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FROM THE EDITOR

This is the third issue of the Journal of Bangladesh Studies and I am delighted to note that interest in the journal has grown substantially as reflected in requests for copies and the increasing number of subscriptions from scholars, academic libraries, international organizations, and a growing number of advanced standing students. Scholarly contributions from authors at various universities, worldwide, have also increased. As we continue to highlight strategic and relevant issues pertinent to Bangladesh on the basis of conceptual and empirical analysis, we are confident that JBS will carve out its own niche and provide intellectual leadership in addressing the challenges of development in Bangladesh and other developing countries.

The focus of JBS, however, is mainly on Bangladesh. We encourage the submission of manuscripts that are innovative, insightful, and incisive. We expect that the articles will provoke debate and challenge policy makers, development planners, international agencies, donor countries, and non-government organizations to review existing practices and seek solutions that bring about “real change” and “real development” that reaches the very grassroots of Bangladesh society.

In this issue, we first present an invited article by Mohammad Yunus, renowned for his pioneering ideas on micro-credit and for providing leadership to an evolving Grameen enterprise that has extended its reach to the underprivileged and become a credible force in its drive to alleviate poverty in Bangladesh. As our policy, invited articles are not reviewed. However, in this case the article was composed by one of the editors from recent speeches that the author provided us in response to our invitation. The composed article has the author’s approval.

Mohammad Yunus calls for information technology (IT) as the new driving force to blaze the way for poverty alleviation in Bangladesh. In particular, he strongly feels that Bangladesh can be a world-class player in the global IT sector very soon. The author’s enthusiasm is appealing, but if hopes were easy to convert to reality, one might also extend Yunus’ hope to sectors other than IT. However, one must be cautious before making a major commitment to an enterprise of such magnitude. The case of Taiwan, which made quick gains in technological prowess, comes to mind: Its recent efforts to turn itself into a “high-tech” island have not materialized because of a

shortage of well-educated and creative people. For Bangladesh, the question is whether the educational infrastructure is strong enough to support Yunus’ contention. In particular, being already behind in a rapidly changing knowledge economy, catching up is in itself a challenge that must be acknowledged. The wherewithal to finance the human, managerial, and technical investments also demands answers. And assuming that these concerns can be resolved, the growing malaise of corruption is certain to waylay any new initiative as witnessed in the past. The energy, telecommunications, and related sectors are cases in point. The reason I bring up these questions is not to dampen initiative, but to introduce, in my view, more realism as regards Yunus’ time frame. If IT is to lead the way, it must also have the blessings of the power structure that simply cannot be removed from the equation; and if they are not supportive IT will remain a dream. NRBs can also play a very vital role. However, they are yet to make any substantial contribution to Bangladesh. Whether they are ready and willing to share their time, knowledge, and financial resources to take up this challenge is a moot question.

Rahim A. Quazi empirically investigates the effects of foreign aid on both GDP growth and domestic savings in Bangladesh. The results suggest that aid is not a critical factor in Bangladesh’s growth strategy. This is a reasonable contention because unless we question where and how aid funds are used, mere injection of funds may do more harm than good to the country. In fact, successive regimes of corruption that have gained personally may explain the effects of aid funds better. It is high time to remove the aura of secrecy surrounding aid flows and open up questions of allocation and use to public debate and discussion. The management of aid must also be in place with goals and objectives clearly established, responsibilities assigned, and accountability ensured. At the same time those in power, along with donors and their conduits, must better explain and direct aid utilization if its beneficial impact on the country is to be reaped.

M. Golam Robbani focuses on the garments industry, which has led the growth in exports from Bangladesh and has sustained much of the economy through forward and backward linkages. But a new era is upon the industry; with GSP being abolished and MFA phased out by 2004, new and strong competitive challenges loom large on the horizon.

The SWOT analysis performed by Robbani serves as an analytical tool to provide key insights and suggestions that must be heeded *now* to ensure that the sector remains viable and vital. Policy makers have little time to prepare for the new realities and must swing into action soon to save this vital sector from annihilation.

M. Fakhru Islam and Yoshihiro Higano bring up a contentious issue involving a powerful neighbor—India. While the issues around Farakka have been featured more prominently in the media, riling up emotions on both sides of the border, the people of the Teesta basin confront a similar fate: the diversion of water by India, especially during the dry season, resulting in significant economic and social consequences for those in the Bangladesh area. As I indicated in the last issue of JBS, a powerful entity (India) can exploit a weaker one (Bangladesh) because of power asymmetries. But the powerful party is less trusted as a consequence; and if this trust gap widens, the resultant conflict can take an ominous shape in cross-border hostilities, both direct and indirect. India also opens up doors for its old enemy to establish ties with Bangladesh (enemy of an enemy syndrome) that should serve neither country well. Certainly civil nations can negotiate and find ways to cooperate. Bangladesh has a potentially large reservoir of energy and it is also a conduit linking the eastern parts of India to West Bengal and beyond. These resources could be brought to the negotiating table as could free market opportunities in both countries to advance the interests of each. And if

other countries have been able to agree on water sharing, why must it be so difficult for India and Bangladesh to resolve? I certainly hope this is not a case of pettiness, a dearth of imagination, or arrogance and pure ill will.

I would like to take this opportunity to thank a wonderful and dedicated team of editors who have been very generous of their time and have provided constant support; the growth of JBS, to a large measure, is the achievement of the entire team. Reviewing the growing number of manuscripts and providing detailed guidelines to authors is a task they have willingly shouldered to help ensure quality. We are also happy to have Faizul Islam on board as a consulting editor who has taken on several responsibilities to help propel JBS forward. Our goal is to continue to raise the stature of JBS with quality articles in every issue and we look forward to the contributions of experts, critics, and subscribers to assist JBS in this declared mission.

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INFORMATION TECHNOLOGY CAN BE BANGLADESH'S SUPERHIGHWAY TO PROSPERITY¹

Muhammad Yunus

The Promise of IT

Although the population of Bangladesh is substantial, the world has not noticed the country because of its small economy. The country does not show up on the world economic map because it does not feature a serious market for the exchange of goods and services. All this can change now. It is possible for Bangladesh to become a familiar name in the world if it can take advantage of the new technologies, particularly Information Technologies or IT, that are dramatically changing the world. The stage is already set for revolutionary changes in the global economy. I believe the changes that we have witnessed this past decade are only the beginning. The coming decades will unfold scenarios which will redefine the lives of citizens around the world.

Technologies are all interrelated. If there is a dramatic change in one, an immediate impact is felt in many others. Presently, the information technology (IT) sector is the most dynamic sector in the world economy, and it is leading the way for other technologies and forcing them to respond.

New Economies

Information technologies are helping the developed nations expand their economies at a sustained pace. These economies are assuming features so distinct from their previous structures that they have begun to call themselves "new economies." It is obvious that the rich economies are benefiting the most from these new technologies. Except for minor spillovers, the effect of the new technologies on the people in poor countries has so far been negligible; however, this does not have to be the case in the future.

The middlemen in the value-chain in production and marketing are finding that the market participants may pass them by. These technologies are also eliminating middlemen in the knowledge-chain when it comes to understanding the economy and the society. In the process, the new technologies have the potential of creating not only a "new economy" but also a new society.

It is not the large impact of the information technologies on the gross domestic product (GDP) that distinguishes

the new economies. The issue is not the quantum of wealth that people who use this technology are accumulating. The unique contribution of information technologies is the fundamental fact that they are creating a new relationship among consumers and between the consumer and the producer. In the economic sphere, this new relationship results in significant cost reductions. Having demonstrated these trends in unmistakable terms, information technologies have set the process in motion to dismantle old economic relationships and economic institutions. No one can escape from this change because the emerging relationships mean reduction in personnel cost, reduction in processing and production time, a better appreciation of market needs, more options for producers, more opportunities, and more choices for consumers and producers alike.

Digital Divide

What will happen to the poor countries that have not shown much progress in IT in the past? I believe two things can happen:

1. In view of the emergence of new economies and their increasing strength in the global economic sphere, the small and weak economies will be further marginalized. This will make it more difficult for these economies to compete in the world economy on an equal footing. Information technologies will make rapid globalization unstoppable and global multinationals will dictate the economic terms to the weak economies.
2. However, the opposite scenario could also unfold with IT spreading rapidly into the developing economies. If IT can make a full-blown entry into these economies, it would be difficult for them to stagnate in poverty, provided there is wise leadership at the national level and eager and energetic citizens. Thus, IT can be turned into a magic wand and anything it touches will turn into gold. The best aspect of IT is that it cannot be controlled by anyone.

¹ I would like to thank the editors of the *Journal of Bangladesh Studies* for help in composing this article from recent speeches I gave on the topic.

It is an empowering tool that enhances options and brings all the knowledge to people's disposal. When these technologies enter a poor economy, the citizens will benefit from the wider choices and new relationships both within the country and with the world at large. This will no longer be limited to the traditional one-directional relationship. Information technologies stand for multi-dimensional and global relationships that do not recognize national borders; such forces cannot be contained within any kind of borders and limits. Getting in touch person-to-person, from anywhere to anywhere, in a virtually costless way, is the hallmark of information technologies.

In order to achieve desirable outcomes, our leaders have to be wise, our people have to mobilize all their energy and organizational skills, and we as individuals must be strongly committed to making it happen. If we just lie on our backs under the tree of prosperity for the fruit of development to fall into our mouth, we will need a lot of prayers, luck, and time before we succeed. The alternative strategy is to climb the tree and pluck the fruit.

IT and the Poor

Can information technologies benefit the poor countries and their people? I think even if we leave it to the forces of the free market, it is very likely that information technologies will eventually get to the poor countries. Whether it will be sooner or later will depend largely on the actions of the governments in those countries. My feeling is that governments in poor countries will generally resist the entry and spread of information technologies in their countries. Except for such resistance by the politicians and the bureaucracy, I see no reason why information technologies cannot come to a poor country; however, I suspect the market mechanism alone cannot ensure fast spread of information technologies in the poor countries. I feel that new international organizations are needed with a mandate to bring these technologies to the poor countries. I have advocated the creation of an international center for information technologies to end global poverty. NGO's, businesses, academic institutions, UN agencies, foundations, and civic societies can all be linked to each other to find ways and means to bring information technologies to the poor countries.

Can the poor really have access to information technologies? Market forces do not take the poor seriously since they are neither producers nor consumers of any consequence. I have no doubt that

information technologies can reach the poor, but this will happen only by creating a new model of business, one that will help the poor engage in entrepreneurship. I have called this type of business "social-consciousness driven enterprises" that may or may not be for-profit but must have clearly defined social goals.

Many of the Grameen enterprises--Grameen Bank, Grameen Telecom, Grameen Phone, Grameen Communications, Grameen Software Ltd., Grameen IT Park, Grameen Securities and Management Company, Grameen Shakti (Energy), Grameen Uddog (Enterprise), Grameen Shamogree (Products), Grameen Fund (venture capital fund), Grameen Agriculture, Grameen Kalyan, and Grameen Education fall into this category of business organization. Conventional economic theory ignored the poor because it conceptualized the private economy as a wage-employment-based economy. If you are not looking for a job you are not in the market. The idea of self-employment never crossed the minds of labor economists. If we bring in self-employment as an option, the market immediately recognizes the importance of the poor. Information technology is the greatest technology the world has ever known that can promote self-employment. In fact, generating more self-employment by itself is a good reason for bringing information technologies to the poor.

It is silly to ask, "How can a poor person own a computer to have access to Internet?" This question can be posed in a different way: "How can a poor woman in a Bangladeshi village own a mobile phone?" Grameen Communications has answered the first question by creating village Internet kiosks. Grameen Bank and Grameen Telecom have answered the second.

Today Grameen is using information technologies designed for the better-off people and businesses in the rich countries. Grameen does not have the capacity to design appropriate information technologies for the poor; otherwise, it would have designed such technologies that would act as a friend, a philosopher, a guide, a business consultant, a business executive, a teacher, an accountant, a doctor, and an entertainer for a poor person.

The Future of IT in Bangladesh

What prospect does Bangladesh have in quickly entering the IT age?

I am very optimistic about Bangladesh getting to the frontlines of the IT revolution. To begin with, we have a very young population. The younger the person is, the better the chances of him getting into the IT mode. Almost half of the population of Bangladesh is under twenty. The young tend to be highly creative. With little or no institutional support, some of these young people have shown great success in entrepreneurship in the information technology arena.

Bangladesh has led the world in micro-credit, a homegrown technology that has been adopted all over the world. Micro-credit and information technology have one big thing in common: they both empower the individual. This common factor makes them mutually reinforcing. Bangladesh is the only country in the world that has taken the mobile phone to poor women in the countryside in a highly successful commercial operation. This was done with the help of micro-credit. The success with the mobile phone has laid the foundation of future inroads of services like e-commerce, e-healthcare, e-literacy, e-education, and e-jobs in the villages, especially for the poor women. With information technology, we can put the world market within the reach of the poor people to allow them to exit poverty in their own creative ways. Bangladesh already has a fiber-optic backbone running along the railway tracks. If we can quickly connect it to the fiber-optic submarine cable, the entire country will be fully connected to the world immediately. I strongly feel that Bangladesh can be a world-class player in the global information technologies sector very soon.

The Challenge and the Peril

With higher speed we can get to our destination faster. We can save time so that we can use it for meaningful purposes. However, high-speed driving can be hazardous—it increases the chances of fatal accidents. We must prepare ourselves to avoid such accidents. We must also build the right kind of roads to support any high-speed driving. We should ensure better driving skills and establish driving norms to have a safe journey.

Information technology is bringing this new speed for the first time in human history. The new speed will change all aspects of human life. In twenty-five years, we will be living in a very different kind of world. Ten years henceforth, when we look back, we will be shocked at our thoughts and activities of today. They will appear out of place and primitive. When our children reach our age, they'll pity us for missing out on the good things in life.

Just at the time when this accumulation of wealth is taking place at a high speed in new economies, we are

told that poverty is expanding in the world at an alarming rate. Today there are 1.5 billion people living in abject poverty. This number stood at 1.2 billion just four years ago. At this rate the number of poor will double by the year 2040. Another three billion people will be living in poverty in just forty years, not exactly good news to have at the beginning of the new millennium!

Would globalization help the poor climb out of poverty? I don't think so, especially if we leave the poor at the mercy of market forces driven by greed. However, if the world is concerned about the poor and is willing to help them prepare themselves to ride the wave of globalization, the poor can become the beneficiaries of globalization. Trade brings great opportunities to the poor to move out of poverty if they are equipped to seize these opportunities.

