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Islam, Jamal and Mohajan, Haradhan and Datta, Rajib

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ASPECTS OF MICROFINANCE SYSTEM OF GRAMEEN BANK OF BANGLADESH

Jamal Nazrul Islam

Emeritus Professor, Research Centre for Mathematical and Physical Sciences,
University of Chittagong, Bangladesh

Haradhan Kumar Mohajan

Premier University, Chittagong, Bangladesh. E-mail: haradhan_km@yahoo.com

Rajib Datta

Department of Finance, Faculty of Business Studies, Premier University,
Chittagong, Bangladesh. E-mail: supta_part@yahoo.com

Abstract

The microfinance system of Grameen Bank is a revolutionary tool to eradicate poverty of the rural people especially the women of Bangladesh. At present GB is the largest microfinance bank in Bangladesh and probably the biggest microcredit organization in the world. It provides loans to assetless and landless poor people whom no commercial bank give loan. Microcredit is the most useful and popular financial system in the world to face financial crisis of the poor people. Grameen Bank loan distribution has risk of default and sometimes the loans are used even dowry which is crime against women right. The rate of interest in Grameen Bank is very high and due to high interest rate the poor women can not use the loan in a high profitable business to bear this burden, so some of the borrowers lose lands and assets to pay the loan. The paper discusses both advantages and drawbacks of Grameen Bank with mathematical calculations in some details.

Keywords: Grameen Bank, Microfinance, Joint liability, Loan, Risk of default

INTRODUCTION

The aim of Grameen Bank (GB) is to reduce poverty in both rich and poor countries. It gives loan to those people whom the government or any commercial bank will not give loan facility. Both rich and poor countries of the world microfinance tries to improve access to loans and to saving services for low-income, low-wealth people which is the fastest-growing and best-known tool to combat poverty. The Nobel Prize committee awarded the 2006 Nobel Peace Prize to Dr. Muhammad Yunus and the Grameen Bank for their efforts to reduce poverty in Bangladesh. In the USA the number of microfinance organizations and their budgets has grown exponentially in the past decade (US Newswire 1999, Meyerhoff 1997).

The terms microcredit and microfinance are often used interchangeably but there

is a difference between them. Microcredit refers to the act of providing the loan. On the other hand microfinance is the act of providing these same borrowers with financial services, such as savings institutions and insurance policies (Sengupta and Aubuchon 2008). Bangladesh is a developing country with a vast rural society which is about 90% of the total population. The majority of the rural population, particularly women, is subjected to severe poverty, gender inequalities and unemployment. Due to negligence of the rural development by the government and rich population the financial condition of the poor in the villages remain unchanged after the independence of the country in 1971. The GB is a well-known institutional framework that has achieved considerable success in improving the socioeconomic conditions of the rural

poor, particularly women, in Bangladesh (Sarker 2001).

Dr. Muhammad Yunus, a Professor in Economics of the University of Chittagong, Bangladesh, has founded the GB. The country was slowly recovering from a vicious war of independent in 1971 which had destroyed its infrastructure and its productivity and murdered much of its intelligentsia. The damage caused by the war had been amplified by the famine of 1974 and suffering of human on a vast scale could be witnessed in any town or village of Bangladesh (Hulme 2008). He watched the people of Bangladesh to starve in the famine of 1974 (Yunus 1998). He lent an average of \$0.64 to a bamboo weaver and to 41 others in various purposes. The borrowers repaid their loans and improved their lots. After this success he gave loan to some other persons but few of them did not repay the loan. He thought that this was because they had either used the money unwisely or were not trustworthy. He began to experiment with ways of (i) approving and supervising loans, to ensure they would be used for productive investments, and (ii) selecting trustworthy clients and managing them, so that they would repay their loans (Hulme 2008). He made a brilliant idea for the best solution to help the poor out of their poverty, which then grows over the world. It initially began in the village Jobra near the University of Chittagong, Bangladesh and some of the neighboring villages during 1976-79.

Dr. Yunus has observed that commercial banks had in-built constraints and are aimed only at those who are already well off. He contemplated an alternative institutional framework that could be used to raise the wellbeing of impoverished sections of society (Yunus

1994a,b). At first GB was extended to whole of Tangail district (a district of Dhaka division) in 1979 with the financial support of Bangladesh Bank (Central bank of the country) and some other nationalized commercial banks. In 1981 Yunus was preparing to test the new lending model on a large scale and wanted to open dozens of branch offices in five rural districts in addition with previous branches. The commercial banks declined Yunus' initial request for capital. So that he went to Ford Foundation's office in Dhaka and asked for an \$800,000 loan guarantee fund as security against commercial bank lending. After careful appraisal by senior staff, in 1981 Ford agreed to the request and deposited the requested funds in a GB account at London as a framework for offering reflections on current debates within US philanthropy on accountability, support for innovation, risk taking and impact. Ford's loan guarantee fund leveraged commercial bank lending to GB (Lawry 2008).

After that success in Tangail, the project was further extended to several other districts of Bangladesh such as Chittagong, Dhaka, Rangpur and Patuakhali. In 1983 it was transformed into an independent bank by a government ordinance, with the name *Grameen Bank*. In 1983, the government provided 60% of the initial paid up share capital of the bank and the rest 40% procured by the borrowers of the bank. In 1986, the government share capital was reduced to 25% and the rest was from the borrowers. In 29 June 2012, Dr. Yunus expresses that the share capital of government is only 3% and major 97% from the members of GB (The Prothom Alo, 29 June 2012). GB is the only an organization that provides interest free loans to the beggars.

