousness training	0.213	2.373	-0.003	-0.046
Percentage in leadership training	0.012	0.292	-0.053	-1.653
Percentage in livestock training	0.012	0.038	-0.083	-0.642
Constant	-0.022	-0.343	0.831	7.522
R-squared	0.815		0.758	
Adjusted R-squared	0.789		0.723	
F-statistics	30.60		21.29	
Number of observations	781		756	

Source: Thana level secondary statistics.

Table 5.14
Impact of programs on aggregate village wage

Variables	Male		Female		Child		Mean (standard deviation)
	Ordinary least square	OLS with White correction for standard errors	Ordinary least square	OLS with White correction for standard errors	Ordinary least square	OLS with White correction for standard errors	
If the village has BRDB RD-12: 1=yes, 0=no	-1.55 (-0.66)	1.55 (0.75)	0.59 (0.40)	0.59 (0.36)	-2.56 (-1.65)	-2.56 (-1.92)	.29 (.45)
If the village has Grameen Bank: 1=yes, 0=no	4.39 (2.01)	4.39 (1.99)	-0.12 (-0.09)	-0.12 (-0.08)	2.25 (1.56)	2.25 (1.72)	.32 (.47)
If the village has BRAC: 1=yes, 0=no	1.52 (0.67)	1.52 (0.76)	-0.02 (-0.02)	-0.02 (-0.02)	-0.08 (-0.05)	-0.08 (-0.06)	.28 (.45)
If the village has paved road: 1=yes, 0=no	0.24 (0.12)	0.24 (0.11)	1.83 (1.42)	1.83 (1.60)	1.62 (1.19)	1.62 (1.24)	.28 (.45)
If the village has any bank: 1=yes, 0=no	-1.76 (-0.61)	-1.76 (-0.62)	1.66 (0.92)	1.66 (0.94)	-0.44 (-0.23)	-0.44 (-0.28)	.10 (.31)
If the village has electricity: 1=yes, 0=no	-0.59 (-0.33)	-0.59 (-0.34)	1.57 (1.40)	1.57 (1.43)	-0.07 (-0.06)	-0.07 (-0.06)	.51 (.50)
Distance from Thana HQ	-0.43 (-2.78)	-0.43 (-2.70)	-0.18 (-1.86)	-0.18 (-1.84)	-0.28 (-2.73)	-0.28 (-2.67)	8.47 (5.79)
If the village has a development program: 1=yes, 0=no	2.38 (1.69)	2.38 (1.42)	0.32 (0.31)	0.32 (0.31)	0.78 (0.70)	0.78 (0.71)	.54 (.50)
Constant	28.43 (10.26)	28.43 (10.44)	11.10 (6.42)	11.10 (5.97)	15.17 (8.29)	15.17 (8.35)	
F-statistics (87, 173)	2.14		1.94		2.40		
Adjusted R ²	0.034	0.034	0.028	0.028	0.016	0.041	
Number of observations	261	261	261	261	261	261	261

Note: Figures in parentheses are t-statistics, except for the last column where they are standard deviations.

Source: Household survey, 1991-92.

APPENDIX

Bittahen Cooperative Members' oaths

We Will:

- Remain united.
- Be sincere and sympathetic toward all.
- Follow the principles of the cooperatives.
- Strive for development through work and sincerity.
- Educate ourselves and send our children to school.
- Adopt family planning methods.
- Drink boiled water and use hygienic toilets.
- Fight against polygamy and the abuse of women.
- Save a part of our income and deposit it with the society.
- Take loans from the society and strive to increase our incomes.

We Will Not:

- Ask for aid from anybody.
- Run after relief.
- Be lazy.
- Remain illiterate.
- Sign any paper without reading it.
- Give or take dowry.
- Have very large families.
- Break the rules and discipline of the cooperative societies.
- Delay repayments of society loan installments.
- Listen to bad advice from mischievous persons.
- Allow our organization to be damaged in any way.

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