Information technology is the road that must be brought to the door of the poor. The poor should be given the opportunity to acquire the skill to use this technology to their advantage. We must design information technology in such a way that a totally unprepared poor person can immediately begin to understand it without feeling threatened. I have proposed the creation of an "International Center for Information Technology to End Global Poverty" to create an appropriate information technology infrastructure for delivering the service to the poor.²

The Role of the Civil Society

Information technology is not a "mantra" from an old scripture found in a cave somewhere. We cannot just meditate and chant the mantra and the New Great Global Society will be born in Bangladesh. In order to create the new economy and the great society where not a single human being will suffer from poverty, we need to work hard. Some of the ways the civil society can help are as follows: First, the civil society has to be very active and vigilant to see that the private sector IT does not fool the consumers, does not make excuses for restricting competition, and makes continuous efforts to bring IT services to the poorest, particularly among the women. Second, organizations such as the Rotary can play a very important role in all of these. The Rotary has done an amazing job in confronting the curse of polio. Whatever little is left of polio, hopefully, will soon be gone. I bow my head in respect to the

² Speech given at the Rotary Conference, Dhaka, April 7, 2000.

Rotarians all around the world who have made this impossible task possible.

I propose that the Rotary and other civil groups take on the challenge of ending poverty in the world. With information technology, the issue of poverty can be addressed from a different perspective. Bringing information technology to the poor can create a strong foundation for poverty eradication. The Rotary can dedicate its energy, resources and organizational capabilities in bringing information technologies to the poor people and link them with the world economy. While linking the poor with businesses, the Rotary can also help bring e-healthcare, e-education, and e-knowledge to the poor, with an emphasis on poor women.

Should we accept the estimate that global poverty will be doubled by 2040, and wait for this to happen, or should we come up with an action plan to prove this estimate absolutely wrong? We can generate enough social, political, and economic commitment in the world to end poverty by 2040, instead of allowing poverty to double by this date. We can create a poverty-free world and celebrate it in 2040.

Let history record that people ended poverty in their planet half way through the century by creating a New Global Humane Human Society by assigning it a much higher priority over every other planned accomplishment.

Support From NRB's

Information technology needs very strong support from the non-resident Bangladeshis (NRB's) who can serve as a strategic bridge in bringing IT businesses to Bangladesh. Bangladesh has to prove its worth in the international IT market. NRB's can ease Bangladesh into this market by helping with expertise, information, links, and importantly, credibility. Bangladesh does not have to start big, or at the top. It is always safe and rewarding to work from the bottom and move up. Let us not expect miracles. If we work hard, miracles will happen in the end.

NRB's can help Bangladesh in designing IT-related training programs and collaborating in the areas of producing high-quality human resources through the right kind of training. Training itself can be an entry-point to the global marketplace by placing a trained workforce at the disposal of the market.

NRB's can provide information, ideas, and guidance to the IT businesses in Bangladesh. They can act as representatives of the Bangladesh-based businesses and participate as partners in these businesses.

NRB's can influence government policies in direct and indirect ways. Many of them are closely linked with top policymakers. Many are respected in Bangladesh for their personal achievements overseas. Many NRB's have influence with the leading Bangladeshi political parties. They can use their influence at home and abroad to achieve policy changes in the information technology sector. The following policy changes are also needed immediately:

1. The telecommunication sector should be totally deregulated and opened up for private investment. Every bit of restriction on private investment should be removed. The sooner this is done, the better chance Bangladesh has to improve the quality of life of its citizens.
2. Bangladesh should invite offers from private investors to connect it to the global information superhighway. The government should not get involved in the owning and managing of this submarine cable. The government should stay out of the telecommunication business.
3. The T&T Board should be privatized to get out of the present sad state of affairs in the telecommunication sector. If we cannot do this, we might as well forget about having information technologies as our launching pad for economic boom.
4. All restrictions on using national fiber optics as the backbone for information technology purposes should be immediately removed.
5. Bangladesh should have an independent regulatory body outside the government's control. Telecommunications is the highway we must use to build our future. We cannot allow this to be a narrow dirt road full of potholes where corrupt officials are waiting at every step of the way. Bangladesh will continue to stagnate if this is the road we choose. Big talk will not change the condition of the road and the condition of the economy will not improve. We must make

telecommunications a true superhighway to transport us to a future free of stoplights or sharp turns. Of course, there should be some policing, but not to slow us down; it should help us achieve safe high-speed driving.

IT is about speed and efficiency. Any compromise in either will push us out of the game. We cannot afford to make any compromises.

NRB's Can Inspire IT Activities in Bangladesh

Besides attempting to influence government policies in the IT sector, individual non-resident Bangladeshi's from all disciplines can also help in other ways:

1. Share information or tips on IT matters with professionals working in Bangladesh. Prepare a list of IT professionals in Bangladesh and brief them regularly. Nothing special needs to be done. The kind of information that comes to you in the normal course of your work or interest can be highly beneficial to your counterparts back home. Do not expect anything in return or immediate results. Just hope that it will be of some use to someone out there. If you don't want to correspond with many people, you can choose one individual or one organization to send the information to, provided they agree to pass on the information to many others in Bangladesh. The Grameen Bank will be happy to shoulder this responsibility.
2. Spend an hour each week thinking about the IT industry in Bangladesh and let that

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thought grow as an idea or as an action. When it is properly formulated, share your idea with a contact person in Bangladesh to be shared with other activists. We will print your idea in our newsletter if you wish, or suggest another idea. It will be of tremendous help if you lend a hand in boosting the IT industry in Bangladesh.

The greatest opportunity ever for Bangladesh is knocking at our door. Let's not lose it by being slow in opening the door or not opening it wide enough. If we do not respond forcefully, history will not forgive us.

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MACROECONOMIC EFFECTS OF FOREIGN AID IN BANGLADESH REVISITED

Rahim M. Quazi

ABSTRACT

This paper revisits the topic of macroeconomic effects of foreign aid in Bangladesh and finds, in line with the radical anti-aid view, that aid has reduced both GDP growth and domestic savings in Bangladesh. However, the effects of aid on growth were found less damaging than predicted by the radical view. A Keynesian interpretation of the estimated results suggests that by raising consumption expenditures, aid also stimulates the demand-constrained Bangladesh economy, which causes greater utilization of production capacities. In turn, it increases national output through a multiplier-accelerator mechanism. Thus, aid induces indirect positive effects on GDP growth through increased consumption demand, which offset much of the direct adverse effects of aid.

Prelude

Over the years two opposing views have emerged in development economics on the topic of macroeconomic effects of foreign aid. On the one hand, based on early theoretical developments, the traditional pro-aid view advocates aid on the premise that it complements domestic resources, eases foreign exchange constraints, transfers modern know-how and managerial skills, and facilitates easy access to foreign markets, all of which contribute to economic growth (Chenery and Strout 1966, Papanek 1972, 1973, etc.). On the other hand, based on the empirical evidence, the radical anti-aid view criticizes aid on grounds that it supplants domestic savings, worsens income inequality, funds the transfer of inappropriate technology, finances ineffective projects, and in general helps sustain bigger, more corrupt and inefficient governments in the recipient countries (Griffin and Enos 1970, Weisskoff 1972, etc.).¹

Bangladesh, which has received a cumulative influx of almost US \$33 billion in public foreign aid (grants and loans combined), provides an important test case for analyzing the effects of foreign aid on the recipient economy. Several recent studies, e.g. Ahmed (1992), Taslim and Weliwita (1998), etc., have estimated the macroeconomic effects of aid on the Bangladesh economy and generally found results that are in line with the radical anti-aid view. This paper presents results that suggest that the effects of aid on GDP growth in Bangladesh are in fact not very detrimental. Based on the results estimated by this study, a post-hoc Keynesian hypothesis can be put forth that by raising consumption expenditures, foreign aid stimulates the demand-constrained Bangladesh economy, which causes greater

utilization of production capacities. In turn, it

increases national output through a multiplier-accelerator mechanism. Thus, much of the direct adverse effects of aid are offset by the indirect positive effects of increased demand on GDP.

The ensuing sections are organized as follows: section II provides an overview of the aid literature on Bangladesh, section III describes the model and presents the empirical results, and finally, section IV summarizes the results and offers policy implications.

Literature Review

There exists a growing literature on the macroeconomic effects of foreign aid in Bangladesh. Among the very early studies, Islam (1972) analyzed the relationship between foreign capital (foreign public aid and foreign private investment) and gross domestic savings in the erstwhile East Pakistan and concluded that foreign capital had affected domestic savings negatively in the 1950's, but positively in the 1960's. Mostly a descriptive survey paper in nature and lacking in quantitative analysis, this study offers only tentative observations.

A more rigorous approach is taken by Alamgir (1974) who econometrically investigated the effects of foreign capital on gross domestic savings and growth in East Pakistan during 1960-70. The estimated results show that foreign capital affects gross domestic savings positively, but GDP growth negatively. Drawing on these results, the author concluded that since foreign capital finances the imports of foreign investment goods, which are complementary to domestic capital goods in production process, additional foreign capital enhances the utilization of existing production capacity as well as productivity of new investment, which eventually leads to increased domestic savings. No explanation is, however, provided for the

apparently paradoxical results that the effects of foreign capital on savings are positive but on growth are negative.

In an intriguing study of the role of aid in the development dynamics in Bangladesh, Sobhan (1982) concluded that the aid regime has grossly failed in promoting its development agenda. Instead of reducing poverty, aid has led to substantial concentration of wealth among the urban and rural elite, and instead of fostering domestic productive potential, aid has helped nurture a dependent culture on foreign resources, which has been “self-perpetuating ... over the years, and served to reinforce a system which has been inimical to the mobilization of domestic resources and the effective use of production capabilities” (Ibid).

Quite contrary conclusions are drawn by Rahman (1984), which analyzed the effects of aid on domestic resource mobilization in the post-independence Bangladesh. A two-sector model is developed with one sector representing the production of goods intended for import substitution and export promotion, and the other one representing the production of all other goods and services. The estimated results show that, over the 1972-82 period, aid has promoted economic growth, and through higher income, aid has also expanded the tax base and raised domestic savings in Bangladesh. In line with Alamgir's (1974) observations, Rahman also explained these results by noting that by relieving the foreign exchange gap in the import-dependent economy, aid has financed the imports of needed foreign inputs and brought the complementary domestic inputs into production, and thus has played a very important role in domestic resource mobilization.

It should be noted here that the sample period covered in both Alamgir (1974) and Rahman (1984) is only 10 years, and, hence, these studies have essentially captured only the short run stimulus of aid on the macroeconomy, which may diminish in the long run. Several studies that have covered longer sample periods are discussed next.

Ahmad (1990) moved beyond the single equation estimation approach and estimated a simultaneous equation model grounded in the framework of two-gap analysis. The estimated results show that over the 1961-80 period, despite reducing domestic savings, foreign capital inflow has raised GDP growth by increasing output in the primary, manufacturing, and tertiary sectors. The author argues that by relieving

the foreign exchange gap and financing imports of intermediate and capital goods, aid has expanded the economy's productive capacity and thus fostered economic growth.

Islam (1992) estimated several single equation aid-growth models for Bangladesh with 1972-88 data and found that the effects of aid on GDP growth are barely positive, but highly insignificant. When total aid is disaggregated into grants and loans, the effects of grants turn out negative but marginally significant and the effects of loans turn out positive and highly significant. Drawing on these results, the author concluded that foreign loans have stimulated growth in Bangladesh, while grants have not. Based on the other estimated results, the author also concluded that domestic resources have played a much more significant role in promoting economic growth vis-à-vis the foreign resources.

Ahmed (1992) undertook a significant study of the aid-growth debate in Bangladesh. He estimated a 2SLS model that yields structural parameters suggesting that aid has affected both output growth and domestic savings negatively, but the reduced form parameters reveal that the effects of aid on domestic savings are positive, but negative on output growth. The author attempts to reconcile these seemingly conflicting results by arguing that aid funds have possibly been diverted into unproductive channels, including projects that were imposed by the donors but could not be successfully implemented due to institutional constraints.

Taslim and Weliwita (1998) investigated the aid-savings relationship in Bangladesh during 1960-95 and found that the long run relationship between aid and savings has been strongly negative. The estimated coefficients appear fairly robust to different sample periods (pre and post-liberation) as well as to various specifications of the savings function. The coefficient of aid turns out negative and highly significant under all specifications suggesting that aid has had an unambiguously negative effect on gross domestic savings in Bangladesh.

As it can be seen from the preceding discussion, there is no consensus in the aid literature about the macroeconomic effects of aid in Bangladesh. It nevertheless appears that the early studies had found results that mostly accorded with the traditional pro-aid view, while the more recent studies have generally found results that are lined up along the radical anti-aid view, which perhaps explains the growing disenchantment among the academicians

with the aid regime.

This paper adds to the aid-growth literature a Keynesian approach to interpreting the aid-growth relationship. Most aid-growth studies have analyzed this relationship with the classical approach emphasizing the supply side of the economy. This study, in contrast, emphasizes the demand side of the economy. The hypothesis posited here, which in fact is a post-hoc hypothesis based on the estimated results, is that total effects of aid on GDP growth in Bangladesh are less adverse than postulated by the radical anti-aid view. Even though the radical view correctly posits that foreign aid initially depresses GDP growth and reduces domestic savings, the resultant increased consumption expenditures bring about, in accordance with the Keynesian hypothesis, a multiplier-accelerator mechanism that increases national output. Thus, foreign aid increases consumption demand, which induces indirect positive effects on output growth, which in turn can, depending on the strength of the Keynesian multiplier, either partially or more than offset the initial negative effects of aid on GDP growth. Therefore, the radical anti-aid view can be complemented with the Keynesian view to better explain the aid-growth relationship in Bangladesh.

The Model and Empirical Results

Theoretical Design of the Model

A simultaneous growth model is developed here to capture the effects of aid on GDP growth and domestic savings in Bangladesh². By accounting for the simultaneous relationship between growth and savings, this model eliminates the specification bias that has been routinely overlooked in similar studies. A notable feature of the model is the inclusion of a dummy variable that captures the effects of natural and political shocks on GDP growth and gross domestic savings.

The system of equations of the structural model is as follows:

$$GR_t = \alpha_1 + \beta_1 Aid_t + \beta_2 S_t + \beta_3 CLF_t + \beta_4 MX_t + \beta_5 Dummy_t + u_t \quad (1)$$

$$S_t = \alpha_2 + \beta_6 Aid_t + \beta_7 GR_t + \beta_8 CX_t + \beta_9 Dummy_t + v_t \quad (2)$$

where, GR = GDP growth rate; Aid = foreign aid as a percentage of GDP; S = gross domestic savings as a percentage of GDP; MX = imports plus exports (net volume of trade) as a percentage of GDP; CLF =

increments in labor force; CX = increments in export earnings as a percentage of GDP; Dummy = a dummy variable for periods of natural calamities and/or political disturbances; and t = time. All variables except CLF and Dummy are measured in real terms.