At present GB is the largest micro-finance bank in Bangladesh and probably the biggest micro credit organization in the world. In the commercial bank the clients have to come for services in banks but GB officials go the clients which is a new system in microfinance banking sector. It is known worldwide for its innovative credit delivery to the rural poor (95% are women). It selects assetless, landless poor people of Bangladesh, focuses on the poor women, and provides credit delivery system to meet the diverse socio-economic development needs of the poor. Many believe that GB's lending has been successful because of its joint liability loans have induced borrowers to provide mutual assistance in hard times (Besley and Coate 1995). But Rai and Sjöström (2001) argue that joint liability is not enough to efficiently induce borrowers to help each other; it is also necessary to ask borrowers to make reports about each other.

GB adopted some social beneficial works such as group based lending, the collateral free lending system, and peer group monitoring system. The adaptation and learning practice such as flexibility of obtaining a loan, a housing loan with lower interest rate, mandatory and voluntary savings were the most significant issue. GB has computerized accounting and monitoring system with its 2,552 branches out of 2,558 (Grameen Bank 2009). By integrating group-based lending, mandatory savings and insurance, repayment rescheduling in case of disasters, and similar other schemes, it has been able to minimize both behavioral and material risks of lending. Among the four major types of loans, the general loan dominated lending, followed by housing loans, technology loans, and collective loans.

The sectoral share of general loans in 1994 was 35% for agriculture, 16% for processing and manufacturing, 26% for livestock and fisheries, and 23% for other activities such as trade, commerce, and peddling.

Successes and potential benefits of the GB micro credit system are as follows:

- it exhibits an average of 97% repayment rates,
- the members of GB enjoy an average household income at least 25% higher than nonmembers,
- the number of GB members living below the poverty line has rapidly decreased,
- the landless benefit most, followed by marginal landowners,
- there has been a shift from agricultural wage labor to self-employment and petty trading a shift which results in an indirect positive effect on the employment and wages of other agricultural wage laborers, and which has impacted poverty alleviation and economic improvement at a national level, and
- group savings have proven as successful as group lending.

THE MODEL OF GB

GB is purely a bank that provides banking services only to the poor. It extends credit to the poor to invest in productive sectors such as processing and manufacturing, agriculture and forestry, livestock and fisheries, services and trade. It is exclusively for poor people and it is directly owned by them as well. The government owns 10% of GB and has three nominated members on the Board of Directors. It enjoys full autonomy in discharging both its policy and operational responsibilities. GB members' contribution to net household income is more than 50% and more than

half of the women surveyed have been able to pull their families out of poverty (Hossain 1988, Todd 1996). The status of women has been improved through their fruitful participation in GB activities. If a woman can escape out of the poverty cycle, then the woman focused on asset building. Ahmed (1985) observed that physical violence and other verbal abuse against women decreased as a result of GB activities. The main objectives of GB are as follows (Barua 2006, Sarker 2001):

- to extend the banking facilities to the poor people,
- to eliminate the exploitation of the money lenders who pay loan with high interest,
- to create opportunities for self-employment for the vast unutilized and underutilized manpower resource of rural areas of Bangladesh,
- to bring the deprived people within the folds of some organizational format which they can understand and operate, and can find socio-political and economic strength in it through mutual support, and
- to reverse the vicious circle of 'low income, low savings, low investment, low income', hanging it into an expanding system of 'low income, credit, investment, more income, more credit, more investment, more income' (Rahman 1993).

The sixteen decisions of GB are as follows (Shams 1995):

1. We shall follow and advance the four principles of Grameen Bank: Discipline, Unity, Courage, and Hard Work in all walks of our lives.
2. We shall bring prosperity to our families.

3. We shall not live in dilapidated houses. We shall repair our houses and work toward constructing new houses at the earliest.
4. We shall grow vegetables all the year round. We shall eat plenty of them and sell the surplus.
5. During the plantation seasons, we shall plant as many seedlings as possible.
6. We shall plan to keep our families small. We shall minimize our expenditures. We shall look after our health.
7. We shall educate our children and ensure that they can earn to pay for their education.
8. We shall always keep our children and environment clean.
9. We shall build and use pit-latrines.
10. We shall drink tube-well water. If it is not available, we shall boil water or use alum.
11. We shall not take any dowry in our sons' weddings, nor shall we give any dowry in our daughters' weddings. We shall keep the centre free from the curse of dowry. We shall not practice child marriage.
12. We shall not inflict any injustice on anyone, nor shall we allow anyone to do so.
13. For higher income, we shall collectively undertake bigger investments.
14. We shall always be ready to help each other. If anyone is in difficulty, we shall all help him.
15. If we come to know of any breach of discipline in any centre, we shall all go there and help restore discipline.
16. We shall introduce physical exercise in all our centers. We shall take part in all social activities collectively.

GB's organizational structure is highly decentralized. The field officers are encouraged to send monthly reports directly to the Managing Director. He reviews these and publishes significant issues, concerns, and suggestions identified by the officers in GB's internal monthly magazine, which reaches all bank officials and workers (Auwal 1996). About GB Dr. Yunus expresses that the "most distinctive feature of *Grameencredit* is that it is not based on any collateral, or legally enforceable contracts. It is based on *trust*, not on legal procedures and system."

MICROCREDIT SYSTEM OF GB

Microcredit is a very effective instrument to empower the poor (especially to women). It is cost-effective and sustainable, creates self-employment for the most poor and opportunity to move out of poverty, builds on trust and mutual co-operation, dedicates to establish credit as a human right, and the poor do not have to come to the bank but the bank goes to the poor. Grassroots organizational development is an integral part of GB's credit program which helps in building up viable grassroots units in the form of groups and centers to promote strong group solidarity.

STRUCTURE AND CAPITAL OF GB

The Board of Directors of GB consists of 13 members of whom 9 are elected from among the borrower shareholders and the rest 4 are appointed by the government of Bangladesh. This board approves bank policies and serves as the link between the bank, the Ministry of Finance, and other government

organizations. Various activities of the bank are organized and implemented by four tiers of administrative set-up such as branch office, area office, zonal office and head office. The branch offices are the lowest operation units of GB which are located in the villages. One branch serves a cluster of 120–150 centers and it has a manager, six or seven workers, two to three trainee workers and an accountant. The branch offices select and organize the target clientele, supervise credit operations, and recommend sanction of loans. An area office supervises about 10 to 15 branch offices which are assisted by program officers. The area manager works under the supervision of the zonal office that is located in the district headquarter which is at the top of the hierarchy at the field level. A zonal manager supervises about 8 to 10 area offices. The zonal manager is responsible for handling accounts, managing funds, and monitoring, evaluating and supervising the social development programmes. The head office of GB is situated in the capital city Dhaka. It is responsible for monitoring and evaluation, research and development, supervision of training, and similar activities which are benefited from access to information from different operational areas. The Chief Executive of GB is the Managing Director. He is responsible for the overall implementation of the policies of GB and has to maintain close contact with various departmental heads in the head office and zonal managers to assist in formulation and change of policies.

The features of GB are as follows

(Hulme 2008):

- lend to poor rural women, as they were less likely than men to use loans badly and were more reliable for repayment,

- organize women into cells of five which took collective responsibility for each other's loans,
- establish centers where six cells consists of 30 women met at a set time each week, to apply for loans and make repayments,
- charge a higher rate of interest than government schemes and NGO loans programmes,
- require clients to make compulsory micro savings each week and to make promises about their social conduct,
- simple, standardized products that required regular, small repayments, and
- recruiting and training bright, young graduates to administer services to minimize corruption.

GB has started from one village in 1976 and at present it is covering to 68 thousand villages (all the villages of Bangladesh). It has provided services to 42 poorest borrowers in 1976. In 1983 GB had established as a bank with 36,000 borrowers and a portfolio of \$3.1 million. In 1997 GB had a portfolio of \$260 million and 2.3 million members, most of them were very poor, more than 90% of them were women, and all of them from rural areas. In December 1999 the branches of GB became about 1,149 which were operating in 39,706 villages with 67,691 centers. Also there were 2,357,083 members, of which 2,234,181 were female and 122,902 male (Grameen Bank 1999).

The first disbursement was Tk.856 (\$27) and in 2006, it covers 6.23 million borrowers through 2,121 branches of whom 96.52% are women and the cumulative disbursement is Tk.276.54 billion (\$5.52 billion). The recovery rate of the bank is 98.55%. The outstanding amount is Tk.31.13 billion (\$444.39

million) and the balance of deposits is Tk.35.49 billion (\$506.66 million) (Barua 2006). By the end of February 2008 GB had 7.4 million clients and outstanding loans of \$545 million (Hulme 2008).

WORKING SYSTEM OF GB

Five new members form a group and 5 to 8 groups form a centre, and all members in the centre meet with a loan officer weekly and members must sit in straight rows, salute, chant, and sometimes perform exercises (Hashemi 1997). The chant related to praise small families, prohibit dowry and child marriage, promote gardens, admire education, and encourage members to drink clean water and to use sanitary latrines. Each borrower has learned to sign their names, and memorize a set of vows to self-improvement and save \$0.02 a week. A group can have only one person from any particular household and relatives must not be in the same group. Groups have either male or female members but not both. Each group elects a chair, and each centre elects a chief. New members must also buy a share of stock in GB for 100 taka (\$1= Tk.48.5 in December 1998).

The group members select a chairperson and a secretary, and these positions rotate cyclically among the members on a yearly basis so that all members can learn the responsibility of these positions. The chairperson's work is to maintain discipline in the group and for supervision of loan utilization by the members. All members in the centre meet with a loan officer weekly. The group chairpersons elect the chief and the deputy chief of the centre for a one-year term. They are required to ensure attendance at the general meetings, payment of installments, and overall

discipline of the centre members. The members promise to repay but some break their promises. If any member fails to repay the loan then other members of the group must pay the amount of the defaulter and the group is banish if they fail to repay the full loan at the end of the year and will not find loan in future which is called joint liability by the GB rule. The safe borrowers who repay the loan regularly have to subsidize risky borrowers of the group who are default. But the GB never safe a sincere borrower from a risky one and end of the week the GB officer takes repayment from the chairperson. Sometimes the chairperson has to pay full repayment. If the subsidize rates are sufficiently high, safe borrowers are unlikely to apply for a loan, because they face heavy loss by taking loan from GB. Joint liability at GB is more subtle than the popular perception and more complex than the theory. But Rai and Sjöström (2001) show that joint liability is not enough to efficiently induce borrowers to help each other (discusses later). Such cross-reporting is used by the GB at village meetings where loan repayments are collected (Rahman 1999a).