Rationale of the Model

Equation (1) is an augmented Harrod-Domar type growth model. In addition to the usual factors of growth, i.e. labor (CLF), domestic savings (S), and foreign capital (Aid), two other variables, net volume of international trade (MX) and the dummy, are included as additional explanatory variables. Many aid-growth studies, e.g. Papanek (1973), Gupta and Islam (1983), Lee et al (1986), Mosley et al (1987), etc., have adopted the first three variables in one form or another in their model specifications.

The fourth variable, MX, is included following Dowling and Hiemenz (1982) as a proxy for economic openness. Since the 1980's the erstwhile closed Bangladesh economy has opened up significantly to international trade. As a result, the volume of trade (imports plus exports) has steadily increased from about 22% of GDP in early 1980's to almost 32% in 1995. Much of the expansion in the volume of trade is due to the spectacular growth in the exports sector, which has caused the export-import ratio to rise from about 30% in early 1980's to almost 60% in 1995 (GOB 1996). It can be hypothesized, consistent with international trade theories, that the rising level of international trade (as well as the fast growing export sector) has played a positive role in the growth dynamics in Bangladesh.

Finally, the dummy variable for natural and political disturbances is included in line of the arguments put forth by Papanek (1972) that these non-economic factors are no less crucial than the usual economic factors in determining growth. Indeed, the floods in 1987 and 1988, and severe political turmoil in 1990 and 1995 have had very adverse effects on the level of economic activities and consequently economic growth in Bangladesh. Therefore, unless the effects of these shocks are accounted for, the model would be misspecified and the macroeconomic effects of aid and the other explanatory variables would be inaccurately estimated.

A few other variables, such as foreign direct investment (FDI), literacy rate, export earnings, terms of trade, government expenditures, tax efforts, etc. have been included as additional explanatory

variables in similar aid-growth studies for other countries (White 1992). FDI is excluded from the present model as foreign direct investment is a relatively new phenomenon in Bangladesh and still very negligible. Nonetheless, since the FDI inflow presently continues to increase at a steady pace, future studies should consider incorporating it. Literacy rate is excluded as no continuous data could be found for the 1970's and the early 1980's. Since the volume of exports is already included in the variable MX (volume of international trade), export earnings are not separately included in the model. The other three variables were tried in alternative model specifications, but were subsequently dropped as the regression results did not appear satisfactory.

The savings equation in (2) is essentially grounded in the Keynesian type saving functions. The GDP growth rate has been added following Mikesell and Zinzer (1973) and White (1992), who contended that higher economic growth raises transitory income more than permanent income, which induces increased savings. Incremental export earnings has been added following Papanek (1972) and Rahman (1984) on grounds that exports of primary products usually generate highly concentrated income, which is more likely to be saved, and also export taxes are a significant source of government revenues and, hence, public savings. Finally, the level of private savings is determined to a large extent by how confident the investors feel about future returns from their domestic investment, but frequent occurrences of natural disasters and political turmoil are likely to seriously erode investors' confidence in the local economy. The dummy variable for natural and political shocks has been accordingly added in the savings equation to capture the deleterious effects these exogenous economic shocks have on the investors' willingness to accumulate additional savings.

It should be noted here that the theoretical validity of the present model rests crucially upon the presumed uni-directional causality running from aid to growth, and not vice versa. Several studies, e.g. Griffin and Enos (1970), Maizels and Nissanke (1984), Gulhati and Nillari (1988), etc., have concurred that the economic need of the recipient country generally takes a back-seat to the donors' geo-political and commercial motives in devising aid strategies. However, following Papanek (1972) it can be argued that it is the slow or negative growth rate of the recipient economy that necessitates foreign assistance, and hence the causality also runs from economic need to aid. Although the inflow of food

aid in Bangladesh has generally been responsive to the occurrence of natural disasters, the majority of project and commodity aid packages have not responded noticeably to economic performance. Therefore, *ex ante* it appears quite legitimate to regard aid as an exogenous variable in modeling the aid-growth relationship. Furthermore, when the well known Granger causality test is applied to test for the direction of causality between aid and growth, the results clearly indicate that the causality runs only from aid to growth, not vice versa. Therefore, the proposed model formulation stands valid.³

Data, Methodology, and Estimation

Annual time-series data from 1973 to 1996 are used in estimating the model. It should be noted here that since computation of GDP growth and increments in export earnings and labor force requires data from the preceding period as well as the current period, these values could not be computed for 1973. Accordingly, the actual sample period spans from 1974 to 1996. Data are collected from several sources: the *Bangladesh Economic Survey* (GOB 1996), *Statistical Yearbook of Bangladesh* (BBS 1997), and *World Tables* (World Bank 1998). The dummy variable assumes the value of 1 in 1975, 1982, 1988, 1989, 1991, and 1996 --years following the occurrence of catastrophic natural calamities and/or intense political unrest and uncertainty in the preceding year.

The simultaneous system is estimated using the two-stage least squares (2SLS) procedure. The system comprises two endogenous variables --GR and S, and five exogenous variables --AID, MX, CX, CLF, and Dummy. The *a priori* expected signs of the coefficients are as follows: $\beta_3 > 0$, $\beta_4 > 0$, $\beta_7 > 0$, $\beta_8 > 0$, $\beta_5 < 0$, and $\beta_9 < 0$. According to the classical view, higher savings lead to higher level of investment, which in turn leads to higher output growth, and, hence, β_2 is positive. On the other hand, according to the Keynesian view, higher savings lead to reduced consumption demand, which restricts output growth, and, hence, β_2 is negative. The traditional pro-aid view predicts that β_1 and β_6 are positive, while the radical anti-aid view predicts the contrary. The estimated structural parameters, asymptotic *t*-statistics, adjusted R^2 , and the *Durbin-Watson statistics* are reported next, none of which indicates the presence of any statistical shortcomings of the estimated equations.⁴

Structural Equations

GDP Growth Equation:

$$GR = 9.74 - 1.19 \text{Aid}^{**} - 1.40 \text{S}^{**} + 0.08 \text{MX}$$

(-2.40)
(-3.30)
(0.50)

$$+ 0.90 \text{CLF}^{**} - 4.62 \text{Dummy}^{**}$$

(2.40)
(-4.28)

Adjusted R² = 0.28; D-W Statistic = 1.66.

Gross Domestic Savings Equation:

$$S = 8.26 - 0.78 \text{Aid}^{**} + 0.03 \text{GR}$$

(-3.07)
(0.12)

$$+ 1.54 \text{CX}^{**} - 0.66 \text{Dummy}$$

(3.08)
(-0.59)

Adjusted R² = 0.53; D-W Statistic = 1.13.

[** coefficients significant at 1% level of significance]

The estimated growth equation shows that except MX (volume of trade) all explanatory variables turn out significant at the 1 percent level of significance, while in the savings equation, aid and incremental export earnings turn out significant at 1 percent. Notwithstanding the presence of three insignificant coefficients, these results present considerable improvement over the results obtained by Lee et al (1986) and Ahmed (1992). Results reported by the former had yielded six insignificant coefficients, while those by the latter had also yielded six insignificant coefficients --three of which turned out with wrong signs.

The estimated results show that foreign aid has reduced both GDP growth and gross domestic savings in Bangladesh. The former result reconfirms Ahmed's (1992) findings that aid has adversely affected GDP growth in Bangladesh, while the latter accords with Ahmad's (1990) and Taslim and Weliwita's (1998) results that aid has significantly reduced gross domestic savings in Bangladesh. These results firmly accord with the radical view that instead of benefiting the recipient economies, foreign aid in fact hurts them.⁵

Furthermore, the coefficient of domestic savings on GDP growth turns out significantly negative, which accords with the Keynesian hypothesis that increased savings reduce consumption demand and, thus, constrain growth. It is also found, in line with the *a priori* expectations, that increments in the labor force has significantly raised growth, incremental export earnings has strongly increased savings, and finally

natural and political shocks have exacted a heavy toll on GDP growth. The recent trend in opening up the economy to international trade has, however, had only a very feeble effect on growth, which is possibly due to the small time frame captured by the small sample size. GDP growth and occurrences of natural and political shocks appear to have insignificant effects on domestic savings. One very plausible explanation of these insignificant effects is that since natural and political shocks are significant determinants of GDP growth, there exists strong multicollinearity between these two variables, and, hence, it is difficult to separate out their individual effects on savings. It is also very probable that increased income in the private sector is not re-invested in the economy due to the pervasiveness of several non-economic factors, such as a highly corrupt bureaucracy, acute lack of law and order, and frequent political unrest. As Bangladesh generally lacks a "business-friendly" environment, increased income in the private sector is possibly siphoned out of the country to be invested in safer havens abroad, which partly explains why the level of domestic savings is not highly responsive to the GDP growth rate.

It should be noted here that the structural coefficients in a simultaneous system of equations measure only the direct or partial effects of the explanatory variables, while the reduced form coefficients measure the sum-total of direct and indirect effects. Therefore, in order to gauge the total effects of the explanatory variables, it is essential to estimate the reduced form coefficients, which may turn out considerably different from the structural coefficients. The reduced form coefficients of aid on GDP growth and savings are presented next.

Reduced Form Coefficients

	Total Effects of Aid
GDP Growth Rate	-0.09
Domestic Savings/GDP	-0.78

The reduced form coefficients show that the total effects of aid on both GDP growth and gross domestic savings still remain negative; the negative effects on growth, however, turn out much smaller than the structural coefficient, while the effects on domestic savings remain virtually unchanged (after rounding-off).⁶ The reason why the total effects of aid on growth turn out less adverse than the direct effects can be explained by a combination of the radical anti-aid view and the Keynesian interpretation.

The radical view posits that easy access to foreign aid puts additional resources at the government's disposal and since aid is generally fungible between public investment and consumption⁷, aid frequently increases public consumption expenditures. Private consumption expenditures are also raised by increased income in the private sector that accrues from the aid-financed projects. By raising consumption expenditures, the Keynesian view postulates, foreign aid stimulates the demand-constrained Bangladesh economy, which causes greater utilization of production capacities, which, in turn, increases national output through a multiplier-accelerator mechanism. These indirect effects of increased demand on GDP offset much of the direct adverse effects of aid. Thus, a 1 unit increased aid/GDP ratio in Bangladesh causes the GDP to decline by only 0.09 percent, which is significantly lower than the structural estimate of -1.19 percent.⁸ Total effects of aid on GDP growth can even be positive if the multiplier-accelerator mechanism produces sufficiently strong demand to offset all the direct effects of aid.

Conclusion and Policy Implications

This paper finds that foreign aid has reduced both GDP growth and gross domestic savings in Bangladesh. These results accord with the radical anti-aid view that instead of promoting the recipient country's welfare, aid actually depresses them. However, this paper also finds that the effects of aid on growth are less damaging than predicted by the radical view. These results are consistent with the Keynesian hypothesis that by raising consumption expenditures, aid also stimulates the demand-constrained Bangladesh economy, which increases output through a multiplier-accelerator mechanism. Thus, aid induces indirect positive effects on GDP growth through increased consumption demand, which offset much of the direct adverse effects of aid.

Furthermore, this paper finds that increased domestic savings significantly reduce GDP growth, which is consistent with the Keynesian hypothesis that the Bangladesh economy is demand-constrained. It is also found that increments in the labor force significantly raise GDP growth and incremental export earnings significantly boost domestic savings, but GDP growth has had very weak effects on savings and the recent openness in international trade has had very feeble stimulus on growth. Finally, the effects of natural and political shocks appear to be very adverse on GDP growth, but weak on savings.

This study finds that occurrences of natural and political shocks have exacted a heavy toll on GDP growth in Bangladesh. Even though political stability is not a policy instrument, it is perhaps the most significant prerequisite for fostering an economic environment conducive to economic growth. Therefore, the government should seek ways together with the opposition political parties to bring about a congenial political atmosphere in Bangladesh. Unfortunately, the government and the opposition parties are currently at loggerheads over various issues, which seems eerily similar to the series of events whose build-up led to a fierce political battle during 1995-96 that wrecked havoc to the economy. A report by the World Bank and ADB on the deleterious effects of this political turmoil on the economy observed that: "... [by 1995/96] an uncertain political climate began to take its toll. ... The impact of the disruption carried through in 1996/97 when the industrial sector registered a growth rate only 3.6 percent in 1996/97, [down from an average of 8 percent per annum between 1991/92 and 1994/95], one of the lowest in recent years" (The Daily Star 1998). The present cycle of political instability has not only hurt the industrial sector, but also caused significant capital flight⁹, repelled foreign investors, and created an overall economic environment that is least conducive to economic growth. One can only hope that the current political culture of confrontation will give way to a political culture of tolerance and harmony, and democracy will take a firmly institutionalized shape in Bangladesh, otherwise the hope of achieving the country's economic potential will remain a dream as distant as ever.

The principal finding of this study is that foreign aid has reduced both GDP growth and domestic savings in Bangladesh. Much of the failure of the aid regime in raising economic growth can be explained by a number of factors such as diversion of aid funds away from public investment projects into non-productive public expenditures, preference for undertaking prestigious but ineffective mega-projects, transfer of inappropriate technology, price distortions in the trade sector, worsening income inequality, etc. This study also finds, in line with the Keynesian view, that the Bangladesh economy is demand-constrained and hence if aid financed programs and projects can generate sufficient consumption demand through the multiplier-accelerator mechanism, the direct negative effects of aid would be offset by the indirect positive effects and, thus, the net effects of aid on growth could theoretically even turn out positive. In addition

to the indirect positive effects of aid-induced consumption on output growth, it should be also noted that aid money spent on certain human capital augmenting consumption items, such as nutrition, education, and healthcare increases labor productivity and eventually leads to higher economic growth. In a study of a number of developing economies, Maddison (1970) found that improvements in education and healthcare account for nearly 20 percent of the increases of the effective labor force, which in turn accounts for almost 35 percent of output growth. Therefore, it appears that aid-induced consumption can substantially contribute to economic growth, or at least abate the detrimental direct effects of aid on growth. This aid-consumption linkage should be further explored and embedded in the aid-planning framework.

In light of the results that foreign aid exert overall unfavorable effects on GDP growth in Bangladesh, it may be wise to reflect on the view taken by Bauer (1972) that aid is neither a necessary nor a sufficient condition for economic development. If it were a necessary condition then the presently developed countries could not have achieved economic development without the assistance of any foreign aid. Moreover, there is no historical evidence that capital imports performed any significant role in the development of the currently prosperous nations. Although aid increases domestic resources available for consumption and investment, it does not necessarily follow that aid leads to economic growth. To achieve that goal, aid would have to positively affect the primary determinants of growth -- native economic aptitudes, political arrangements, social institutions, etc., and there is no evidence that the aid regime has been able to accomplish that in any recipient country to any significant extent. Therefore, instead of relying on external resources, the policymakers should perhaps ponder turning to their domestic resources. If the domestically generated resources are deployed in the process of economic development, then the factors required for their effective utilization, such as personal skills and aptitudes, socio-economic institutions, etc., would also be encouraged to flourish simultaneously.

Although the observations in the preceding paragraph may appear somewhat of a digression, yet they are necessary in order to get a better insight into the long term development prospects of Bangladesh. If the aid regime has failed in its mission to promote economic development in the recipient economies, and there exists a great many number of empirical studies that support the contention, it is high time that the

policymakers chart alternative development strategies based on their domestic resources, a course that holds much at stake not only for Bangladesh but also for the LDCs in general.

Endnotes

¹ Detailed discussions of both the traditional and the radical views can be found in Quazi (1999).

² Lee et al (1986) developed a similar model to estimate the macroeconomic effects of aid for a group of 10 Asian countries, while Ahmed (1992) employed a similar model for Bangladesh. There are, however, several differences between these and the present model. First, foreign private investment (FPI) is excluded from the present model as the FPI inflow is still very negligible in Bangladesh. Second, in order to deal with the identification problem in estimation, the ratio of incremental export earnings to GDP in the growth equation is replaced by a new variable -- volume of international trade (MX) as a percentage of GDP. Finally, since per capita income is highly correlated with natural and political shocks, the former has been dropped from the savings equation.

³ Details are available from the author.

⁴ The adjusted R^2 values are not very high, which nevertheless should not be taken as symptoms of poor goodness-of-fit for either equation. The reason is that since the 2SLS procedure replaces the actual values of the endogenous explanatory variables by their fitted values, the adjusted R^2 statistic becomes a questionable measure of goodness-of-fit for the estimated equation and may even turn out negative (Maddala 1988). Among the two other similar studies to have used the 2SLS estimation procedure, Ahmed (1992) reports even lower adjusted R^2 values of 0.24 and 0.30 for the growth and savings equations, respectively, while Ahmad (1990) does not even bother to report them. The estimated *D-W statistics* show that the null hypothesis of no autocorrelation can not be rejected for either equation at the usual levels of significance.

⁵ There exists a substantial literature comprising the radical anti-aid view, which contends that instead of benefiting the recipient economy, foreign aid in fact harms it. For detailed discussions of the adverse effects of aid on the recipient economy, see Griffin (1970), Griffin and Enos (1970), Bauer (1972), Weisskoff (1972), Lappé et. al. (1980), Krauss

(1983), and Hayter and Watson (1985), among others.

⁶ Since equations (1)-(2) constitute a simultaneous system, estimation of the model with the ordinary least squares (OLS) method is inappropriate. The system was nonetheless estimated by the OLS method in order to compare between the structural coefficients from the simultaneous system and the OLS coefficients. The estimated OLS coefficient of aid on GDP growth is -0.75 and on domestic savings is -0.79, which again are consistent with the radical anti-aid view. Compared to the 2SLS reduced form coefficient, the OLS coefficient however overestimates the negative effects of aid on GDP growth.

⁷ See Griffin (1970) for a detailed discussion of the fungibility issue of aid.

⁸ Ahmed (1992) estimates that a 1 percent increase in the aid/GDP ratio in Bangladesh causes GDP to decline by 0.93 percent.

⁹ Details of the effects of political instability on capital flight from Bangladesh can be found in Quazi and Alam (2000).

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WORLD TRADE ORGANIZATION AND THE READYMADE GARMENT INDUSTRY OF BANGLADESH: A CRITICAL ANALYSIS

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ABSTRACT

The conversion of GATT into WTO has changed the global trading environment remarkably. Particularly, the phasing out of the Multi-fiber Arrangement (MFA) and abolition of GSP is a serious challenge to many developing countries. Bangladesh has been exporting RMG successfully over two decades with the lowest labor cost in the region. It also has substantial experience in subcontracting with foreign buyers. With the abolition of quota and GSP, the trading environment has become fiercely competitive. Bangladesh, whose economy is heavily dependent on this sub-sector, will now have to compete against textile giants like China and India. Analysis of the internal and external environment suggests eliminating inefficiencies and irregularities from the country's production and exporting processes. This paper found strong arguments for forward and backward integration, as well as the need to penetrate into new markets, diversify into new products and relocate production in new areas.

Introduction

Textiles and clothing played a crucial role in the early stage of industrialization in Britain, parts of North America, and Japan, and more recently in the export-oriented growth of East Asian economies (Yang & Zhong 1998). Following almost the same pattern of Hong Kong, South Korea and Thailand, the South Asian Economies namely India, Pakistan, Bangladesh and Sri Lanka have also emerged as significant textile and clothing exporters in the world market. Trading in textile fibers, textiles and clothing is very important for developing economies in general and poorer Asian developing countries in particular (Srinivasan, 1996). For Bangladesh it is of immense importance to remain in the business and to grow significantly because the economy is already heavily dependent on this sector. For instance, garments and knitwear exports accounted for 73 percent of total merchandise exports of Bangladesh in 1997-98, which was less than 60 percent in six years back (World Bank 1999). Regarding other linkage effects, Bhattacharya and Rahman (2000) wrote:

About 1.5 million workers are presently employed in the 2800 RMG factories, with attendant positive externalities in the form of increased economic activities in such areas as banking, insurance, transportation, real estate, hotels and tourism, packaging and recycling, consumer goods and

utility services. A rough estimate shows the sector, through linkage effects, currently generates about \$2 billion worth of domestic economic activities.

Until the end of 1994 developing countries like Bangladesh enjoyed some preferential treatment from western importers under Multi-Fiber Arrangement (MFA). But with the phasing out of quota system and Generalized System of Preferences (GSP) under the auspices of GATT/WTO, the global trading environment is taking a new shape and rules of the game are taking on a new dimension. Such changes will influence different countries' export performance differently. As Irene Trela (1998) concludes:

The studies that exist seem to point to the benefits from elimination of the MFA largely accounting to developed rather than developing countries, and also accruing on the demand side rather than on the production side in developed countries. The most efficient suppliers among developing countries, such as China, ASEAN and South Asia, also gain, while many of the less efficient suppliers lose because they lose quota rents and lose market shares as they are forced to compete with the more efficient suppliers among developing countries.

Developing countries of Asia will now have to face the fierce competition from NIEs like Hong Kong and Thailand. Especially the RMG sector of Bangladesh, being less efficient almost in every stage of production and marketing, will be in a critical situation if policy makers are not aware of the changing market conditions and can not devise appropriate policy responses before time runs out. Other countries in the region have already taken significant steps in shaping their competitive edge. India, for example, mobilized a fund of Rs. 250 billion (around US\$6 billion) to shore up its RMG industries to face the coming days' intense competition notwithstanding that it already has well-established RMG with self-sufficiency in backward linkages (Enayet 1999).

Objectives

The objective of this paper is to analyze the recent changes and their consequences in the RMG industry because of phasing out of MFA under WTO. After assessing the strengths, weaknesses, opportunities and threats, this paper aims to make several suggestions for the RMG industry of Bangladesh.

Background of WTO

After the great depression in the 1930s, many countries started to follow conservative trade policies and introduced tariff and non-tariff barriers that severely hampered the free flow of international trade. This situation was further aggravated during the Second World War when the USA and Britain launched a new plan to set international trade on a realistic footing. The Bretton Woods Conference in 1944 was supposed to give birth to three international organizations: International Monetary Fund (IMF), International Bank for Reconstruction and Development (IBRD—popularly known as the World Bank)—and International Trade Organization (ITO). The IMF and The World Bank started functioning as planned but ITO did not come into effect due to disagreements between USA and Britain. In total 23 countries agreed on a proposal by USA in Geneva in 1946 where member countries decided to reduce tariffs and taxes on specific items through mutual discussion. This agreement is known as the “General Agreement on Tariffs and Trade” (GATT). GATT came into effect from January 1, 1948. Member countries met in Geneva and other places to accomplish bilateral and multilateral agreements on terms of trade. The basic objective of GATT was to reduce trade barriers among nations and to establish a framework for fair international trade. As per Final Act of the Uruguay Round (UR)

signed by 124 governments and the European Community at Marrakesh in April 1995, the World Trade Organization (WTO) was set up to ensure a rule-based trading system. The WTO, which formally came into being on January 1, 1995, subsumed the GATT. As of 1998 there were 126 members (INSIDIN, Bangladesh 1998).

An overview of Readymade Garment Industry of Bangladesh

Readymade garment is a success story for Bangladesh. The industry started in the late 1970s, expanded heavily in the 1980s and boomed in the 1990s. The quick expansion of the industry was possible because of the following unique nature of the industry.

- ➔ The technology is less complicated (easy to transfer),
- ➔ Machineries are cheap and easy to operate (sewing machines),
- ➔ A large female labor force that is easy to train is readily available.

Besides the low cost of labor, one of the major factors behind the success of RMG is the availability of offshore financing for world-priced inputs through back-to-back letter of credit (L/C) under the special bonded warehouse scheme. Presence of foreign buyers is also a major factor that introduces the system of international subcontracting. Foreign buying houses not only bring the international market to the doorstep of local entrepreneurs, they also ensure the availability of essential inputs such as imported fabrics and accessories for the industry. They also did the greatest favor for the RMG industry of Bangladesh by bringing the latest designs and by monitoring output quality. These measures especially enabled inexperienced garments entrepreneurs to establish a strong foothold during the 1980s.

Nature of the industry

The RMG industry is characterized by international subcontracting mainly for cutting and making. Foreigners directly run most of the buying houses and, hence, local middlemen have little access to valuable market information that is indispensable for competing in a free market. As a result, being in the business for more than two decades, Bangladesh has not been successful in establishing any brand names in the world apparel market.

It is also surprising to note that, although Bangladesh is a major exporter of RMG, it has shown little success in developing its textile sub-sector. Despite the expansion in RMG, domestic fabrics have not been able to meet the garment industry's rapidly growing demand, as a result of which Bangladesh imports 2-3 billion yards of fabrics annually to meet its exporting requirements (World Bank 1999). During 1991-99 period import of fabric under back-to-back LC averaged 57.81 percent of total exports (Bhattacharya and Rahman 2000).

Growth and Structure of the industry

Until the early 1980s, India and Sri Lanka were the major South Asian suppliers of RMG to USA and Western Europe. After the onset of political problems in Sri Lanka and a consistent anti-export environment in India, Western buyers and Eastern producers became interested in trying their luck in Bangladesh, which was able to respond quickly (Spinanger 2000). The industry demonstrated spectacular growth since the 1980s. In 1983 only 21 units were registered with the Bangladesh Garment Manufacturers and Exporters Association (BGMEA), which generated sales of only about US\$10 million. The volume of export was exciting throughout the 1990s and was \$1,201 million in 1992-93, \$2,608 million in 1995-96 and \$4,149 million in 1998-99 (Source of data: compiled from Export Promotion Bureau). In FY 1997-98, the share of RMG in total exports earnings was 73 percent (World Bank 1999). Bangladeshis own more than 95 percent of the garment factories.

The industry directly employs 1.5 million people (majority of whom are female) and it is estimated that another 10-15 million benefit indirectly. There are 15 companies/groups, which are the major holders of quotas and are capable of producing in excess of 10,000 doz. of garment per month with fabric outsourcing capabilities. Around 500 companies producing between 5,000 to 10,000 doz. per month work mainly for importers and agents and produce about half their work on Cost of Manufacture (CM) basis and half on FOB basis. Some 1500 units, producing up to 5,000 dozen per month, work mainly on sub-contracting basis. The remaining 200 companies are classified as sick usually as a result of financial problems (Spinanger 2000).

Role of preferential treatment under MFA and GSP

Multi-fibre Agreement (MFA) and Generalized System of Preference (GSP1) mostly facilitated the rapid growth and expansion of the industry. Bangladeshi entrepreneurs took advantage of MFA

and GSP facilities to successfully enter into the US, Canada and EU market. The World Bank Country Study shows that during 1980s, US importers actively pursued imports from Bangladesh (World Bank 1995). While quota restrictions on giant competitors provided a guaranteed market for Bangladeshi garments in USA and Canada, preferential treatment under GSP allowed Bangladeshi apparels a zero-tariff access to markets of the European Community. Quota and GSP, therefore, played a significant role in rapid growth and development of RMG industry in Bangladesh.

Major markets

The exports of Bangladesh are highly concentrated in two major markets: EU and USA. In 1998-99, Bangladesh exported 52.4 percent of its RMG to EU. In 1998-99, Germany was the main buyer (14.5%) followed by UK (10%), France (8%), Netherland (5.4%) and Italy (5.3%). During the same year, Bangladesh exported 43.2% of its exports to USA, while to Canada it was only 2.3 percent (Salma 2000). The high concentration in a few markets is risky; consequently Bangladeshi RMG must diversify into different markets.

Major changes in the new environment

Major changes in the trading environment include: Phasing out of MFA, inclusion of China into WTO, US Trade and Development Act 2000, and inclusion of some social clauses into the WTO Charter.

The phasing out of MFA

The phasing out of MFA will occur in four stages. The UR agreement envisages the phase-out of MFA over the period of ten years from January 1, 1995 and a quota free world will begin from January 1, 2005. Note, however, that the integration system is back loaded: most of the items of interest to Bangladesh will be integrated only in the last stage of MFA phase out, on January 1, 2005.

With the phasing out of MFA over the long term, there could be an import surge into all these (western) markets from the most efficient producers, at the cost of less efficient ones (World Bank 1995). The report opines that the eventual abolition of quota, and price and exchange rate considerations, could divert foreign buyers to more traditional sources such as Hong Kong and Korea, or to potentially cheaper sources such as Vietnam, Nepal and perhaps Laos and Cambodia.

Imminent inclusion of China into WTO²

The high likelihood of China's inclusion into WTO is a special concern particularly for Bangladesh, because China is a major competitor in the global market in most of the important categories where the Revealed Comparative Advantage (RCA) of Bangladesh is greater than one (Bhattacharya & Rahman 2000).

Evidence shows that when Sweden eliminated all quotas on Textile and Cotton (T&C) products in 1991, a massive shift took place towards China, whereas countries in Southeast Asia and South Asia hardly profited. As also revealed a few years ago, when Canada unilaterally removed quotas on shirts and blouses, there was again a massive shift towards China and particularly a large shift away from Bangladesh. While the value of imports from the four non-OECD suppliers in 1996 (i.e. India, Hong Kong, South Korea and Bangladesh) had decreased by 25% through 1998, the value of imports from China had increased by 140% (Spinanger 2000). The general apprehension is that Bangladeshi RMG will face a serious shock if the same thing happens again.