Most formal lenders require assets such as land, houses, or bank balances to avoid risks which also help to take loan in future. As a result most borrowers repay because they want to preserve their future access to loans (Schreiner 1999). To avoid risk GB applies techniques such as 2 members get loans first, if they pay the installments regularly during the observation period of 6–8 weeks, 2 more members get loans one month later and after one more month, the last member, the chairperson receives a loan. Loans have to repay within one year (Hashemi 1997). Loan

sizes are modest, ranging from Tk.3,000 (\$75) to Tk.10,000 (\$250) and no collateral is required for a loan, and the borrowers invest the loan in the area of their choice. The group chairperson and bank workers monitor borrowers to see whether they are utilizing the money properly (Sarker 2001). Borrowers who have paid most of their debts have incentives to make sure that their peers also repay on time. If the GB fails to collect the entire loan with interest within one year it may suspend all disbursement at a centre until all debts are up-to-date. Then the officers may also scold the women or detain them in the centre longer than normal which shames women and may subject them to the wrath of their husbands when they finally are released (Rahman 1999b).

The new borrowers get very small loans and the amount increases gradually depending on creditworthiness. After returning previous loan GB offers bigger loans such as housing loans with bigger disbursements, longer terms, and lower interest rates. But housing loans provide women with legal rights to the land and the house (Islam et al. 1989). Later GB made a quantum leap to loans for education expenses and for cell phones (Zwingle 1998). GB provides loans to the poor women for buying Grameen mobile phone and women do business by offering mobile services in the rural areas that have not been linked to the nationwide telecommunication schemes, as so the poorest women are able to raise income and savings (Mair and Schoen 2007).

GB has four types of forced savings, where saving is compulsory and withdrawals are restricted but members can borrow against in emergencies and GB calls it *emergency fund* (Morduch 1999a, Khandker, Khalily and Khan

1995). The first two types are not really savings at all but rather fees which members will never get back. After taking their first loan each member must pay \$0.01 each week to support schools (where members learn rules of loans and payments of GB) run by the centre. They must also pay 0.5% of disbursements in excess of \$20 into a fund used to cover losses from default. The last two types of forced savings are real savings. Members must deposit 4 cents each week into personal savings with interest 8.5%, and withdrawals are unrestricted. In addition, 5% of each disbursement goes to the group fund with same interest 8.5% and makes loans from the group fund after floods and other natural calamities. Members cannot withdraw their savings in the group fund until they leave GB or until they have ten years of membership. But a member can borrow from the group fund for consumption at times of sickness or social ceremony. GB manages the emergency fund for use as insurance against potential default because of death, disability, or other misfortunes. This fund is also used to provide life accident insurance to all group members, repay bad debts, and undertake activities that improve the health, skills, education, and investment opportunities of group members.

GB wanted to change the social and economic structure of rural Bangladesh and it supplies loans and insurance, what it calls *discipline* (Montgomery 1996). The most important non-financial service of GB is *social intermediation* (Bennett 1998) where membership in GB gives women a socially accepted excuse to gather and to talk (Larance 1998). The impacts are both psychological and economic and not only women feel less isolated but also

strengthen their support networks for when various troubles strike.

As the clientele GB are from the impoverished part of society, it intends to provide training on health and nourishment and creates consciousness among its borrowers regarding the tree plantations and clean environments. It offers seeds of vegetables and fruits to its borrowers and motivates the borrowers for making and developing a kitchen garden in order to increase the daily basis income of borrowers (Hossain et al. 2001).

GB realizes that besides income and production risk, lack of financial and social discipline is an important source of poverty. It encouraged planting trees, growing kitchen gardens, raising small families, and building houses and sanitary latrines. It mobilizes the poor into groups for training and disseminating information about contraceptives, children's education, health and nutrition, and other socioeconomic indicators of development. Its objective has become to empower women by enabling them to undertake independent income-earning activities (Khandker 1996). GB intervention has helped develop happy partnerships between husband and wife in terms of decision making regarding family affairs (Todd 1996). GB development programmes have given many women a sense of empowerment in the society.

Management System of GB

The staff and clients of GB have the strong management system to devolve basic decision making and all work efficiently. All the works are done in grassroots level and the head office bears little responsibility except for strategic issues such as basic policies and research

and development (Jain 1996, Holcombe 1995). The GB has developed by a unique management system based on people's capacities, learning and innovation, transparency and openness, honesty and so forth (Holcombe 1995). Trust between staff and client is an important management system of GB and all banking transactions are carried out in front of the clients and bank staff. Efficient field-based training is given both staffs and clients. Democratic leadership practices are given by the rotation among members of centre and group leadership. The most important factors behind the successes of the GB are its unique decentralized organizational structure, client-centered delivery system, vision, management culture, and human resources management. No meaningful development can take place in any country unless the standard of living of the poor is raised and GB takes a constructive step to develop the poor society as well as the development of the country. Due to efficient management system more than 60 countries of the world started GB types microcredit banking.

Management processes, such as decision making, communication and leadership are all practiced contingently, disregarding conventional wisdom. The GB's managerial personnel are fresh graduates without any work experience. Its managers at different levels have demonstrated that they are capable of planning, organizing and implementing bank's development activities independently.

In 1995, the GB decided not to request any more funds from donors and instead began to fund the bank from collected deposits. Armendáriz and Morduch (2005) calculated that GB accepted \$175

million in subsidies, including both direct donations and *soft* donations such as soft loans, implicit subsidies through equity holdings, and delayed loan loss provision (Sengupta and Aubuchon 2008).

SOCIAL BENEFITS OF GB

There are six distinct but linked aspects of the social benefits of microfinance as follows: worth to users, cost to users, depth, breadth, length, and scope (Schreiner 1999).

Worth to users is defined as their willingness to pay. If a woman is willing to bear costs of up to \$500 to get a year of membership in GB then she would be just as well off with \$500 more income as with a costless year of membership. Theoretical models often assume that worth to users is equal to the increase in business profits due to access to finance but microfinance may improve well-being even if it does not increase business profits. The most important effect of microfinance is to help households to diversify their sources of income (Mosley and Hulme 1998, Schreiner 1999).

Cost to users is defined as the sum of price costs and transaction costs. Price costs are defined as direct cash payments to a microfinance organization. Price costs borne by users are revenue for the organization. Transaction costs are defined as non-price costs. They include both non-cash opportunity costs such as the time to meet each week and indirect cash expenses for such things as transport and documents linked to the use of microfinance. In GB non-cash opportunity costs probably exceed indirect cash expenses (Bhatt and Tang 1998). It wants to hide costs to users and shows low profits; because the government imposes more taxes. Net gain to users is defined as worth minus

cost, the change in well-being due to microfinance.

Depth is defined as the social value of net gains that accrue to a given user. In welfare theory, depth corresponds to the weight of a user in the social welfare function. If society has a preference for the poor, then poverty is a good proxy for depth (Schreiner 1999). The person who has assets less than an acre of land can join in GB but in real life some members have more wealth than this (Matin 1998). Some members are with an income less than half the poverty line and most are still very poor, and almost all are women (Hashemi 1997).

Breadth is defined as the number of users. Breadth is important in microfinance because the poor are many but the development dollars are few. With more than 2.3 million members, more than 2.1 million borrowers, and centers in more than half of the villages in Bangladesh, GB has extensive breadth (Schreiner 1999).

Length is defined as the time frame of the supply of microfinance. Expected

length is important in microfinance because society cares about the well-being of the poor both now and in the future. A common proxy for length is the ability to attract grants or soft loans from government or donors or, in the absence of perpetual subsidies, the ability to earn enough profit to maintain the real value of equity (Schreiner 1999).

Scope is defined as the number of types of services supplied. A microfinance organization which offers both loans and savings services has greater scope than one that offers only loans. Of course scope increases with the variety and flexibility of the terms of a given type of financial contract; a one-year loan for \$500 is a different product than a two-year loan for \$500 (Adams 1994). GB has great scope in some ways and weak scope in others. It supplies savings services, but almost all savings are forced, and withdrawal is often impossible. GB provides loans in different techniques which are recoverable with interest.

Let, $t = 1$ to T be the index length of time,

s_t = index scope for time t ,

n_{st} = each user's index,

N_{ts} = breadth in time t for a given service s_t ,

W_{tsn} = worth in year t of products s_t to user n_{st} , and

C_{tsn} = cost to users.

Hence we can express the net gain as follows:

$$NG = W_{tsn} - C_{tsn} . \quad (1)$$

The depth function $D_{tsn}(W_{tsn} - C_{tsn})$ gives the social value of the net gain from contract s_t for client n_{st} in year t . The general social welfare function $W(.)$ returns the total social benefits B of net gains users, services and time. Now the social benefits are given by;

$$B = W(D_{tsn}(W_{tsn} - C_{tsn})). \quad (2)$$

Let $\delta > 0$ be a distant factor and the assumption that $W(\cdot)$ is additively separable across users, services and time. Hence social benefits B , can be expressed as;

$$\text{Social Benefits, } B = \sum_{t=1}^T \sum_{s=1}^{S_t} \sum_{n=1}^{N_{st}} \delta^t D_{tsn} (W_{tsn} - C_{tsn}). \quad (3)$$

Let C be the social cost and if $B > C$, then a project passes the benefit-cost test and is deemed a good social investment. If t_{sn} be the number of outputs of type s_t for user n_{st} in year t , then the number of outputs being as follows:

$$O = \sum_{t=1}^T \sum_{s=1}^{S_t} \sum_{n=1}^{N_{st}} \delta^t o_{tsn}. \quad (4)$$

If O_t^T be the total output one type of service in a year then;

$$O_t^T = \sum_{s=1}^{S_t} \sum_{n=1}^{N_{st}} o_{tsn}. \quad (5)$$

Hence (4) becomes as follows:

$$\text{The number of outputs, } O = \sum_{t=1}^T \delta^t O_t^T. \quad (6)$$

Now let $\bar{B} = \frac{B}{O}$ be the unmeasured social benefit per unit of output and $\bar{C} = \frac{C}{O}$ be measured social cost per unit of output. Obviously $B > C$ implies for $O \geq 0$, we find $\frac{B}{O} > \frac{C}{O}$ i.e., $\bar{B} > \bar{C}$. Hence a project passes the cost effectiveness test if unmeasured average social benefits \bar{B} are judged to exceed measured average social costs \bar{C} .