US Trade and Development Act 2000 (USTDA 2000)

Recently a number of non-ATC related important developments have taken place in the global T&C trading regime. One of those is the US Trade and Development Act 2000 (USTDA 2000) providing concession to the Caribbean and Sub-Saharan countries. This has important implications for RMG of Bangladesh.

The USTDA 2000 was announced in January 2000 to be effective from October 2000. The Act provides preferential trade accesses, especially for the textile and apparel sector, to the countries of Sub Saharan Africa (SSA) and the Caribbean Basin (CBI). The TDA 2000 provides duty free and quota free access to 72 countries of SSA and CBI, of which 48 countries are from Africa and 24 countries from Caribbean Basin, for exports of textile and apparel products to the US market (Bhattacharya & Rahman 2000). These initiatives include 33 of the 48 countries belonging to LDCs. Since Bangladesh is a major player in the US market (with 1.7 billion exports in 1999), the effect of TDA 2000 might be devastating.

Inclusion of social clauses into WTO Charter

The inclusion of social clauses into WTO Charter might also have an adverse impact on RMG sector of Bangladesh. Proponents of this clause (mainly USA

and France) claim that restrictions should be placed on imports of products originating from countries not complying with a specific set of minimum labor standard, environment, and employment rules. This minimum standard "typically includes freedom of association, collective bargaining, prohibition of forced labor, elimination of exploitative child labor and non-discrimination" (Krueger 1996). According to Ruggiero it is becoming clear that the issues of labor standards, environment, and employment "will be the big three issues, as will the integration of developing countries into the trading system" (International Herald Tribune 29 July 1996, 11: cited in Srinivasan 1996). Compliance with these social issues may erode the country's low-cost advantage and non-compliance might spell ruin.

SWOT Analysis

The new environment represents a serious threat to Bangladesh. On the one hand, it is opening a vast market with unlimited export potentials; on the other hand, it signals fierce competition from textile giants like China, India and, from efficient producers like Thailand, Sri Lanka and Vietnam. Competition may also come from Sub Saharan Africa and the Caribbean countries due to preferential treatment from USA through TDA 2000. Different regional agreements like NAFTA also appear to be unfavorable for the RMG sector of Bangladesh.

Given the changed scenario described above, the following sections focus on SWOT (strengths & weaknesses and opportunities & threats) analysis of the RMG industry of Bangladesh.

Strengths

One of the strengths behind the success of RMG of Bangladesh is the availability of low cost labor compared to other countries in the region. The labor rates in textile industry (compiled by Warner International) show that the average hourly wage rates for Bangladesh, India, Pakistan and Sri Lanka were respectively US\$ 0.23, \$0.56, \$0.49 and \$0.39 (Bhattacharya 1999a). Being in the manufacturing of RMG for two decades, Bangladesh now possesses a large pool of skilled & semiskilled manpower. Moreover, there are many unemployed young men and women who can easily be converted into a skilled workforce if needed.

Given the fairly long learning curve in this industry, extensive experience in dealing with foreign buyers, offshore bankers, shippers, and Clearing and

Forwarding (C&F) agents is a valuable asset for the exporters of Bangladesh.

Weaknesses

Dependence on others for raw materials, low productivity, limited knowledge in international marketing information, poor infrastructure, political instability, disruptive trade unionism, inefficiency in port management, and excessive dependence on RMG sub-sector are the major weaknesses of the industry.

The industry is heavily dependent on others for outsourcing of raw materials such as clothing and accessories. Bangladesh is currently importing raw materials (gray fabrics) for its RMG factories from countries like India, China and Thailand under back-to-back L/Cs. In a quota free environment, these countries will obviously try to export finished apparels to North American markets rather than sell fabrics to countries like Bangladesh (Bhattacharya 1999b). With equal access to the world market, these direct competitors will either stop selling materials to their competitors like Bangladesh (a strategic move) or charge higher prices for their materials (because of increased internal demand). In either case, Bangladesh will face difficulty in procuring the required raw materials at reasonable prices.

Another major shortcoming of the apparel sector is the low productivity of its workers. The laborer productivity of Bangladesh is much lower than that of Sri Lanka, South Korea and Hong Kong (Reza, Rashid and Rahman 1998). Low productivity might erode the advantage of low cost of labor of Bangladesh.

Exporters of Bangladesh also have limited access to current market intelligence and international trade information (World Bank 1999) because, so far, foreign buying houses have been dominating the marketing part of the business. In a post MFA era, if these buying houses shift their bases to other countries, Bangladeshi exporters may face serious problems in finding their ultimate buyers.

At present problems in port management is a serious challenge to RMG industry of Bangladesh. The Chittagong Port is the most important entry and exit point for trade and commerce of the country. Almost 90 percent of the exports and 75 percent of the imports of Bangladesh are accomplished through the Chittagong Port (Huq 2000). Therefore, it is considered as the country's economic lifeline.

The Chittagong Port is one of the most inefficient and corrupt ports in the world. A World Bank (1999) study estimated that handling charges for a 20-foot container were \$640 in Chittagong compared with \$220 in Colombo and \$360 in Bangkok. The study added, inefficiency at Chittagong port could be costing the economy as much as \$600 million annually. Besides this, there are numerous demands for "under-the-table" payments that are reportedly required at every step of export processing, from opening of letters of credit to the clearance of goods from Customs. According to a survey (CPD 1997), the hidden costs paid by importers per consignment ranged from Tk.4,700 to Tk.36,800 (about US\$100 to \$735). These inefficiencies and corruption seriously hamper the competitiveness of Bangladeshi garment in the world market.

Besides numerous procedural, physical and/or infrastructure related bottlenecks, some sociopolitical consequences have added fuel to the chronic go-slow and congestion problem at the port. Some of these problems are³:

- ➔ Frequent work stoppage by different service providers, dock laborers, transport workers etc. (The Port remained closed for 702 hours since 1999 to mid 2000).
- ➔ Excessive dock labor unionism (there are about 30 different agencies/groups including 22 workers unions).
- ➔ Politicization of Collective Bargaining Agents (CBA).
- ➔ Direct involvement of powerful local politicians, elite and musclemen
- ➔ Illegal gratification practices (it has been a common phenomenon since long).

These vested interest groups are so powerful that they were able to stop the Government's attempts to construct a private container terminal near the Chittagong Port and another at Patenga which were supposed to be funded by the Asian Development Bank. This and many similar activities of different groups are undoubtedly unlawful but it seems that nobody has the ability to stop it. For undue delays due to these sociopolitical factors, several times had the Singapore based CFTC imposed "Congestion Surcharge". In a recent message (July 2000) to concerned ministries, K-mart Far East Ltd. has expressed deep concern over the deterioration of the management of Chittagong Port. The fax message says:

Kmart can no longer sit on the sidelines without making our

concerns known to the Bangladesh government. Kmart can not afford to lose even one day of selling time due to inefficiencies and strikes at the Chittagong Port. Kmart cannot and will not accept a 5% reduction of shelf life due to outside issues such as inefficient port facilities and operations. ... Kmart will be watching very closely how the Bangladesh government reacts to recent events (strikes), and how much investment is made into upgrading the Port of Chittagong into a world class port. Without positive response and actions (not words) from Bangladesh government, Kmart merchants will be forced to reduce our investment in the Bangladesh garment industry and place future business in India, Central America, Africa, etc. (Fax message on 21 July 2000 at 15:19).

The message clearly shows the severity of the problem and the reactions of valued customers. Poor infrastructure, frequent power failures, unfair dealings in government offices and political instability with frequent and unscheduled *hartals* (strikes) are additional problems. The potential danger is that if we fail to take immediate corrective action against these practices, Chittagong Port might be declared as an exclusion zone by international shipping concerns.

Opportunities

The greatest opportunities lie on the unlimited market outside Bangladesh. In a quota free world, the United Nations Commission for Trade and Development (UNCTAD 1986) estimated that removal of the MFA and tariffs by developed countries will expand exports of clothing by 135 percent and textile by 78 percent. Trela and Whalley (1990), using a global general equilibrium model, estimated that the change will be much larger: the value of imports of textiles and clothing will rise by 305 percent in the US, 200 percent in Canada, and 190 percent in EU. This indicates that phasing out of quota will expand the market tremendously. Asia by far is the largest player in the world textile and clothing market and, industry experts are confident that, overall, Asia still will dominate (Arvind et. al. 1996).

Although Bangladesh lags behind in the textile sub-sector, it is very likely that the sector will get a boost through forward integration with RMG.

In the knitting sector, Bangladesh gained substantial competitive advantage over her competitors. According to the Bangladesh Knitwear Management and Exporters Association (BKMEA), the cost of yarn production per kg. in the private sector of Bangladesh is only US\$1.48, whereas in India it is \$1.78, in Pakistan \$1.60, in Japan \$2.38, in Korea \$1.73 and in Thailand \$2.78 (IFC 1998 cited in Bhattacharya 1999). Therefore, knit-RMG has a good prospect for Bangladesh in post MFA period.

The apparel sector of Bangladesh mainly exports low-cost products to the international market. But she can move into high value added products through diversification. This is not impossible given her two decades of experience, good relationship with buyers, worldwide reputation, and presence in quality-conscious United States and EU markets. Recently it has already penetrated the difficult but lucrative quality-conscious Japanese market.

Threats

The biggest threat will be the fierce competition from efficient producers like Hong Kong, China, India, Thailand, Sri Lanka, Vietnam and many SSA and Caribbean countries. Threats might come not only from marketing but also from outsourcing. As mentioned earlier, more than 95 percent fabrics are imported from direct competitors. The potential danger after 2005 is that these countries might either stop selling their raw materials to Bangladesh or increase the price of their materials tremendously. Whatever may be the case, Bangladesh will lose some competitive edge in the world market.

Environmental issues, labor standard, Trade Related Aspects of Intellectual Property Rights (TRIPs) etc. might also appear as a deadly threat to developing countries like Bangladesh. In the words of Reza (1996):

Although developing countries are not being singled out for environmental issues, being poorer, they cannot obviously maintain rigorous environmental standards. Moreover, the fact that their competitive advantage often lies in natural resources and pollution-intensive industries implies that they are vulnerable to being pressured to enforce stricter

standards or face less market access for their exports to developed countries.

Other issues like child labor has already proved as a sensitive issue in the western market. Compliance to the Rules of Origin⁴ (ROO) may threaten the future market access and performance of RMG sector of Bangladesh. In the case of woven-RMG, a two-stage, and in the case of knit-RMG, a three-stage transformation (cotton to yarn, yarn to fabrics, fabrics to RMG) process is required for imported yarn from India. Bangladesh exporters also had to pay back exempted duties amounting to about US\$60 million (as per an agreement in October 1997) to EU on the grounds of ROO violation and circumvention (Bhattacharya 1999).

Regionalism is another threat to the industry. The World Bank country study (1995) expresses its concerns that “Over the medium term it is also possible that NAFTA may lead to a displacement of East Asian RMG imports into the U.S. and Canada. To the extent these exports by the more efficient East Asian producers are then diverted to the European Community, they may tend to displace Bangladesh’s RMG exports into Europe”. In the US market another challenge will come from Mexican apparel industry where it has zero tariff access because of NAFTA. Mexico’s share in US clothing imports increased by over 200% in the period 1993-98 (Spinanger 2000). Extension of NAFTA membership to the other Latin American and Caribbean countries may aggravate the situation further (Rahman & Razzaque, 1998; in Bhattacharya 1999).

Summary

At the beginning, the industry was well taken by private entrepreneurs and strongly supported by the policies of the government of Bangladesh. Phenomenal expansion of RMG industry in 1980s and spectacular growth in 1990s were mainly due to preferential treatment from USA and EU under MFA and GSP respectively. However, it was overly dominated by foreign buying houses—particularly in marketing aspects. It is true that foreigners brought indispensable elements like capital, technical know-how, latest designs and, above all, valued clients for the industry, but the system kept local exporters away from the latest market information. Being a player in a protected market condition, the industry felt little urgency in achieving efficiency in production, export processing and marketing of her product. The industry has been suffering from many bottlenecks such as weak infrastructure facilities, unfair dealings

in government offices, inefficiency in port management, and frequent unscheduled *hartals* (strikes) because of prolonged political conflict and bad practices of trade unionism. Amid such a disruptive atmosphere, the only reasonable basis of survival of the import-based export-oriented industry was the availability of low-cost labor in the country.

The conversion of GATT into WTO, phasing out of MFA, high possibility of China’s inclusion into WTO, and US TDA 2000 has brought the RMG industry of Bangladesh at a crossroad, facing the challenges of globalization. The new shape of the market is extending many challenges to the industry. Some of them are: cleaning all internal inefficiencies, managing ports effectively, building backward & forward linkages, diversifying of product lines, searching for new markets and, last but not least, attaining political consensus on keeping the national interest above the interest of party or person.

Recommendations

Given the abrupt changes in the global trading environment and SWOT analysis, Bangladesh should take immediate action to convert her weaknesses into strengths, and threats into opportunities. The major problems can be divided into internal and external issues.

Internal issues

Internal problems are those that are controllable. These include establishing backward linkages, ensuring efficient management of ports, attaining higher productivity, eliminating corruption and attaining political consensus on treating RMG as an emergency industry and keeping it protected from political disturbance.

Building backward linkages

The problem of outsourcing of fabric should be of central concern. Bangladesh still imports 2-3 billion yards of fabric annually to meet her export requirements (World Bank 1999). According to a study by the Ministry of Textiles, the establishment of adequate backward linkage will need setting up of 135 spinning mills, 360 weaving mills, 327 dyeing and finishing mills, 1000 knitting units and 0.2 million new handlooms. This would require an investment of \$ 1.8 billion. The World Bank (1999), however, estimates this amount to be \$3 billion. It is clear that this market is lucrative due to its size and guaranteed sales if internationally acceptable production is possible.

However, the investment is either too large or too risky for a single private entrepreneur to establish a modern textile mill. Therefore, a suitable option lies in going for joint ventures with multinational companies, which will bring not only necessary finances but also the latest technological know-how for the industry. The Government should create a congenial atmosphere and take positive steps to encourage (foreign and local) private entrepreneurs and provide necessary infrastructure facilities for setting up of modern textile mills. Attracting such investments in export processing zones (EPZ) is a reasonable option.

A comprehensive strategic plan is essential for the survival of the RMG industry of Bangladesh in the new millennium. Half hearted attempts merely to raise money through the issuance of industrial bonds are not enough. Rather, as Enayet Rasul states (1999):

The urgency dictates that government and its partners in the private sector should be drawing up a plan of action in detail, from end to end, showing clearly the total amount of resources needed for backward linkages industries, the exact ways of raising the same and the sharing of liabilities.

As establishing a completely new textile mill is costly, risky and time consuming, existing state-owned textile mills can be used as a starting point. In such a case, management should be transferred to a private limited company created for this purpose and led by BGMEA. Shares and bonds should be sold to existing RMG owners on a competitive or pro-rata basis. A brief description of this idea is presented in Appendix A.

Note, however, that backward linkage activities are gaining momentum and receiving substantial fiscal and monetary support from the government. Two such supports are duty free import of capital goods and Cash Compensation Scheme (CCS)⁵. At present 60-70 percent of the inputs for knit-RMG is coming from local sources whereas the share of local fabric for woven-RMG is only 12-15 percent (Bhattacharya and Rahman 2000).

Attaining higher productivity

Development of backward linkages alone cannot ensure the survival of the RMG industry unless the cost of production is kept lower than that of

competitors. Only low-cost labor will no longer be sufficient to maintain the status quo because textile giants (like China and India) and low cost producers (like Vietnam, Nepal, Laos, Cambodia etc.) may bypass Bangladesh any time. Through preferential support from US TDA 2000, SSA and CBI countries may also capture the major market share of Bangladesh. Furthermore, continuous innovation in textile technology may bring down the intensity of labor content and reduce the cost of production significantly. Continuous efforts should, therefore, be exerted to reduce the cost of doing business by increasing productivity.

To enhance the productivity of labor, intensive training is essential. Surprisingly there is hardly, if any, such training center for garment workers in Bangladesh. The capacity of the recently established 'BGMEA Institute of Fashion and Technology' (BIFT⁶) is extremely limited and it is aimed at producing only technicians like engineers and fashion designers to replace high-paid foreign experts in the industry. Bangladesh government should take similar steps, in cooperation with BGMEA, to establish training institutes / centers for RMG workers, inspectors, supervisors and others. Existing higher educational institutions / universities should be encouraged to introduce courses related to operations management and international marketing of garments. Offerings of scholarships and paid internship programs in RMG factories may attract brighter students to this field of study. Job guarantee for excellent students may also be helpful. The society in general also perceives that working in a garment factory is demeaning. As a result, the majority of the workers come from slum dwellers with little or no education. This is one of the reasons of low productivity. Better working conditions with reasonable pay may improve the situation to attract mid to upper-mid level well-educated citizens of the society, which may help improve the productivity of labor significantly.

Ensuring efficient management of ports

A recent study entitled "Chittagong Port: Problems and Solutions" by the American Chamber of Commerce in Bangladesh (Cookson and Ahmed 2000) detected many problems and prescribed very realistic and agreeable solutions (in abridged form) as follows:

1. Operate the port for 24 hours a day, 7 days a week to reduce the turn around time for container vessels
2. Stop all toll collections that takes place at the entry and as well as within the port.

- These tolls cause delay and increase costs.
3. Enforce the labor laws that limit the number of CBAs allowed in an organization to three.
 4. Encourage the establishment of more off dock container freight stations (cfs) (both for exported and imported containers) and permit private sector to take over some of the functions of handling containers. This will reduce the space pressure on the port and minimize delays in handling raw materials.
 5. Simplify the administration of vessels entering the port and reduce the number of forms to be completed -- from 40 (now) to 7 (as in most ports).
 6. Activate the proposed Asian Development Bank loan project and modernize Chittagong Port. The approach of the loan is to allow privatization of some port operations.
 7. Revise the antiquated Shipping Act, procure more equipment, and construct the proposed new container port.

The physical facilities can be extended, infrastructure bottlenecks removed, and procedural complexity further reduced. In case of Chittagong Port, however, these are outcomes rather than causes of inefficiencies. For example, many attempts at modernization, privatization, and expansion have been resisted illegally. Devastating *hartals* (strikes) are rarely called for the interest of laborers, the Port or for the interest of the nation. More often than not, it is called to protect some vested interest—at enormous cost to the nation. It is unfortunate to note that labor unions, musclemen and other interest groups have become powerful (even more than the corrupt authority) because politics intrudes shamelessly almost everywhere.

The root of the problem, therefore, lies in understanding and recognizing the importance of RMG to the economy, the urgency of an efficient port for it and the severity of socioeconomic consequences in absence of this sector.

Before attempting to solve the port problems, reaching consensus among all stakeholders, most importantly including politicians, to solve the problem at any cost is very important. The next step should be to declare the port as essential service--banning all kinds of strikes within it. Special export processing zones have been set up to ensure smooth functioning of factories for export processing. Given

that more than 90 percent of such items are exported through Chittagong Port, it is not understandable why Chittagong Port area is not declared as a special Export Processing Zone. As Cookson and Ahmed (2000) commented, “These can be resolved only (through) a process of discussion and arbitration so that all recognize that the best they can do for themselves or their group is work to make the port efficient.”

External issues

External issues are those over which Bangladesh has no direct control to solve. At best she can influence these through her policies, activities, and bilateral or multilateral negotiations. These issues include: intense competition from low-cost sources, frequent policy changes of importing countries, introduction of new policies giving preferential treatment to competitors (e.g. TDA 2000), imposition of non-tariff barriers on Bangladeshi garments (anti-dumping duties⁷ imposed on Bangladeshi Shop Towels since 1991), and so on and so forth.

Aggressive marketing

Guaranteed markets dominated by foreign buying houses kept RMG exporters from getting valuable market information. Therefore, the industry as a whole did not feel any urgency to market her products because the buyers themselves used to come to the exporters. Now, in a fiercely competitive free market, aggressive marketing should get greater attention. Excessive concentration on a few items is risky and, hence, Bangladesh should diversify into higher value added items. While subcontracting should not be discouraged, a transition to greater control of marketing may be necessary for the industry’s growth in the medium to long term as the quota system disappears (WB 1995, p. 80).

Marketing in an international arena is not only complicated but also costly. Knowledge and money are the two most important factors for a good marketing program. To this end separate brand identity is essential. But introducing new brands and managing them might be too expensive for a single company. In this regard the concept of “*Bangladesh Inc.*” should be accepted and promoted. This means that, instead of promoting individual brands, all concerned should try to promote the label “*Made in Bangladesh*” which will strengthen the image of Bangladeshi apparel in the international market.

Diplomatic missions in foreign countries may play a vital role in this regard. Particularly in countries

where Bangladeshi apparels have a potential market, Bangladesh should assign more staff with relevant experience and education (e.g. MBA). The assigned person(s) should provide market information to concerned parties and engage in direct marketing. All RMG firms (may be through BGMEA) should bear the cost of such personnel and diplomatic missions should provide strategic support.

Establishing forward integration (joint ventures) with foreign buying houses is equally important. Neighboring countries already have such strong backward and forward integration. Offering favorable terms and conditions to existing buying houses may prevent them from leaving the country in post MFA era. Steps should also be taken to attract more foreign investment, at least, in EPZs. Joint ventures with foreign textile companies should also be encouraged.

Compliance with sensitive social issues for gaining good reputation

It is vital to develop a good reputation in the export market. Issues of child labor and environment standard have come to the forefront of policy agenda. The international community is overly sensitive to such issues. These sentiments should be recognized. RMG manufacturers should not forget the threats of the proposed Harkins Bill in the US Senate and the intense pressure by a voluntary organization, *The US Child Labor Coalition*, threatening to campaign against Bangladesh garments (Reza 1996). They also should not repeat such incidences where the Export Promotion Bureau issued thousands of fake GSP certificates which resulted in considerable embarrassment, not to mention the \$67 million refund of previously waived import duties (World Bank 1999). Regulating authorities should not tolerate such malpractice anymore for the sake of long-term reputation and survival of the industry in the international market. On these grounds, it is also important to meet international standards regarding quality (ISO 9000) and the environment (ISO 14000).

Geographic concentration of textile/garment factories should also be reduced in order to maintain the low cost of production and to comply with environmental standards; at the same time, equitable development of other regions of the country must also be ensured. Relocation of garment/textile factories in the untapped northern region of Bangladesh should also get ample attention because the Jamuna Bridge has opened the way to developing new areas. Among other facilities in the northern region, a pollution free

environment and a huge unemployed female workforce are ready to be tapped. Government should take immediate steps to explore the utilization of northern regions.

Conclusion

To sum up, the new trading environment is going to pose serious challenges for the RMG industry in Bangladesh. Time is also of essence (five years have already gone). Unfortunately, Bangladesh has been slow to respond. Given the strengths, weaknesses, opportunities and threats, establishing backward (e.g. in textiles) and forward (e.g. in marketing) integration should get first priority. All inefficiencies and irregularities also have to be removed from production and export processing. Bangladesh should penetrate into new markets, diversify into new items, and relocate into new territories. If these measures are not taken in time, as Spinanger (2000) concludes, "The rapid growth rates that Bangladesh exhibited in world trade will be a thing of the past".

Endnotes

1. Introduced in 1968, the Generalized System of Preference (GSP) exempted nonagricultural imports into industrial countries from duties up to certain levels. (Reza 1996)
2. An AP report from Washington says: US and Chinese officials said Thursday (26 October 2000) they remain hopeful (that) China will enter the World Trade Organization this year (The Daily Star, 28 October 2000, Dhaka). D.G. of WTO, Mike Moore (Wellington, 10 August 2000) commented that China, along with some other countries, should gain membership of WTO by the end of 2000.
3. For details on Port problems, see papers presented by various participants at a Dialogue on "Port Problem: Retarding the Economic Growth of Bangladesh" jointly organized by The Daily Star and BGMEA on 22 July 2000.
4. The GSP scheme was designed by developed countries to encourage trade-related backward linkages in developing countries to encourage trade-related backward linkages in developing countries. Under the scheme, developing countries have to satisfy several criteria before exports can be eligible for unrestricted entry. These include meeting the Rules of Origin (ROO), the purpose of which is to ensure that exports originate from the developing

country in question and, in so doing, prevent trade diversion from third countries (World Bank 1999).

5. Under this scheme, the suppliers of fabrics to the local export oriented RMG units receive a cash incentive equivalent to 25 percent of the value of exported apparels. In FY 1999, cash subsidy was \$102 million to backward linkage industries (Bhattacharya and Rahman 2000).

6. BIFT offers a four-year graduate program, a postgraduate diploma, and some other certificate courses. Established in 1999, it was funded by BGMEA, Ministry of Commerce and the World Bank.

7. Anti-dumping duty, a trade regulating device, is a special extra customs duty imposed on imported goods found to be sold for export at less than domestic price. For detail on anti-dumping duties imposed by USA on Bangladeshi Shop Towels, please see (Bhattacharya and Rahman 2000).

8. In 1996/97, the cost of production of one meter of gray cotton fabric was Tk. 532 (about US\$ 12.46) in the public sector compared with TK 32 (about US\$ 0.75) in the private sector (World Bank 1999).

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Appendix A **A proposal for establishing backward linkages with textile mills**

RMG industry is dominated by the private sector but the textile sub-sector is not. State-owned textile mills are losing concerns, piling up huge losses every year. Past experience shows that the public sector is not only unreliable; it is also inefficient and unable to maintain quality and low cost⁸. Many attempts in the past have failed to privatize the losing state-owned textile mills due to violent protests from trade unions. Instead of selling the mills to the private sector, they can be leased out to private companies / groups in RMG sector to be managed better. BGMEA should act as a lead manager and the management should be given full control of the mills. It will run the mill for its own purposes applying all techniques of modern management. Funds may be collected through issuing shares/bonds mainly to RMG factory owners. The new management will modernize, restructure and reengineer the factory to convert it into a viable project. The potential danger is that there may arise problems from massive lay-off and labor dissatisfaction. I propose that this should not be termed as lay-off. Rather the private management will use whatever labor they need and the government should pay full salary to unused laborers for the time being (At present the government is doing so anyway, spending). Given the huge internal demand, it is expected that subsequent expansion of the operations will absorb the remaining labor force into the system.

This is just an idea and could be implemented in one or two mills first. Well thought-out strategic planning is required to make the idea workable.

EQUITABLE SHARING OF INTERNATIONAL RIVERS: A PROPOSAL FOR OPTIMAL UTILIZATION OF THE TEESTA RIVER

M. Fakrul Islam
Yoshiro Higano

ABSTRACT

Sharing water of international rivers is of great concern among the people living in the basin areas. The international river with which we are concerned in this paper is the Teesta River. It has its upstream in India and downstream in Bangladesh. The Teesta Barrage Project at Dalia point in Bangladesh started its operation in 1993 for the purpose of irrigation. Three years after the beginning of the operation of the Dalia Barrage, India began to withdraw most of the water during the dry season and release excessive water during the rainy season through a barrage built at the upstream. The efforts to increase crop production by the Teesta Barrage at Dalia Point went in vain after the operation of the barrage in India. This paper focuses on an analytical framework specified by objective data in order to propose an optimal cooperative solution to the controversy regarding sharing of Teesta water, which would be beneficial to both India and Bangladesh.

Introduction

Bangladesh is a very small country in South Asia with an area of 144,000 square km. (BBS 1998). The country shares most of its borders with India and is crisscrossed with over 200 rivers (Rahman et al. 1994). Two or more countries share more than 57 of these river basins. There are many rivers in Bangladesh which have their upstream in India. Among them, the Ganges and the Teesta are the most important.

The idea of using the Teesta River for irrigation came about during the British period in 1935 (BWDB 1994). Most of the area found suitable for gravity irrigation falls in the territory of Bangladesh. Due to the partition of India (1947), implementation of the project was delayed.¹ Afterwards, India and East Pakistan (the name of the Bangladesh territory before independence) started to formulate the project on their own.

For the Bangladesh territory, the preliminary feasibility report of the project was prepared in 1960 by M/s. Haigh Zinn and Associates in collaboration with A.C.E Ltd. (Pakistan) and Ms. Binne and Partners Ltd. prepared the second one during 1968-70 (BWDB, 1994). After the independence of Bangladesh, the Government promoted the project, and the barrage was completed successfully in August 1990. Irrigation began in January 1993 and during that year an area of about 65000 bighas (16000 acres) was brought under High Yielding Variety (HYV) paddy cultivation in the dry season. The project also had the aim of flood control and drainage for a target area of 750,000 hectares, of which 540,000 hectares were irrigable. The project covered seven districts of northern-Bangladesh. In the meantime, India constructed a Barrage at

Gazoldoba over the Teesta, which is located 65 km upstream of the Dalia Barrage² (Bangladesh) site.

In the rainy season India releases excessive water through the Gazoldoba barrage causing floods in the Bangladesh area. In the dry season, on the other hand, India withdraws water from the Teesta River for her own use. The Bangladesh area of this basin has become dry due to this upstream diversion and the socio-economic and environmental problems of the area are becoming more serious each day.

In this paper, we discuss the mean monthly water flow in the dry season and the rainy season before and after the operation of the Gazoldoba barrage. The relationship between the flow of water in the Teesta River (Bangladesh area) and amount of crop production has also been addressed. Most importantly, we propose an optimal cooperative solution to the problem of water sharing of the Teesta River that would be beneficial for both Bangladesh and India. We also mention some examples of peaceful water sharing between states and sharing of common river basins and propose solutions to the problem.