Let $r > 0$ be a choice of social discount rate such that $\delta = \frac{1}{1+r}$. In real life the World Bank and the US government set $r = 10\%$ p.a. (Belli 1996, US Office of Management and Budget 1972). Let the microfinance organization's reports stocks only at the start s_{t-1} and end of a year s_t . With linear change between the two end points, the daily average discount weighted stock is not simply $\frac{1}{2} \delta^{t-0.5} (s_t - s_{t-1})$ because the discount is a non-linear function of time (Schreiner 1999). Again from Schreiner (1997) we get;

$$\text{Discount average stock} = \delta^* (s_t - t \Delta s_t) + \delta^{**} \Delta s_t, \quad (7)$$

$$\text{where } \delta^* = \frac{\delta^t - \delta^{t-1}}{\ln \delta},$$

$$\Delta s_t = s_t - s_{t-1},$$

$$\delta^{**} = \frac{1}{(\ln \delta)^2} \left\{ \delta^t (t \ln \delta - 1) - \delta^{t-1} ((t-1) \ln \delta - 1) \right\}.$$

For $r = 10\%$ in the period 1983-97, GB produced about 5.4 million discounted person-years of membership and produced about 0.5 billion discounted dollar-years of borrowed purchasing power.

Let, E_0 = initial equity of the simplest expression of social cost,

F_t = the discounted fresh flows of funds between public entities get back from the end of the time frame. Hence we can write;

$$\text{Social Cost} = E_0 + \sum_{t=1}^T \delta^t F_t - \delta^t E_t. \quad (8)$$

In (8), the measurement of first and third terms is simple but that of second term is complex. Public entities are defined as those funded voluntarily by taxpayers and private entities are funded voluntarily. The government of Bangladesh bought stock and bonds of GB and GB borrowed from the public International Fund for Agricultural Development and from the public development agencies of Norway and Sweden. All cash flows between GB and its members are private. Members choose to join because they expect that their benefits will exceed their costs.

Let, E_{G_t} = liabilities as part of grants,

R_{G_t} = gifts as revenue grants,

D_{X_t} = discounts an expenses,

D_t = average public debt,

C_t = the average interest rate paid for public debt, and

m_t = the market interest rate for private debt of like risk.

The discount on public debt is the savings that come from borrowing from a public source rather than from a private source. Hence the discount on public debt = $D_t(m_t - C_t)$.

The choice of the market interest rate m is as difficult as the choice of the social discount rate r .

True profit P_t is defined as what reported profits P_t^R would be without the arbitrary choice to count some grants not as injections to equity but rather as revenue grants R_{G_t} , discounts on public debt $D_t(m_t - C_t)$, or discounts on expenses D_{X_t} , as follows (Schreiner 1999):

$$P_t = P_t^R - (R_{G_t} + D_t(m_t - c_t) + D_{X_t}). \quad (9)$$

Every year true profit of GB is much smaller than reported profit due to large discounts on public debt. In 1997 reported profit was \$300,000 but the true profit was -\$23,000,000.

GB SHOULD FOLLOW EFFICIENT LENDING

GB loan distribution has risk of default. To induce repayment GB must punish borrowers who default such as by denying future loans. It must choose successful borrowers to help repay the loans of unsuccessful borrowers to avoid punishment. Joint liability scheme is an inefficient system of GB.

For simplicity let us consider two individual borrowers of GB. Let $c_i \geq 0$ denotes individual i 's consumption and $q_i \geq 0$ be the amount of punishment imposed on i by GB. Then individual i 's utility is given by (Rai and Sjöström 2001);

$$U(c_i, q_i) = c_i - q_i. \quad (10)$$

Punishments are a deadweight loss. Let the maximum feasible punishment is denoted by M , so that $0 \leq q_i \leq M$. Let the individuals' output is denoted by $x_i \in \{0, h\}$ where $x_i = h > 0$ is i 's success and $x_i = 0$ for failure. Let $x = (x_1, x_2) \in X = \{0, h\} \times \{0, h\}$ be a stable state and the probability of state x is denoted by $p(x)$. The individuals are symmetric at the time of investment, so that;

$$p(h, 0) = p(0, h). \quad (11)$$

Let K be the cost of capital of GB. We assume that;

$$\sum_{x \in X} p(x)(x_1 + x_2) \geq 2K, \quad (12)$$

so that projects are feasible. Let $b_i(x)$ denotes the payment from individual i to the bank in state x , then GB's break-even constraint if it finances both projects is given by;

$$\sum_{x \in X} p(x)(b_1(x) + b_2(x)) \geq 2K. \quad (13)$$

GB must impose lowest punishment on default to repay the loan. Let the GB demands a repayment of R^* , where $R^* \leq h \leq M$, when a project succeeds, and threaten a punishment of M if a project succeeds but no repayment is made. Let R^* be chosen so that the GB breaks even be as follows (Rai and Sjöström 2001):

$$R^* = \frac{K}{p(h, h) + p(0, h)} \quad (14)$$

If the project fails, the GB observes it and does not punish the individuals for defaulting. If there is no defaulter then the GB will not punish any individual. To protect project from fail GB should decrease rate of interest in loans.

FAULTS OF GB

The rate of interest is higher which 31% is roughly and due to this higher interest rate charges GB has criticized ([The New Nation 2010](#)). The interest of all national and commercial banks in Bangladesh is 10-15% ([Hossain et al. 2001](#)). [Fernando \(2006\)](#) has argued that there have been existing borrowers of GB who face obstacles to pay the loan on particular time for having higher interest charges. Borrowers only get the advantages of using the loan for their survival but they do not involve in generating profit, so they fails to pay higher interest rate on their loan ([Hossain et al. 2001](#)). Obviously the high interest rate becomes burden to the poor women who can not use the loan in a high profitable business to bear this burden. As a result some of the borrowers lose lands and assets to pay the loan which cause them serious miseries and they face serious problems due to the loan system of GB. The GB loan distribution has risk of default and sometimes the loans are used even dowry which is crime against women right.

TEMPORARY IRREGULARITIES IN GB

In 2000s Yunus propounded that every GB loan being used for microenterprise, and every microenterprise being successful. This independent fieldwork showed that GB clients used their loans for many different purposes such as business, food consumption, health, education and even dowry. GB loans did not go to microfirms for a single, specific investment but they went into the complex financial portfolios of low-income households. GB clients paid the *kisti* (weekly repayments) on their loans not from a single microenterprise, but

from patching together earnings from casual employment, self-employment, remittances and a variety of loans from other sources. The severe floods of 1998 and the collapse of the bank's recently introduced agriculture loans, exacerbated the repayment problem. The crisis in 2000 when Daniel Pearl, a journalist on the *New York Times*, published an article saying that GB was virtually bankrupt ([Hulme 2008](#)).

RECONSTRUCTION OF GB

By the early 2001 the irregularities had been consolidated and professor Yunus announced the launch of *Grameen II*, the replacement of the bank's earlier products by a new range on different terms. Its new model Grameen II, takes it much closer to a financial systems approach. The GB made dramatic changes to its services around 2001 and 2002. The main elements of Grameen II are as follows ([Hulme 2008](#)):

- A major focus on savings from members and the public. This includes voluntary savings, term deposits and the Grameen Pension Scheme (GPS) which are a long-term savings programme.
- The provision of flexible *basic loans* to members rather than the standardized Grameen I, 12-month loans. These are for variable amounts, can be repaid over three to 36 months, have negotiable repayment schedules and interest rates are determined by loan type (size, length, grace period, etc.).
- The abandonment of joint liability and the idea of social collateral.
- A poverty-focused *struggling members'* programme, which provides small, subsidized loans to beggars and encourages them to join GB centers.

New to Grameen II is a pension fund, which allows clients with loans greater than 8,000 taka (\$138) to contribute at least 50 taka (\$0.86) per month. The client receives 12% per year in compound interest, earning a 187% return after the mandatory 10-year wait. This scheme allows Grameen II to earn more money in the present and expand services, while delaying payment in the near future. Grameen II serves as a good example of a second innovation in microfinance: flexible loan repayment (Sengupta and Aubuchon 2008).

Over the period 2002 to 2005 the bank tripled the deposits it held (\$478 million) and doubled its portfolio of outstanding loans. The bank's loans portfolio became smaller than its savings portfolio. It built up a large fund for bad loan provision and profits rose from Tk.60 million in 2002 to Tk.442 million (\$7 million) in 2005. GB opened 500 new branches, so that it had more than 1,700 branches by late 2005. It now plays an important role as a substantial MFI that meets client needs and helps to promote competition within the financial markets. At present is a very different organization from what it was 20 years ago, but it still serves as an inspiration for those trying to help poor and low-income people in their own efforts to improve their lives.

GB MODEL AROUND THE WORLD

The GB of Bangladesh holds an iconic position in the world of microfinance. It is credited with proving that the poor are bankable, the GB model has been copied in more than 60 countries; it is the most widely cited development success story in the world. GB model has been followed in 22 countries of Africa, 19 in Asia, 3 in Oceania, 15 in America, and 7

in Europe until 2002 (Hulme 2008). In the USA the GB model has been suggested for the homeless and for the ghetto (Banerjee 1998 and Soloman 1992). It indicates the successful of GB as poverty alleviation program and has been internationally accepted by different countries of the world. It improves the quality of life provide better food, better education, as well as better housing to the poorer community (Wall Street Journal 1998, Thomas 1995). GB model has been duplicated extensively in Bolivia, Chile, China, Ethiopia, Honduras, India, Malaysia, Mali, the Philippines, Sri Lanka, Tanzania, Thailand, the USA and Vietnam (Sengupta and Aubuchon 2008).

No doubt the microfinance revolution has recorded success in most developing nations of the world; but it has provided little success in some developed countries. Schreiner and Woller (2003) show the characteristics of the poor are different in the two regions. In the developing world, jobs are relatively scarce and hence the unemployed are more likely on average to include individuals that are highly skilled or better motivated to become entrepreneurs. In the developing country like Bangladesh 60 to 80% of jobs supplied by micro-enterprise but microfinance beneficiaries in the developed country like USA are substantially smaller.

Although microfinance is benefited to the poor of the USA, but group formation as like Bangladesh is difficult. Hence Bangladeshi pure GB style of microfinance is not applicable successfully in the USA.