Review of Literature

There has been little or no research conducted specifically on the optimal sharing and use of the Teesta River basin area. However, findings of relevant studies are presented below.

Hanif (1995) states that variegated geomorphic processes and forms, bank erosion, and historical course shifting patterns, floods, droughts, siltation and landforms mark the Teesta River and its adjoining

catchment areas. He provides details about hydro-geomorphic characteristics like water discharge, course shifting pattern, water level, duration of floods, sediment characteristics and ground water conditions of the Teesta flood plain. His thesis was completed before the operation of the Gozaldoba barrage. Therefore, issues relating to water sharing were not discussed.

Abbas (1984) has written a brief history of the talks between India and Bangladesh on the establishment of barrages and sharing of the Teesta water (1955-83). During the 1950s, the then East Pakistani authorities intimated the Indian authorities regarding the Teesta Project. India at that time asked for more detailed data. During the 1960s, India informed Pakistan about its plans regarding the Teesta water and protested against Pakistan's plans to build a barrage, assuming negative effects (inundation's etc.) in her territory. However, Pakistan replied that it was possible for India to use other rivers to irrigate the proposed command area.

After the independence of Bangladesh in 1971, talks on the Teesta water sharing continued in the Indo-Bangladesh Joint River Commission. Bangladesh objected to India's designs to divert the water of the Teesta to the Mahanada basin area. The talks continued without any result until 1983, when the two parties reached an adhoc allocation agreement according to which India was to get 39 percent, Bangladesh 36 percent and the remaining 25 percent was to be reserved for reallocation later, after further study. Abbas argued that as the irrigation command area is overwhelmingly within the Bangladesh territory, it should get the lion's share of the water. Moreover, the location of the apportionment had not been specified, which was very important from Bangladesh's point of view in getting the due amount of water.

Schachter (1977) discusses the equitable apportionment of freshwater resources to some extent and emphasizes the concept of the 'drainage basin', which implies integral development, giving a high priority to maximization of benefits for the basin as whole, by reducing wasteful uses and developing a comprehensive and unified scheme to be followed by all those who are concerned. He also cited some points on the equitable use of world's water resources from the report of the Fifty-second Conference (1966) of the International Law Association held in Helsinki. These are quite important for the issues raised in this paper. The points are:

- (1) Water utilization of the river basin at present and in the past has to be considered;
- (2) The extent to which the population of each basin

state is dependent on the river water has to be taken into account;

- (3) Research on the comparative costs of alternative means to meet the economic and social needs of the people of the basin states should be carried out;
- (4) Care must be taken to avoid unnecessary wastage when utilizing river water;
- (5) Availability of other resources has to be considered;
- (6) The extent to which compensating one or more of the co-basin states for adjusting conflicting uses is practicable has to be evaluated;
- (7) The extent to which the necessities of a riparian state can be met without causing substantial harm to a co-basin state has to be taken into consideration (Schachter 1977).

Smith (1931) presents several cases of controversies related to using rivers (for economic purposes), which run through more than one state. The cases include the Meuse and its canals, the Zwillikon dam case, the Rio Grande irrigation problem, apportionment of the Nile and ten others. He draws some general principles by saying "In the law of rivers there is no place for any purely legal doctrine derived from any single abstract principle, whether that principle be the absolute supremacy of the territorial sovereign or the old private law doctrine of riparian rights", (p.144). Smith called upon all to realize that every system of river forms an indivisible physical unit and to do whatever needs to be done (e.g. agreements) to determine and ensure the maximum possible development of river resources and their equitable distribution between the people concerned (p.71).

Giannias and Lekakis (1996) analyze various aspects of a policy model explaining that in the case of surface water resources, which are gradually becoming scarcer, sustainable utilization implies the need for policies aiming at providing adequate water supplies for everyone in both national and international contexts. They argue that many international river basins are shared without any formal intergovernmental agreement, while bilateral agreements guaranteeing amicable cooperation amount to a handful. They present a simple economic-ecological model within which they examine input-output controls, social input prices, bilateral water trade, a water market for all water users, and a fixed water allocation agreement as possible water policies for cross-border river water sharing. They also strongly argued that, all of these

policies could satisfy the conditions for maximum joint economic benefits, while working towards maintaining the functional integrity of river ecosystems. Their analyses indicate that bilateral water trade can prove a workable, efficient and sustainable water policy for a transboundary water allocation of an international river.

Two Barrages on the Teesta: Dalia and Gazoldoba

The Dalia Barrage is the largest irrigation project of Bangladesh. It stands across the Teesta River at Doani-Dalia point in the Lalmonirhat district of Bangladesh. Although the project was started in 1960, its actual implementation began in 1979. The building of the canal system started in 1984-85. The barrage was completed successfully in August 1990 and its operation commenced in 1993.

The Dalia Barrage is a concrete structure, 615 meters long, fitted with 44 radial gates having a discharge capacity of 12,750 cusecs of water. The barrage diverts water through a canal head regulator (110 meter long) with a discharge capacity of 280 cusecs. There is a 4,500-km long network system of canals for supply of irrigation water to the fields. It is a gravity irrigation project and there is an automatic flow of water at all stages through the barrage regulation; no pumping cost is involved.

The Gazoldoba Barrage stands across the same Teesta River in the Jalpaiguri district of India. After independence, when the Bangladesh Government gave serious thought to undertaking the Dalia project, India began to construct a barrage at Gazoldoba, which began to be used for irrigation in 1993. The Gazoldoba barrage started to withdraw water excessively in the dry season in 1996, when the Dalia barrage (Bangladesh) was in full operation for irrigation. Consequently, according to the Bangladesh Water Development Board (BWDB), the water flow of the Teesta River decreased significantly, threatening the situation in Bangladesh. Exclusive control of Teesta's water in the dry season at Gazoldoba makes the Dalia Barrage useless and furthermore, sudden release of excessive water through the Gazoldoba Barrage (India) in the rainy season causes floods and bank erosion, and leads to serious sufferings by the people in the Bangladesh basin. We can see the water situation of Teesta River in the following Figure 1.³ (please see appendix).

Figure 1 clearly shows that the minimum flow at the Dalia point in the dry season has drastically decreased after Gozaldoba barrage began its operation, while the maximum has been maintained in the rainy season. According to the figure, we can see that the present

situation of water flow at Dalia point is very severe, especially during the dry season and the barrage is essentially useless with the Teesta River remaining dry. This affects the people of Bangladesh adversely and makes the environmental situation worse.

The Potential for Increased Agricultural Production after the Dalia Barrage Project in Bangladesh

Northern Bangladesh is a plain and 90% of its population relies on some form of agricultural production. Due to lack of water, they cannot cultivate the land in the dry season. Every year they face drought and lose a high proportion of crops that increases levels of poverty. The successful implementation of the Teesta Barrage (Dalia) Project was a dream come true for the poverty-stricken people who should have had been able to hope for a better future. The trend of increasing crop production can be shown as in Table 1. (Please see appendix).

Table-1 calculates the marginal productivity of the targeted land area in Bangladesh in terms of various agricultural products. The above trend of crop production has been calculated as $\frac{\Delta Q_1}{\Delta L_1}$ = The rate of

change of production by using additional land in period-1; $\frac{\Delta Q_2}{\Delta L_2}$ = rate of change in production by using

additional land in period-2 which estimates the marginal productivity of the land in terms of various agricultural products and these values are calculated in the last column in terms of US dollars. The result shows an increasing trend in crop production using additional land and its monetary value increased approximately upto US\$ 27 million in the period -2. This trend is observed when only 22% of the total target area was brought under cultivation. If the total target area of 750,000 hectares could be cultivated, then the average dollar value would increase upto more than US\$ 230 million per year.

Preliminary Estimation of Marginal Productivity of Land of the Dalia Barrage Water Users

Table 2 shows the marginal productivity of various agricultural products in terms of US\$ at various usage levels of water resources in cusecs of water based on a recalculation of Table-1, (please see appendix) which focuses on data of the Bangladesh barrage site. This is shown in figure 2 (please see appendix).

In Figure 2 we find that when water is available at the 15,000 cusecs level, crops worth US\$44 million can be produced and at the level of 14,800 cusecs, crops valued at US\$41 million can be produced. The 13,800

cusecs level can produce US\$23 million worth of crops and at 8,000 cusecs level, only US\$20 million worth of crops can be produced. If the barrage flow is less than 8,000 cusecs, the system cannot operate. Using the data of the figure we can estimate the value of total production in the Dalia target area.

However, Figure 3 shows (please see appendix) that at the initial stage of the usage of water resources, the marginal productivity was increasing and unstable. The possible reason could be that the use of barrage water for irrigation was still at the initial stage and at a certain point, the marginal productivity is likely to be saturated and thus slow down.

From a typical marginal productivity curve, we choose four probable cases and try to observe the situations, which would bring optimal results Figure 4 (please see appendix) shows that in cases 1 and 4 marginal productivity of one country dominates over the other country, and these cases are the least implementable. Cases 2 & 3 are “the cases” for possible sharing.

The horizontal axis shows the amount of water and the left and right vertical axes respectively show measurement of total production B and marginal production b in Bangladesh, and the measurement of total production \bar{B} and marginal production \bar{b} in India.

Figure 4 shows that, for case 1 in which the marginal productivity of Bangladesh dominates that of India with any amount of sharing of water, sharing is not possible. Under this circumstance Bangladesh would take the total amount of water and India will get none. On the other hand, in case 4 sharing is not possible either. In this situation, India would take the total amount and Bangladesh will get none. These two cases are almost impossible as they are far from the optimal points. Hence 2 and 3 are “the cases”. In case 2 Bangladesh gets a slightly larger amount of water than India, and in case 3 India gets a slightly larger amount of water than Bangladesh. But, considering the productivity of land and the number of affected people in the two countries, increasing the share of water at Dalia barrage is more rational, and we consider case 2 as the realistic or “true” situation.

An Optimal Water Sharing Approach to the Teesta River

We propose an optimal solution to the problem of sharing of Teesta water especially during the dry season between India and Bangladesh. During the first phase of implementation of the Teesta barrage (Dalia),

using irrigation water, an increasing trend in productivity of land was observed. However, since the commencement of the Gazoldoba barrage at the upstream, the Dalia barrage project, due to shortage of water, stopped operating for irrigation. Through estimation, we have shown a possible optimal sharing of the Teesta water considering the number of affected people and productivity of land of both India and Bangladesh. This sharing can be shown in Figure 5 (please see appendix).

The total land (target area) under the Dalia barrage is 750,000 Ha. and requires at least 40% of the total water flow in the dry season to remain active. The maximum amount of land (30% of the total target area) was cultivated in the year 1996 which produced crops worth US\$ 48.86 million. The sum of the total crop production during the last four years was valued at US\$ 136 million. The total production has drastically decreased in the last two years (1998-1999).

The ratio of the Teesta River water shared in the dry season (1998) between India and Bangladesh is exactly 85% (32,700) and 15% (4,900 cusecs) respectively, which has rendered the barrage useless. This can be shown in Figure 6⁴ (please see appendix).

Figure 6 displays an example of an optimal sharing strategy. The horizontal axis σI symbolizes the share of Bangladesh. So, $1 - \sigma$, (measured to the left from the point 1) is that of India in the context of the Teesta River basin? The left and right vertical axes measure the marginal productivity of water resources in Bangladesh and India respectively.

If the share is fixed due to some reason at the level of σI which is far less than the optimal share σ^* , there exists a social loss of triangle area ABC (the difference between the lost value of crops in Bangladesh due to the lack of water and the value of crops in India which can be produced in India by using more water than the optimal sharing) and σI is not optimal from a cooperative point of view of both countries. If the share increases from 15% to 40% then an increase equivalent to the value of triangle area can be made possible. Economically, optimal sharing of a fixed amount of resource can be shown at the crossing point of the marginal productivity curves of both parties provided that both the curves are decreasing.

Peaceful Water Sharing of Other International Rivers: Some Examples

During the late 19th century, the Harmone Doctrine was an influential doctrine. According to it, a state has

the absolute right to use the water of the rivers flowing through its territory as it wishes, without considering its effects on other states. However, this doctrine has never been followed. Rather, there are various examples of peaceful water sharing between two or more riparian states through which a river flows. Below, we point out several such treaties.

In 1909 the Boundary Water Treaty between the US and Canada was established.⁵ Article 2 of the treaty reserved for each side unrestricted territorial control over the boundary water within their territory and available legal remedies.

Under the 1961 Columbia water treaty, both USA and Canada adhered to the principle of shared enjoyment and optimum utilization of common waters through international cooperation. They have jointly undertaken comprehensive and integrated regional planning for the development of the Columbia water resources.

In 1948, Austria, originally a supporter of the Harmon Doctrine, settled its water dispute with her neighbors (Bavaria, Czechoslovakia) on the basis of mutual recognition of rights (Abbas 1984). The mutual recognition of rights and accountability of all claimants in their use of common waters is also apparent even in the most extreme common water disputes. Sharing water of the Jordan River evoked a violent dispute between the Arab states and Israel. But both had unilaterally implemented or taken steps to implement schemes to utilize the Jordan River water despite the continuing protest of the other. Though there were some political problems, the parties started negotiations through the good offices of special Ambassador Eric Johnston, an envoy of President Eisenhower. The negotiation failed during the first round, but eventually the parties came to adhere to the position that each is entitled to a reasonable share of the Jordan river water and that they would not interfere with each other's share unilaterally (Lecaros 1963).

In the Rio Lauca River controversy between Chile and Bolivia, Chile the upstream state, did not assert the Harmon Doctrine in an attempt to justify its action. On the contrary, it acknowledged that, Bolivia had certain rights over the Lauca River water (Lecaros 1963).

On the question of the use of international drainage basin water, there exists a persistent pattern of state practice and community expectations of shared control. This pattern is reflected in the recurrence of identical provisions in a significant number of treaties among basin states all over the world. These treaties specify, in one way or other, the freedom of action of the signatory basin states. The multiplicity of these treaties is clear

evidence that basin states have felt an obligation to work on the basis of mutuality and cooperation in the use of their common waters. The number of basin states which are parties to these treaties, their spread both over time and geography, and the fact that, "in these treaties similar problems are resolved in similar ways, make these treaties and negotiations persuasive evidence of law creating international practice" (Islam 1987). The irrefutable exercise of national sovereignty over the Teesta by the basin states would appear to be contradictory to and a deviation from existing international practice.

Some Proposals

Preservation of Rainy-season Water

During the rainy season a huge amount of rainfall occurs at the foot of the Himalayas. Besides, the ice at the peaks begins to melt in summer, causing floods. In the delta region, the river's depth gradually decreases. As a result, any excess of water in the river inundates the adjoining areas and causes a great deal of damage. However, if India and Bangladesh take up a joint program as we have seen in the case of Nile water apportionment, reservoirs can be built at the upstream of the Teesta River in India to store the excessive water during the rainy season and share the stored water during the dry season. Reservoirs can also be built along the riverside within the Bangladesh territory to store the excessive water during floods, for use during the dry season through gravity irrigation.

Integrated Control of Flood Water

Integrated flood management program have to be planned and implemented during the rainy seasons, as well as for the flash floods of summer, to save a huge amounts of crop and wealth from damage. Early forecasting of floods through remote sensing could help. Unilateral initiative by Bangladesh is not likely to work, because of the geographical situation. Most of the floodwater (except rainwater) comes to Bangladesh from the upstream over which she has no control. Therefore, taking into account all related factors—such as rainfall, melting of ice, and barrage control—an integrated and comprehensive flood control program has to be adopted and implemented.

Bilateral Trade and Business

For the betterment of the people of the Teesta River basin area (both in India and Bangladesh), we also recommend the following:

*While planning and policymaking, emphasis must be

placed on an optimal and amicable water sharing and on a suitable trade model.

* Bangladesh should make certain arrangements for Indians, using the Teesta River water (at Dalia or northern districts), to conduct business and trade in the Bangladesh territory.

* Joint ventures (co-project or bilateral agricultural projects) should be encouraged in establishing mills and factories (e.g. rice mills, tobacco husking mills, paper mills, food processing mills) dependent on crops produced in the Teesta region.

* Both Bangladesh and India are third world countries. So, both countries should try to cooperate with each other to achieve socio-economic development, rather than engage in conflict, and waste time and resources.

* Considering the number of affected people in both India (8 million) and Bangladesh (21 million)⁶, we can say that, it would be quite consistent with the principle of justice for Bangladesh to get an equitable share of the Teesta water during dry season.

However, we must remember that “mutual confidence and cooperation” (Smith 1931 p.83) between the leaders of India and Bangladesh is necessary for an economic policy to be implemented properly. Leaders of both sides have to be sincere in their efforts. They must also have an open mind and be ready to accept rational suggestions given by their counterparts.

Conclusion

In a riverine country like Bangladesh, rivers and their landscapes play a dominant role in its very geo-physical existence as well as in her economic development. Hence, further studies of this nature will be helpful to economists, planners and other decision-makers both in private and government sectors, in tackling many of the current problems successfully. As far as we know, no effort has yet been made to carry out additional research on this issue, beyond the feasibility studies for the very purpose of the Teesta Barrage Project conducted by Bangladesh Water Development Board in 1986. Therefore the present study may be considered as a first in this field. We hope to develop a general model for sharing of international rivers in our future research.

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APPENDIX

Figure 1: Yearly maximum and minimum water flow.

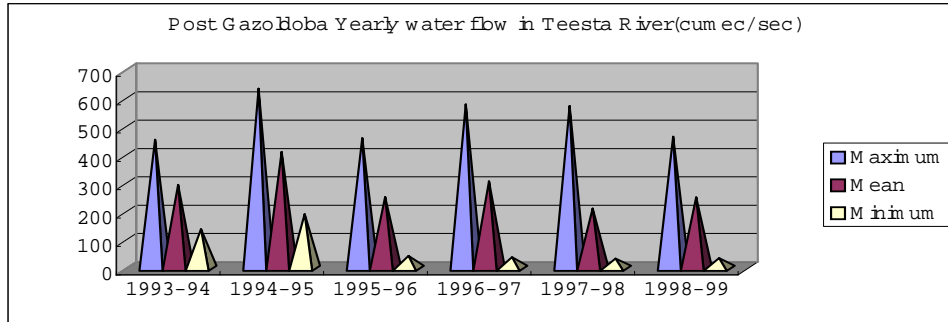


Figure 2: Estimation of Total Production.

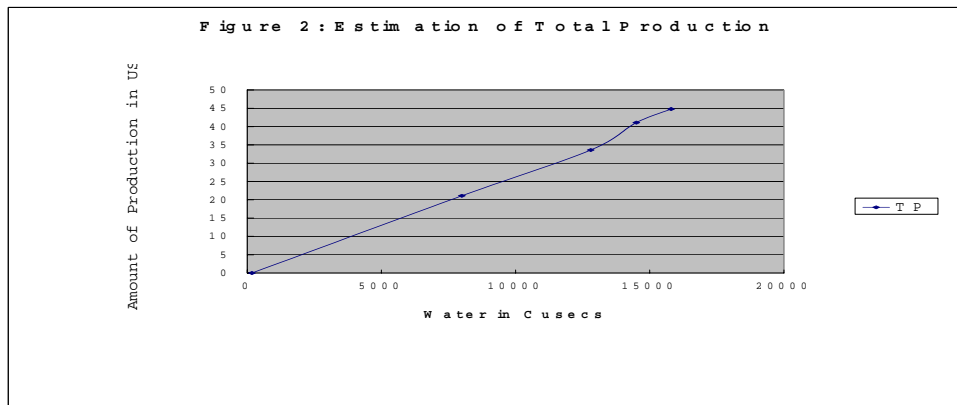


Figure 3: Estimation of Marginal Production

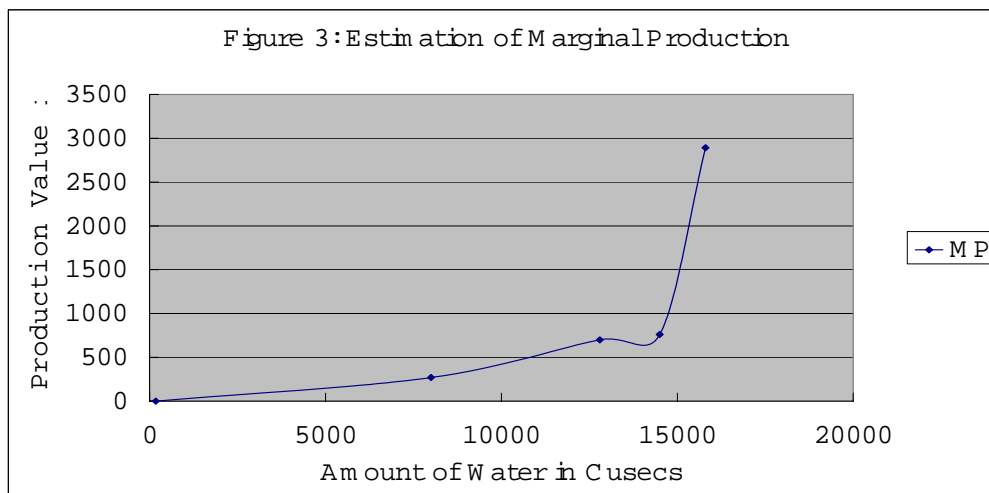


Figure 4: Probable Cases for Optimal Results

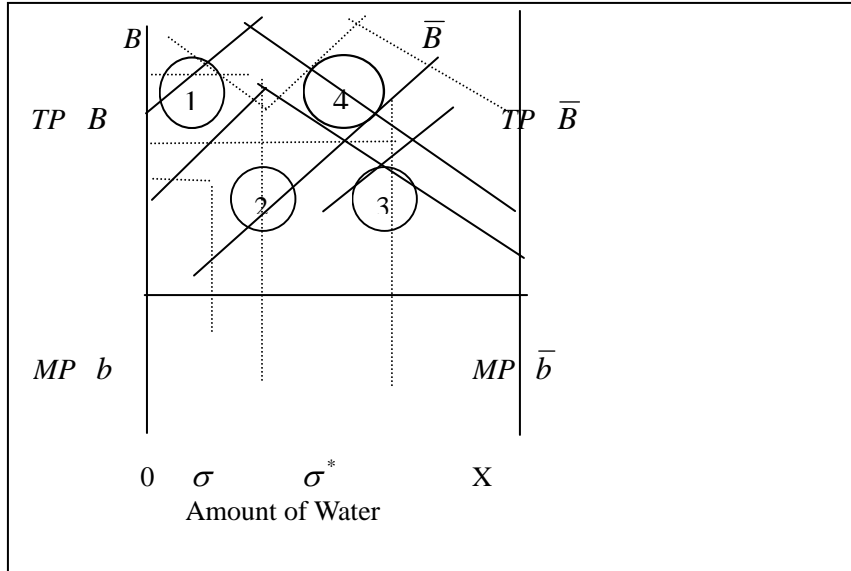


Figure 5: Sharing of Total Flow of the Teesta River Water (in cusecs) India 85%, Bangladesh 15% in Dry Season in 1998.

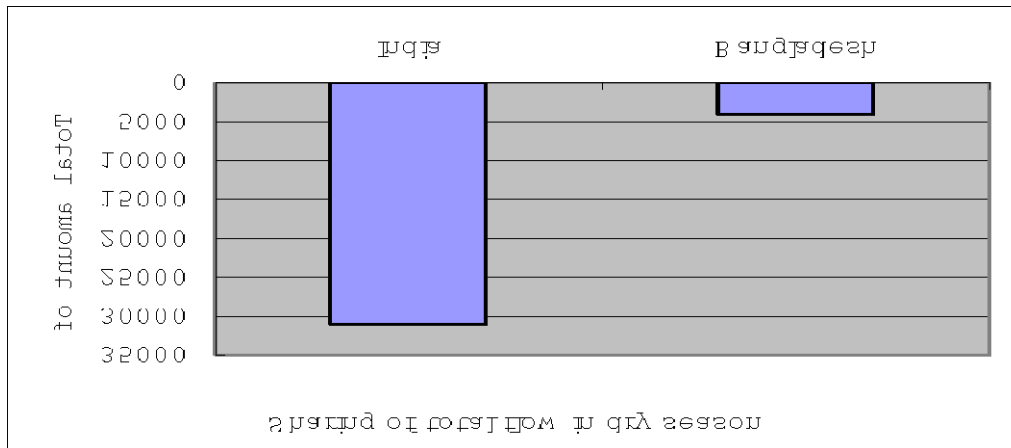


Figure 6: Optimization of Water Sharing between the Two Countries

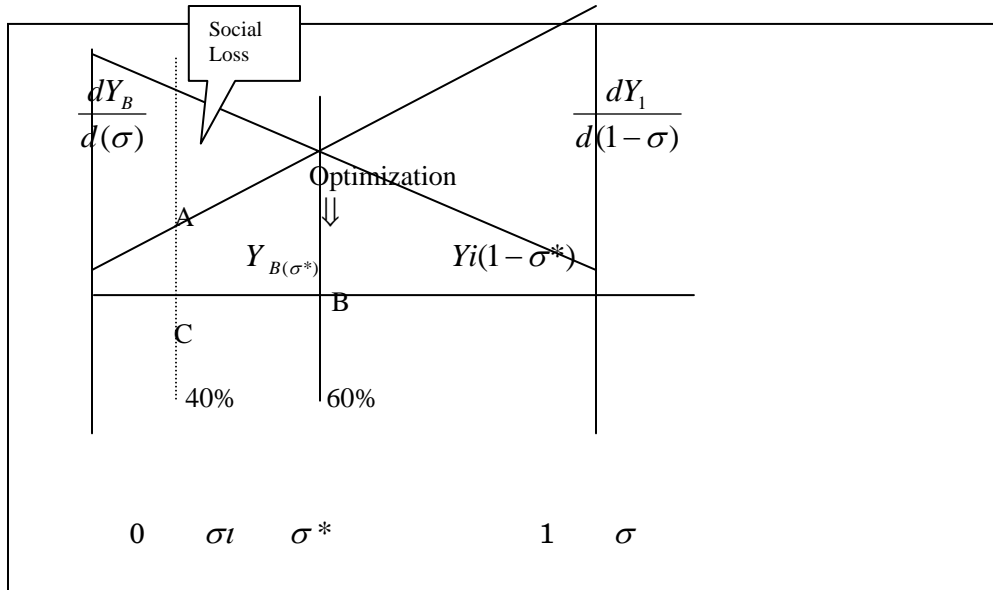


Table-1 The Increasing Trend of Crop Production after Starting the Dalia Barrage Project

Crop	Period-1 Additional land available for crop production ΔL_1 (in hectares, in 1994)	Period-2 Additional land available for crop production ΔL_2 (in hectares, in 1995)	Period-1 Increase in production ΔQ_1 (in tonnes, in 1994)	Period-2 increase in production ΔQ_2 (in tonnes, in 1995)	$\frac{\Delta Q_1}{\Delta L_1}$	$\frac{\Delta Q_2}{\Delta L_2}$	Money value increase in US\$ in Period-2
Paddy(HYV)	92,000	20,000	6,500	48,000	0.07	0.42	8 million
Tobacco	50,000	22,000	1,700	3,000	0.03	0.04	12 million
Wheat	20,000	32,000	1,200	22,000	0.06	0.42	5 million
Potato	10,000	2,000	20,000	32,000	0.5	2.67	0.5 million
Ground Nut	7,000	500	1,220	1,860	0.17	0.24	0.3 million
Sugarcane	7,500	9,100	19,000	47,000	2.5	2.83	0.8 million

Table-2 Total and Marginal Production

Crop (marginal production) $\frac{\partial X}{\partial W}$ in tonnes and its money value											
Use of water in Cusecs	C ₁ (paddy)		C ₂ (wheat)		C ₃ (tobacco)		C ₄ (potato)		C ₅ Others		US\$ Value in million
	total	marginal	total	marginal	total	marginal	total	marginal	total	marginal	
176	0	0	0	0	0	0	0	0	0	0	0
8,000	5,800	967	1,800	300	1,700	283	26,000	4,333	26,550	4,425	21
12,800	6,500	350	1,700	-50	2,000	150	20,000	-3,000	20220	-3,165	33
14,500	48,000	2,964	3,000	93	3,000	71	32,000	429	48,860	2,045	41
14,800	53,000	5,000	3,800	800	3,500	500	40,000	8,000	53,000	4,140	44
										Total	139

Endnotes

¹ Under British colonial rule, present India, Pakistan and Bangladesh were recognized as greater India. At the end of the British period (1947), partition of Greater India took place, creating two independent countries-India and Pakistan. At that time, the area of present Bangladesh fell under Pakistan-being termed as East Pakistan. In 1971, Bangladesh became independent through winning the liberation war from Pakistan.

² Dalia-the name of the barrage on the Teesta river in Bangladesh

³ The Daily Ittefaq, January 13,1998 and March 23 1999; , & The Daily Star February 21, 1998

⁴ The Daily Ittefaq, January 13, 1998, Dhaka

⁵ UN Legislative Series, 1963 UN Doc. ST/LG SEER/B12

⁶ According to Bangladesh Bureau of Statistics (BBS) & Internet.:
<http://php.indiana.edu/~mduttara/wb/wb.html>

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