GRAMEEN FAMILY OF ENTERPRISES

Grameen Family enterprises are as follows ([Grameen Family of Enterprises 2005](#), [Grameen Bank 2005](#)):

Grameen Trust

As a result of the success of GB in reaching and serving the poor with credit, many people and organizations began to think in GB's way, and wanted to learn more about GB and follow its principles in their own sphere of work. It is primarily to meet this demand that the Grameen Trust (GT) came into being in 1989. Now more countries worldwide follow the activities of the GB.

Grameen Fund

Grameen Fund was incorporated on 17 January 1994 as a not-for-profit company and started operations on 1 February 1994. Its emphasis is on providing finance to ventures that are risky, technology-oriented and otherwise deprived of financing from existing formal lending institutions.

Grameen Communications

Grameen Communications, a member of Grameen family of enterprises, is a not-for-profit Information Technology company. It has been providing complete systems solution through developing software products and services, internet services, hardware and networking services and IT education services since its inception in 1997 under the Companies Act, 1994.

Grameen Shakti/Energy

Grameen Shakti (GS) is a not-for-profit rural power company whose purpose is to supply renewable energy to unelectrified villages in Bangladesh. GS expects not only to supply renewable energy services, but also to create

employment and income-generation opportunities in rural Bangladesh.

Grameen Shikkha/Education

Grameen Shikkha is a company in the family of Grameen companies. Established in 1997 its main objectives are to promote mass education in rural areas, provide financial support in the form of loans and grants for the purpose of education, use IT for alleviation of illiteracy and development of education, promote new technologies and innovate ideas and methods for development of education, etc. Grameen Shikkha has been conducting the Life Oriented Education Program, Pre-school/Child Development Program, Early Childhood Development Program and Arsenic Mitigation Program in various districts of Bangladesh.

Grameen Telecom

Grameen Telecom is a company dedicated to bringing the information revolution to the rural people of Bangladesh. Grameen Telecom is planning, over the next four years, to provide GSM 900/1100 cellular mobile phone service to 100 million rural inhabitants in 68,000 villages of Bangladesh by;

- (1) financing 60,000 members of GB to provide village pay phone service and
- (2) providing direct phones to potential subscribers.

Grameen Knitwear Limited

The company is a 100% export oriented composite knitwear factory, located in the Export Processing Zone in Savar in the vicinity of Dhaka, the capital of Bangladesh. It has knitting, dyeing, finishing and garments production facilities. Most of the machinery and

equipment have been sourced from Europe. The factory is capable of producing a very high quality of different knit fabrics and garments for children, men and women. The fabrics and garments are fabric and yarn dyed 100% cotton, TC, CVC, Polyester with lycra (attachment) etc., of various counts. The goods are currently exported mostly to Europe. Exports are made against confirmed irrevocable letters of credit.

Grameen Cybernet Ltd

Grameen Cybernet Ltd. has been Bangladesh's leader in Internet service provision since it commenced operation in July 1996. Its chief executive has had an extensive career in education and information technology in the USA and is assisted by a team of bright, young executives.

CAN MICROFINANCE ERADICATE POVERTY?

We have shown that microfinance of GB helps the poorest of the poor to escape from poverty. GB is working in 68,000 villages of Bangladesh. But the situation of villages worsens continuously and there are beggars, extremely poor people in the villages. Some have lost their assets to repay the loan.

The World Bank estimates that in 2001, some 1.1 billion people of the world had consumption levels below \$1 and another 2.7 billion lived on less than \$2 per day (World Bank 2001). As microfinance continues to grow, questions have arisen to focus on who is the optimal client. Should microfinance target the marginally poor or the extremely poor? (Sengupta and Aubuchon 2008). Some clients had to pay a subsidized microfinance program and could not improve their financial

condition. Some borrowers could not escape from poverty due to high interest rate. As they can not invest their loan in profitable sector, whose profit exceeds the rate of interest of the loan of GB. The beggars can not take loan from GB, because they can not form group, and nobody take risk of their repayment. Same conditions arose for the very poor people. So that GB loans goes to rich or non-poor people who can repay in due time and the amount of next loan increases continually. Morduch (1999b) suggests that a dollar increase in income for the very poor borrower has a five times greater impact than the same dollar for the marginally poor borrower. According to this suggestion for the poverty alleviation, GB should focus on the poorest borrowers first, but this is not always the case.

CONCLUDING REMARKS

In this paper we have tried to describe briefly ins and outs of GB of Bangladesh. It is the largest microfinance organization of the country which provides loans the poor. Inequality in the ownership of the means of production, unequal access to public resources, subordination of women, dominance of usury capital and complicated power relations between the rich and poor are the features of life in rural Bangladesh. So that GB takes rigorous steps to remove the poverty from the rural society of Bangladesh. It is a decentralized participatory organization where both the staffs of the bank and the members are actively involved in different types of activities. It is credited with proving that the poor are bankable and its model has been copied in more than 60 countries of the world and has found success in poverty alleviation program. Some limited poor

people can improve their financial condition by the loans of GB who find scope to use the money in profitable business. It improves the quality of life provide better food, better education, as well as better housing to the poorer community. But the high interest rate becomes burden to the poor women and GB needs to think to provide loans in low interest rate to them. We tried to show the mathematical calculations in some detail.

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